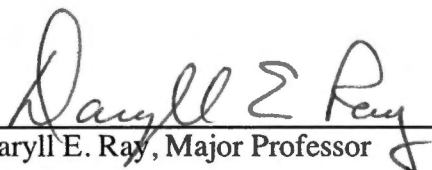
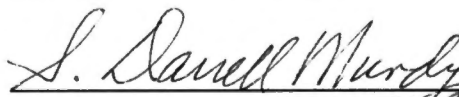
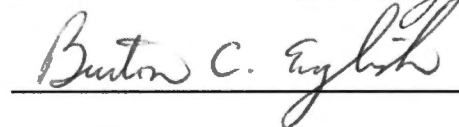


To the Graduate Council:

I am submitting herewith a thesis written by Stephen Paul Slinsky entitled "The Adoption of Sustainable Agriculture in West Tennessee Under the Federal Agriculture Improvement and Reform Act of 1996: Economic and Environmental Implications." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.


Darryl E. Ray, Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:


Associate Vice Chancellor
and Dean of the Graduate School

**THE ADOPTION OF SUSTAINABLE AGRICULTURE IN WEST
TENNESSEE UNDER THE FEDERAL AGRICULTURE IMPROVEMENT
AND REFORM ACT OF 1996: ECONOMIC AND ENVIRONMENTAL
IMPLICATIONS**

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Stephen Paul Slinsky

December, 1996

AD-VET-MED.

Thesis

96

.S546

DEDICATION

I would like to dedicate this thesis to my
loving wife, Michelle, and
my parents, Mr. and Mrs. Alexander J. Slinsky.
Their love, support and encouragement
made this goal attainable.

ABSTRACT

West Tennessee has accrued some of the nation's highest annual soil losses (per acre) due to soil erosion (United States Department of Agriculture, 1994). In 1995, more than two-thirds of the acreage planted to crops in Tennessee employed some type of conservation tillage (Tennessee Agricultural Statistics Service, 1995). This level of conservation tillage is more than a twenty percent increase in acreage that used some type of conservation tillage in 1990 (Tennessee Agricultural Statistics Service, 1995).

While erosion is the predominant environmental issue facing West Tennessee, other negative environmental externalities from agricultural production exist. Externalities like the contamination of groundwater through leaching may not be addressed by conservation tillage practices alone. One method of reducing the environmental impacts of agricultural production from current levels while maintaining the economic viability of farmers may be through the adoption of a site-specific set of alternative production practices.

This analysis estimates how the adoption of alternative practices by West Tennessee farmers may be affected by two markedly different farm policies. These estimates are used to test the hypothesis that decoupling commodity programs from production decisions encourages the adoption of more sustainable practices. This analysis simultaneously tests the hypothesis that a holistic approach to farm management results in a more economically and environmentally sustainable farm.

These estimates are accomplished by comparing the optimal solutions of a mathematical programming model of a West Tennessee representative farm. These solutions portray the farm-level economic and environmental impacts of adding alternative production practices to a set of initial practices under two farm policy regimes: the Food, Agriculture, Conservation and Trade Act of 1990 (FACTA) and the Federal Agricultural Improvement and Reform Act of 1996 (FAIR).

The results for this representative farm suggest that the base acreage requirements of FACTA form barriers to the adoption of alternative practices. Twenty percent more cropland is allotted to alternative production practices under FAIR provisions than FACTA provisions when annual erosion is held to less than or equal to 10 tons per acre. Thus, decoupling commodity programs from production decisions encourages the adoption of more sustainable practices. These results also suggest that soybeans and wheat acreage rather than corn will replace cotton acreage. The availability of alternative practices, which prompt a shift away from cotton production may not be entirely detrimental to the well-being of West Tennessee farmers or society.

By comparing economic and environmental results of the scenarios at different erosion constraints, the holistic approach to farm management results in a more economically and environmentally sustainable farm. As a larger set of alternative/sustainable practices occur in the FAIR solution, the economic and environmental parameters improved on the whole compared with the FACTA solution. Thus, under the conditions set forth in this analysis, a holistic approach to farm management does indeed result in a more economically and environmentally sustainable farm.

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CHAPTER 1

INTRODUCTION

Since World War II agricultural production practices in the United States have become highly mechanized and reliant on the use of nitrogen fertilizers and synthetic pesticides. Along with having ample natural resources available, advancements in production techniques have allowed the United States to produce one of the cheapest and most plentiful food supplies in the world. However, these accomplishments have occurred at the expense of the nation's soil productivity and water quality; hence, a growing part of general public sees farmers and agriculture as an environmental hazard.

Such environmental consequences are chronic concerns for the general public, farmers, policy makers, and agricultural researchers. These concerns have surfaced in a movement toward sustainability. As a paradigm, sustainability calls for an agriculture that selects farming practices, methods, and rotations which accommodate and complement the natural environment in which they are carried out while allowing farmers to generate profits (Ikerd, 1991). Although many practices with the potential to be part of sustainable farming systems have been developed and some farmers currently use some of these alternative practices, the adoption of sustainable practices has been uneven and relatively slow (Ray, 1996).

BACKGROUND

Evolution of U. S. Agriculture

Early United States agriculture was, in essence, a mining process. When natural resources were “farmed out”, farmers moved on to new frontiers, leaving the spent land to be restored by nature. These early phases of agriculture have been characterized more as resource exploitation rather than resource development (O’Brien, 1996). Environmental problems such as erosion were noted in Thomas Jefferson’s time, but it was not until the 1930s that soil conservation entered into U.S. agricultural policy.

Federal farm price and income supports also had their origin in the Great Depression of the 1930s, and they, until recently, have been an integral part of the U.S. agricultural complex. However, it was not until the mid-1980s that conservation became formally linked to production decisions through federal commodity programs. Government support programs diminished much of the price instability in agricultural commodities and, thus, reduced much of the financial riskiness inherent in farming for centuries. Reduced risk made farm production planning easier and more rational, as well as contributed to the flow of capital into farming and the adoption of new and improved production technologies.

Once farm management specialists exhorted on-farm diversification of production to avoid the risk of heavy losses from a poor crop or low market prices in a particular commodity. However, with increases in production efficiency and federally supported and stabilized prices, farmers in some production regions began to specialize more and more in one or two crops or a single livestock enterprise. This trend was accentuated by the high commodity prices of the mid-1970s and early 1980s. High crop prices sparked by

increased global demand and the elimination of buffer stocks, prompted a rapid expansion of specialized agriculture. Farmers pulled up fence rows to plant from property line to property line and further increased their reliance on mechanization, synthetic chemical inputs, and specialization.

While U.S. agriculture is generally considered one of the most advanced and productive, mounting evidence shows that negative environmental externalities of industrialized agriculture are being imposed on society. These externalities are evident through soil erosion, chemical pollutants in nonpoint source runoff, and reduced soil productivity. Sustainable agriculture emerged as a concept through which these negative environmental externalities could be addressed while allowing farmers to pursue profits.

Barriers to Sustainable Agriculture

Today's agriculture is somewhat specialized and relies heavily on synthetic inputs. Though farmers traditionally view themselves as stewards of the land, adoption of resource conserving production practices is not pervasive. Several attributes of today's agriculture can be identified that can help explain this phenomenon. In many cases, the social costs of environmental externalities resulting from agricultural production are not considered when making production decisions. Social costs, such as productivity losses due to soil erosion, may be masked by the use of synthetic inputs. In addition to unaccounted costs, many have claimed that federal commodity programs created distortions in the agricultural sector which promoted the reliance on synthetic inputs while discouraging the adoption of sustainable practices (Faeth et al., 1991; Denton, 1994; Orazen and Miranowski, 1994; Duffy and Chase, 1989; Abler and Shortle, 1995; Braden et al., 1991; Williams et al., 1990a).

Recent Farm Legislation

The Food Security Act of 1985 (FSA) provided for major changes in farm legislation by considering broad social goals as well as those arising from the farm sector (Alexander, 1991). Soil and water conservation issues were addressed through specific programs: the Agricultural Conservation Program, the Conservation Reserve Program (CRP), the Conservation Compliance Provision, the Swamp Busters Provision, and the Sod Busters Provision. These programs were continued or expanded in the Food, Agriculture, Conservation and Trade Act of 1990 (FACTA).

Conservation Compliance is the most sweeping of the conservation provisions. It was enacted, in part, to reduce sediment that pollutes surface waters (North Carolina Agricultural Extension Service, 1982) and losses in soil productivity (Hoag et al., 1986) caused by soil erosion. This provision discourages production on highly erodible cropland by requiring farm operators to develop an annual conservation cropping plan for fields where more than one-third of the cropland is highly erodible. Farm operators are required to comply with these conservation plans in order to receive federal commodity program benefits. While retaining the Conservation Compliance provision, FACTA provided for the reduction of payment acres, introduction of planting flexibility, and maintenance of market-oriented loan rates.

The Food Agriculture Improvement and Reform Act of 1996

Governmental support programs established in the 1930s and modified more than a dozen times since have been called anachronistic (O'Brien, 1996). The programs were costly, the long-run income results debatable, and claimed to have created market and

resource allocation distortions in the agricultural sector. Because government programs, through price supports and base acreage requirements, fostered certain highly-profitable, input-intensive commodities, these distortions were said to have promoted the reliance on synthetic inputs while discouraging the adoption of sustainable practices (Faeth et al., 1991; Denton, 1994; Orazen and Miranowski, 1994; Abler and Shortle, 1995; Braden et al., 1991; Williams et al., 1990a). As the debate for the 1995 farm bill started, the whole agricultural policy subject became controversial.

Largely due to public concern over the growing federal debt, the legislative process which occurred was overwhelmingly budget-driven. In order to reduce farm programs' contribution to federal debt, there was a significant push to move farm policy toward less government intervention. This budget-induced, laissez-faire environment led to the decoupling of federal income support programs from agricultural production decisions. However, most reformists realized that a transitional period to a market-oriented agriculture was needed and a residual role remained for public institutions. After more than a year of proposals, the most reformist farm bill since the 1930s was signed into law in 1996 (O'Brien, 1996).

The Federal Agriculture Improvement and Reform Act of 1996 (FAIR) calls for a radical disengagement of federal regulations from farm-level decisions, as well as the decoupling of government payments from production. The base acreage requirements of FACTA were eliminated. Eligible farmers had a choice of entering into a seven-year production flexibility contract. Program enrollees who continue to meet conservation compliance as defined in the 1990 act would receive government payments.

PROBLEM AND PROBLEM STATEMENT

West Tennessee has been faced with a major erosion problem and a high potential for nonpoint source pollution largely resulting from highly erodible soils and extensive clean-tilled, row crop production (Larson et al., 1987). In a 95,450-acre southwest Tennessee watershed alone, excessive soil erosion occurs on approximately one-third of the upland acres with this cropland accounting for nearly all of the total erosion problem (United States Department of Agriculture, 1991c). Although there is limited soil erosion in bottomland areas of the watershed, additional sediment, nutrients, and pesticides are carried from these areas to streams by runoff from upland areas (United States Department of Agriculture, 1991c). West Tennessee has accrued some of the nation's highest annual soil losses (per acre) (United States Department of Agriculture, 1994).

An ideal goal for agriculture is the total elimination of all negative environmental externalities from agricultural production. However, this is not likely to happen because of the extraordinary cost that would entail. While total elimination is not a reasonable goal, it is possible to minimize pollution due to agricultural production. This reduction of environmental externalities will have opportunity costs, thus at some point there exists a tradeoff between the economic viability of farmers and reduced environmental degradation.

The conservation titles of the 1985 and 1990 farm acts were designed to encourage farmers to use less-erosive production practices. In 1995, more than two-thirds of the planted acreage in Tennessee employed some type of conservation tillage (Tennessee Agricultural Statistics Service, 1995). This is more than a twenty-percent increase in acreage that used some type of conservation tillage in 1990 (Tennessee Agricultural Statistics Service, 1995). While erosion is the most predominant environmental issue facing West Tennessee, other negative environmental externalities from agricultural

production exist. Externalities, like the contamination of groundwater through leaching, may not be addressed by conservation tillage practices alone.

One method of reducing the environmental impacts of agricultural production from current levels while maintaining the economic viability of farmers may be through the adoption of a holistic approach to farm resource management. This holistic approach requires the adoption of a site-specific set of sustainable production practices. To be considered sustainable, such a set of production practices, while not completely eliminating any particular externality, must reduce environmental impacts of production on the whole while promoting economic viability.

Individuals have been critical of conservation provisions under the 1985 and 1990 acts and have argued that reforms to the commodity programs may eliminate distortions in the agricultural sector which discourage the adoption of sustainable practices (Faeth et al., 1991; Denton, 1994; Orazen and Miranowski, 1994; Poe et al., 1991; Abler and Shortle, 1995; Braden et al., 1991; Williams et al., 1990a; Young, 1988). In order to reduce the financial burden on the federal government, commodity programs were decoupled from production under the 1996 act, and as a positive externality of the policy reform, the adoption of more sustainable practices is expected to increase (Abler and Shortle, 1995; Braden et al., 1991; Dobbs et al., 1991; Orazen and Miranowski, 1994; Smolik et al., 1993; Williams et al., 1990a). Thus, the reforms may increase soil fertility and decrease negative environmental externalities. Given West Tennessee's erosion problem, the estimation of how the new farm bill may affect the financial and environmental indicators of West Tennessee agriculture is important.

REPRESENTATIVE FARM

The Beaver Creek Watershed – located in Fayette, Haywood, Shelby, and Tipton counties in Southwestern Tennessee – was selected for this study. This watershed discharges into the Loosahatchie River, and the Loosahatchie River empties into the Mississippi River north of Memphis (United States Department of Agriculture, 1991a). There are approximately 450 farms in the watershed, and agriculture is the area's primary industry. A project in Beaver Creek Watershed is under way to identify ways to improve or protect water quality by reducing potential pollutants (United States Department of Agriculture, 1991b). A personal interview survey of farmers in this watershed provided parameters for a representative farm (Bowling, 1994). Sixty farmers were asked about their resource endowments, tillage and crop production practices, and contact with government agencies. According to the survey, the watershed's major crops are cotton, soybeans, and small grains, with some corn being produced. Row crop production is the major farm enterprise although there are cattle and swine operations within the watershed (United States Department of Agriculture, 1991a).

The representative farm developed from the survey is comprised of 300 owned acres and 900 rented acres for a total of 1200 acres (Bowling, 1994). Of the 1,200 acres in production, 800 acres are base acreage. The farm has 550 acres cotton base, 150 acres sorghum base, and 100 acres wheat base. While well-suited for agricultural production, the soils of the watershed are highly erodible. Two dominant soil types have been identified for the representative farm: Loring, comprising 612 acres (153 owned, 459 rented); and Routon, comprising 588 acres (147 owned, 441 rented). Each soil type is further separated into four Erodibility Index (EI) categories. The EI reflects the erosive potential of the soil. The resulting eight soil groups are treated as separate soils. The crops

which represent the initial situation on the representative farm include continuous cotton, continuous soybeans, continuous grain sorghum, and soybean–wheat double–crop.

OBJECTIVES

The primary objective of this analysis is to test the hypotheses that decoupling commodity programs from production decisions will encourage the adoption of more sustainable practices on a representative West Tennessee cotton farm. This objective will be accomplished by comparing the optimal solutions of a mathematical programming model of this representative farm. These solutions portray the farm-level economic and environmental impacts of adding alternative production practices to a set of initial practices under two farm policy regimes: the FACTA and the FAIR. The research hypothesis will be accepted if a larger set of alternative/sustainable practices occur in the solution as a result of the institution of the 1996 farm bill provisions.

A secondary objective of this analysis is to test the hypotheses that a holistic approach to farm management results in a more economically and environmentally sustainable farm. The hypothesis will be accepted if, when a larger set of alternative/sustainable practices occur in the solution, the economic and environmental parameters improve. The economic impacts that will be analyzed in this study include changes in resource allocation and net revenue at the farm level. While changes in levels of soil erosion will be most important for West Tennessee, the analysis will track and compare other environmental variables. The other environmental variables will include:

- 1) Total nitrogen moving off the farm (lbs /acre)
- 2) Total phosphorus moving off the farm (lbs /acre)
- 3) An index of risk due to chemicals

4) Percent of organic matter in the soil

These environmental indicators will allow an assessment of the ability of the set of crops and production practices chosen by an optimization model under the 1996 act provisions to conserve natural resources.

CHAPTER 2

LITERATURE REVIEW

This literature review is broken down into four distinct topics which are important to addressing the adoption of more sustainable farm practices under the alternative policy regimes. In the first section, the major environmental problems of erosion and water quality are defined, and the results of studies related to this analysis are presented in order to set a foundation for this study. In the second, sustainable agriculture is defined, and relevant research in this area is presented. The third section presents research that addresses an issue which closely resembles the research problem to be analyzed in this study. The final section reviews literature which defines and analyzes the impacts of various alternative practices designed to address the barriers to sustainability which previously have been discussed.

ENVIRONMENTAL PROBLEMS

Erosion

Erosion can be defined as the wearing away of the soil by water, wind, and other forces (United States Department of Agriculture, 1987b). Erosion has been called the greatest threat to the nation's soil productivity and the largest source of pollution in our waterways (United States Department of Agriculture, 1987b). Surveys by the U.S. Department of Agriculture (USDA) show that our nation's lands are eroding at substantial

rates—more than six billion tons per year (Clarke et al., 1985). As soil erodes runoff carries with it such pollutants as fertilizer residues, insecticides, herbicides, fungicides, and animal waste; in excess, these pollutants degrade water quality (Batie, 1983). Water has been identified as the cause of about two-thirds of the erosion on our agricultural land, and the cost of erosion-related pollutants has been estimated at \$6.1 billion per year, with cropland's share being \$2.2 billion (Clarke et al., 1985).

Research into the economics of erosion suggests that the traditional commodity program structure has direct and indirect effects on erosion-control decisions at the farm level (Batie, 1987; Osteen, 1985; Hyberg, 1988). Osteen (1985) concludes that commodity programs are a direct incentive for farms to erode the soil by targeting erosive row crops. There have been many attempts at the federal level to develop programs which address the erosion problem, but the Conservation Compliance provision of the FSA was the first time that Congress linked the use of soil- and water-conservation practices directly with eligibility for other agricultural programs.

The FSA's Conservation Compliance provisions stipulated that anyone producing an agricultural commodity on highly erodible soils could not receive USDA farm program benefits unless they developed a conservation plan by 1990 and fully implemented it by 1995. These conservation plans were to reduce the level of soil erosion to a tolerable level. Tolerable (T) levels were established to represent the erosion level thought to maintain cropland productivity.

Barbarika and Dicks (1988) estimated that reducing erosion to soil loss tolerance level on about 46 million highly erodible cropland acres would cost an average of \$15 per acre annually. Conclusions of Hoag and Holloway (1991) found that profitability of conservation compliance on individual farms was strongly affected by the amount of acreage enrolled in government programs and yields obtained on those lands. Bowling (1994) examined the impact of Conservation Compliance on a Beaver Creek Watershed

representative farm in Tennessee. Bowling found that the implementation of Alternative Conservation Systems would allow farm operators to reduce erosion on the representative farm substantially, and at the same time be cost effective.

Water Quality

Without dispute, mechanized agriculture and its reliance on synthetic chemical inputs result in diminished water quality. Agricultural activities contribute nearly 3 billion tons of sediment and more than 9.5 million tons of nutrients every year to the surface waters of the United States (Bailey and Wadell, 1979). The U.S. Environmental Protection Agency (USEPA) (1994) found that runoff and leaching of nitrogen fertilizer alone is a leading cause of water quality impairment in rivers, lakes, and estuaries.

A simple dynamic model of farmer acreage allocation decisions was created by Orazen and Miranowski (1994). This model showed that government price support policies remove incentives for farmers to take future soil productivity effects into account in making current cropping decisions. Braden et al. (1991) concluded that agricultural policies favoring the cultivation of fewer crops may hamper efforts to attain high water qualities in some areas, and a Natural Research Council (1989) publication suggests that cutbacks in agricultural price and income supports could also do much to reduce the derived demand for chemical inputs and thus agricultural pollution. Using 1984 subsidy levels as the base, Anderson et al. (1989) similarly conclude that a nine-percent drop in total chemical input usage would occur for program crops in the long run if farm programs were eliminated. For non-program crops, the authors estimated a two-percent drop in chemical input usage.

SUSTAINABLE AGRICULTURE

Definition

The FSA and the FACTA provided tremendous income support for U.S. farmers and helped pull agriculture out of the worst depression in more than 50 years (Duffy and Chase, 1989). However, Duffy and Chase (1989) find that features of the commodity programs under these acts are inconsistent with environmental concerns. The authors concluded that the structure of these acts rewards the production of some crops which are in excess supply and have the most intense fertilizer use.

Increased awareness and concern for environmental quality in recent years has increased pressure on farmers to develop and utilize methods to minimize the environmental impact of their production activities (Pierce et al.). This pressure has resulted in the development of new ways of thinking about agriculture, as captured in the terms *alternative*, *low-input*, and *sustainable* agriculture. In this study, these terms are considered to be interchangeable.

The first insight into modern agricultural sustainability perhaps is provided by J. I. Rodale. Rodale was a self-proclaimed organoculturalist, and his philosophy can be best described by the *Organoculturalist's Creed* (Rodale, 1950). This creed states the organoculturalists' commitment to treating the soil as a living, breathing entity and their staunch opposition to artificial or chemical substance use. Only the use of crop rotations and fallowing, compost, and other natural substances were considered acceptable in the maintenance of soil fertility. Like many of the forerunners of sustainable agriculture, Rodale failed to incorporate farm profitability into his definition.

Ikerd (1991) suggests that sustainable agriculture differs from existing agriculture “more in farming philosophy than of farming practices or methods.” To follow such a philosophy, farmers will select farming practices, methods, and enterprises which “accommodate and complement the natural environment in which they are carried out.” He further states, “Systems that fail to protect their environment lose their usefulness to society. If in the process of producing the people’s food, we poison their water, what good have we done? Systems that fail to generate the profits necessary for financial survival of farmers are not economically sustainable. Sustainable agriculture requires a holistic approach to farm resource management...” in order to “...address the environmental, economic and social challenges of the post-industrial era of agricultural sustainability.”

There have been and remain numerous definitions for sustainable agriculture. Despite the differences, most attempts at defining the concept have as common elements (1) conserving natural resources; (2) minimizing environmental damage; (3) providing adequate farm profits; and (4) optimizing production with a low level of pesticides, fertilizer, and other synthetic inputs (National Research Council, 1989). For the purpose of this study, the definition of sustainable agriculture found in Section 1603, paragraph (17) of the FACTA will be used. This bill (United States Congress, 1990) defines sustainable agriculture as an integrated system of plant and animal production practices having a site-specific application that will, over the long-term, satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends; make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm operations; and enhance the quality of life for farmers and society as a whole.

Alternative Practices

Sustainable production practices are site-specific production practices that have the ability to reduce environmental externalities while allowing the farmer to generate a profit. Using these practices alone, or in a set, farm operators can reduce soil productivity losses and potential ground and surface water quality problems (Voss and Shrader, 1988). The main techniques for accomplishing this goal are cover and green manure crops, crop rotations, nutrient management, integrated pest management, conservation tillage, other erosion-reduction practices, and alternative crops such as biomass.

Cover Crops

Legumes were an important component of crop rotations in the southern United States before World War II (Hoyt and Hargrove, 1986). Winter cover crops, usually legumes, were grown primarily to maintain productivity by providing nitrogen to the subsequent crop. However, cheap manufactured nitrogen fertilizers became increasingly available during the 1945 to 1950 era due to the conversion of World War II munitions plants to nitrogen fertilizers plants (Keisling et al., 1990). Recent studies suggest that profit maximization is the most important individual factor influencing change in agricultural practices (Contant and Young, 1990; Lasley et al., 1990). Because cover and green manure crops have costs associated with them as well as benefits, farmers must compare the costs of cover and green manure crops with the costs of manufactured nitrogen fertilizers. The benefits derived from cover crops vary with the plant used, how successful establishment is, and how the crop is managed. According to Hoyt and Hargrove (1986) and Burch (1993), leguminous winter cover crops reduce soil erosion, improve productivity, and provide nitrogen. Burch shows that cotton yields improve in fields

where cover crops are employed annually. Even though cover crops can be disposed of easily with currently available equipment or herbicides and have been shown to benefit productivity, few producers utilize them.

Crop Rotations

The diversification of production through crop rotations once was a common farm management practice. Batie (1987) attributes the reduction in rotation usage and the increase in the size of farms to base acreage requirements and price supports of the commodity programs. Rotations helped to replenish soil nutrients naturally while reducing risk of heavy financial losses due to a poor crop or low market prices in a particular commodity. Burch (1993), stated that cotton yields can be increased by 10 percent or more by rotating cotton fields with other crops. Yet, little rotations of cotton with other crops is practiced. In crop-rotation studies by Hovland et al. (1964), the application of barnyard manure and retention of crop residues increased small grain yields. A more recent review (Stanhill, 1990) comparing the productivity of organic and conventional systems over a wide range of environments indicated that yields in organic systems were higher in some instances and, on the average were within 10% of those obtained in conventional systems.

Legg and Meisinger (1982) find that rotations including legumes and grasses can increase soil organic matter or maintain organic matter at higher levels than row crops. Legumes have the added advantage of needing little or no nitrogen inputs and of providing nitrogen for subsequent crops. Despite these benefits, their use in rotations is not widespread. An Ohio study (Diallo et al., 1990) finds that profitability does not significantly improve with the introduction of legumes in rotations.

Nutrient Management

Fertilization is essential for the profitable production of most crops. It also is a major cost of production and can contribute to the degradation of the environment. In the past, farmers have not had the means to properly monitor the soil routinely for nutrients. In addition, the nutrient value of manure applied to fields often was not taken into account before applying commercial fertilizers. As a result, Legg and Meisinger (1982) estimated that only about 30 to 70 percent of nitrogen (N) fertilizer used in U.S. agriculture is recovered in crops; the remainder escapes into the environment. The magnitude of this nutrient loss can be realized when one realizes that total nitrogen use has more than quadrupled – from 2.7 million tons in 1960 to 11.5 million tons in 1985 (United States Department of Agriculture, 1987a).

Not only is nutrient management important in the reduction of nitrate leaching, but Callaway (1992) suggests that the levels of plant-available N can influence weed populations. Smolik et al. (1993) hypothesized that the variability in nitrate-N observed in alternative systems may be part of the “rotation-effect” that enhances the ability of these systems to maintain adequate levels of weed control without the use of herbicides. In alternative systems, Smolik et al. (1993) finds that weeds are at a comparative disadvantage because of the sequence of crops relative to high level of plant-available N.

Integrated Pest Management

During the past 50 years, farmers have intensified their use of chemicals as they shifted to single-crop operations (Papendick, 1987). The goal of integrated pest management (IPM) is to reverse this trend by developing ecologically sound, economically viable programs that provide farmers with clear guidelines for making pest-control decisions. In IPM programs, treatments to suppress a pest population are not made according to a predetermined calendar schedule. They are made only when and where

monitoring has indicated that the pest will cause unacceptable economic damage or pose a threat to human or livestock health. Treatments are chosen and timed to be most effective and least disruptive to beneficial organisms. An economic threshold is used to coordinate the timing of treatment. An economic threshold level is defined as the density at which control measures should be applied to prevent an increasing pest population from reaching economic injury level. An economic injury level is the pest density that can be tolerated without significant crop loss (Metcalf and Luckmannn, 1982).

One of the first steps in reducing pesticide costs is field scouting. Scouting is a monitoring and record-collecting process in which the physical count and identification of pests is obtained from the field. Records of pests populations can provide an index of how important they might be next year, and whether control is justified. Because of the site-specific nature of pest problems, scouting is necessary for the development of IPM programs at the farm level.

The development and adoption of alternative forms of pest control is an important role in a farm's IPM program. Banding a herbicide by applying a narrow strip of chemical directly over the row, coupled with cultivation between rows, can provide excellent weed control at low costs (Johnson, 1985). Herbicide expenditures may be cut be as much as two-thirds by this approach alone, and chemical use can be reduced by one half to two-thirds, depending on row spacing and the cultivation tools used (Johnson, 1985; and Rhodes, 1993). Use of a rotary hoe once or twice, followed by several cultivations, is another method of weed control that can be used, and it is considered as less expensive and more environmentally benign.

Tillage Systems

The extensive use of tillage has several notable advantages (Baver et al., 1973). Tillage reduces the overwintering of insects and disease by burying crop residue while

aiding in the control of weeds. Tillage also benefits the soil by increasing aeration and infiltration. However, extensive tillage over long periods reduces soil productivity through compaction and the reduction of organic matter (Bouma and Hole, 1971; Scott et al., 1983 and 1986). On-farm selection of tillage systems plays an important role in conservation policy (Klemme, 1985), and researchers have projected that over 90 percent of U.S. cropland will be under conservation tillage by the end of this century (Croson, 1981).

Conservation tillage systems, including no-till, reduce the potential for soil erosion and soil moisture loss (Williams et al., 1990a). No-till has been widely encouraged in Tennessee. Environmentally, no-till appears sound with respect to erosion and sedimentation (Williams et al., 1990a). In a field study analyzing the effects of residue cover in conventional and no-till systems, Kenimer et al. (1987) indicate that no-till provides a means for reducing soil, runoff and pesticide losses, thereby reducing potential nonpoint source pollution from agricultural lands. No-till reduces sediment loss and total runoff volume by 98 percent and 92 percent, respectively, compared to conventional tillage (Kenimer et al., 1987).

However, Braden et al. (1991) explains that the consequences for water quality may be perverse. Reductions in soil erosion may come at a cost to water quality. No-till usually involves the greater use of pesticides, and these pesticides are not as fully incorporated into the soil as with intensive tillage. This nonincorporation means that less water will move more chemicals, and these conditions may leave larger concentrations of pesticides available for pollution of surface- and ground-water. Improved weed control methods in no-till planting could improve no-till's relative attractiveness as a sustainable practice and reduce per acre chemical costs between \$6 and \$8. Future research and implementation of practices that increase yields of reduced tillage methods and reduce their

associated production costs likely will serve as the catalyst for future adoption of reduced tillage methods (Klemme, 1985).

According to Burch (1993), there is still a place in tomorrow's agriculture for deep tillage. While deep plowing has not been shown to increase yields in all soils, it increases yields in soils with restrictive layers which impede root growth. Burch finds that reduced tillage will more likely improve cotton yields on clay soil while yields on sandy or silt soils are less affected. Producers may be tending to do less deep plowing in some areas where this practice is known to be economically beneficial. Resumption of the practice in areas where this practice is beneficial can improve yield potential.

Farm-level comparisons of conservation and conventional tillage systems typically involve trade-offs between lower machinery-related costs and higher chemical and fertilizer costs (Jolly et al., 1982; Epplin et al., 1982; Klemme, 1985). These studies conclude that the farm-level economic feasibility of reduced-tillage systems depends in large part on managerial skills necessary to obtain yield levels equal to those from established, conventional systems. While conservation tillage is slowly gaining acceptance among farmers, Williams et al. (1990a) suggest that commodity programs do not encourage the usage of conservation tillage.

Contour Farming

Contour farming may be defined as the farming of sloping land across the slope so that the contour is followed (United States Department of Agriculture, 1991b). The purpose of contour farming is to reduce erosion and to control the downhill flow of runoff water. Sediment losses can be reduced by slowing the flow of water and allowing increased infiltration. The use of contouring is declining as equipment becomes larger, and more acreage are being farmed by each operator. This decline is due to the additional time requirements compared to straight-row farming (Moldenhauer, 1987).

Vegetative Filter Strips

Vegetative filter strips are bands of planted or indigenous vegetation which are used in two ways. Filter strips may be situated downslope of a field to provide localized erosion protection and to filter nutrients, sediment, and other pollutants from agricultural runoff (Dillaha et al., 1989). Strips also may simulate earthen terraces spatially and functionally by reducing field slope length and slowing down the flow of runoff (Dabney, 1993).

Dillaha (1989) reports that vegetative filter strips established downslope of cropland are unlikely to be effective in removing sediment and nutrient run-off from cropland. However, Dabney (1993) finds that when dense grasses such as switchgrass are utilized, filter strips are quite effective at reducing the runoff's rate of flow and allowing sediment carried by water to be deposited before leaving the field. At maturity, these filter strips were shown to provide erosion control equivalent to earthen terraces (Dabney, 1993), and they have low installation and maintenance costs (Dillaha et al., 1989).

Stripcropping

Stripcropping is the growing of crops using a systematic arrangement of strips or bands across the slope or near the contour (United States Department of Agriculture, 1991b). Cruse et al. (1992) find that under good weather, the narrow-strip cropping system appears to offer greater economic returns than its conventional counterpart. Unlike alternative systems which simply provide environmental and not economic benefits, this practice may be more likely to be adopted by farmers because of the potential for greater profit. However, personal preferences along with additional labor and machine costs associated with stripcropping may keep adoption rates relatively low.

Terraces

Terraces are earthen embankments constructed across the slope of a field. The purpose of a terrace is to break the length of a long slope into shorter lengths, each terrace collecting and controlling the excess water from a definite slope above it (United States Department of Agriculture, 1991b). Soil-loss levels often can be reduced by 50 percent or more by slowing down the rate of runoff, diverting the flow of water, or allowing the water to stand and soak in the ground. Terraces are considered permanent improvements to the land and require installation costs and permanent alterations to farming operations. An annual installation or establishment charge is applied to the variable costs of rotations including terraces. The amortization of terraces in this study is a simple ten-year average of the per-acre investment required to establish terraces.

Biomass Crops for Energy

Biomass crops have been championed for reduced environmental impacts compared with row-crops and their potential future role as a renewable energy-generating fuel. Most biomass literature addresses production practices, costs, and technologies. Turhollow (1993) describes the herbaceous energy crop, switchgrass, as a thin-stemmed perennial that can be handled much like hay. Switchgrass and other herbaceous energy crops use conventional haying equipment; however, if a farmer does not own haying equipment, the necessary outlay to obtain equipment is relatively small. Switchgrass provides good year-round ground cover which protects against soil erosion, and perennial grasses and legumes usually require less herbicides than annuals. Even so, the drawbacks include its relatively high demand for nitrogen fertilizer and potential establishment difficulties (Anderson et al., 1992).

A complicated set of government regulations and incentive programs affect the biomass market. Martin (1993) and Sanderson (1993) describe a number of federal tax incentives offered to developers of biomass projects. According to Martin (1993), these incentives range from production tax credits and accelerated depreciation to a 1.5-cent-per-kilowatt subsidy, each having its own peculiarities. In addition to the numerous regulations and incentives that complicate analysis, power plants usually must make capital investments to utilize efficiently most biomass feedstock. Residues left by many biofuels require excess maintenance in order to meet USEPA guidelines and power plants must ultimately redesign existing facilities (Brock, 1994).

Two unpublished papers were consulted for information on the costs of producing switchgrass as a dedicated energy crop. English and Cody (1990) conducted an analysis of production cost and operation schedules by land resource region in the United States. The authors estimate the annual total cost of production for switchgrass grown in the Southeast at \$190.37 per acre, which includes an annual establishment cost – pro-rated over five-years – of \$22.07 per acre. In addition to making her own estimates, Walsh (1994) reviewed existing studies which estimate switchgrass production costs. The author finds that estimates varied significantly, and few studies were documented sufficiently to determine how costs are calculated. Production cost estimates for six regions are developed, with the estimate for the Southeast being \$185.49 per acre.

Few studies actually address the feasibility of incorporating switchgrass into crop production systems. Dillivan et al. (1994) elucidates the benefits of converting CRP acres to switchgrass production in West Tennessee. Results include a break-even analysis for switchgrass for various land uses, as well as, the differences on erosion levels under each scenario for different soil types. Multiplying the price which power plants pay for a unit of energy generated from a ton of coal by the amount of energy generated from a ton of switchgrass, the coal-equivalency price of switchgrass (\$21.15 per ton) was calculated.

By assuming that the full amount of federal subsidy for the use of biomass would be passed on to producers, a subsidized coal equivalency price for switchgrass (\$46.44 per ton) was calculated also.

In a joint USDA/EPA regional project, *Agriculture in Concert with the Environment* (ACE), De La Torre Ugarte, et al. (1996) includes switchgrass as an alternative production system. A Beaver Creek Watershed representative farm was one of five regional representative farms used to estimate farm-level environmental and economic effects of conversion to more sustainable practices under alternative scenarios. The subsidized, coal-equivalency price for switchgrass (\$46.44 per ton) was used. None of the scenarios include switchgrass in the solutions. Other alternative cropping systems that included existing crops proved to be more profitable while meeting the environmental constraints under the set of assumed prices.

Economic and Environmental Effects of Alternative Practices

Several studies address the impacts of alternative policies on the profitability of alternative and conventional production systems (Dobbs and Becker, 1992; Dobbs et al., 1991; Duffy and Chase, 1989; Faeth et al., 1991; Graham, 1992; Painter and Young, 1994; Slinsky et al., 1995; Smolik and Dobbs, 1991). Five scenarios of conventional and sustainable farming systems—with and without enrollment in FACTA's government programs—for a Haywood County, Tennessee, representative farm were analyzed by Graham (1992). The results of this analysis indicated that sustainable systems can be both environmentally and economically sound.

Slinsky et al. (1995) simulated the impacts of movement toward a more sustainable agriculture at the farm-level in the southeastern United States under the 1990 act's provisions. The availability of alternative practices to the farms resulted in higher income

in almost all representative farms and, with few exceptions, availability of these practices do not adversely effect the farm's risk, as measured by the probability of farm survival and declining real equity.

Dobbs et al. (1991) analyzed an operating "low-input/sustainable" farm and an operating "conventional" farm during a five-year period (1985-89) in South Dakota. The conventional farm was on average more profitable than the low-input farm because of the dominance of corn and soybeans. Federal farm programs during this period were identified as a significant factor in the comparative profitability.

Transition-stage research, based on five years of research trials in South Dakota (Smolik and Dobbs, 1991), indicates that alternative systems are potentially competitive with more conventional systems in mixed row crop-small grain regions. Other studies (Helmert et al., 1986, Sahs and Lesoing, 1985) also indicate that alternative systems may perform best under drought stress in Nebraska. Fox et al. (1991) stated that technical assistance and moral suasion have largely failed to combat these problems because, without good alternatives, significant reductions in chemical inputs offer only small or negative economic gains to farmers.

Economic and Environmental Effects of Increased Planting Flexibility

The National Research Council (1989) finds that U.S. farm programs and policies historically have deterred the use of crop rotations and conservation. A primary policy barrier is the loss of program subsidies because of base acreage constraints (Young and Goldstein, 1988; Fleming, 1987; Buttel et al., 1986). Various studies have addressed the impacts of increased planting flexibility under the 1990 farm bill (Chien and Leatham, 1994; Diebel and Williams, 1993; Faeth et al., 1991) and its impacts on the allocation and conservation of resources. Because the 1996 act calls for the removal of base acreage

restrains, these studies may provide some insight into the importance of planting flexibility in developing a more sustainable U.S. agriculture.

In an analysis of three representative Texas farms, Chien and Leatham (1994) analyzed the impacts of FACTA's increased planting flexibility provisions. Chien and Leatham concluded that the increase in planting flexibility affected farmers in different geographical regions differently. These differential impacts are due, in part, to the region's ability to grow alternative crops. The authors also found that the decrease in deficiency payments was not offset by the opportunity to adjust the farm's crop mix in response to market signals.

Diebel and Williams (1993) completed an economic analysis of the FACTA's Integrated Farm Management Program Option (IFMPO), which was designed to increase crop management flexibility and to promote the use of resource-conserving crops. The study indicated that although the 1990 act provided flexibility, it also provided little economic incentive to adopt resource-conserving crop rotations.

The conclusions of Diebel and Williams are supported by a regional-level study of sustainable agriculture in the Southeast (De La Torre Ugarte et al., 1996). This analysis includes a policy scenario which increases planting flexibility. Using the 1990 act's provisions, the adoption of more sustainable practices was analyzed for a region comprised of seven states (Alabama, Florida, Georgia, North Carolina, Mississippi, South Carolina, and Tennessee). The results indicated that although planting flexibility is an important component for sustainability, it may not be the primary component. Overall, the acreage devoted to more sustainable practices did not show a significant improvement; increased flexibility impacted only a few sub-state regions marginally. However, increased flexibility did significantly impact net returns though not necessarily through the use of more environmentally sound decisions.

However, in an analysis of representative farms in the North Carolina Coastal Plain and a Washington-Idaho Palouse, Painter and Young (1994) find that moving toward more flexible agricultural policies generates substantial environmental and economic gains. Various policy scenarios, including a FACTA scenario and a scenario that closely reflects the flexibility adjustments made in the 1996 farm bill, were evaluated in the study. The results of the study strongly suggest that, of the policy reforms evaluated, the removal of base acreage requirements could enhance the economic and environmental performance with currently available cropping technology.

In an analysis of Pennsylvania and Nebraska representative farms, Faeth et al. (1991) reported that farm-support mechanisms through the commodity programs of the 1990 act encourage dependence on synthetic inputs and discourage the adoption of sustainable agricultural practices. The authors further suggest that decoupling farm income support and commodity programs could remove barriers of entry for sustainable practices and reduce the fiscal cost of government farm policies.

These claims of Painter and Young and Faeth et al. have been supported in other analyses (Abler and Shortle, 1995; Braden et al., 1991; Dobbs et al., 1991; Orazen and Miranowski, 1994; Smolik et al., 1993; Williams et al., 1990a). In a comprehensive review of production research performed in South Dakota, Smolik et al. (1993) found that the profitability of conventional and reduced-till systems were more dependent on government program payments than the alternative systems, and they suggest that low-input or sustainable systems may become more economically competitive in years to come as federal farm programs change. Abler and Shortle (1995) support the reduction of the federal government's role in agriculture, and they went on to state that the only politically realistic route to significant cutbacks in agricultural supports is a multilateral one.

SUMMARY OF THE LITERATURE REVIEW

The methodology of this study was built on several earlier studies reviewed. De La Torre Ugarte et al., (1996), Graham (1992), Slinsky et al. (1996), and Bowling (1994) analyzed alternative production practices using a budgeting approach as in this study. Budgets were developed to represent the variable costs for alternative management practices. De La Torre Ugarte et al., (1996), and Slinsky et al. (1996) used linear programming to evaluate the adoption of alternative production practices under various policy scenarios, and Bowling (1994) used a linear programming model to evaluate the costs of reducing erosion under Conservation Compliance. Similar to the approach used in this analysis, De La Torre Ugarte et al. (1996), Slinsky et al. (1996), and Bowling (1994) used the Erosion Productivity Impact Calculator (EPIC) to obtain soil-loss coefficients to be used in a linear programming model.

CHAPTER 3

METHODOLOGY

Agricultural policies are believed to affect the level of environmental degradation on croplands by influencing farm operators' decisions – either by decreasing risk or increasing net returns for the production of high impact crops (Gillespie et al., 1990). While some government program provisions such as Conservation Compliance and the Conservation Reserve Program, may reduce environmental externalities, other program provisions are thought to create barriers to the adoption of sustainable production practices as noted earlier. The objective of this study is to compare the farm-level economic and environmental impacts of alternative production systems under two pieces of farm legislation: FACTA and FAIR. Such a comparison will help determine if income-support policies in the form of commodity programs create market distortions which discourage the adoption of more sustainable practices

The following procedures were used to evaluate the farm-level effects of the multilateral decoupling of commodity programs from production on the adoption of more sustainable practices for a representative farm. Enterprise and rotation budgets for both initial practices and alternative practices were developed with the aid of the Agricultural Policy Analysis Center Budgeting System (ABS) (Slinsky, 1996). Two models were integrated: (1) Erosion/Productivity Impact Calculator (EPIC) (Williams, et al., 1990b) a plant-growth simulation model which estimates environmental parameters, and (2) a linear programming (LP) model. Cost-and-return data from the budgets are used in the LP model, and operation schedule information from the budgets is used as input for EPIC. Environmental parameters obtained from EPIC are incorporated into the farm model.

First, the farm is simulated for the initial situation under the 1990 act's provisions (*FACTA-Initial*). A baseline for farm income and level of environmental parameters was obtained. Second, the farm model was simulated under the 1990 act's provisions with alternative production practices (*FACTA-Alternative*) to estimate the crop mix with the highest net return and measure changes in the environmental parameters. A third simulation is completed for the initial crops and practices under the 1996 act's provisions (*FAIR-Initial*). This simulation allows for the effects due only to the multilateral decoupling of commodity programs from production to be observed. A fourth simulation of the farm model allows alternative production practices to enter under the 1996 act's provisions (*FAIR-Alternative*). This simulation allows for changes in environmental parameters and the adoption rate of alternative practices to be compared between FACTA and FAIR.

BUDGETING

Results from a survey (Bowling, 1994) of the Beaver Creek Watershed area provided a set of initial crops and practices. Alternative practices which address the area's environmental concerns were extracted from previously published literature. The imperative step of quantifying the costs associated with the initial and alternative practices was accomplished with the aid of previous publications (Johnson, 1991; Johnson, 1992; Gerloff and Maxey, 1995; Slinsky et al., 1996) and personal communication with researchers (Denton, 1994; Rhodes, 1993), Agricultural Research Service (Dabney, 1993), Natural Resource Conservation Service (Benson, 1993), and extension specialists (Shelby, 1995; Gerloff, 1996). All budgetary information used in the farm model was obtained from ABS output. Rotation budgets are provided in the appendix.

ABS utilizes machine efficiencies and cost equations provided by the American Society of Agricultural Engineers (ASAE) (1988) standards. Regional retail and list prices for machinery were provided by Benson (1993). In conjunction with these prices, the ASAE machine efficiencies and equations are used to calculate machine time per acre and machine cost per hour. Each implement's machine time per acre multiplied by the machine cost per hour provides variable and fixed cost per acre for the implement. The summation of implement costs per acre provides total machine costs per acre for each budget.

Labor hours per acre are assumed to be 1.25 times machine hours per acre. A \$5.85 hourly wage rate for Tennessee, obtained from *Farm Labor* (USDA, 1992), is multiplied by total labor hours to get total labor costs per acre for each budget. The 1.25 multiplier is used in The University of Tennessee Agricultural Extension Service's budgets (Johnson, 1991; Gerloff and Maxey, 1995).

All input prices utilized were obtained from Tennessee Farmer's Cooperative retail price list for June 1996. National commodity prices under an extension of FACTA provisions were estimated using POLYSYS by Ray (1996a). A five-year average of these prices are used in this analysis and are represented in table 3.1. Under FAIR provisions, national commodity prices are derived from a five-year average of prices projected by Food and Agriculture Policy Research Institute (FAPRI) (1996) and are represented in table 3.4. These national commodity prices are converted to the regional level for both FACTA and FAIR act (table 3.3 and table 3.5 respectively) using indices provided by the Agriculture and Soil Conservation Service (table 3.2).

Table 3.1. POLYSYS-Projected U.S. Prices for an Extension of FACTA.

	CORN \$/bu	SORGHUM \$/bu	SOYBEANS \$/bu	WHEAT \$/bu	COTTON \$/lb
1997	2.35	2.16	6.11	3.27	0.61
1998	2.12	2.02	6.13	3.36	0.65
1999	2.27	2.14	6.08	3.41	0.64
2000	2.09	2.08	6.64	3.22	0.64
2001	2.30	2.21	6.28	3.17	0.61

Source: Ray, 1996a.

Table 3.2. ASCS Price Indices: United States/Tennessee (Beaver Creek Watershed Counties)

CORN	SORGHUM	SOYBEANS	WHEAT	COTTON
1.093	1.090	1.028	1.075	1.035

Source: Agriculture and Soil Conservation Service, 1994.

Table 3.3. Adjusted POLYSYS-Projected TN (Beaver Creek Watershed Counties) Prices for an Extension FACTA.

	CORN \$/bu	SORGHUM \$/bu	SOYBEANS \$/bu	WHEAT \$/bu	COTTON \$/lb
1997	2.57	2.35	6.28	3.52	0.63
1998	2.32	2.20	6.30	3.61	0.67
1999	2.48	2.33	6.25	3.67	0.66
2000	2.28	2.27	6.83	3.46	0.66
2001	2.51	2.41	6.46	3.41	0.63
Avg.	2.43	2.31	6.42	3.53	0.65

Note: Calculated (POLYSYS-Projected Price * ASCS Indices)

Table 3.4. FAPRI-Projected U.S. Prices for FAIR.

	CORN \$/bu	SORGHUM \$/bu	SOYBEANS \$/bu	WHEAT \$/bu	COTTON \$/lb
1997	2.35	2.22	6.09	3.25	0.61
1998	2.21	2.09	5.84	3.35	0.62
1999	2.26	2.16	5.69	3.39	0.61
2000	2.26	2.17	5.85	3.23	0.62
2001	2.32	2.21	5.83	3.18	0.61

Source: Food and Agriculture Policy Research Institute, 1996.

**Table 3.5. Adjusted FAPRI-Projected TN (Beaver Creek Watershed Counties)
Prices for FAIR.**

	CORN	SORGHUM	SOYBEANS	WHEAT	COTTON
	<i>\$/bu</i>	<i>\$/bu</i>	<i>\$/bu</i>	<i>\$/bu</i>	<i>\$/lb</i>
1997	2.57	2.42	6.26	3.49	0.63
1998	2.41	2.28	6.00	3.60	0.64
1999	2.47	2.35	5.85	3.64	0.63
2000	2.47	2.37	6.01	3.47	0.64
2001	2.53	2.41	5.99	3.42	0.63
Avg.	2.49	2.37	6.02	3.53	0.64

Note: Calculated (FAPRI-Projected Price * ASCS Indices)

ENVIRONMENTAL PARAMETERS

The environmental parameters analyzed in this study were obtained by using the EPIC model (Williams, et al. 1990b). EPIC originally was developed to determine the relationship between erosion and productivity in the United States for the 1985 Soil and Water Resource Conservation Act and is composed of a series of submodels which simulate weather, hydrology, sheet and rill erosion, plant nutrients, plant growth, management, soil tillage, and plant environment at the farm level (Williams, 1985). EPIC utilizes these submodels to simulate natural processes and interactions among climate, land, and agriculture. The model uses available inputs and a wide range of physical characteristics to simulate changes in environmental output values based on input, consumption, and management alternatives. For this study, EPIC uses information derived from ABS-generated budgets – together with its own soil and weather data – to estimate yield, erosion, chemical uptake and leaching, and other environmental variables.

THE MATHEMATICAL MODEL

The LP model uses environmental and yield data generated from EPIC in combination with ABS cost and operations data. To analyze the initial situation, the LP model provides an accounting of environmental impacts associated with initial production techniques. In analyzing alternative scenarios, the environmental coefficients serve as accounting rows or constraints for the LP optimization model to identify a subset of crop mixes which maximizes net returns subject to specified policy, resource or environmental constraints.

Objective Function

The objective function is specified such that net revenue is the income from cash sales of crops and government payments less the cost of production exclusive of land cost, family labor, insurance, taxes, and debt associated with production. The theoretical objective function would be specified as Net Revenue = Price * Quantity + Government Payments - Costs. The objective function can be specified as:

Maximize NR such that

$$\begin{aligned}
 (1) \quad NR = & \sum_{m=1}^6 (CP_m * CS_m) + \sum_{m=1}^6 (CP_m * NCS_m) + \sum_{m=1}^6 (CP_m * OCS_m) + \sum_{p=1}^3 (DPP_p * DP_p) \\
 & - \sum_{j=1}^{49} \sum_{i=1}^2 (CA_{j,i} * XCA_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (CN_{j,i} * XFN_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (CO_{j,i} * XFO_{j,i}) \\
 & - \sum_{j=1}^{49} \sum_{i=1}^2 (RC_{j,i} * XRT_{j,i})
 \end{aligned}$$

A description of the variables used in the mathematical expression of the model is given in table 3.6 and definitions of the subscripts used in the mathematical express of the model are given in figure 3.1.

Land Constraints

In this study, the producer is required to use all cropland (owned and rented) available. This requirement simulates contractual agreements or obligations that many farms have with landowners. There are two constraints that define and place restrictions on land use. The first constraint deals with owned land. Under the 1990 act, this constraint reflects the amount of land used in a crop activity, with the addition of acreage reduction, normal flex, and optional flex acreage, minus the land rented. This function can be specified as:

$$(2) \quad \sum_{j=1}^{49} \sum_{i=1}^2 XCA_{j,i} + \sum_{j=1}^{49} \sum_{i=1}^2 XFN_{j,i} + \sum_{j=1}^{49} \sum_{i=1}^2 XFO_{j,i} - \sum_{i=1}^2 XRT_i \leq \sum_{i=1}^2 RLAND_i$$

However, base acreage restrictions have been removed under the 1996 act, and this constraint for the 1996 act scenarios reflects only the amount of land used in a crop activity minus the land rented. The second land constraint remains the same for both policy scenarios, and it allows for a limited amount of additional cropland to be rented. This function can be specified as:

$$(3) \quad \sum_{i=1}^2 XRT_i = \sum_{i=1}^2 RRNT_i$$

Table 3.6. Description of Variables Used in the Mathematical Expression of the Model.

Variable Name	Variable Description
CP_m	Price of crop (m) sold (dollars per pound, ton, or bushel).
CS_m	Activity level of selling normal flex crop (m) (pounds, tons, or bushels).
NCS_m	Activity level of selling normal flex crop (m) (pounds, tons, or bushels).
OCS_m	Activity level of selling optional flex crop (m) (pounds, tons, or bushels).
DDP_p	Deficiency payment for crop (p) (dollars per pound, ton, or bushel).
DP_p	Activity level of deficiency payments for crop (p) (pounds or bushels).
$CA_{i,j}$	Unit cost of crop practice (j) on land type (i) (dollars per acre).
$XCA_{i,j}$	Activity level of crop practice (j) on land type (i) (acres).
$CN_{i,j}$	Unit cost of normal flex crop practice (j) on land type (i) (dollars per acre).
$XFN_{i,j}$	Activity level of normal flex crop practice (j) on land type (i) (acres).
$CO_{i,j}$	Unit cost of optional flex crop practice (j) on land type (i) (dollars per acre).
$XFO_{i,j}$	Activity level of optional flex crop practice (j) on land type (i) (acres).
$RC_{i,j}$	Price of rented land for crop practice (j) of land type (i) (dollars per acre).
$XRT_{i,j}$	Amount of rented land for crop practice (j) of land type (i) (acres).
$QC_{i,m}$	Quantity of land used for crop (m) with crop practice (j) (acres).
QF_p	Quantity of land required for normal flex crop (p) (acres).
QO_p	Quantity of land required for optional flex crop (p) (acres).
$YA_{m,j,i}$	Yield of crop (m) in crop practice (j) on land type (i) (pounds, tons, or bushels).

Table 3.6. (Continued).

Variable Name	Variable Description
$NYA_{m,j,i}$	Yield of crop (m) in normal flex crop practice (j) on land type (i) (pounds, tons, or bushels).
$OYA_{m,j,i}$	Yield of crop (m) in optional flex crop practice (j) on land type (i) (pounds, tons, or bushels).
GPY_p	Program yield of crop (p) (pounds, tons, or bushels).
$SN_{i,j}$	Soil loss for crop practice (j) on land type (i) (tons).
SL	Quantity of soil lost (tons).
$SLC_{i,j}$	Soil loss coefficient for the crop practice (j) on soil type (i) (0 or 1).
$NFL_{i,j}$	Nitrogen loss for crop practice (j) on land type (i) (pounds).
NL	Quantity of nitrogen lost (pounds).
$PFL_{i,j}$	Phosphorus loss for crop practice (j) on land type (i) (pounds).
PL	Quantity of phosphorus lost (pounds).
$CFL_{i,j}$	Organic carbon loss for crop practice (j) on land type (i) (pounds).
CL	Quantity of organic carbon lost (pounds).
$CMX_{i,j}$	Organic carbon loss for crop practice (j) on land type (i) (pounds).
CXL	Quantity of organic carbon lost (pounds).
$RLAND_i$	Amount of land available in each land type (i) (acres).
$RRNT_i$	Amount of land available for rent in each land type (i) (acres).
$BASE_p$	Amount of base acres available for crop (p) (acres).
NFX_p	Amount of normal flex acreage available for each crop (p) (acres).
OFX_p	Amount of optional flex acreage available for each crop (p) (acres).

$i=1,...,8$ for the land types
$j=1,...,49$ for the crop practices
$m=1,...,6$ for all the crops grown

Figure 3.1. Definitions for Each of the Subscripts in the Mathematical Representation

Base Acreage Constraints

The planting flexibility concept used in the 1990 act is called the triple base provision. Deficiency payments are based on 85 percent of the historical crop acreage less any reduced acreage, for 1991-95 crops (United States Department of Agriculture, 1991c). The crop acreage base for each crop essentially is divided into four sections: acreage reduction program (ARP) – ARP percentages times the base acreage, normal flex acres (15 percent of the base), optional flex acres (10 percent of the base), and the remaining base acres (Langley, 1992; Bowling, 1994). The various components of crop acreage base related to planting flexibility are illustrated in figure 3.2.

The ARP provision of FACTA serves as a way for the federal government to control supply while placing additional land in conserving use. ARP percentage rates are based on the stocks/use ratio for the proceeding marketing years, and in the policy assumptions of the national analyses completed by FAPRI (1996) and Ray (1996a), ARP

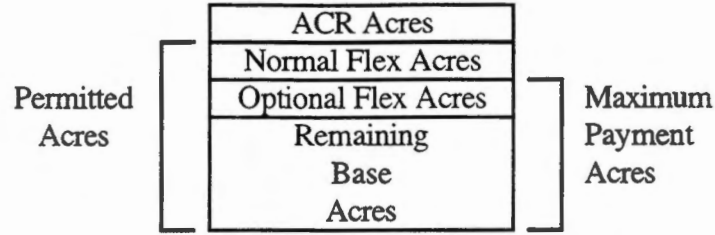


Figure 3.2. Base Acreage Requirements.

percentages were set equal to zero. Thus ARP acreage requirements for this study are not considered. The base acreage constraint can be specified as:

$$(4) \quad \sum_{j=1}^{49} \left(QC_{j,p} * \sum_{i=1}^2 XCA_{j,i} \right) + \sum_{j=1}^{49} \sum_{i=1}^2 XFN_{p,j,i} + \sum_{j=1}^{49} \sum_{i=1}^2 XFO_{p,j,i} = Base_p$$

On normal flex acres (15 percent of the base), farmers are allowed to plant any crop, except fruits and vegetables. However, farmers are ineligible to receive deficiency payments on this acreage. The normal flex acreage constraint can be specified as:

$$(6) \quad \sum_{j=1}^{49} (QF_p * XFN_{p,j}) = NFX_p$$

On optional flex acres, up to an additional 10 percent of a program crop's base acreage, a farmer could choose to plant other Commodity Credit Corporation crops (except fruits and vegetables) without a reduction in base acreage. The farmer does receive deficiency payments on optional flex acres (Langley, 1992). The optional flex acreage constraint can be specified as:

$$(7) \quad \sum_{j=1}^{49} (QO_p * XFO_{p,j}) \leq OFX_p$$

Crop Marketing

The crop marketing constraint requires all output to be sold. The output produced is transferred to the sell activities. The transfer row for production on non-program acres for the 1990 act scenarios and all 1996 act scenarios can be specified as:

$$(8) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (-YA_{m,j,i} * XCA_{m,j,i}) + CS_m = 0$$

The transfer row for production on normal flex acres can be specified as:

$$(9) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (-NYA_{m,j,i} * NFX_{m,j,i}) + NCS_m = 0$$

The transfer row for production on optional flex acres can be specified as:

$$(10) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (-OYA_{m,j,i} * OFX_{m,j,i}) + OCS_m = 0$$

Deficiency Payments

Under the FACTA scenarios, deficiency payments are made to farm operator if the national average market price received by U.S. farmers is below the target price. Deficiency payments (table 3.7.) were determined by multiplying the payment rate times the payment acreage times the payment yield. Payment rates were equal to the difference between the target price and the greater of the national average market price or the basic price support rate (United States Department of Agriculture, 1991c).

Table 3.7. Calculated FACTA Payment Rates for TN (Beaver Creek Watershed Counties).

CORN <i>\$/bu</i>	SORGHUM <i>\$/bu</i>	SOYBEANS <i>\$/bu</i>	WHEAT <i>\$/bu</i>	COTTON <i>\$/lb</i>
0.32	0.3	na	0.47	0.08

As explained earlier, payment acres were derived from the base acreage less any reduced acreage, for 1991-95 crops (United States Department of Agriculture, 1991c), and these reduced acres were comprised of the normal and optional flex acres. Both normal and optional flex acres serve a dual purpose. First, flex acres allowed for the reduction of total government payments to farmers by (1) raising the market price of program crops by reducing the supply, and (2) reducing the program acreage eligible for program payments. Second, flex acres allowed farmers more freedom in their production decisions. Thus, allowing farmers to adjust their crop mix according to favorable market fluctuations. Ideally, farmers would also utilize the flex provisions to plant crops that were more resource conserving, however, this usually did not occur because of the high opportunity cost that farmers accrued for not planting program crops. There were also distinctions

between the normal and optional flex acres in terms of eligibility for deficiency payments. Producers do not receive deficiency payments on the normal flex acres, regardless of the crop planted on those acres. Producers do receive deficiency payments on the optional flex acres only if the original program crop is planted on those acres (Langley, 1992). The transfer row for deficiency payments on 1990 act's non-flex acres can be specified as:

$$(11) \quad \left(-GPY_p * \sum_{j=1}^{49} \sum_{i=1}^2 XCA_{j,i} \right) + DP_p \leq 0$$

FAIR decoupled government payments from production and eliminated deficiency payments. However, payments are to be paid to farmers that enrolled in seven-year Production Flexibility Contracts. Under FAIR, government payments are linked to the historical base acreage on a particular farm. Payment rates for each crop per unit were calculated by USDA. In order to calculate the total government payment for each farm, these payment rates are multiplied by the historical program yields and the historical base acreage for each program crop (table 3.8).

Table 3.8. Calculated Government Payments for TN (Beaver Creek Watershed Counties) Under FAIR.

	SORGHUM	WHEAT	COTTON
	<i>\$/bu</i>	<i>\$/bu</i>	<i>\$/lb</i>
Projected Payment Rate	0.4	0.58	0.07
85% Base Acres	127.5	85.0	467.5
Program Yield	60	35	595
Payments	3,060.00	1,725.50	19,471.38
	Total Gov't Payments:		24,256.88

Source: United States Department of Agriculture, 1996.

Production Flexibility Contracts payments are to be completely phased out by the end of the seven-year period, and this will be accomplished by reducing payment rates on an annual basis. This static analysis accounted for this procedure by utilizing the average payment rate for each program crop. Since government payments for FAIR scenarios will not affect the solution of the LP, payments for 1996 act scenarios will be added to the net farm income after the solution is found.

Erosion

Soil erosion as calculated by the Universal Soil Loss Equation (USLE) is reported by EPIC in tons per acre. Erosion is the only environmental parameter which is constrained to a predetermined level in the LP, and there are two erosion constraints in the LP. The first constraint performs an accounting function, reporting the annual soil lost (tons per acre) for the whole farm, and it can be specified as:

$$(12) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (SN_{j,i} * XCA_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (SN_{j,i} * XFN_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (SN_{j,i} * XFO_{j,i}) + SL = 0$$

A second soil erosion constraint plays a vital role in simulating Conservation Compliance requirements and evaluating the sustainable benefits of various practices in this analysis. An annual average of 5-tons-per-acre limit (6,000 tons per 1,200 acres) was utilized in previous studies (Bowling, 1994; Slinsky et al., 1996; De La Torre Ugarte et al., 1996) as the Conservation Compliance threshold level for the farms in this particular area. However, due to the high costs of reducing soil erosion in West Tennessee, strict erosion limits have been replaced by requiring farmers to develop and implement conservation plans for erosion reduction.

The levels of annual erosion used in this analysis include: 5 tons per acre, 7.5 tons per acre, and 10 tons per acre. This is accomplished by assigning a binary coefficient ($SLC_{j,i}$) to each activity (j) on each soil type (i). For example, for an annual soil erosion level of 10 tons per acre, $SLC_{j,i} = 1$ if soil loss > 10 tons per acre or $SLC_{j,i} = 0$ if soil loss < 10 tons per acre. This soil erosion constraint can be specified as:

$$(13) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (SLC_{j,i} * XCA_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (SLC_{j,i} * XFN_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (SLC_{j,i} * XFO_{j,i}) \leq 0$$

Nitrogen Loss

Nitrogen (N) has been shown to be a leading cause of water quality impairment in rivers, lakes, and estuaries (USEPA, 1994) and, at sufficient levels in water, it can be a public health concern. A composite variable, $Nfarm_i$, is used in this analysis to represent the amount of nitrogen leaving the farm under a given production practice. $Nfarm_i$ is calculated from several EPIC output variables:

$$(14) \quad Nfarm_i = (DN + PRKN + SSFN + NRunoff) * 0.892$$

where $Nfarm_i$ is total nitrogen leaving the farm under practice i , DN is the sum of N loss by denitrification, $PRKN$ is mineral N loss in the percolate, $SSFN$ is mineral N lost in subsurface flow, and $NRunoff$ is N loss in surface runoff. The sum of these variables is multiplied by 0.892 to convert from kilograms per hectare to pounds per acre. $NRunoff$ is calculated from the product of the value of the EPIC variable $YNO3$ (nitrate loss in surface runoff) and a conversion factor to determine the actual mass of N in the nitrate which goes off the farm in runoff:

$$(15) \quad N_{runoff} = YNO3 * 0.0345$$

In the FACTA-Initial scenario, the LP constraint for nitrogen performs an accounting function and reports the annual nitrogen (pounds per year) for the whole farm. This accounting row can be specified as:

$$(16) \quad -\sum_{j=1}^{49} \sum_{i=1}^2 (NFL_{j,i} * XCA_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (NFL_{j,i} * XFN_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (NFL_{j,i} * XFN_{j,i}) + NL = 0$$

For nitrogen in the other scenarios, the LP constrains total nitrogen leaving the farm to, at most, the level under FACTA-Initial. This constraint can be specified as:

$$(17) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (NFL_{j,i} * XCA_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (NFL_{j,i} * XFN_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (NFL_{j,i} * XFN_{j,i}) \leq NL$$

Phosphorus Loss

Phosphorus (P) compounds contained in sediment also are a major contributor to off-farm water pollution. In a manner similar to nitrogen, another composite variable, P_{farm} , represents the total phosphorus leaving the farm under a given production practice. P_{farm} is calculated from several EPIC output variables:

$$(18) \quad P_{farm_i} = [(YAP/1,000) + YP] * 2.2046$$

where P_{farm_i} is total phosphorus leaving the farm under practice i , YAP is the soluble P loss in runoff, and YP is the P loss in sediment. The conversion factor transforms YAP into the same units as YP (kilograms per acre), and the additional conversion transforms the units to pounds per acre. Although soluble P is quickly transformed into insoluble forms, it is included in P_{farm} for completeness. In the FACTA-Initial scenario, the LP constraint for phosphorus performs an accounting function and reports the annual phosphorus leaving (pounds per year) the farm. This accounting row can be specified as:

$$(19) \quad -\sum_{j=1}^{49} \sum_{i=1}^2 (PFL_{j,i} * XCA_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (PFL_{j,i} * XFN_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (PFL_{j,i} * XFN_{j,i}) + PL = 0$$

For phosphorus in the other scenarios, the LP constrains total phosphorus leaving the farm to, at the most, the level under FACTA-Initial. This constraint can be specified as:

$$(20) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (PFL_{j,i} * XCA_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (PFL_{j,i} * XFN_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (PFL_{j,i} * XFN_{j,i}) \leq PL$$

Organic Carbon

Organic carbon serves as an important indicator of soil organic matter because it is a major component. Organic matter plays an important role in plant development because it contains trace elements which are ultimately mineralized into forms which can be used by plants (Lineham, 1985). The EPIC variable FCARBON (final percentage of organic carbon in the soil) is used in the LP, and in the FACTA-Initial scenario, the LP constraint for organic matter performs an accounting function. This accounting row can be specified as:

$$(21) \quad -\sum_{j=1}^{49} \sum_{i=1}^2 (CFL_{j,i} * XCA_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (CFL_{j,i} * XFN_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (CFL_{j,i} * XFN_{j,i}) + CL = 0$$

In the other scenarios, FCARBON must acquire at least the level in FACTA-Initial. This constraint can be specified as:

$$(22) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (CFL_{j,i} * XCA_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (CFL_{j,i} * XFN_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (CFL_{j,i} * XFN_{j,i}) \leq CL$$

Chemical Risk

EPIC generates data on pesticide losses due to soil leaching and surface run-off by soil type for each chemical in a rotation. This information is important when tracking the movement and loss of a single pesticide. However, it does not provide a clear indication of the cumulative effects that result from pesticide loss or the risk to humans or wildlife accrued as a result of this cumulative effect.

In order to accomplish these tasks, pesticide variables generated by EPIC are converted into a Chemical Environmental Index (CINDEX) format for analytical and discussion purposes. Utilization of indices to monitor relative changes in risk to the chemical contamination of surface- and ground-water is not a new concept. Teague et al. (1995) provides a fairly extensive background on the development of this idea and several of the most common equations being utilized.

The index of environmental risk chosen for this analysis incorporates information regarding pesticide characteristics – such as toxicity to fish and humans – as well as the

chemical amounts lost from the farm through runoff and percolation (Teague et al., 1995).

The index is calculated using the following equation:

$$(23) \quad CINDEX = (PERC_{ij} * HA_i * 0.5) + (RUNOFF_{ij} * LC_i * 0.5)$$

where $PERC_{ij}$ is the pesticide quantity which is lost in percolation, HA_i is the toxicity weight for percolation, $RUNOFF_{ij}$ is the amount of pesticide lost in runoff, and LC_i is the toxicity weight for runoff. The 0.5 weights may be adjusted to account for differences in the percolation in the proportion of surface and groundwater affected by the pesticide externality.

The exact interpretation of the actual values of the index are unknown. However, this variable illustrates the trends that occur between scenarios in environmental risk associated with chemical usage. Therefore, this variable will be reported in a percentage change from the baseline (FACTA-Initial). The LP constraint for CINDEX in the FACTA-Initial scenario performs an accounting function, and it can be specified as:

$$(24) \quad -\sum_{j=1}^{49} \sum_{i=1}^2 (CMX_{j,i} * XCA_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (CMX_{j,i} * XFN_{j,i}) - \sum_{j=1}^{49} \sum_{i=1}^2 (CMX_{j,i} * XFN_{j,i}) + CXL = 0$$

For CINDEX in the other scenarios, the LP constrains the CINDEX for the farm to, at the most, the level under FACTA-Initial. This constraint can be specified as:

$$(25) \quad \sum_{j=1}^{49} \sum_{i=1}^2 (CMX_{j,i} * XCA_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (CMX_{j,i} * XFN_{j,i}) + \sum_{j=1}^{49} \sum_{i=1}^2 (CMX_{j,i} * XFN_{j,i}) \leq CXL$$

CHAPTER 4

RESULTS

The primary purpose of this study is to estimate how the FAIR may affect the adoption by West Tennessee farmers of more sustainable practices. This study simulates and compares farm-level decisions under two pieces of farm legislation: FACTA and FAIR. Alternative/more sustainable practices were developed to address the specific environmental needs of the Beaver Creek watershed. The impacts of these practices were estimated to evaluate whether a holistic approach to farm resource management actually is economically and environmentally beneficial. First, the results for each farm bill scenario are examined individually. Then, an economic and environmental comparison of results is made between the two policies.

Baseline Establishment

Linear programming was used to establish an economic and environmental baseline for the initial situation practices under FACTA provisions and several soil erosion constraint levels. The baseline's environmental parameters then were used as constraints for subsequent scenarios. For the scenarios with alternative farm practices, alternative practices were added to the set of initial practices, and the model chose optimal solutions for each soil erosion constraint level. The effects of adding these practices simultaneously demonstrate the costs and benefits of alternative practices, as well as the level of adoption achieved under the commodity program provisions.

Surprising results occurred in the FACTA-Initial scenario that affected how the analysis would proceed. The model could not obtain a feasible solution at 5 or 7.5 tons per acre of annual erosion using only the initial practices. The infeasibility occurred when acreage requirements and strict erosion limits could not be met simultaneously. Consequently, baseline solutions were not defined for the 5 or 7.5 tons per acre level of annual erosion for the FACTA-Initial scenario. This meant that environmental parameters obtained from the FACTA-Initial scenario constrained at 10 tons per acre of annual erosion would serve as the baseline.

Comparisons of FACTA and FAIR Results at 10 Tons Per Acre

Comparing results across policy scenarios allows a testing of this study's central hypothesis – that decoupling commodity programs from production decisions will encourage the adoption of more sustainable practices. Due to the infeasibilities which occur in the FACTA-Initial scenarios under 5 and 7.5 tons per acre, however, such comparisons can be made only at the 10 tons per acre level. Differences in results can be attributed to variations between farm policies. Changes in crop mix, net returns, and the environmental parameters will be examined.

FACTA-Initial at 10 Tons Per Acre

Optimal crop mixes for the representative farm under FACTA provisions are presented in table 4.1, which represents results for the FACTA-Alternative scenarios at 5, 7.5, and 10 tons per acre in addition to the baseline solution at 10 tons per acre. Production practices for the activities chosen by the LP are reported in table 4.2. Figure 4.1 shows the crop mix for FACTA-Initial at 10 tons per acre, this figure reveals that cotton (52 percent of total land) is easily the most dominant crop in this scenario, while

Table 4.1. Farm Production Results Under FACTA

Rotation	Soil Type	Erodibility Category	Crops	Yield	Acreage
Initial Farm Practices at 10 tons/acre					
A-3	Routon	1	Soybeans	20.03	53.0
			Winter Wheat	38.18	
		2	Soybeans	23.18	15.0
			Winter Wheat	43.21	
		3	Soybeans	22.60	4.0
			Winter Wheat	42.33	
A-31	Loring	4	Soybeans	23.59	3.0
			Winter Wheat	43.59	
		2	Cotton	590.66	229.0
			Cotton	588.55	224.5
		3	Cotton	648.95	159.0
			Cotton	648.95	159.0
A-39	Loring	3	Sorghum	74.42	95.5
		4	Sorghum	74.65	17.0
A-42	Loring	1	Soybeans	30.38	365.0
		4	Soybeans	30.38	35.0
Alternative Practices at 5 tons/acre					
A-6	Loring	3	Soybeans	26.40	271.0
			Winter Wheat	41.32	
A-25	Loring	3	Cotton	539.44	12.3
			Switchgrass	3.49	36.8
A-31	Routon	1	Cotton	648.95	168.3
A-30	Routon	1	Corn	113.64	33.6
A-33	Loring	2	Cotton	577.38	229.0
	Routon	4		649.58	3.0
A-39	Routon	1	Sorghum	85.94	10.1
A-40	Loring	1	Sorghum	71.42	35.4
		4		71.31	52.0
		2		84.79	15.0
A-43	Loring	1	Soybeans	29.63	329.6
A-46	Routon	3	Wheat	40.69	4.0

Table 4.1. (Continued)

Rotation	Soil Type	Erodibility Category	Crops	Yield	Acreage
Alternative Practices at 7.5 tons/acre					
A-2	Loring	2	Cotton	605.00	114.5
			Soybeans	29.47	114.5
A-6	Loring	3	Soybeans	26.40	92.6
			Winter Wheat	41.32	
	Routon	1	Soybeans	31.04	105.4
			Winter Wheat	48.00	
		2	Soybeans	30.46	15.0
			Winter Wheat	47.37	
		3	Soybeans	29.55	4.0
			Winter Wheat	45.99	
		4	Soybeans	31.04	3.0
			Winter Wheat	48.00	
A-33	Loring	1	Cotton	583.92	353.0
A-39	Routon	1	Sorghum	85.94	106.6
A-40	Loring	3	Sorghum	72.81	5.9
A-43	Loring	1	Soybeans	29.63	12.0
		3		29.88	221.5
		4		29.63	52.0
Alternative Practices at 10 tons/acre					
A-2	Loring	2	Cotton	605.00	95.4
			Soybeans	29.47	95.4
	Routon	1	Cotton	669.29	0.1
			Soybeans	33.60	0.1
A-6	Routon	1	Soybeans	31.04	198.0
			Winter Wheat	48.00	
		2	Soybeans	30.46	15.0
			Winter Wheat	47.37	
		3	Soybeans	26.40	4.0
			Winter Wheat	41.32	
		4	Soybeans	26.32	3.0
			Winter Wheat	40.69	
A-31	Loring	2	Cotton	590.66	38.2
	Routon	1		648.95	13.8
A-33	Loring	3	Cotton	585.39	320.0
A-39	Loring	1	Sorghum	74.65	60.5
		4		74.65	52.0
A-42	Loring	1	Soybeans	30.38	304.5

Note: Rotation identifier corresponds with the appropriate table in the appendix.

Table 4.2. Farm Production Practices Under FACTA.

Rotation	Crops	Tillage	Alternative Practices	Acreage
Initial Farm Practices at 10 tons/acre				
A-3	Soybeans-Winter Wheat	Conventional Tillage	na	75.0
A-31	Cotton	Conventional Tillage	na	612.5
A-39	Sorghum	Conventional Tillage	na	112.5
A-42	Soybeans	Conventional Tillage	na	400.0
Alternative Practices at 5 tons/acre				
A-6	Soybeans-Winter Wheat	No-Till	na	271.0
A-25	Cotton-Switchgrass	Conventional Tillage	na	49.0
A-30	Corn	No-Till	na	33.6
A-31	Cotton	Conventional Tillage	na	168.3
A-33	Cotton	Conventional Tillage	Terraces	232.0
A-39	Sorghum	Conventional Tillage	na	10.1
A-40	Sorghum	Conventional Tillage	Terraces	102.4
A-43	Soybeans	Conventional Tillage	Terraces	329.6
A-46	Wheat	Conventional Tillage	na	4.0
Alternative Practices at 7.5 tons/acre				
A-2	Soybeans-Soybeans-Cotton-Cotton	Conventional Tillage	na	229.0
A-6	Soybeans-Winter Wheat	No-Till	na	220.0
A-33	Cotton	Conventional Tillage	Terraces	353.0
A-39	Sorghum	Conventional Tillage	na	106.6
A-40	Sorghum	Conventional Tillage	Terraces	5.9
A-43	Soybeans	Conventional Tillage	Terraces	285.5
Alternative Practices at 10 tons/acre				
A-2	Soybeans-Soybeans-Cotton-Cotton	Conventional Tillage	na	191.0
A-6	Soybeans-Winter Wheat	No-Till	na	220.0
A-31	Cotton	Conventional Tillage	na	52.0
A-33	Cotton	Conventional Tillage	Terraces	320.0
A-39	Sorghum	Conventional Tillage	na	112.5
A-42	Soybeans	Conventional Tillage	na	304.5

Note: Rotation identifier corresponds with the appropriate table in the appendix.

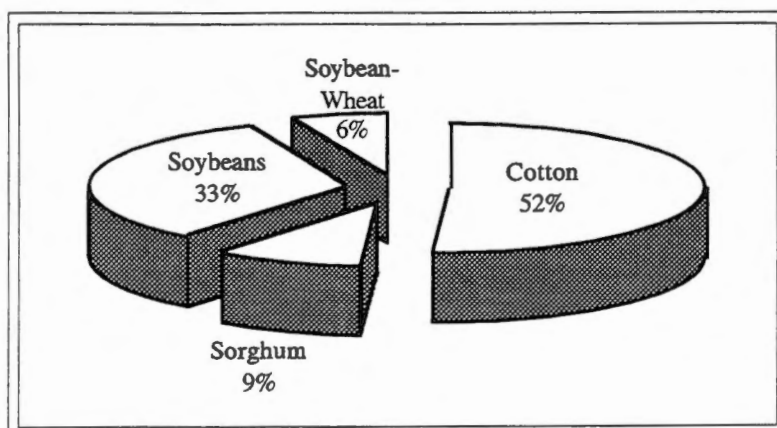


Figure 4.1. Crop Mix Under FACTA Using Initial Farm Practices at 10 Tons Per Acre

continuous soybeans comprise one-third of the acreage. Base acreage requirements for wheat fulfilled by a soybean-wheat double-crop (6 percent of total land) into solution, and a continuous sorghum rotation (9 percent of total land) fulfills the sorghum base requirements.

Net returns for this crop mix are \$141,148. Economic results are shown in table 4.3. Cotton, due to its relative profitability and large acreage allotment, comprises the largest portion of the market receipts, while soybeans receipts from continuous soybeans and the soybean-wheat double-crop contribute \$88,328. Deficiency payments (\$24,895) – more than sorghum and wheat market receipts – contribute a significant amount also.

Environmental parameters (table 4.4) obtained in this scenario serve as constraint levels for successive scenarios. Annual soil erosion which results from this crop mix (9.07 tons per acre) is .93 tons per acre less than the constraint level of 10 tons per acre. The chemical risk index (30,105) is set equal to 100 in order to make relative comparisons for other scenarios. The amount of nitrogen lost with this crop mix is 14.92 pounds per acre,

Table 4.3. Economic Results Under FACTA

Item	FACTA			
	Initial	Alternative		
	10 Tons	5 Tons	7.5 Tons	10 Tons
dollars				
Corn		9,279		
Cotton	240,874	162,476	179,006	179,808
Sorghum	19,349	19,351	22,154	19,400
Soybeans	88,328	108,648	117,315	121,196
Switchgrass		2,713		
Wheat	11,527	40,107	35,034	37,217
Gov't Payments	24,895	22,392	24,977	24,977
Gross Revenue	384,972	364,966	378,487	382,598
Fertilizer	74,688	69,972	70,811	70,822
Herbicides	23,245	25,917	25,907	25,916
Insecticides	12,604	8,930	9,821	9,821
Labor	14,876	13,667	13,996	14,000
Machinery	41,650	38,934	40,124	40,136
Other Costs	33,056	23,006	23,774	30,252
Variable Costs	199,724	198,284	198,935	195,551
Rent	44,100	44,100	44,100	44,100
Net Returns	141,148	122,582	135,452	142,947

Table 4.4. Farm Environmental Results Under FACTA.

Environmental Parameter	FACTA			
	10 Tons Per Acre		7.5 Tons Per Acre	5 Tons Per Acre
	Baseline	Alternative	Alternative	Alternative
Soil Erosion (tons)	9.07	6.84	5.28	4.42
Chemical Risk Index	100.00	100.00	83.76	100.00
Nitrogen Loss (lbs.)	14.92	14.92	14.92	14.92
Phosphorus Loss (lbs.)	16.08	14.97	13.72	11.78
Organic Carbon (%)	2.83	2.98	2.99	3.50

and phosphorus loss is 16.08 pounds per acre. A relatively large expenditure on fertilizers (\$74,687.88) (see table 4.3) confirms these levels of nutrient loss. Also, this amount of nutrient loss is possible due the acreage allotted to input-intensive cotton in the solution. The organic carbon indicator results imply that the organic matter concentration in the soil is 2.83 percent.

FACTA-Alternative at 10 Tons Per Acre

Figure 4.2 shows the crop mix for FACTA-Alternative at 10 tons per acre. When allowing alternatives to enter the solution, a significant increase in soybean-wheat double-crop acreage (293 percent increase) occurs. A reduction in the acreage allotted to cotton production (24 percent decrease) contributes to this increase in the soybean-wheat double-crop acreage. All this soybean-wheat double-crop acreage uses no-till (see table 4.2).

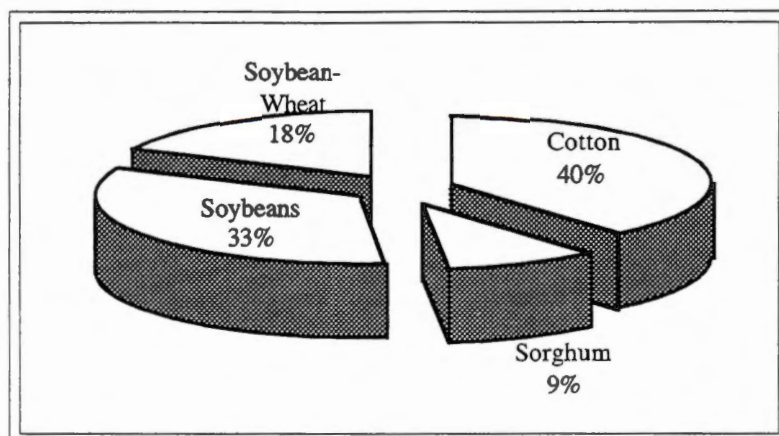


Figure 4.2. Crop Mix Under FACTA Using Alternative Farm Practices at 10 Tons Per Acre

Table 4.3 shows that, while this crop mix change causes a slight reduction in gross revenues (\$2,374 or .62 percent), net returns increase slightly (\$1,798 or 1.27 percent) due to a reduction in production costs (\$4,173 or 2.13 percent). The replacement of cotton acreage with the less input-intensive soybean-wheat double-crop is the major reason that production costs fell. Figure 4.3 shows the change in net returns that occurs between the Initial and Alternative scenarios.

Alternative practices are used on 61 percent of the farm in the FACTA-Alternative scenario at the 10 tons per acre erosion level. In addition to the no-till soybean-wheat double-crop, terraced cotton (320 acres) and a four-year soybean-soybean-cotton-cotton rotation (191 acres) come into solution (see table 4.2). Making these alternative production practices available results in a reduction in annual erosion of 2.23 tons per acre (9.07 to 6.84 tons per acre) (figure 4.4). Impacts on other environmental parameters are not as dramatic (see table 4.4). Nitrogen loss remains the same at 14.92 pounds per acre (figure 4.5). A slight reduction (1.14 pounds per acre) occurs in the amount of phosphorus being

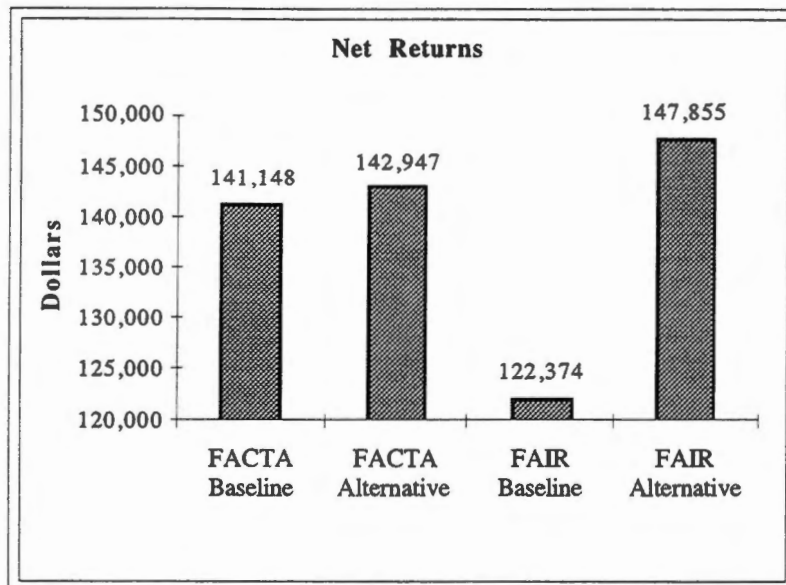


Figure 4.3. Net Returns Under the 10 Tons Per Acre Erosion Constraint.

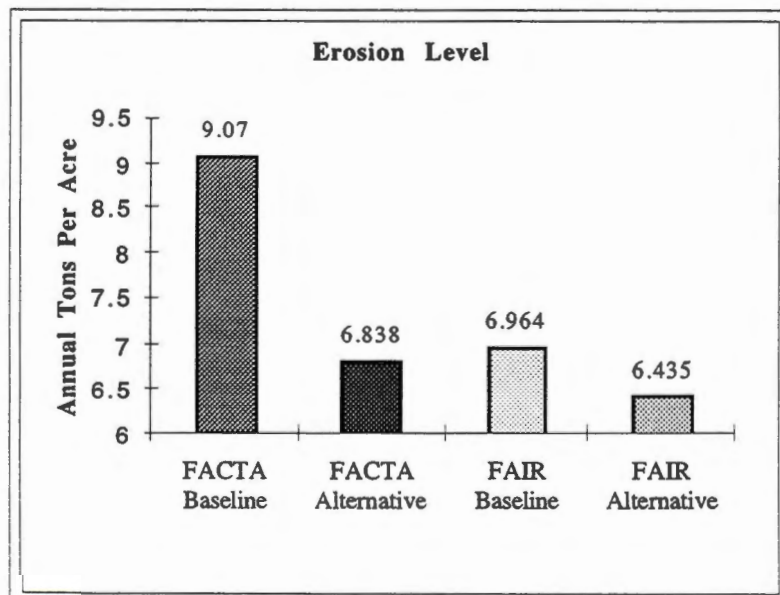


Figure 4.4. Erosion Level Under the 10 Tons Per Acre Erosion Constraint.

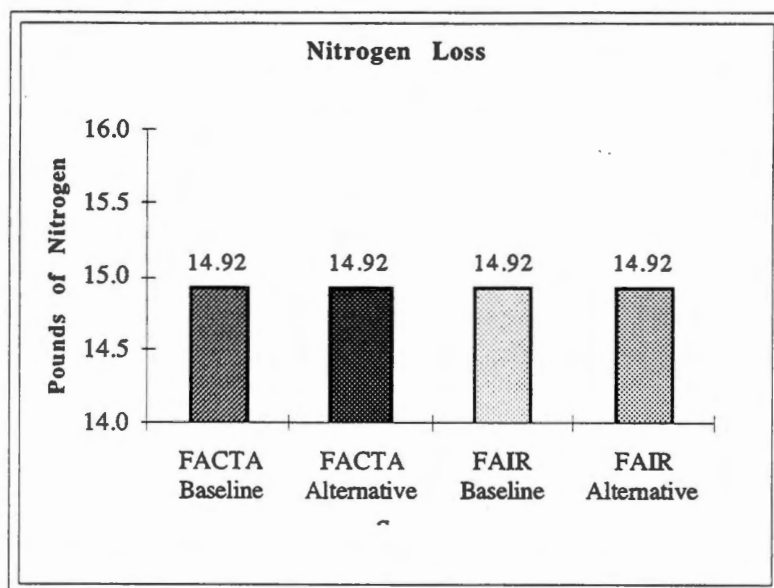


Figure 4.5. Nitrogen Loss Under the 10 Tons Per Acre Erosion Constraint.

lost (16.08 to 14.92 pounds per acre) (figure 4.6). While the chemical risk index (figure 4.7) does not drop below the baseline, a slight improvement (.15) in soil organic matter (2.83 to 2.98 percent) is achieved (figure 4.8). This increase in organic matter may be a result of additional acreage being planted in a high-residue crop (wheat).

FAIR-Initial at 10 Tons Per Acre

Figure 4.9 illustrates the crop mix for the representative farm under FAIR provisions at the 10 tons per acre erosion constraint. When compared to the FACTA-Initial crop mix, a decrease in cotton (168.5 acre decrease), sorghum (61.5 acre decrease) and continuous soybean (19 acre decrease) acreage is revealed. This acreage is converted to a soybean-wheat double-crop (249 acre increase). The distribution of cropland is shown in

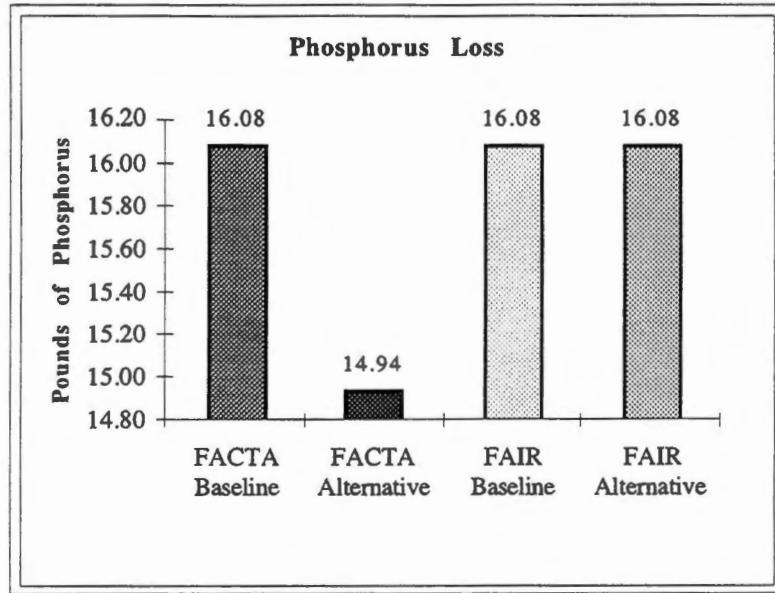


Figure 4.6. Phosphorus Loss Under the 10 Tons Per Acre Erosion Constraint.

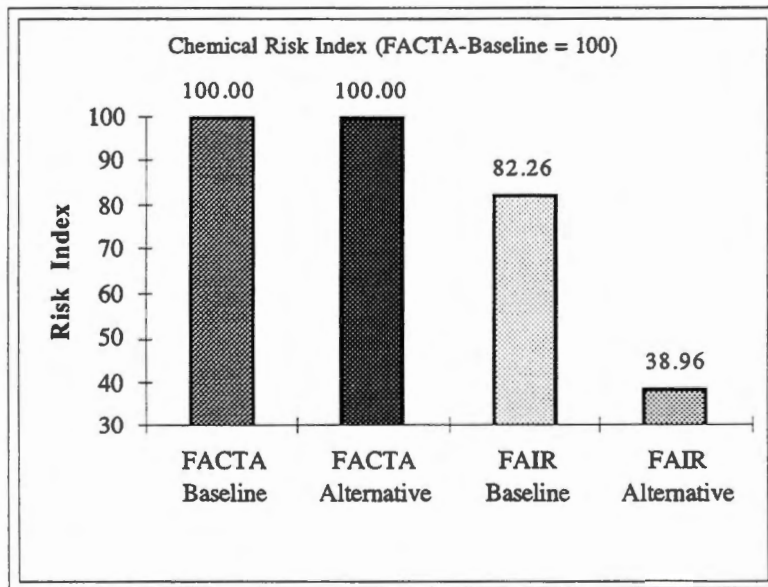


Figure 4.7. Chemical Risk Index Under the 10 Tons Per Acre Erosion Constraint.

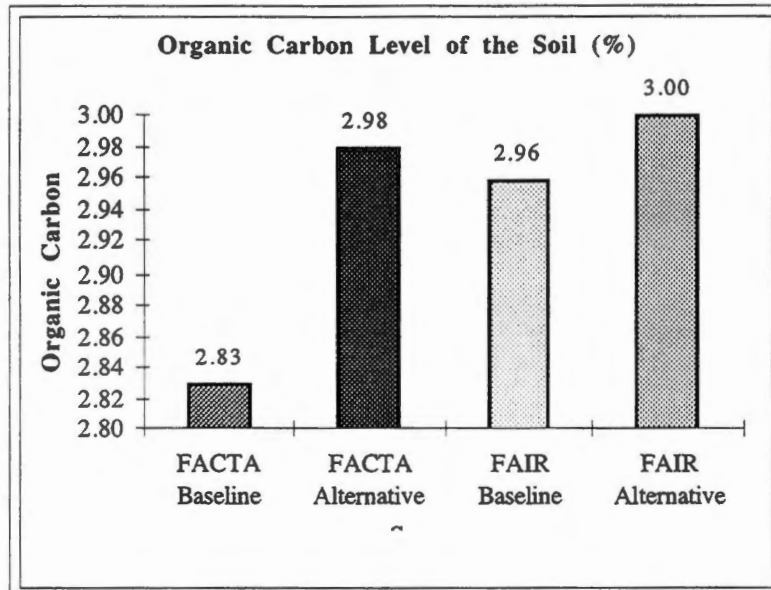


Figure 4.8. Organic Carbon Under the 10 Tons Per Acre Erosion Constraint.

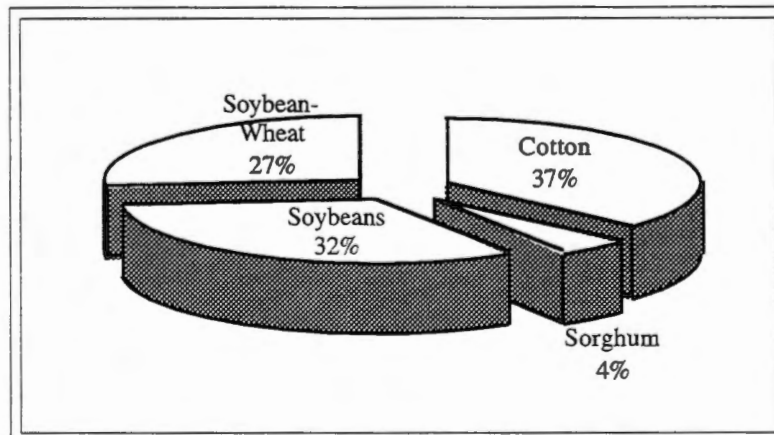


Figure 4.9. Crop Mix Under FAIR Using Initial Farm Practices at 10 Tons Per Acre

table 4.5. Production practices for the activities chosen by the LP are reported in table 4.6. Continuous cotton acreage (37 percent of total land) is planted on the majority of the cropland in FAIR-Initial scenario at an erosion level of 10 tons per acre. Followed by the soybean-wheat double-crop (27 percent of total land) and continuous sorghum (4 percent of total land), continuous soybeans (32 percent of total land) makes up the second largest portion of planted acres.

Economic results are shown in table 4.7. Net returns at the 10 tons per acre erosion constraint for the representative farm under FAIR-Initial are \$122,374. A significant decrease in net returns (\$18,774) occurs when compared to the FACTA-Initial net returns (see figure 4.3). Although production costs decrease (\$3,676) as FAIR replaces FACTA, gross revenues drop considerably (\$22,450). Some of this difference can be attributed to policy impacts. These policy impacts are manifested more so in the form of lower commodity prices rather than the difference in government payments (\$638).

Table 4.8 provides the environmental results obtained under FAIR. Soil erosion (6.96 tons per acre) that occurs under the FAIR policy assumptions is well below the 10 tons per acre limit (3.04 tons per acre less) and the FACTA-Initial level (2.11 tons per acre less) (see figure 4.4). While the nitrogen and phosphorus loss levels remain at baseline (FACTA-Initial at 10 tons per acre) levels (see figures 4.5 and 4.6), the chemical risk index and the organic matter indicator connote that improvements have been made when compared to baseline levels (see figures 4.7 and 4.8). The chemical risk index drops by 17.74 points to 82.26. This may be attributable to the reduction in surface run-off that results with the adoption of erosion reducing crops. Organic matter improvements (2.83 to 2.96 percent) may be due to the increase of the high-residue wheat crop.

Table 4.5. Farm Production Results Under FAIR

Rotation	Soil Type	Erodibility Category	Crops	Yield	Acreage
Initial Farm Practices at 5 tons/acre					
A-3	Loring	1	Soybeans	20.03	365.0
			Winter Wheat	38.18	
		2	Soybeans	20.11	229.0
			Winter Wheat	38.30	
	Routon	4	Soybeans	19.95	52.0
			Winter Wheat	38.05	
		2	Soybeans	23.18	15.0
			Winter Wheat	43.21	
A-31	Routon	1	Cotton	648.95	212.0
A-42	Routon	4	Soybeans	34.27	3.0
A-46	Loring	3	Wheat	34.77	320.0
	Routon	3	Wheat	40.69	4.0
Initial Farm Practices at 7.5 tons/acre					
A-3	Loring	1	Soybeans	20.03	365.0
			Winter Wheat	38.18	
		3	Soybeans	20.11	320.0
			Winter Wheat	38.55	
	Routon	4	Soybeans	19.95	52.0
			Winter Wheat	38.05	
		2	Soybeans	23.18	15.0
			Winter Wheat	43.21	
A-31	Loring	2	Cotton	590.66	229.0
	Routon	1		648.95	164.5
A-42	Routon	1	Soybeans	34.43	47.5
		4		34.27	3.0
A-46	Routon	3	Wheat	40.69	4.0

Table 4.5. (Continued)

Rotation	Soil Type	Erodibility Category	Crops	Yield	Acreage
Initial Farm Practices at 10 tons/acre					
A-3	Loring	3	Soybeans	20.11	320.0
			Winter Wheat	38.55	
	Routon	3	Soybeans	22.60	4.0
			Winter Wheat	42.33	
A-31	Loring	2	Cotton	590.66	229.0
	Routon	1		648.95	212.0
		4		645.68	3.0
A-39	Loring	1	Sorghum	74.65	51.0
A-42	Loring	1	Soybeans	30.38	314.0
		4		30.38	52.0
	Routon	2		33.44	15.0
Alternative Practices at 5 tons/acre					
A-4	Routon	3	Soybeans	22.92	4.0
			Winter Wheat	43.47	
A-6	Loring	1	Soybeans	26.32	365.0
			Winter Wheat	40.69	
		2	Soybeans	26.65	229.0
			Winter Wheat	41.58	
		3	Soybeans	26.40	320.0
			Winter Wheat	41.32	
	Routon	4	Soybeans	26.32	52.0
			Winter Wheat	40.69	
		1	Soybeans	31.04	173.6
			Winter Wheat	48.00	
		2	Soybeans	30.46	15.0
			Winter Wheat	47.37	
A-30	Routon	4	Soybeans	31.04	3.0
			Winter Wheat	48.00	
		1	Corn	113.64	38.4

Table 4.5. (Continued)

Rotation	Soil Type	Erodibility Category	Crops	Yield	Acreage
Alternative Practices at 7.5 tons/acre					
A-6	Loring	1	Soybeans	26.32	365.0
			Winter Wheat	40.69	
		3	Soybeans	26.40	320.0
			Winter Wheat	41.32	
		4	Soybeans	26.32	52.0
			Winter Wheat	40.69	
	Routon	1	Soybeans	31.04	169.7
			Winter Wheat	48.00	
		2	Soybeans	30.46	15.0
			Winter Wheat	47.37	
		3	Soybeans	29.55	4.0
			Winter Wheat	45.55	
		4	Soybeans	31.04	3.0
			Winter Wheat	48.00	
A-31	Loring	2	Cotton	590.66	229.0
A-30	Routon	1	Corn	113.64	42.3
Alternative Practices at 10 tons/acre					
A-6	Loring	3	Soybeans	26.40	320.0
			Winter Wheat	41.32	
	Routon	1	Soybeans	31.04	212.0
			Winter Wheat	48.00	
		2	Soybeans	30.46	15.0
			Winter Wheat	47.37	
		3	Soybeans	29.55	4.0
			Winter Wheat	45.55	
		4	Soybeans	31.04	3.0
			Winter Wheat	48.00	
A-9	Loring	1	Cotton	579.07	365.0
		4		578.96	52.0
A-31	Loring	2	Cotton	590.66	229.0

Note: Rotation identifier corresponds with the appropriate table in the appendix.

Table 4.6. Farm Production Practices Under FAIR.

Rotation	Crops	Tillage	Alternative Practices	Acreage
Initial Farm Practices at 5 tons/acre				
A-3	Soybeans-Winter Wheat	Conventional Tillage	na	661.0
A-31	Cotton	Conventional Tillage	na	212.0
A-42	Soybeans	Conventional Tillage	na	3.0
A-46	Wheat	Conventional Tillage	na	324.0
Initial Farm Practices at 7.5 tons/acre				
A-3	Soybeans-Winter Wheat	Conventional Tillage	na	752.0
A-31	Cotton	Conventional Tillage	na	393.5
A-42	Soybeans	Conventional Tillage	na	50.5
A-46	Wheat	Conventional Tillage	na	4.0
Initial Farm Practices at 10 tons/acre				
A-3	Soybeans-Winter Wheat	Conventional Tillage	na	324.0
A-31	Cotton	Conventional Tillage	na	444.0
A-39	Sorghum	Conventional Tillage	na	51.0
A-42	Soybeans	Conventional Tillage	na	381.0
Alternative Practices at 5 tons/acre				
A-4	Soybeans-Winter Wheat	Conventional Tillage	Terraces	4.0
A-6	Soybeans-Winter Wheat	No-Till	na	1157.6
A-30	Corn	No-Till	na	38.4
Alternative Practices at 7.5 tons/acre				
A-6	Soybeans-Winter Wheat	No-Till	na	928.7
A-30	Corn	No-Till	na	42.3
A-31	Cotton	Conventional Tillage	na	229.0
Alternative Practices at 10 tons/acre				
A-6	Soybeans-Winter Wheat	No-Till	na	554.0
A-9	Cotton/Hairy Vetch	Conventional Tillage	Terraces/Cover Crop	417.0
A-31	Cotton	Conventional Tillage	na	229.0

Note: Rotation identifier corresponds with the appropriate table in the appendix.

Table 4.7. Economic Results Under FAIR

Item	FAIR					
	Initial			Alternative		
	5 Tons	7.5 tons	10 Tons	5 Tons	7.5 tons	10 Tons
dollars						
Corn				10,858	11,963	
Cotton	88,049	154,898	175,856		86,567	241,106
Sorghum			9,029			
Soybeans	80,696	101,556	109,232	189,986	152,673	94,499
Switchgrass						
Wheat	129,275	102,583	44,147	173,244	139,008	86,269
Gov't Payments	24,257	24,257	24,257	24,257	24,257	24,257
Gross Revenue	322,277	383,294	362,522	398,345	414,469	446,131
Production Costs						
Fertilizer	69,915	81,851	70,653	78,804	85,892	87,328
Herbicides	21,932	26,555	24,053	40,259	37,324	32,707
Insecticides	4,068	7,551	8,906	0	4,395	12,589
Labor	15,143	17,725	15,315	13,504	14,462	18,501
Machinery	41,709	49,118	42,754	42,287	44,002	52,951
Other Costs	17,106	21,969	29,736	13,099	17,929	30,950
	193,058	226,501	196,048	211,559	225,640	254,176
Rent	44,100	44,100	44,100	44,100	44,100	44,100
Net Returns	85,119	112,693	122,374	142,685	144,729	147,855

Table 4.8. Farm Environmental Results Under FAIR.

Environmental Parameter	FAIR					
	5 Tons Per Acre		7.5 Tons Per Acre		10 Tons Per Acre	
	Baseline	Alternative	Baseline	Alternative	Baseline	Alternative
Soil Erosion (tons)	3.59	3.50	5.13	4.46	6.96	6.44
Chemical Risk Index	40.00	19.58	54.84	100.00	82.26	38.96
Nitrogen Loss (lbs.)	13.01	14.92	14.92	14.92	14.92	14.92
Phosphorus Loss (lbs.)	10.03	10.27	13.61	10.54	16.08	16.08
Organic Carbon (%)	3.40	3.67	3.15	3.45	2.96	3.00

FAIR-Alternative at 10 Tons Per Acre

The lack of base acreage requirements under FAIR and the availability of alternative production practices allow for increased changes in the crop mixes to occur. The new crop mix is illustrated in figure 4.10. Conventionally tilled soybean-wheat double-crop, continuous soybeans, and sorghum present in the FAIR-Initial scenario are replaced by a no-till soybeans-wheat double crop and terraced cotton with a hairy vetch cover crop (see tables 4.4 and 4.5). Soybean-wheat double-crop acreage increases by 230 acres to 46 percent of the total acreage, and continuous cotton acreage shifts (444 to 229 acres) to terraced cotton with a hairy vetch cover (417 acres).

Net returns for the representative farm under FAIR-Alternative at the 10 tons per acre erosion constraint improve markedly from FAIR-Initial net returns (\$25,481) to \$147,855 (see figure 4.3) over the FAIR-Initial net returns. The alternatives allow for higher market receipts (\$83,609) than obtained with only initial practices, and this increase in market receipts is not off-set by increased production costs (\$58,128) (see table 4.7). The alternative practices allow the more profitable crops to enter solution while still meeting the environmental constraints.

Erosion is reduced (.52 ton per acre) from the FAIR-Initial scenario to 6.44 tons per acre (see figure 4.4). The LP accomplishes this by devoting a larger number of acres to alternative practices (81 percent of total land). A reduction in the chemical risk index is also accomplished in this scenario (see figure 4.7). The chemical risk index is reduced by 43 points from the FAIR-Initial scenario to 39. This change may be due to the relatively low share of input-intensive practices and the reduction of surface run-off volume. The organic matter indicator also benefited from the addition of alternatives to the solution (see figure 4.8). While the improvement is not dramatic, there was an increase of .04 (2.96 to 3.00 percent).

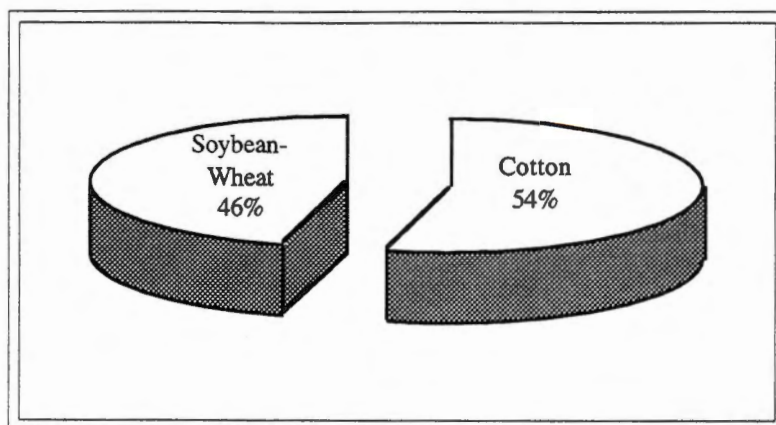


Figure 4.10. Crop Mix Under FAIR Using Alternative Farm Practices at 10 Tons Per Acre

Comparisons of FACTA and FAIR Results at Various Levels of Erosion

The most important environmental externalities of West Tennessee are soil erosion and the corresponding loss of productivity; thus, results obtained from each policy scenario at 7.5 and 5 tons per acre are compared. The relative sustainability of the resulting crop mixes and the opportunity costs of achieving reduced levels of erosion are examined in this section. As mentioned previously, sustainability requires the conservation of the natural resource base by making the most efficient use of non-renewable resources and on-farm resources while sustaining the economic viability of farm operations.

FACTA-Alternative at 7.5 Tons Per Acre

An infeasible solution occurs in the FACTA-Initial scenario as the erosion constraint level is lowered to 7.5 tons per acre, but a feasible solution is obtained when alternatives are made available. The crop mix obtained at 7.5 tons per acre remains the same as obtained in the FACTA-Alternative scenario at 10 tons per acre (see table 4.1).

The production practices, however, have changed in order to meet the tightened erosion constraint (see table 4.2). The acreage utilizing terraces for erosion control has increased from 27 percent to 56 percent (672 acres) of the total land, and the acreage under the four-year soybean-cotton rotation has increased from 16 percent to 19 percent (228 acres) of the total land. With this additional acreage added to the acreage already using alternative production practices at 10 tons per acre, the acreage devoted to alternative production practice increases from 39 percent to 91 percent (1,092 acres) of the total land.

Complying with the reduction in the erosion constraint has lead to a reduction in net returns (figure 4.11). From the net returns of the FACTA-Alternative scenario at 10 tons per acre, a loss of \$7,495 (5.24 percent) is accrued (see table 4.3). This is a result of a slight reduction in gross revenues and a slight increase in production costs. The reduction in gross revenues (\$4,111) mainly results from the soybean-wheat double-crop. Soybean and wheat yields are reduced as production shifts to a different soil type (see table 4.1). The increase in production costs (\$3,384) is added by the alternative practices adopted to further reduce erosion.

In addition to erosion reduction (6.84 to 5.28 tons per acre) (figure 4.12), improvements to the chemical index, the measure of phosphorus loss, and the organic matter indicator occurred as positive externalities. As a result of changing production practices, the chemical index, which may be an indicator of ground- and surface-water contamination, decreases 16.24 index points to 83.76 (figure 4.13). Given the reduction of erosion that occurs in this scenario, it is logical that reductions in chemical loss through surface run-off would result. A slight reduction in the amount of phosphorus loss (14.94 to 13.72 pounds per acre) (figure 4.14) occurs as a result of changes in the allocation of production among soil types. The organic matter indicator shows slight improvement (2.98 to 2.99 percent) (figure 4.15), this may be a result of increased acreage on which

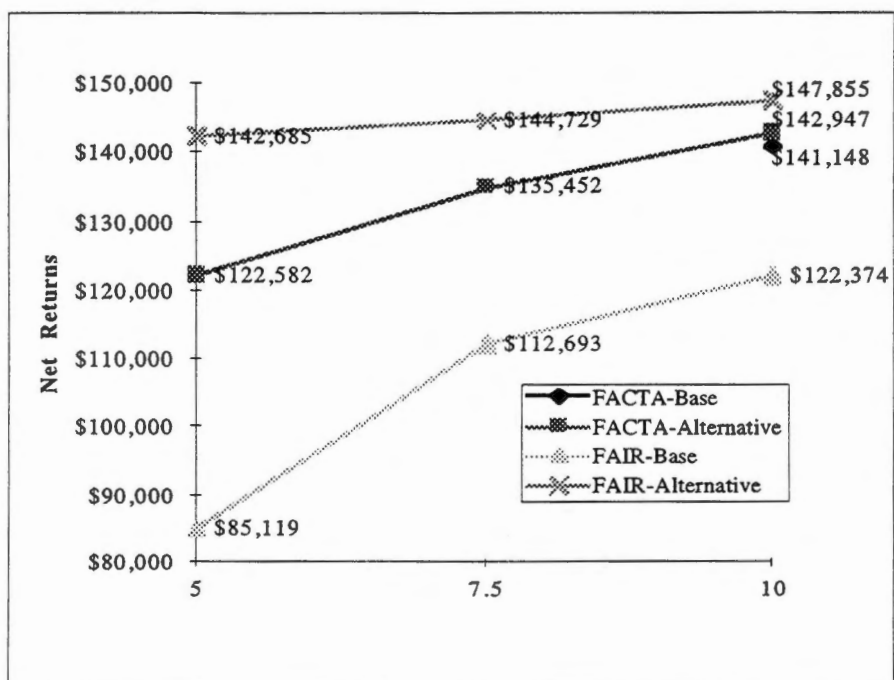


Figure 4.11. Net Returns by Scenario.

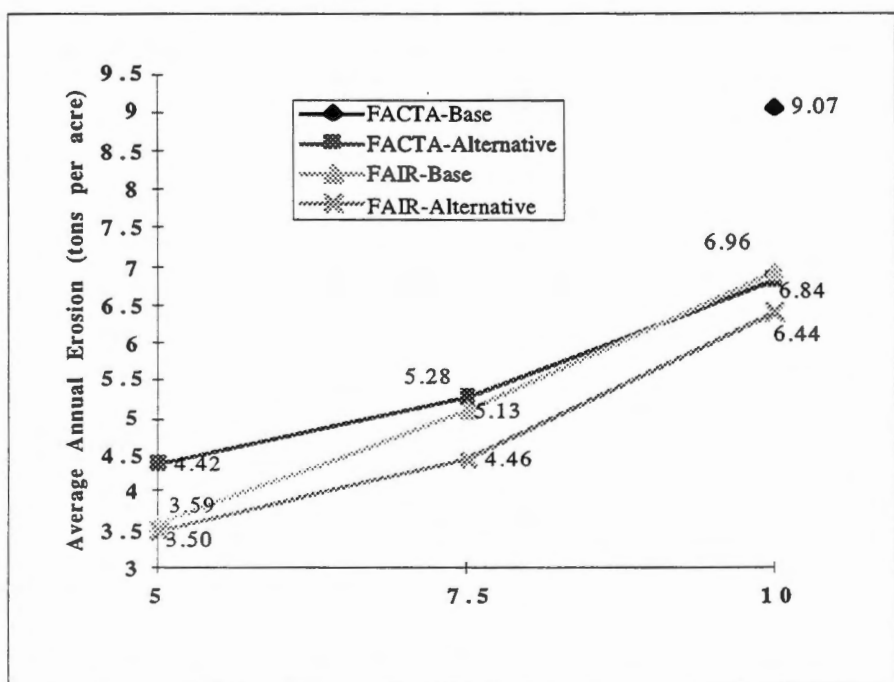


Figure 4.12. Average Erosion Level by Scenario.

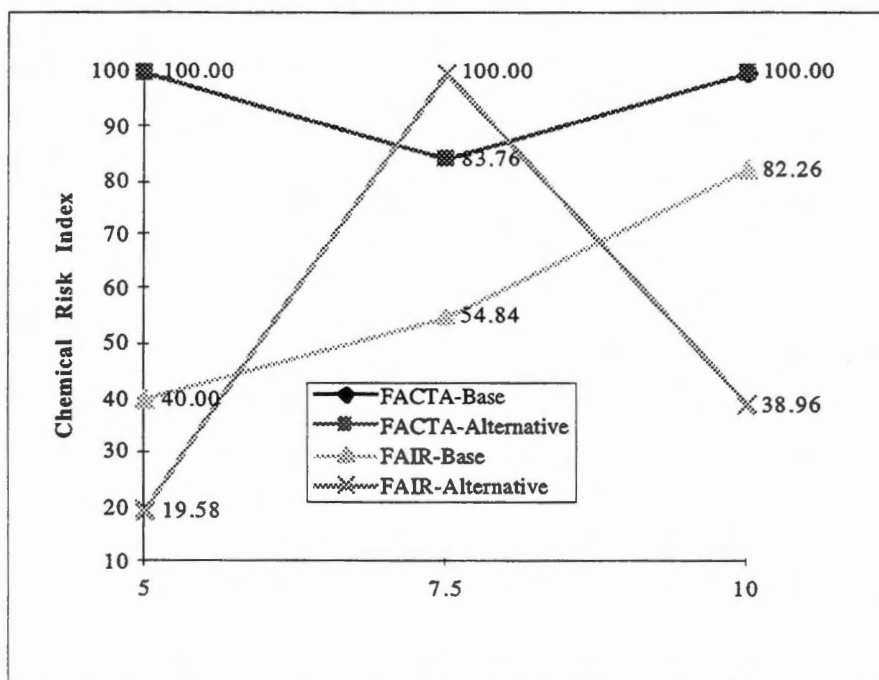


Figure 4.13. Chemical Risk Index by Scenario.

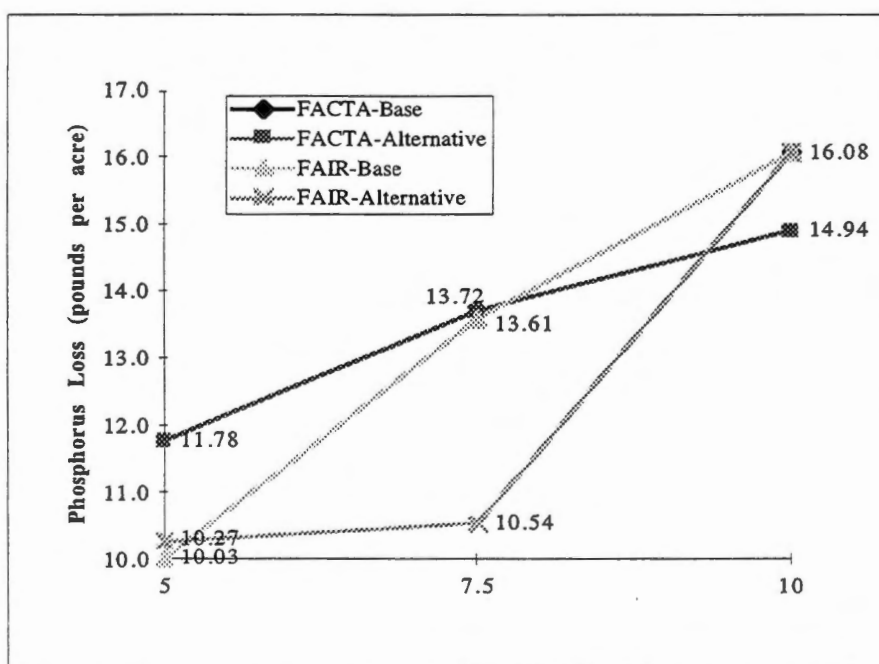


Figure 4.14. Phosphorus Loss by Scenario.

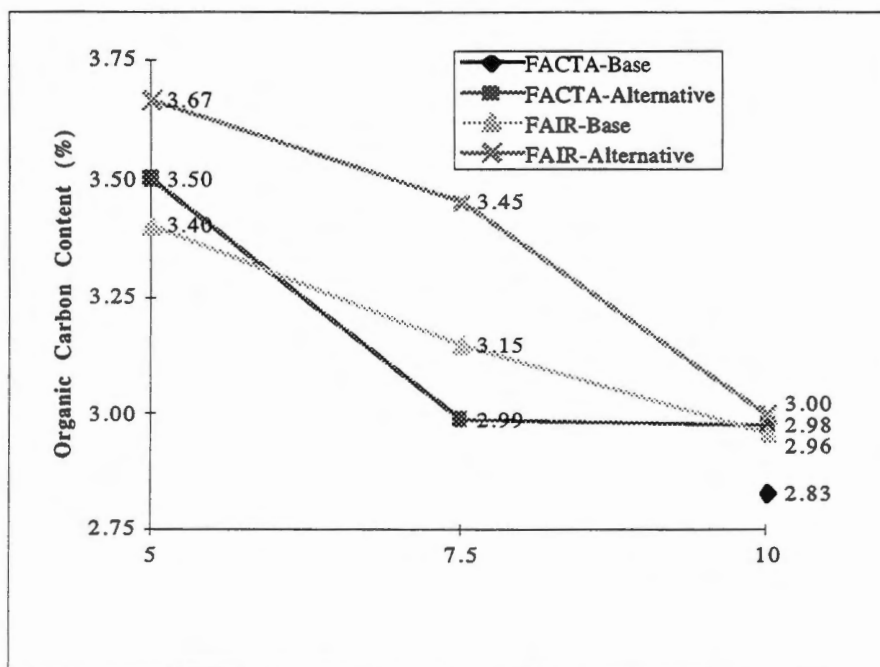


Figure 4.15. Percent Organic Matter in the Soil by Scenario.

rotations are grown. Figure 4.16 illustrates that no changes in the amount of nitrogen lost per acre take place.

FACTA-Alternative at 5 Tons Per Acre

A change in crop mix occurs in the FACTA-Alternative scenario to achieve a further reduction in erosion to 5 tons per acre (see table 4.1). The acreage allotted to the soybean-wheat double-crop increases by 51 acres (23 percent increase) while the cotton acreage decreases by 55 acres (12 percent decrease). Acreage previously devoted to continuous soybeans (70.4 acres) is allotted to two new rotations (see table 4.2). Forty-nine acres of four-year cotton-switchgrass rotation (12.3 acres of cotton and 36.8 acres of switchgrass) come into solution, and the rotation reduces erosion by maintaining year-round ground cover. No-till corn (33.6 acres) is also added to the crop mix.

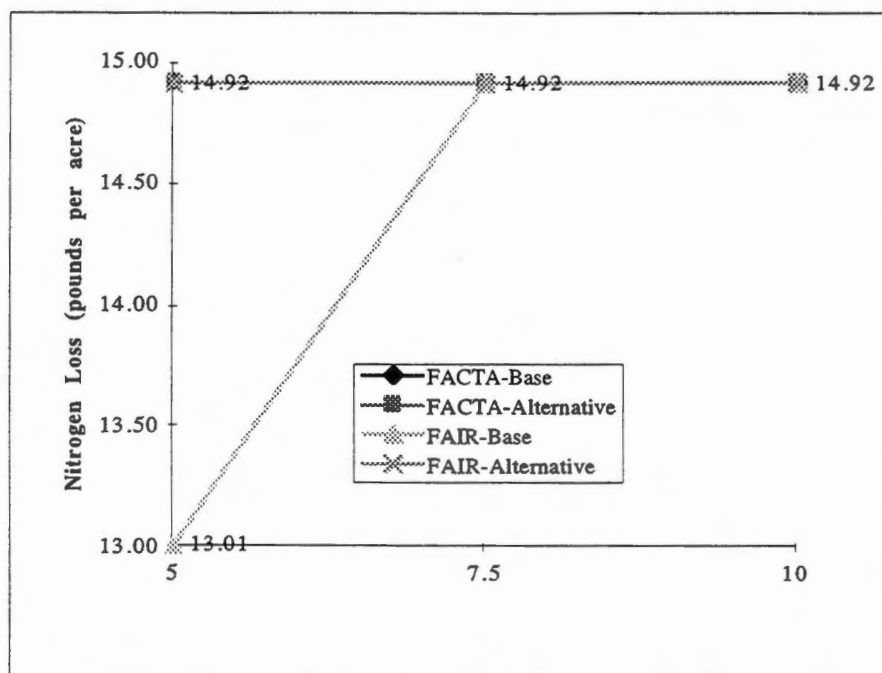


Figure 4.16. Nitrogen Loss by Scenario.

Note: FACTA-Base, FACTA-Alternative, and FAIR-Alternative results remain at 14.92

Net returns are reduced by \$12,870 from the net returns of the FACTA-Alternative scenario with a 7.5 tons per acre erosion level to \$122,582 (see figure 4.11). A reduction in gross revenues of \$13,521 is the major reason for this drop in net returns rather than an increase in production costs (see table 4.3). Production costs increase by a mere \$651. Part of the reduction in gross revenues (\$2,585) can be attributed to a loss of deficiency payments, while the remainder is due to inclusion of alternative production practices with lower yields.

Even though the percentage of acreage devoted to alternative practices decreases from the 91 percent of the 7.5 tons per acre FACTA-Alternative scenario to 85 percent of total land (1,020 acres), the tightened erosion constraint is surpassed (see figure 4.12). Erosion decreases to 4.42 tons per acre (see table 4.4). The LP accomplishes this by

increasing the acreage of practices that are more efficient at erosion reduction. While complying with the per acre erosion constraint, the effect of this action is the reduction of the average annual erosion level. However, this erosion reduction is accomplished at the expense of other environmental parameters. While phosphorus loss (13.72 to 11.78 pounds per acre) (see figure 4.14) and the organic matter indicator (2.99 to 3.5 percent) (see figure 4.15) continued to improve, a set-back in the chemical risk index (83.76 to 100) occurs (see figure 4.13). Organic matter levels improve as result of additional acres being allocated to high-residue crops such as wheat and switchgrass, while the chemical risk index reverts back to the baseline level as a result losing acreage devoted to alternative practices.

FAIR-Initial at 7.5 Tons Per Acre

As erosion constraints are tightened from 10 to 7.5 tons per acre under the FAIR-Initial scenario, the crop mix includes fewer crops (see table 4.5). The land allocated to the soybean-wheat double-crop increases to 752 acres (63 percent of total acreage). While cotton acreage loses only 50.5 acres to the double-crop for a total of 393.5 acres (33 percent of total acreage), continuous soybeans acreage decreases by 330.5 acres to 50.5 acres (4 percent of total land). Continuous wheat is produced on 4 acres.

While market receipts increase by \$20,772 (see figure 4.11), the net returns decrease by \$9,682 due to a \$30,453 increase in production costs (see table 4.7). Fertilizer and machinery costs contribute the most to this increase in production costs. The replacement of nitrogen fixing soybeans with non-leguminous crops may explain some of this increase in fertilizer costs. Increased machine costs may be due to the increased acreage allotted to double-crops which require more annual machine operations.

Several environmental parameters improved over the FAIR-Initial results at 10 tons per acre (see table 4.8). Accompanying the erosion decrease to 5.13 tons per acre (see

figure 4.12), the chemical risk index fell by 27 points to 55 (see figure 4.13). The heavy use of the soybean-wheat double-crop played a vital role in accomplishing these reductions. Surprisingly, the amount of nitrogen lost did not decrease below the baseline level despite the large increase in acreage planted to legumes (see figure 4.16). However, phosphorus losses are decreased to 13.61 pounds per acres from the baseline level achieved at 2T (see figure 4.14). While this is an improvement, the baseline level of phosphorus is only 16.08 pounds per acre. Once again the organic matter indicator improves (see figure 4.15) as the acreage of high-residue crops (wheat) increases.

FAIR-Alternative at 7.5 Tons Per Acre

The trend toward growing fewer crops continues as alternatives are made available under a 7.5 tons per acre erosion constraint (see table 4.5). No-till soybean-wheat double-crop increases to 77 percent of total land. This is a 23.5 percent increase from the FAIR-Initial results under 7.5 tons per acre. Continuous cotton shrinks to 19 percent of total land (229 acres), while no-till corn comes into solution to occupy 4 percent of the cropland (42.3 acres). Alternative practices now cover 81 percent of the farm. This is the same amount of land devoted to alternative practices under the FAIR-Alternative scenario at the 10 tons per acre erosion constraint, however, no-till practices are used on all 971 acres (81 percent) in order to meet the 7.5 tons per acre erosion constraint.

Net returns increase by \$32,036 to \$144,729 when alternative production practices are made available under the 7.5 tons per acre erosion constraint (see figure 4.11). This is the result of larger increases in market receipts (\$31,176) than production costs (\$861) (see table 4.7). This demonstrates the ability of alternative production practices to increase profits while meeting environmental constraints.

Not only are the environmental constraints met by this crop mix, they are improved for soil erosion, phosphorus loss, and organic matter. From the FAIR-Initial level of

erosion, erosion decreased by .67 tons per acre to 4.46 tons per acre (see figure 4.12). This is attributed to the use of no-till practices (see table 4.6). The amount of phosphorus lost decreases with the addition of alternative practices to the scenario. Phosphorus losses decrease by 3.07 pounds per acre to 10.54 pound per acre (see figure 4.14). The increase in high-residue crops (no-till wheat and corn) increased the organic matter indicator by .3 to 3.45 percent (see figure 4.15).

FAIR-Initial at 5 Tons Per Acre

Under an erosion constraint of 5 tons per acre, acreage devoted to the soybean-wheat double-crop, continuous soybeans and cotton decreases from the levels observed in the FAIR-Initial scenario at 7.5 tons per acre. The soybean-wheat double-crop acreage decreases by 12 percent to 661 acres, and acreage allotted to continuous soybeans decrease by 94 percent to 3 acres. Cotton acreage decreases by 46 percent to 212 acres. These acres shift to continuous wheat (increase of 810 percent to 324 acres) in order to meet the erosion constraint of 5 tons per acre (see table 4.5).

Net returns suffer due to the replacement of the more profitable crops with less erosive crops (see figure 4.11). While production costs decrease (\$33,442) to \$193,058, a larger decrease in market receipts (\$61,017) to \$322,277 causes a reduction in net returns of \$27,575 to \$85,119 (see table 4.7). This large loss in net returns may indicate that this crop mix is not economically sustainable. If this crop mix is not economically sustainable, then the opportunity costs for attaining this level of environmental externalities may be to high for farmers.

The inclusion of additional continuous wheat acreage brings the erosion level down by 1.54 tons per acre to 3.59 tons per acre (see figure 4.12). The chemical risk index also drops by 15 points to 40 (see figure 4.13), and the amount of nitrogen and phosphorus lost decreases. Nitrogen losses decrease by 1.92 pounds per acre to 13 pounds per acres (see

figure 4.16), and phosphorus losses decrease by 3.58 pounds per acre to 10.03 pounds per acre (see figure 4.14). The increase in wheat production increases the organic matter indicator by .25 to 3.4 percent (see figure 4.15).

FAIR-Alternative at 5 Tons Per Acre

Making alternatives available for the FAIR scenario under the 5 tons per acre erosion constraint, allows for the no-till soybean-wheat double-crop to dominate the crop mix (see tables 4.5 and 4.6). The no-till soybean-wheat double-crop is allocated 96.5 percent of the available cropland. No-till corn (3.2 percent of total land) and 4 acres of a terraced soybean-wheat double-crop complete the mix. Cotton – historically an important crop to West Tennessee – is eliminated from the crop mix completely.

With an increase of \$57,567 above the net returns of the FAIR-Initial scenario at 5 tons per acre, net returns soar to \$142,685 (see table 4.7 and figure 4.11). While this is a loss of \$2,044 compared to the net returns of FAIR-Alternative at 7.5 tons per acre, the economic advantage of including alternative production practices at 5 tons per acre over using only the initial production practices is clear. The difference in net returns which exists between the two scenarios demonstrates the opportunity costs which a farmer may accrue if alternatives are not adopted.

The soil erosion level is reduced by .1 ton per acre to 3.49 tons per acre (see figure 4.12). This may be a direct result of changes to the crop mix and addition of the production practices of no-till and terracing (see table 4.6). The chemical risk index also drops by 20 points to 20 (see figure 4.13), but the amount of nitrogen and phosphorus lost increases slightly. Nitrogen losses increase 1.91 pounds per acre to the baseline level (see figure 4.16), and phosphorus losses increase by .24 pounds per acre to 10.27 pounds per acre (see figure 4.14). The increase in the number of acres devoted to high-residue wheat

production and no-till practices may explain the increase of .28 to 3.67 percent in the organic matter indicator (see figure 4.15).

CHAPTER 5

SUMMARY, CONCLUSIONS, LIMITATIONS, AND FURTHER RESEARCH

SUMMARY

The key objective of this analysis is to estimate how the adoption of alternative practices by West Tennessee cotton farmers may be affected by two markedly different farm policies. To accomplish this objective, budgetary, and environmental data were estimated for initial and alternative production practices for a Beaver Creek Watershed representative farm (Bowling, 1994). These data were entered into a profit-maximizing LP model, and optimal crop mixes were determined under various erosion constraint levels using policy provisions of FACTA and FAIR.

The results show that there were definite differences in crop mixes between FACTA and FAIR for the initial practices scenario with an annual erosion constraint of 10 tons per acre. Figures 4.1 and 4.9 illustrate these differences in crop mixes. The predominant change – as a result of the switch from FACTA to FAIR – is the replacement of cotton acreage (168.5 acre decrease) with the soybean-wheat double-crop. In addition to the replacement of cotton acreage, continuous soybeans (19 acre decrease) and sorghum (61.5 acre decrease) acreage is displaced by a further increase in acreage devoted to a soybean-wheat double-crop. Soybean market price projections under FAIR average significantly (\$0.40 per bushel) below those for the FACTA, while the average wheat prices are identical. The double-crop, however, is more profitable than continuous cotton due to the

farmer's production costs, which are \$67.40 per acre lower. Thus, the production flexibility of the FAIR act allows the representative farm to take advantage of a more-profitable crop mix when limited to initial production practices only.

As alternative production practices become available to the farm under FACTA (FACTA-Alternative) at the erosion constraint of 10 tons per acre, the previously noted shift away from cotton accelerates. Furthermore, nearly 90 percent of the remaining cotton acreage shifts to alternative practices. Cotton production declines 24 percent to cover 467.5 acres, which completely shifts to the soybean-wheat double-crop (see figures 4.1 and 4.2). All acreage planted to the double-crop shifts to no-till production. The alternatives which enter on cotton acreage are a four-year soybean-cotton rotation (covering one-fifth of cotton acreage) and terraced cotton (68.5 percent of cotton acreage). In all, the total acreage utilizing alternative production practices equal 61 percent of the land on this representative farm.

When alternatives are available in the FAIR scenario at an erosion constraint level of 10 tons per acre, a more radical change in the crop mix occurs (see figure 4.9 and 4.10). Continuous soybeans and sorghum rotations are eliminated, and 53 percent (230 acres) of this acreage is allotted to no-till soybean-wheat double-crop. The remainder (202 acres) is allotted to terraced cotton production using a hairy vetch cover crop. Under the FAIR-Initial scenario at 10 tons per acre, 81 percent of the representative farm's acreage is devoted to alternative production practices.

CONCLUSIONS

For this representative West Tennessee cotton farm, the results suggest that the base acreage requirements of FACTA do pose barriers to the adoption of alternative practices. Twenty percent more cropland is allotted to alternative production practices under FAIR at

the 10-tons-per-acre erosion constraint. Thus, the hypothesis that decoupling commodity programs from production decisions encourages the adoption of more sustainable practices on a West Tennessee cotton farm is accepted.

The results of this analysis should provide Tennessee's farmers, agricultural economists, policy makers and leaders in agribusiness with valuable information regarding the potential effects of the new farm policy on the adoption of more-sustainable production practices at the farm level. The replacement of cotton with a soybean-wheat double-crop observed in this study may be more likely to happen under the freedom allowed by FAIR as farmers align their production systems more closely to the production capability of their land and as market and input prices change. While it is difficult to generalize farm-level results onto the larger West Tennessee region, these results provide support for the notion that the availability of alternative practices provide production options that may make a move away from cotton not entirely detrimental to the well-being of West Tennessee farmers or society. Under the FAIR-Alternative scenario, a large portion of cotton acreage is replaced by the less environmentally detrimental soybean-wheat double-crop.

West Tennessee's experience during the initial year of FAIR included a large increase in acreage planted to corn. This experience may be influenced by unusually high corn prices, and the results of this analysis suggest that soybeans and wheat acreage, rather than corn, will replace cotton acreage. Under the FACTA scenarios, cotton deficiency payments may be high enough to distort the allocation of land in West Tennessee. As has been suggested, these payments may have been sufficient to obstruct the adoption of alternative practices for other crops as well as cotton. Even though commodity price differences between the two policy scenarios attributed to a loss in net returns when allowing only initial production practices to enter solution, the elimination of base acreage requirements under FAIR allows farmers to make both economic and environmental gains.

A secondary objective of this study is to consider whether a holistic approach to farm management results in a more economically and environmentally sustainable farm. This objective is pursued by comparing economic and environmental results of the scenarios at different erosion constraints. Compared with the FACTA solution, the FAIR provisions allow a larger set of alternative/more sustainable practices to occur in the solution. On the whole, the economic and environmental parameters improved more under the FAIR than FACTA scenarios. Thus, under the conditions set forth in this analysis, a holistic approach to farm management does result in a more economically and environmentally sustainable production situation for this representative farm.

LIMITATIONS

The representative farm in this study is developed from survey data, and while efforts were taken by Bowling (1994) to accurately define a Beaver Creek Watershed representative farm from the survey, many differences exist among farms in this area. The survey defined the initial situation's tillage practices as conventional tillage without a moldboard plow. However, some West Tennessee farmers currently utilize conservation tillage practices. The decision was made that, in order to remain consistent in the methods of this analysis, the definition established by the survey would prevail. Had alternative practices been allowed into the baseline solution, the results of this analysis would have been altered.

The conclusions of this analysis may not apply to real-life conditions. Farmers may weigh production decisions with goals other than profit maximization in mind, and they do not face these environmental constraints. Modeling additional farm manager goals and removing or changing environmental constraints also will alter results. In August 1986, the Natural Resources Conservation Service, which is responsible for the enforcement of

Conservation Compliance, required farmers to design “reasonable” conservation plans to address site-specific environmental concerns in lieu of strict constraints. However, because this analysis represents an area and resources necessary to access these conservation plans were not available, alternative environmental constraints were used in this simulation.

Due to the limited availability of information, the modeling system does not include all known existing, and alternative practices. Hence, the results assume that the initial and alternative practices included in the analysis are representative of the Beaver Creek Watershed area. The economic and environmental impacts of initial and alternative production systems are site-specific, depending on combinations of numerous factors, including soil types, soil type homogeneity, climate, historical production practices, pest pressures, and other farm-level characteristics. Under real-life conditions, these factors can be expected to combine in ways which are not captured in this analysis. Management skills required for average results were assumed to be inherent. More accurate and complete results may be obtained as more information becomes available and improvements in plant growth and environmental impact simulators are made.

Many factors that influence the adoption of sustainable practices – such as risk aversion, start-up costs, and personal preference – also are excluded from this analysis. This analysis focuses mainly on the impacts of policy on the implementation of a more sustainable agriculture. Beyond the use of projected commodity prices for both policy regimes, commodity and input price variations resulting from crop mix and policy changes were not considered because of the static nature of this study. Price variations can alter the relative importance of all factors influencing the adoption of alternative practices. Temporal effects of FAIR payments are not considered in the net returns results of this analysis. FAIR payments are front-loaded and gradually decrease throughout the duration of the act. This study assumes an average payment rather than reflecting the gradual decrease in

payments through time. The LP model used in this study assumes that Production Flexibility Contract payments do not affect the production decisions that farmers make. However, these Production Flexibility Contract payments may in actuality affect the production decisions that farmers make.

FURTHER RESEARCH

Additional research is needed to more completely address the questions posed in and resulting from this analysis. Alternative production practices included in this analysis were limited to those which were easily quantifiable. Additional practices could be included in future studies or the better quantification of the practices included in this analysis could be made and tested. Adjustments to the impacts caused by alternative practices or the addition of additional practices will change the results found in this study.

The differences in the LP due to policy were limited to market prices, government payment calculation, and base acreage restrictions. Payment calculations and base acreage restrictions are addressed in this analysis, but a sensitivity analysis of alternative commodity prices is needed. Market prices could be set equal to isolate the effects of base acreage requirements and government payments or varied to estimate crop mix and environmental parameter changes.

While this study provides a stochastic analysis, there is a need for the dynamic modeling of the adoption of alternative practices under various policy scenarios. There is also a need for estimation of price elasticities that result from the widespread adoption of alternative production practices. The reforms of FAIR and vocal concerns of the public have opened up an exciting realm in policy analysis for agricultural economists, and as improvements in communications and modeling techniques develop, more timely and accurate analyses will become available.

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APPENDIX

Table A-1. Corn-Soybean-Soybean-Soybean Rotation -Conventional Tillage

Beaver Creek Watershed
Corn-Soybean-Soybean-Soybean Rotation -Conventional

COMMODITY 1: <u>Corn</u>	REGION TYPE: <u>Watershed</u>	SOIL TYPE: <u>0</u>
COMMODITY 2: <u>Soybean</u>	REGION L.D.: <u>Beaver Creek Watershed</u>	EL INDEX: <u>0</u>
COMMODITY 3: <u>Soybean</u>	FARM SIZE: <u>Large</u>	PRODUCTION PRACTICES: <u>N.A.</u>
COMMODITY 4: <u>Soybean</u>	TILLAGE: <u>Conventional</u>	<u>N.A.</u>
COMMODITY 5: _____	ALT. NUTRIENT: <u>NONE</u>	<u>N.A.</u>
COMMODITY 6: _____	IRRIGATION: <u>Dry</u>	<u>N.A.</u>
YEARS OF ROTATION: <u>4</u>	USDA PRODUCTION REGION: <u>Appalachian</u>	

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ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2053	8	Corn, Grain	BU	2.4909	1	120	298.91
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
SUBTOTAL OF ANNUAL REVENUE							227.19
VARIABLE EXPENSES							
1	SEED						
2655	1	Corn Seed, Hybrid	1,000 kernels	1	1	23	23.00
2690	1	Soybean Seed	BU	13.8	1	2.001	27.61
ANNUAL SUBTOTAL							12.45
2	FERTILIZER & LIME						
501	2	Limestone	LB	0.0078	1	5500	42.90
109	2	Urea (44%-46% N)	LB	0.27	1	277.78	75.00
403	2	0-45-45	LB	0.17905	1	111.1	19.89
402	2	0-20-40	LB	0.0996666	1	300	29.90
ANNUAL SUBTOTAL							41.92
3	HERBICIDES						
4006	3	AAtrex, 4L	PT	2.0925	1	2	4.19
4051	3	Dual 8E (Metolachlor)	PT	8.6125	1	1.25	10.77
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	4.5	18.56
4019	3	Basagran, 4L (Bentazon)	PT	8.48125	1	3	25.44
4146	3	Bismar 2L	PT	7.3875	1	0.75	5.54
ANNUAL SUBTOTAL							14.12
6	OTHER COSTS						
LAB	6	LABOR COST	HR	5.85	1	5.33	31.18
MVC	6	MACHINE VARIABLE COST	AC				89.94
ANNUAL SUBTOTAL							30.28
ANNUAL TOTAL VARIABLE EXPENSES							100.98
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							126.21

Table A-1. (Continued)

Beaver Creek Watershed
Corn-Soybean-Soybean-Soybean Rotation -Conventional

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CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
Corn, Grain	11	17	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	20	CHESEL PLOW GT15FT	0.08	0.09								
	4	10	TANDEM DISK REG GE19FT	0.11	0.12								
	4	15	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	20	PLANTER REGULAR 8 ROW	0.10	0.13							Corn Seed, Hybrid	23.00
	4	20	DRY FERT SPDR TRAILER MTD	0.10	0.00	Urea (44%-46% N)	277.78						
	4	20	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
	5	15	CHEM APPL LT30FT TRACT MTD	0.10	0.11			AAZtrex, 4L	2	PT	1.00		
	5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual EE (Metolachlor)	1.25	PT	1.25		
	10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
Soybean, Grain	10	10	TRUCK SOL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	10	KILL CODE	0.00	0.00								
	11	15	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500						
	3	15	CHESEL PLOW GT15FT	0.08	0.09								
	3	25	TANDEM DISK REG GE19FT	0.11	0.12								
	4	15	TANDEM DISK REG GE19FT	0.11	0.13								
	4	15	CHEM APPL ATT TO DMPL	0.11	0.00			Trifluro MT, 45C (Triflurolin)	1.5	PT	0.75		
	4	20	LANDALL, DO-ALL	0.18	0.20								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.67
	5	5	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Beaagron, 4L (Beaagron)	1	PT	0.50		
Soybean, Grain	5	5	CHEM APPL GE10FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
	10	25	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	25	TRUCK SOL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	25	KILL CODE	0.00	0.00								
	11	15	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500						
	3	15	CHESEL PLOW GT15FT	0.08	0.09								
	3	25	TANDEM DISK REG GE19FT	0.11	0.12								
	4	15	TANDEM DISK REG GE19FT	0.11	0.13								
Soybean, Grain	4	15	CHEM APPL ATT TO DMPL	0.11	0.00			Trifluro MT, 45C (Triflurolin)	1.5	PT	0.75		
	4	20	LANDALL, DO-ALL	0.18	0.20								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.67
	5	5	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Beaagron, 4L (Beaagron)	1	PT	0.50		
	5	5	CHEM APPL GE10FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
	10	25	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	25	TRUCK SOL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	25	KILL CODE	0.00	0.00								
Soybean, Grain	11	15	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500						
	3	15	CHESEL PLOW GT15FT	0.08	0.09								
	3	25	TANDEM DISK REG GE19FT	0.11	0.12								
	4	15	TANDEM DISK REG GE19FT	0.11	0.13								
	4	15	CHEM APPL ATT TO DMPL	0.11	0.00			Trifluro MT, 45C (Triflurolin)	1.5	PT	0.75		
	4	20	LANDALL, DO-ALL	0.18	0.20								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.67
	5	5	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Beaagron, 4L (Beaagron)	1	PT	0.50		
	5	5	CHEM APPL GE10FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
Soybean, Grain	5	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
	10	25	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	25	TRUCK SOL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	25	KILL CODE	0.00	0.00								

Table A-1. (Continued)

Beaver Creek Watershed
Corn-Soybean-Soybean Rotation -Conventional

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MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.19	0.26	0.14
CHISEL PLOW GT15FT	9.84	4.94	0	0.33	3.26	1.64
TANDEM DISK REG GE19FT	13.42	4.04	0	0.75	10.09	3.04
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.40	8.12	3.50
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.24	0.09
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.74	65.73	32.62
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.74	12.56	3.62
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.52	0.42	0.23
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.32	2.04	1.09
LANDALL, DO-ALL	11.34	3.55	0	0.55	6.27	1.96
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	2.79	26.65	35.38
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.52	4.02	5.42
					142.66	89.94

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.41	
2 FEBRUARY	0.00		5 MAY	0.24	
3 MARCH	0.18		6 JUNE	0.00	
FIRST QUARTER		0.18	SECOND QUARTER		0.65
7 JULY	0.00		10 OCTOBER	0.41	
8 AUGUST	0.00		11 NOVEMBER	0.10	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.00	FOURTH QUARTER		0.50

Table A-2. Soybean-Soybean-Cotton-Cotton Rotation -Conventional Tillage

**Beaver Creek Watershed
Soybean-Soybean-Cotton-Cotton Rotation -Conventional**

COMMODITY 1: Soybean	REGION TYPE: Watershed	SOIL TYPE: 0
COMMODITY 2: Soybean	REGION I.D.: Beaver Creek Watershed	EL INDEX: 0
COMMODITY 3: Cotton	FARM SIZE: Large	PRODUCTION PRACTICES: N.A.
COMMODITY 4: Cotton	TILLAGE: Conventional	N.A.
COMMODITY 5:	ALT. NUTRIENT: NONE	N.A.
COMMODITY 6:	IRRIGATION: Dry	N.A.
YEARS OF ROTATION: 4		
USDA PRODUCTION REGION: Appalachians		

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ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2055	8	Cotton, List	LB	0.647	1	725	469.08
2055	8	Cotton, List	LB	0.647	1	725	469.08
SUBTOTAL OF ANNUAL REVENUE							336.16
VARIABLE EXPENSES							
1 SEED							
2690	1	Soybean Seed	BU	13.8	1	1.334	18.41
2660	1	Cottonseed	LB	0.76	1	24	18.24
ANNUAL SUBTOTAL							9.16
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	5000	39.00
402	2	0-20-40	LB	0.0996666	1	200	19.93
109	2	Urea (44%-46% N)	LB	0.27	1	444.44	120.00
401	2	0-20-20	LB	0.0895	1	600	53.70
ANNUAL SUBTOTAL							58.14
3 HERBICIDES							
4110	3	Trifluralin MIF, 48C (Trifluralin)	PT	4.125	1	6	24.75
4019	3	Basagran, 4L (Bentazone)	PT	8.48125	1	2	16.96
4146	3	Blazer 2L	PT	7.3875	1	0.5	3.69
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36
4022	3	Bladet 4L (Cyanazine)	PT	3.78	1	3	11.34
ANNUAL SUBTOTAL							18.84
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3,77 lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							9.59
6 OTHER COSTS							
803	6	Sowing Costs	AC				8.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pix (.35L)	PT	12.6875	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
LAB	6	LABOR COST	HR	5.85	1	8.27	48.36
MVC	6	MACHINE VARIABLE COST	AC				135.34
ANNUAL SUBTOTAL							61.70
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							1.50
ANNUAL TOTAL VARIABLE EXPENSES							188.96
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							177.20

Table A-2. (Continued)

Beaver Creek Watershed
Soybean-Soybean-Cotton-Cotton Rotation -Conventional

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CROP	DATE		MACHINE	MACHINE	LABOR	FERTILIZER		CHEMICAL					OTHER INPUTS	
	MON	DAY	NAME	TIME	TIME	NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE	
Soybean, Grain	11	30	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500							
	3	15	CHISEL PLOW GT15FT	0.08	0.09									
	3	25	TANDEM DISK REG GE19FT	0.11	0.12									
	4	15	TANDEM DISK REG GE19FT	0.11	0.13									
	4	15	CHEM APPL ATT TO IMPL	0.11	0.00			Triflan MTR 4EC (Trihalian)	1.5	PT	0.75			
	4	20	LANDALL, DO-ALL	0.18	0.20									
	4	25	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.67	
	5	5	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Basagran, 4L (Bentazon)	1	PT	0.50			
	5	5	CHEM APPL GE10FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13			
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14									
	5	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100							
	10	25	COMBINE ROW HD SP 2WD	0.18	0.20									
	10	25	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20									
	10	25	KILL CODE	0.00	0.00									
Soybean, Grain	11	15	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500							
	3	15	CHISEL PLOW GT15FT	0.08	0.09									
	3	25	TANDEM DISK REG GE19FT	0.11	0.12									
	4	15	TANDEM DISK REG GE19FT	0.11	0.13									
	4	15	CHEM APPL ATT TO IMPL	0.11	0.00			Triflan MTR 4EC (Trihalian)	1.5	PT	0.75			
	4	20	LANDALL, DO-ALL	0.18	0.20									
	4	25	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.67	
	5	5	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Basagran, 4L (Bentazon)	1	PT	0.50			
	5	5	CHEM APPL GE10FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13			
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14									
	5	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100							
	10	25	COMBINE ROW HD SP 2WD	0.18	0.20									
	10	25	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20									
	10	25	KILL CODE	0.00	0.00									
Cotton, Lint	12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000							
	3	30	CHISEL PLOW GT15FT	0.08	0.09									
	4	1	TANDEM DISK REG GE19FT	0.11	0.12									
	4	5	TANDEM DISK REG GE19FT	0.11	0.13									
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Triflan MTR 4EC (Trihalian)	1.5	PT	0.75			
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07									
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00	
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50			
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terroclor, Super X Granular, 12.5%	10	LB	1.00			
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75			
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46% N)	222.22							
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300							
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14									
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus ®	1	PT	0.50	Scouting Costs	4.00	
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00			
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14									
	6	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25			
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14									
	7	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Ptx (35L)	0.5	PT	0.02			
	7	20	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Vydate C-LV (2,777ba) 1 Gal	8	OZ	0.25			
	9	15	CUSTOM AERIAL CHEMICAL APPLK	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00	
	10	5	COTTON PICKER SELF-PROP	0.33	0.36									
	10	5	COTTON TRAILER	0.08	0.09									
	11	25	COTTON PICKER SELF-PROP	0.33	0.36									
	11	25	COTTON TRAILER	0.08	0.09									
	11	30	ROTARY MOWER	0.33	0.36									
	11	30	KILL CODE	0.00	0.00									
Cotton, Lint	12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000							
	3	30	CHISEL PLOW GT15FT	0.08	0.09									
	4	1	TANDEM DISK REG GE19FT	0.11	0.12									

Table A-2. (Continued)

	4	5	TANDEM DISK REG GEI9FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00				Therion MTR 4BC (Trihalonit)	1.5	PT	0.75	
	4	10	CULT-MULCH ROLLER GEI8FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Octoneed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00				Temik 150 (Aldicarb)	3.5	LB	0.50	
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00				Terrecoar, Super X Granular, 12.5%	10	LB	1.00	
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07				Colorex 4L	1.5	PT	0.75	
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46% N)	222.22						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GEI5FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07				MMSMA, 4 Plus *	1	PT	0.50	Sowing Costs
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00				Blaize 4L (Cyazine)	1.5	PT	3.00	
	6	10	ROW CULTIVATOR GEI5FT	0.13	0.14								
	6	15	CHEM APPL GEI0FT TRLR MTD	0.04	0.04				Guthion 2L (Azinphos Methyl)	1	PT	0.25	
	7	10	ROW CULTIVATOR GEI5FT	0.13	0.14								
	7	15	CHEM APPL GEI0FT TRLR MTD	0.04	0.04				Pix (.35L)	0.5	PT	0.02	
	7	20	CHEM APPL GEI0FT TRLR MTD	0.04	0.04				Vydate C-LV (0.77Ba) 1 Gal	8	OZ	0.25	
	9	15	CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00				DEF 6	1.5	PT	0.65	Custom Aerial Chemical Application
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								

Table A-2. (Continued)

Beaver Creek Watershed
Soybean-Soybean-Cotton-Cotton Rotation -Conventional

64790102.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.35	0.28	0.15
CHISEL PLOW GT15FT	9.84	4.94	0	0.33	3.26	1.64
TANDEM DISK REG GE19FT	13.42	4.04	0	0.86	11.53	3.47
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.63	4.00	2.12
LANDALL, DO-ALL	11.34	3.55	0	0.37	4.18	1.31
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.40	8.12	3.50
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.31	1.33	0.49
ROW CULTIVATOR GE15FT	4.72	2.37	0	1.02	4.84	2.43
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.37	32.86	16.31
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.37	6.28	1.81
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.35	0.49	0.26
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.13	1.37	0.28
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	0.65	2.36	0.95
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.59	12.17	16.41
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	3.53	33.76	44.82
					216.65	135.34

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.49	
2 FEBRUARY	0.00		5 MAY	0.29	
3 MARCH	0.15		6 JUNE	0.09	
FIRST QUARTER		0.15	SECOND QUARTER		0.47
7 JULY	0.11		10 OCTOBER	0.43	
8 AUGUST	0.00		11 NOVEMBER	0.45	
9 SEPTEMBER	0.00		12 DECEMBER	0.05	
THIRD QUARTER		0.11	FOURTH QUARTER		0.93

Table A-3. Soybean-Soft Red Winter Wheat Rotation - Conventional Tillage

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation - Conventional

COMMODITY 1: Soybean REGION TYPE: Watershed SOIL TYPE: 8
COMMODITY 2: Soft Red Winter Wheat REGION LD: Beaver Creek Watershed EIL INDEX: 0
COMMODITY 3: FARM SIZE: Large PRODUCTION PRACTICES: N.A.
COMMODITY 4: TILLAGE: Conventional N.A.
COMMODITY 5: ALT. NUTRIENT: NONE N.A.
COMMODITY 6: IRRIGATION: Dry N.A.
YEARS OF ROTATION: 1 USDA PRODUCTION REGION: Appalachia

64790103.C01

ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2199	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
SUBTOTAL OF ANNUAL REVENUE							344.41
VARIABLE EXPENSES							
1 SEED							
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
2701	1	Wheat Seed, Winter	BU	7.41	1	2	14.82
ANNUAL SUBTOTAL							24.02
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1500	11.70
402	2	0-20-40	LB	0.0996666	1	100	9.97
102	2	Anhydrous Ammonia	LB	0.29	1	80	23.20
200	2	P2O5	LB	0.26	1	40	10.40
300	2	K2O	LB	0.12	1	20	2.40
ANNUAL SUBTOTAL							57.67
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	1.5	6.19
4019	3	Basagran, 4L (Bentazone)	PT	8.48125	1	1	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
4139	3	Harmony Extra (DP)	OZ	13.15	1	0.5	6.58
ANNUAL SUBTOTAL							23.09
6 OTHER COSTS							
7076	6	Tik (3.6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	2.52	14.72
MVC	6	MACHINE VARIABLE COST	AC				40.75
ANNUAL SUBTOTAL							65.95
ANNUAL TOTAL VARIABLE EXPENSES							170.74
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							173.67

Table A-3. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -Conventional

64790103.C01

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.I./acre	NAME	RATE
Soybean, Grain	6	22	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500						
	6	23	CHESEL PLOW GT15FT	0.08	0.09								
	6	25	TANDEM DISK REG GE19FT	0.11	0.12								
	6	28	TANDEM DISK REG GE19FT	0.11	0.13								
	6	28	CHEM APPL ATT TO IMPL	0.11	0.00			Triflun MTR 4EC (TriFluralin)	1.5	PT	0.75		
	7	1	LANDALL, DO-ALL	0.18	0.20								
	7	5	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.67
	8	5	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Basagran, 4L (Bentazon)	1	PT	0.50		
	8	5	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
	8	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	8	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
	10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	10	KILL CODE	0.00	0.00								
Wheat, Soft Red W	10	11	CHESEL PLOW GT15FT	0.08	0.09								
	10	13	TANDEM DISK REG GE19FT	0.11	0.13								
	10	13	LANDALL, DO-ALL	0.11	0.00								
	10	15	DRILL PLAIN DISCRAIN GT14	0.16	0.17							Wheat Seed, Winter	2.00
	3	15	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Tix (3,6EC)	4	OZ	0.00		
	3	30	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Harmony Extra (DF)	0.5	OZ	0.37		
	4	15	LIQD FERT APPL TRAILER MTD	0.07	0.07	Anhydrous Ammonia	80						
	4	15	LIQD FERT APPL TRAILER MTD	0.00	0.00	P205	40						
	4	15	LIQD FERT APPL TRAILER MTD	0.00	0.00	K20	20						
	6	20	COMBINE SELF-PROP 2WD	0.24	0.26								
	6	20	TRUCK SGL AXLE-GAS 2 TON (SP)	0.24	0.26								
	6	20	KILL CODE	0.00	0.00								

Table A-3. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -Conventional

64790103.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
CHISEL PLOW GT15FT	9.84	4.94	0	0.17	1.63	0.82
TANDEM DISK REG GE19FT	13.42	4.04	0	0.32	4.33	1.30
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.11	0.68	0.36
LANDALL, DO-ALL	11.34	3.55	0	0.29	3.31	1.03
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL GE30FT TRLR MTD	4.24	1.56	0	0.04	0.17	0.06
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.13	0.60	0.30
COMBINE ROW HD 3P 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.42	7.19	2.07
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
DRILL, PLAIN, DISCGRAIN GT14	12.29	5.19	0	0.16	1.93	0.82
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.08	0.19	0.07
LIQD FERT APPL TRAILER MTD	4.34	1.59	0	0.07	0.28	0.10
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.24	26.64	7.51
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.32	2.44	3.29
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.10	10.47	13.91
					78.47	40.75

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.07
2	FEBRUARY	0.00	5	MAY	0.00
3	MARCH	0.09	6	JUNE	0.96
FIRST QUARTER		0.09	SECOND QUARTER		1.03
7	JULY	0.31	10	OCTOBER	0.80
8	AUGUST	0.28	11	NOVEMBER	0.00
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.59	FOURTH QUARTER		0.80

Table A-4. Soybean-Soft Red Winter Wheat Rotation -Conventional Tillage

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -Conventional

COMMODITY 1: Soybean		REGION TYPE: Watershed		SOIL TYPE: 8			
COMMODITY 2: Soft Red Winter Wheat		REGION LD: Beaver Creek Watershed		SL INDEX: 0			
COMMODITY 3:		FARM SIZE: Large		PRODUCTION PRACTICES: Broad Based Tillage			
COMMODITY 4:		TILLAGE: Conventional		N.A.			
COMMODITY 5:		ALT. NUTRIENT: NONE		N.A.			
COMMODITY 6:		IRRIGATION: Dry		N.A.			
YEARS OF ROTATION: 1		USDA PRODUCTION REGION: Appalachia					
64790103.C11							
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2139	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
SUBTOTAL OF ANNUAL REVENUE							344.41
VARIABLE EXPENSES							
1 SEED							
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
2701	1	Wheat Seed, Winter	BU	7.41	1	2	14.82
ANNUAL SUBTOTAL							24.02
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1500	11.70
402	2	0-20-40	LB	0.0996666	1	100	9.97
102	2	Anhydrous Ammonia	LB	0.29	1	80	23.20
200	2	P2O5	LB	0.26	1	40	10.40
300	2	K2O	LB	0.12	1	20	2.40
ANNUAL SUBTOTAL							57.67
3 HERBICIDES							
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	1.5	6.19
4019	3	Basagran, 4L (Bentazone)	PT	8.48125	1	1	8.48
4146	3	Biazex 2L	PT	7.3875	1	0.25	1.85
4139	3	Harmony Extra (DF)	OZ	13.15	1	0.5	6.58
ANNUAL SUBTOTAL							23.09
6 OTHER COSTS							
806	6	Broad Base Tillage	AC	10.4355			10.44
7076	6	Tilr (3.6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	2.52	14.72
MVC	6	MACHINE VARIABLE COST	AC				46.75
ANNUAL SUBTOTAL							76.39
ANNUAL TOTAL VARIABLE EXPENSES							181.17
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							163.24

Table A-4. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -Conventional

64790103.C11

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
Soybean, Grain	6	22	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500						
	6	23	CHESEL PLOW GT15FT	0.08	0.09								
	6	25	TANDEM DISK REG GE19FT	0.11	0.12								
	6	28	TANDEM DISK REG GE19FT	0.11	0.13								
	6	28	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTR 4EC (Trifluralin)	1.5	PT	0.75		
	7	1	LANDALL DO-ALL	0.18	0.20								
	7	5	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.67
	8	5	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Basagran 4L (Bentazone)	1	PT	0.50		
	8	5	CHEM APPL GE10FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
	8	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	8	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
	10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	10	KILL CODE	0.00	0.00								
Wheat, Soft Red W	10	11	CHESEL PLOW GT15FT	0.08	0.09								
	10	13	TANDEM DISK REG GE19FT	0.11	0.13								
	10	13	LANDALL DO-ALL	0.11	0.00								
	10	15	DRILL PLAIN DISC GRAIN GT14	0.16	0.17							Wheat Seed, Water	2.00
	3	15	CHEM APPL GE10FT TRACT MTD	0.04	0.04			Tix (2,4-D)	4	OZ	0.00		
	3	30	CHEM APPL GE10FT TRACT MTD	0.04	0.04			Heremedy Extra (DF)	0.5	OZ	0.37		
	4	15	LIQUID FERT APPL TRAILER MTD	0.07	0.07	Anhydrous Ammonia	80						
	4	15	LIQUID FERT APPL TRAILER MTD	0.00	0.00	P205	40						
	4	15	LIQUID FERT APPL TRAILER MTD	0.00	0.00	K20	20						
	6	20	COMBINE SELF-PROP 2WD	0.24	0.26								
	6	20	TRUCK SGL AXLE-GAS 2 TON (SP)	0.24	0.26								
	6	20	KILL CODE	0.00	0.00								

Table A-4. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation - Conventional

64790103.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
CHISEL PLOW GT15FT	9.84	4.94	0	0.17	1.63	0.82
TANDEM DISK REG GE19FT	13.42	4.04	0	0.32	4.33	1.30
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.11	0.68	0.36
LANDALL, DO-ALL	11.34	3.55	0	0.29	3.31	1.03
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.04	0.17	0.06
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.13	0.60	0.30
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.42	7.19	2.07
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
DRILL, PLAIN, DISCGRAIN GT14	12.29	5.19	0	0.16	1.93	0.82
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.08	0.19	0.07
LIQD FERT APPL TRAILER MTD	4.34	1.59	0	0.07	0.28	0.10
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.24	26.64	7.51
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.32	2.44	3.29
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.10	10.47	13.91
					78.47	40.75

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.07
2	FEBRUARY	0.00	5	MAY	0.00
3	MARCH	0.09	6	JUNE	0.96
FIRST QUARTER		0.09	SECOND QUARTER		1.03
7	JULY	0.31	10	OCTOBER	0.80
8	AUGUST	0.28	11	NOVEMBER	0.00
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.59	FOURTH QUARTER		0.80

Table A-5. Soybean-Soft Red Winter Wheat Rotation -Conventional Tillage

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -Conventional

COMMODITY 1: Soybean REGION TYPE: Watershed SOIL TYPE: 9
 COMMODITY 2: Soft Red Winter Wheat REGION L.D.: Beaver Creek Watershed E.I. INDEX: 9
 COMMODITY 3: FARM SIZE: Large PRODUCTION PRACTICES: Conventional
 COMMODITY 4: TILLAGE: Conventional N.A.
 COMMODITY 5: ALT. NUTRIENT: NONE N.A.
 COMMODITY 6: IRRIGATION: Dry N.A.
 YEARS OF ROTATION: 1 USDA PRODUCTION REGION: Appalachia

64790103.C12

ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	ANNUAL
CODE	CODE			NATIONAL	INDEX		AMOUNT
REVENUE							
2107	8	Soybean, Green	BU	5.8082	1	35	203.29
2139	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
SUBTOTAL OF ANNUAL REVENUE							344.41
VARIABLE EXPENSES							
1 SEED							
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
2701	1	Wheat Seed, Winter	BU	7.41	1	2	14.82
ANNUAL SUBTOTAL							24.02
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1500	11.70
402	2	0-20-40	LB	0.0996666	1	100	9.97
102	2	Anhydrous Ammonia	LB	0.29	1	80	23.20
200	2	P2O5	LB	0.26	1	40	10.40
300	2	K2O	LB	0.12	1	20	2.40
ANNUAL SUBTOTAL							57.67
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	1.5	6.19
4019	3	Basagran, 4L (Bentazone)	PT	8.44125	1	1	8.44
4146	3	Biazex 2L	PT	7.3875	1	0.25	1.85
4139	3	Harmony Extra (DF)	OZ	13.15	1	0.5	6.58
ANNUAL SUBTOTAL							23.09
6 OTHER COSTS							
7076	6	Tik (3,6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	2.77	16.19
MVC	6	MACHINE VARIABLE COST	AC				44.83
ANNUAL SUBTOTAL							71.50
ANNUAL TOTAL VARIABLE EXPENSES							176.28
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							168.12

Table A-5. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -Conventional

64790103.C12

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
Soybean, Grain	6	22	DRY FERT APPL TRACTOR MTD	0.10	0.11	Limestone	1500						
	6	23	CHISEL PLOW GT15FT	0.09	0.10								
	6	25	TANDEM DISK REG GE19FT	0.12	0.13								
	6	28	TANDEM DISK REG GE19FT	0.12	0.15								
	6	28	CHEM APPL ATT TO IMPL	0.12	0.00			Treflan MTR, 4EC (Trifluralin)	1.5	PT	0.75		
	7	1	LANDALL, DO-ALL	0.20	0.22								
	7	5	PLANTER REGULAR 8 ROW	0.11	0.12							Soybean Seed	0.67
	8	5	CHEM APPL GE10FT TRLR MTD	0.04	0.05			Basagran, 4L (Bentazone)	1	PT	0.50		
	8	5	CHEM APPL GE10FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
	8	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	8	20	DRY FERT APPL TRACTOR MTD	0.10	0.11	0-20-40	100						
	10	10	COMBINE ROW HD SP 2WD	0.20	0.22								
	10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.20	0.22								
	10	10	KILL CODE	0.00	0.00								
Wheat, Soft Red W	10	11	CHISEL PLOW GT15FT	0.09	0.10								
	10	13	TANDEM DISK REG GE19FT	0.12	0.15								
	10	13	LANDALL, DO-ALL	0.12	0.00								
	10	15	DRILL PLAIN DISC GRAIN GT14	0.17	0.19							Wheat Seed, Winter	2.00
	3	15	CHEM APPL GE10FT TRACT MTD	0.04	0.05			TIR (3,4EC)	4	OZ	0.00		
	3	30	CHEM APPL GE10FT TRACT MTD	0.04	0.05			Harmony Extra (DF)	0.5	OZ	0.37		
	4	15	LIQUID FERT APPL TRAILER MTD	0.07	0.08	Anhydrous Ammonia	80						
	4	15	LIQUID FERT APPL TRAILER MTD	0.00	0.00	P205	40						
	4	15	LIQUID FERT APPL TRAILER MTD	0.00	0.00	K20	20						
	6	20	COMBINE SELF-PROP 2WD	0.26	0.29								
	6	20	TRUCK SGL AXLE-GAS 2 TON (SP)	0.26	0.29								
	6	20	KILL CODE	0.00	0.00								

Table A-5. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation - Conventional

64790103.C12

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.19	0.16	0.08
CHISEL PLOW GT15FT	9.84	4.94	0	0.18	1.79	0.90
TANDEM DISK REG GE19FT	13.42	4.04	0	0.35	4.76	1.43
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.12	0.75	0.40
LANDALL, DO-ALL	11.34	3.55	0	0.32	3.64	1.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.04	0.18	0.07
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.14	0.66	0.33
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.20	18.07	8.97
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.46	7.91	2.28
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
DRILL PLAIN DISCGRAIN GT14	12.29	5.19	0	0.17	2.12	0.90
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.09	0.21	0.08
LIQUID FERT APPL TRAILER MTD	4.34	1.59	0	0.07	0.31	0.11
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.26	29.30	8.26
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.35	2.68	3.61
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.21	11.52	15.30
					\$6.31	44.83

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.08	
2 FEBRUARY	0.00		5 MAY	0.00	
3 MARCH	0.09		6 JUNE	1.06	
FIRST QUARTER		0.09	SECOND QUARTER		1.14
7 JULY	0.34		10 OCTOBER	0.88	
8 AUGUST	0.31		11 NOVEMBER	0.00	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.65	FOURTH QUARTER		0.88

Table A-6. Soybean-Soft Red Winter Wheat Rotation -No-Till Tillage

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -No-Till

COMMODITY 1: Soybean REGION TYPE: Watershed SOIL TYPE: 0
 COMMODITY 2: Soft Red Winter Wheat REGION LD: Beaver Creek Watershed EL INDEX: 0
 COMMODITY 3: _____ FARM SIZE: Large PRODUCTION PRACTICES: N.A.
 COMMODITY 4: _____ TILLAGE: No-Till _____ N.A.
 COMMODITY 5: _____ ALT. NUTRIENT: NONE _____ N.A.
 COMMODITY 6: _____ IRRIGATION: Dry _____ N.A.
 YEARS OF ROTATION: 1 USDA PRODUCTION REGION: Appalachian

64790103.N01

64790103.N01

ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2139	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
SUBTOTAL OF ANNUAL REVENUE							344.41
VARIABLE EXPENSES							
1 SEED							
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5	11.12
ANNUAL SUBTOTAL							20.32
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1500	11.70
402	2	0-20-40	LB	0.0996666	1	100	9.97
102	2	Anhydrous Ammonia	LB	0.29	1	80	23.20
431	2	10-30-30	LB	0.196	1	100	19.60
ANNUAL SUBTOTAL							64.47
3 HERBICIDES							
4314	3	Gramoxone Extra, 2.5L (Paraquat)	PT	4.225	1	1.5	6.34
4360	3	Prowl 3.3 EC	QT	10.725	1	1	10.73
4019	3	Bastagan, 4L (Bentazon)	PT	8.48125	1	1	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
4139	3	Harmony Extra (DF)	OZ	13.15	1	0.5	6.58
ANNUAL SUBTOTAL							33.97
6 OTHER COSTS							
7076	6	Tir (3.6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	1.95	11.43
MVC	6	MACHINE VARIABLE COST	AC				35.81
ANNUAL SUBTOTAL							57.72
ANNUAL TOTAL VARIABLE EXPENSES							176.47
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							167.94

Table A-6. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -No-Till

64790103.N01

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
Soybean, Grain	6	18	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500					Soybean Seed	0.67
	6	20	PLANTER NO-TILL 6 ROW	0.20	0.22								
	6	30	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Crusone Extra, 2.5L (Paraquat)	1.5	PT	0.47		
	6	30	CHEM APPL GE10FT TLRL MTD	0.00	0.00			Prowl 3.3 EC	1	QT	0.80		
	7	5	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Basagran, 4L (Bentazone)	1	PT	0.50		
	7	5	CHEM APPL GE10FT TLRL MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
	7	10	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
	10	12	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	12	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	12	KILL CODE	0.00	0.00								
Wheat, Soft Red W	10	15	CHESEL FLOW QT15FT	0.08	0.09							Wheat Seed, Winter	1.50
	10	20	TANDEM DISK REG GE19FT	0.11	0.12								
	10	25	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	10	30	DRILL NO-TILL, MIN-TILL, 2P	0.16	0.18								
	2	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	Anhydrous Ammonia	80						
	2	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	10-30-30	100						
	3	20	CHEM APPL GE10FT TLRL MTD	0.04	0.04			TIR (3.6EC)	4	OZ	0.00		
	4	15	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Harmony Extra (DP)	0.5	OZ	0.37		
	6	15	COMBINE ROW HD SP 2WD	0.18	0.20								
	6	15	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
	6	15	KILL CODE	0.00	0.00								

Table A-6. (Continued)

Beaver Creek Watershed
Soybean-Soft Red Winter Wheat Rotation -No-Till

64790103.N01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
PLANTER NO-TILL 6 ROW	16.45	9.76	0	0.20	3.29	1.95
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.16	0.67	0.24
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.37	32.86	16.31
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.37	6.28	1.81
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
DRILL, NO-TILL, MIN-TILL, 20'	27.34	12.11	0	0.16	4.48	1.98
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.09	0.12	0.06
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.34	2.61	3.52
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.70	6.68	8.87
					60.07	35.81

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.04	
2 FEBRUARY	0.10		5 MAY	0.00	
3 MARCH	0.04		6 JUNE	0.76	
FIRST QUARTER		0.14	SECOND QUARTER		0.81
7 JULY	0.14		10 OCTOBER	0.87	
8 AUGUST	0.00		11 NOVEMBER	0.00	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.14	FOURTH QUARTER		0.87

Table A-7. Cotton-Vetch Cover Rotation -Conventional Tillage

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

COMMODITY 1: <u>Cotton</u>		REGION TYPE: <u>Watershed</u>	SOIL TYPE: <u>8</u>				
COMMODITY 2: <u>Vetch Cover</u>		REGION I.D.: <u>Beaver Creek Watershed</u>	EL INDEX: <u>0</u>				
COMMODITY 3: _____		FARM SIZE: <u>Large</u>	PRODUCTION PRACTICES: <u>Seedling of Chardonia</u>				
COMMODITY 4: _____		TILLAGE: <u>Conventional</u>	Nutrient Management: _____				
COMMODITY 5: _____		ALT. NUTRIENT: <u>RESIDUAL (1st year perennial)</u>	N.A.				
COMMODITY 6: _____		IRRIGATION: <u>Dry</u>	N.A.				
YEARS OF ROTATION: <u>1</u>		USDA PRODUCTION REGION: <u>Appalachian</u>					
64790104.C01							
ITEM	CATEGORY	NAME	UNITS	PRICE	QUANTITY	ANNUAL	
CODE	CODE			NATIONAL INDEX		AMOUNT	
REVENUE							
2055	8	Cotton, List	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
SUBTOTAL OF ANNUAL REVENUE						469.08	
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.76	1	12	9.12
2703	1	Hairy Vetch Seed	LB	0.7	1	8	5.60
ANNUAL SUBTOTAL						14.72	
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1000	7.80
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	298.5044776	35.46
401	2	0-20-20	LB	0.0895	1	300	26.85
ANNUAL SUBTOTAL						70.11	
3 HERBICIDES							
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	1.5	6.19
4176	3	Cotoran, 4L	PT	4.755	1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18	1	1	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	1.5	5.67
ANNUAL SUBTOTAL						21.17	
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	3.5	11.20
1152	4	Outlook 2L (Azinphos Methyl)	PT	3.8	1	1	3.80
1247	4	Vydate C-LV (3.77lbs) 1 Gal	OZ	0.5234975	1	8	4.19
ANNUAL SUBTOTAL						19.19	
6 OTHER COSTS							
803	6	Scouting Costs	AC				4.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	10	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.5	6.34
9049	6	DEF 6	PT	4.6675	1	1.5	7.00
LAB	6	LABOR COST	HR	5.85	1	3.43	20.04
MVC	6	MACHINE VARIABLE COST	AC				54.11
ANNUAL SUBTOTAL						105.69	
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			3.00
ANNUAL SUBTOTAL						3.00	
ANNUAL TOTAL VARIABLE EXPENSES						233.88	
ANNUAL RETURNS ABOVE VARIABLE EXPENSES						235.20	

Table A-7. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

64790104.C01

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
Cotton, Lint	3	28	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			TriAllan MTF, 4EC (TriAllan)	1.5	PT	0.75		
	4	10	CULT-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Terb 150 (Aldis)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terbitor, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotowin, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or Ammonia	298,504						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Pir (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Vydate C-LV (2,778a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL PLANT DISCRAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								

Table A-7. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

64790104.C01

MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.32	4.33	1.30
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.65	2.36	0.95
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.07	0.54	0.28
DRILL PLAIN DISC RAIN GT14	12.29	5.19	0	0.16	1.93	0.82
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.68	16.06	21.32
					\$2.27	\$4.11

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.52	
2 FEBRUARY	0.00		5 MAY	0.31	
3 MARCH	0.55		6 JUNE	0.18	
FIRST QUARTER		0.55	SECOND QUARTER		1.02
7 JULY	0.23		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.93	
9 SEPTEMBER	0.00		12 DECEMBER	0.25	
THIRD QUARTER		0.23	FOURTH QUARTER		1.18

Table A-8. Bt Cotton-Vetch Cover Rotation -Conventional Tillage

Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional

COMMODITY 1: <u>Bt Cotton</u>		REGION TYPE: <u>Watershed</u>	SOIL TYPE: <u>8</u>				
COMMODITY 2: <u>Vetch Cover</u>		REGION I.D.: <u>Beaver Creek Watershed</u>	E.I. INDEX: <u>0</u>				
COMMODITY 3: _____		PAWM SIZE: <u>Large</u>	PRODUCTION PRACTICES: <u>Banding of Chemicals</u>				
COMMODITY 4: _____		TILLAGE: <u>Conventional</u>	<u>Bt Cotton</u>				
COMMODITY 5: _____		ALT. NUTRIENT: <u>NONE</u>	<u>N.A.</u>				
COMMODITY 6: _____		IRRIGATION: <u>Dry</u>	<u>N.A.</u>				
YEARS OF ROTATION: <u>1</u>		USDA PRODUCTION REGION: <u>Appalachian</u>					
64790104.C02							
ITEM	CATEGORY	NAME	UNITS	PRICE	QUANTITY	ANNUAL	
CODE	CODE			NATIONAL	INDEX	AMOUNT	
REVENUE							
2180	8	Bt Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
SUBTOTAL OF ANNUAL REVENUE						469.08	
VARIABLE EXPENSES							
1 SEED							
2661	1	Bt Cottonseed	LB	0.84	1	12	10.08
2704	1	Bt Cotton Seed Royalty Fee	AC	35	1	1	35.00
2703	1	Hairy Vetch Seed	LB	0.7	1	8	5.60
ANNUAL SUBTOTAL						50.68	
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1000	7.80
109	2	Urea (44%-46% N)	LB	0.27	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300	26.85
ANNUAL SUBTOTAL						94.65	
3 HERBICIDES							
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	1.5	6.19
4176	3	Cotoran, 4L	PT	4.755	1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18	1	1	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	1.5	5.67
ANNUAL SUBTOTAL						21.17	
4 INSECTICIDES							
1124	4	Temik15G (Aldicarb)	LB	3.2	1	3.5	11.20
1152	4	Outlion 2L (Azinphos Methyl)	PT	3.8	1	1	3.80
1247	4	Vydate C-LV (3.77lb) 1 Gal	OZ	0.5234375	1	8	4.19
ANNUAL SUBTOTAL						19.19	
6 OTHER COSTS							
803	6	Scouting Costs	AC				4.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	10	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.5	6.34
9049	6	DEF 6	PT	4.6675	1	1.5	7.00
LAB	6	LABOR COST	HR	5.85	1	3.43	20.64
MVC	6	MACHINE VARIABLE COST	AC				54.11
ANNUAL SUBTOTAL						105.69	
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			3.00
ANNUAL SUBTOTAL						3.00	
ANNUAL TOTAL VARIABLE EXPENSES						294.38	
ANNUAL RETURNS ABOVE VARIABLE EXPENSES						174.70	

Table A-8. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional

64790104.C02

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Bt Cotton, Lint	3	28	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK RBO GE19FT	0.11	0.12								
	4	5	TANDEM DISK RBO GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Thifan MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULT-MULCH ROLLER GE19FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty P	35.00
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terbufos, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	Urea (44%-46% N)	222.22						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	6-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Pis (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Vydate C-LV (3,778g) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEP 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Bt Vetch Cover	11	30	TANDEM DISK RBO GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL PLAIN DISC RAIN GT14	0.16	0.17							Bt Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								

Table A-8. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional

64790104.C02

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.32	4.33	1.30
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.65	2.36	0.95
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.07	0.54	0.28
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.16	1.93	0.82
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.68	16.06	21.32
					\$2.27	\$4.11

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.52	
2 FEBRUARY	0.00		5 MAY	0.31	
3 MARCH	0.55		6 JUNE	0.18	
FIRST QUARTER		0.55	SECOND QUARTER		0.69
7 JULY	0.23		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.93	
9 SEPTEMBER	0.00		12 DECEMBER	0.25	
THIRD QUARTER		0.23	FOURTH QUARTER		1.66

Table A-9. Cotton-Vetch Cover Rotation -Conventional Tillage

Beaver Creek Watershed							
Cotton-Vetch Cover Rotation -Conventional							
COMMODITY 1: Cotton		REGION TYPE: Watershed		SOIL TYPE: 0			
COMMODITY 2: Vetch Cover		REGION ID: Beaver Creek Watershed		EL INDEX: 0			
COMMODITY 3:		FARM SIZE: Large		PRODUCTION PRACTICES: Bending of Chemicals			
COMMODITY 4:		TILLAGE: Conventional		Nutrient Management			
COMMODITY 5:		ALT. NUTRIENT: RESIDUAL (1st year perennial)		Broad Based Terraces			
COMMODITY 6:		IRRIGATION: Dry		N.A.			
YEARS OF ROTATION: 1		USDA PRODUCTION REGION: Appalachian					
64790104.C11							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	ANNUAL
CODE	CODE			NATIONAL	INDEX		AMOUNT
REVENUE							
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
SUBTOTAL OF ANNUAL REVENUE							469.08
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.76	1	12	9.12
2703	1	Hairy Vetch Seed	LB	0.7	1	8	5.60
ANNUAL SUBTOTAL							14.72
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1000	7.80
101	2	34-0-0 or *Ammonium Nitrate (33.5% N)	LB	0.1188	1	298.5044776	35.46
401	2	0-20-20	LB	0.0895	1	300	26.85
ANNUAL SUBTOTAL							70.11
3 HERBICIDES							
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	1.5	6.19
4176	3	Cotoran, 4L	PT	4.755	1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18	1	1	2.18
4022	3	Bladex 4L (Cymazone)	PT	3.78	1	1.5	5.67
ANNUAL SUBTOTAL							21.17
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	3.5	11.20
1152	4	Outhion 2L (Azinphos Methyl)	PT	3.8	1	1	3.80
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234375	1	8	4.19
ANNUAL SUBTOTAL							19.19
6 OTHER COSTS							
803	6	Scouting Costs	AC				4.00
806	6	Broad Base Terraces	AC	10.4355			10.44
7120	6	Terracox, Super X Granular, 12.5%	LB	1.42	1	10	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.5	6.34
9049	6	DEF 6	PT	4.6675	1	1.5	7.00
LAB	6	LABOR COST	HR	5.85	1	3.43	20.04
MVC	6	MACHINE VARIABLE COST	AC				54.11
ANNUAL SUBTOTAL							136.12
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			3.00
ANNUAL SUBTOTAL							3.00
ANNUAL TOTAL VARIABLE EXPENSES							244.31
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							234.76

Table A-9. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

64790104.C11

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Cotton, Late	3	28	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK RBG GE19FT	0.11	0.12								
	4	5	TANDEM DISK RBG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Triphen MTE 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULT-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotentin, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 14-0-0-0	298,504						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cyromazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Outlook 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Vydate C-LV (D-threo) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK RBG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL PLAIN DISC RAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								

Table A-9. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

64790104.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.32	4.33	1.30
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.65	2.36	0.95
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.07	0.54	0.28
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.16	1.93	0.82
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.68	16.06	21.32
					\$2.27	\$4.11

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.52	
2 FEBRUARY	0.00		5 MAY	0.31	
3 MARCH	0.55		6 JUNE	0.18	
FIRST QUARTER		0.55	SECOND QUARTER		1.02
7 JULY	0.23		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.93	
9 SEPTEMBER	0.00		12 DECEMBER	0.25	
THIRD QUARTER		0.23	FOURTH QUARTER		1.64

Table A-10. Bt Cotton-Vetch Cover Rotation -Conventional Tillage

**Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional**

COMMODITY 1: <u>Bt Cotton</u>		REGION TYPE: <u>Watershed</u>	SOIL TYPE: <u>0</u>			
COMMODITY 2: <u>Vetch Cover</u>		REGION L.D.: <u>Beaver Creek Watershed</u>	SL INDEX: <u>0</u>			
COMMODITY 3: _____		FARM SIZE: <u>Large</u>	PRODUCTION PRACTICES: <u>Banding of Chemicals</u>			
COMMODITY 4: _____		TILLAGE: <u>Conventional</u>	<u>Bt Cotton</u>			
COMMODITY 5: _____		ALT. NUTRIENT: <u>NONE</u>	<u>Broad Based Terraces</u>			
COMMODITY 6: _____		IRRIGATION: <u>Dry</u>	<u>N.A.</u>			
YEARS OF ROTATION: <u>1</u>		USDA PRODUCTION REGION: <u>Appalachian</u>				
		64790104.C12				
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE NATIONAL INDEX	QUANTITY	ANNUAL AMOUNT
REVENUE						
2180	8	Bt Cotton, Lint	LB	0.647 1	725	469.06
2602	8	Hairy Vetch Cover Crop	TON	0 1	2.4	0.00
SUBTOTAL OF ANNUAL REVENUE						469.06
VARIABLE EXPENSES						
1 SEED						
2661	1	Bt Cottonseed	LB	0.84 1	12	10.08
2704	1	Bt Cotton Seed Royalty Fee	AC	35 1	1	35.00
2703	1	Hairy Vetch Seed	LB	0.7 1	8	5.60
ANNUAL SUBTOTAL						50.68
2 FERTILIZER & LIME						
501	2	Limestone	LB	0.0078 1	1000	7.80
109	2	Urea (44%-46% N)	LB	0.27 1	222.22	60.00
401	2	0-20-20	LB	0.0895 1	300	26.85
ANNUAL SUBTOTAL						94.65
3 HERBICIDES						
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125 1	1.5	6.19
4176	3	Cororan, 4L	PT	4.755 1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18 1	1	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.78 1	1.5	5.67
ANNUAL SUBTOTAL						31.17
4 INSECTICIDES						
1124	4	Temik15G (Aldicarb)	LB	3.2 1	3.5	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8 1	1	3.80
1247	4	Vydate C-LV (3,77lbs) 1 Gal	OZ	0.5234375 1	8	4.19
ANNUAL SUBTOTAL						19.19
6 OTHER COSTS						
803	6	Scouting Costs	AC			4.00
806	6	Broad Base Terraces	AC	10.4355		10.44
7120	6	Terraclor, Super X Granular, 12.5%	LB	1.42 1	10	14.20
9034	6	Pix (.35L)	PT	12.6875 1	0.5	6.34
9049	6	DEF 6	PT	4.6675 1	1.5	7.00
LAB	6	LABOR COST	HR	5.85 1	3.43	30.94
MVC	6	MACHINE VARIABLE COST	AC			54.11
ANNUAL SUBTOTAL						116.32
7 VARIABLE HARVEST COSTS						
810	7	Custom Aerial Chemical Application	AC	5		3.00
ANNUAL SUBTOTAL						3.00
ANNUAL TOTAL VARIABLE EXPENSES						304.81
ANNUAL RETURNS ABOVE VARIABLE EXPENSES						164.25

Table A-10. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional

64790104.C12

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Bt Cotton, Lint	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Treflan MTE, 4BC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			Tem & 15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty Fee	35.00
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terracor, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotomax, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46% N)	222.22						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Soaking Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cymazyme)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Outlook 2L (Asiaphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TLRL MTD	0.04	0.04			Vydate C-LV (D,77ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEP 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Bairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL, PLAIN, DISCGRAIN GT14	0.16	0.17							Bairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								

Table A-10. (Continued)

**Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional**

64790104.C12

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	B.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.32	4.33	1.30
CHEM APPL ATT TO DMPL	6.33	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TKLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.65	2.36	0.95
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.07	0.54	0.28
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.16	1.93	0.82
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.68	16.06	21.32
					\$2.27	\$4.11

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.52	
2 FEBRUARY	0.00		5 MAY	0.31	
3 MARCH	0.55		6 JUNE	0.18	
FIRST QUARTER		0.55	SECOND QUARTER		1.02
7 JULY	0.23		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.93	
9 SEPTEMBER	0.00		12 DECEMBER	0.25	
THIRD QUARTER		0.23	FOURTH QUARTER		1.64

Table A-11. Cotton-Vetch Cover Rotation -Conventional Tillage

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

COMMODITY 1: <u>Cotton</u>		REGION TYPE: <u>Watershed</u>	SOIL TYPE: <u>0</u>			
COMMODITY 2: <u>Vetch Cover</u>		REGION LD: <u>Beaver Creek Watershed</u>	SL INDEX: <u>0</u>			
COMMODITY 3: _____		FARM SIZE: <u>Large</u>	PRODUCTION PRACTICES: <u>Seedling of Chemicals</u>			
COMMODITY 4: _____		TILLAGE: <u>Conventional</u>	Nutrient Management			
COMMODITY 5: _____		ALT. NUTRIENT: <u>RESIDUAL (1st year perennial)</u>	Conserving			
COMMODITY 6: _____		IRRIGATION: <u>Dry</u>	N.A.			
YEARS OF ROTATION: <u>1</u>		USDA PRODUCTION REGION: <u>Appalachian</u>				
64790104.C21						
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE NATIONAL INDEX	QUANTITY	ANNUAL AMOUNT
REVENUE						
2055	8	Cotton, Lint	LB	0.647 1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0 1	2.4	0.00
SUBTOTAL OF ANNUAL REVENUE						469.08
VARIABLE EXPENSES						
1 SEED						
2660	1	Cottonseed	LB	0.76 1	12	9.12
2703	1	Hairy Vetch Seed	LB	0.7 1	8	5.60
ANNUAL SUBTOTAL						14.72
2 FERTILIZER & LIME						
501	2	Limestone	LB	0.0078 1	1000	7.80
101	2	34-0-0 or 'Ammonium Nitrate (33.5% N)	LB	0.1188 1	298.504776	35.46
401	2	0-20-20	LB	0.0895 1	300	26.85
ANNUAL SUBTOTAL						76.11
3 HERBICIDES						
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125 1	1.5	6.19
4176	3	Cotoran, 4L	PT	4.755 1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18 1	1	2.18
4022	3	Bladex 4L (Cymazine)	PT	3.78 1	1.5	5.67
ANNUAL SUBTOTAL						21.17
4 INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2 1	3.5	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8 1	1	3.80
1247	4	Vydate C-LV (3,77 lbs) 1 Gal	OZ	0.5234375 1	8	4.19
ANNUAL SUBTOTAL						19.19
6 OTHER COSTS						
803	6	Scouting Costs	AC			4.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42 1	10	14.20
9038	6	Pex (.35L)	PT	12.6875 1	0.5	6.34
9049	6	DEF 6	PT	4.6675 1	1.5	7.00
LAB	6	LABOR COST	HR	5.85 1	3.77	22.86
MVC	6	MACHINE VARIABLE COST	AC			59.52
ANNUAL SUBTOTAL						113.10
7 VARIABLE HARVEST COSTS						
810	7	Custom Aerial Chemical Application	AC	5		3.00
ANNUAL SUBTOTAL						3.00
ANNUAL TOTAL VARIABLE EXPENSES						241.29
ANNUAL RETURNS ABOVE VARIABLE EXPENSES						227.78

Table A-11. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

64790104.C21

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Cotton, Late	3	28	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Treflan MTR 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terradon, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	34-0-0 or Ammonia	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1	PT	0.50	Soaking Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bindex 4L (Cymazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE10FT TKLR MTD	0.04	0.05			Outlion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE10FT TKLR MTD	0.04	0.05			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TKLR MTD	0.04	0.05			Vydate C-LV (D-threo) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEP 6	1.5	PT	0.65	Custom Aerial Chemical	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.12	0.13								
	12	1	FINISHING HARROW GE15FT	0.08	0.09							Hairy Vetch Seed	8.00
	12	4	DRILL PLAIN DISC GRAIN GT14	0.17	0.19								
	3	25	ROTARY MOWER	0.36	0.40								
	3	25	KILL CODE	0.00	0.00								

Table A-11. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover Rotation -Conventional

64790104.C21

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.19	0.27	0.14
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.35	4.76	1.43
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.23	1.45	0.77
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.75	0.15
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.14	5.32	1.26
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.42	1.99	1.00
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.13	0.55	0.20
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.72	38.86	18.25
COTTON TRAILER	28.12	11.64	0	0.19	5.22	2.16
ROTARY MOWER	3.60	1.45	0	0.72	2.60	1.04
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.08	0.59	0.30
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.17	2.12	0.90
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.68	5.22	7.04
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.85	17.67	23.45
					90.50	59.52

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.58	
2 FEBRUARY	0.00		5 MAY	0.34	
3 MARCH	0.60		6 JUNE	0.20	
FIRST QUARTER		0.60	SECOND QUARTER		1.12
7 JULY	0.25		10 OCTOBER	0.50	
8 AUGUST	0.00		11 NOVEMBER	1.02	
9 SEPTEMBER	0.00		12 DECEMBER	0.28	
THIRD QUARTER		0.25	FOURTH QUARTER		1.80

Table A-12. Bt Cotton-Vetch Cover Rotation -Conventional Tillage

Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional

COMMODITY 1: Bt Cotton		REGION TYPE: Watershed	SOIL TYPE: 0			
COMMODITY 2: Vetch Cover		REGION LD: Beaver Creek Watershed	EL INDEX: 0			
COMMODITY 3:		FARM SIZE: Large	PRODUCTION PRACTICES: Banding of Chemicals			
COMMODITY 4:		TILLAGE: Conventional	Bt Cotton			
COMMODITY 5:		ALT. NUTRIENT: NONE	Outcropping			
COMMODITY 6:		IRRIGATION: Dry	N/A.			
YEARS OF ROTATION: 1		USDA PRODUCTION REGION: Appalachia				
64790104.C22						
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE NATIONAL INDEX	QUANTITY	ANNUAL AMOUNT
REVENUE						
2180	8	Bt Cotton, Lint	LB	0.647 1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0 1	2.4	0.00
SUBTOTAL OF ANNUAL REVENUE						469.08
VARIABLE EXPENSES						
1 SEED						
2661	1	Bt Cottonseed	LB	0.84 1	12	10.08
2704	1	Bt Cotton Seed Royalty Fee	AC	35 1	1	35.00
2703	1	Hairy Vetch Seed	LB	0.7 1	8	5.60
ANNUAL SUBTOTAL						50.68
2 FERTILIZER & LIME						
501	2	Limestone	LB	0.0078 1	1000	7.80
109	2	Urea (44%-46% N)	LB	0.27 1	222.22	60.00
401	2	0-20-20	LB	0.0895 1	300	26.85
ANNUAL SUBTOTAL						94.65
3 HERBICIDES						
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125 1	1.5	6.19
4176	3	Cotoran, 4L	PT	4.755 1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18 1	1	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.78 1	1.5	5.67
ANNUAL SUBTOTAL						21.17
4 INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2 1	3.5	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8 1	1	3.80
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234375 1	8	4.19
ANNUAL SUBTOTAL						19.19
6 OTHER COSTS						
803	6	Scouting Costs	AC			4.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42 1	10	14.20
9038	6	Pix (.35L)	PT	12.6875 1	0.5	6.34
9049	6	DEF 6	PT	4.6675 1	1.5	7.00
LAB	6	LABOR COST	HR	5.85 1	3.77	22.04
MVC	6	MACHINE VARIABLE COST	AC			59.52
ANNUAL SUBTOTAL						133.10
7 VARIABLE HARVEST COSTS						
810	7	Custom Aerial Chemical Application	AC	5		5.00
ANNUAL SUBTOTAL						5.00
ANNUAL TOTAL VARIABLE EXPENSES						301.79
ANNUAL RETURNS ABOVE VARIABLE EXPENSES						167.29

Table A-12. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional

64790104.C22

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
Bt Cotton, Lint	3	28	DRY FERT SPDR TRAILER MTD	0.10	0.11	Urea	1000						
	3	30	CHISEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Treflan MTR 480 (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Term 150 (Alachlor)	3.5	LB	0.50	Bt Cotton Seed Royalty R	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.10	0.11	Urea (44%-46% N)	222.22						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	9-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus "	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Stadex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE18FT TRLR MTD	0.04	0.05			Outron 2L (Atrazine Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE18FT TRLR MTD	0.04	0.05			Pik (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE18FT TRLR MTD	0.04	0.05			Vydate C-LV (2,778a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEP 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.12	0.13								
	12	1	FINISHING HARROW GE15FT	0.08	0.09								
	12	4	DRILL PLANDISORAIN GT14	0.17	0.19							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.36	0.40								
	3	25	KILL CODE	0.00	0.00								

Table A-12. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover Rotation -Conventional

64790104.C23

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.19	0.27	0.14
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.35	4.76	1.43
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.23	1.45	0.77
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.75	0.15
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.14	5.32	1.26
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.42	1.99	1.00
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.13	0.55	0.20
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.72	38.86	18.25
COTTON TRAILER	28.12	11.64	0	0.19	5.22	2.16
ROTARY MOWER	3.60	1.45	0	0.72	2.60	1.04
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.08	0.59	0.30
DRILL PLAIN DISCRAIN GT14	12.29	5.19	0	0.17	2.12	0.90
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.68	5.22	7.04
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.85	17.67	23.45
					90.50	59.52

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.58	
2 FEBRUARY	0.00		5 MAY	0.34	
3 MARCH	0.60		6 JUNE	0.20	
FIRST QUARTER		0.60	SECOND QUARTER		1.12
7 JULY	0.25		10 OCTOBER	0.50	
8 AUGUST	0.00		11 NOVEMBER	1.02	
9 SEPTEMBER	0.00		12 DECEMBER	0.28	
THIRD QUARTER		0.25	FOURTH QUARTER		1.29

Table A-13. Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

Beaver Creek Watershed							
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional							
COMMODITY 1: <u>Cotton</u>		REGION TYPE: <u>Watershed</u>		SOIL TYPE: <u>8</u>			
COMMODITY 2: <u>Vetch Cover</u>		REGION L.D.: <u>Beaver Creek Watershed</u>		SL INDEX: <u>8</u>			
COMMODITY 3: <u>Cotton</u>		FARM SIZE: <u>Large</u>		PRODUCTION PRACTICES: <u>Banding of Chemicals</u>			
COMMODITY 4: <u>Soft Red Winter Wheat</u>		TILLAGE: <u>Conventional</u>		<u>Nutrient Management</u>			
COMMODITY 5: <u>Soybean</u>		ALT. NUTRIENT: <u>RESIDUAL (1st year perennial)</u>		<u>N.A.</u>			
COMMODITY 6: <u>Wheat Cover</u>		IRRIGATION: <u>Dry</u>		<u>N.A.</u>			
YEARS OF ROTATION: <u>3</u>		USDA PRODUCTION REGION: <u>Appalachian</u>					
64790105.C01							
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2139	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							427.52
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.76	1	24	18.24
2703	1	Hairy Vetch Seed	LB	0.7	1	8	5.60
2701	1	Wheat Seed, Winter	BU	7.41	1	3.5	25.94
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
ANNUAL SUBTOTAL							39.44
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3500	27.30
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	792.8298507	94.19
401	2	0-20-20	LB	0.0895	1	600	53.70
200	2	P2O5	LB	0.26	1	40	10.40
300	2	K2O	LB	0.12	1	20	2.40
402	2	0-20-40	LB	0.0996666	1	100	9.97
ANNUAL SUBTOTAL							45.98
3 HERBICIDES							
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	4.5	18.56
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4139	3	Harmony Extra (DF)	OZ	13.15	1	0.5	6.58
4019	3	Basagran, 4L (Bentazone)	PT	8.48125	1	1	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
ANNUAL SUBTOTAL							21.81
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Orthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pix (.35L)	PT	12.6875	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
7076	6	Tik (3.6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	9.39	54.94
MVC	6	MACHINE VARIABLE COST	AC				148.39
ANNUAL SUBTOTAL							92.30
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							2.00

Table A-13. (Continued)

	ANNUAL TOTAL VARIABLE EXPENSES	214.55
	ANNUAL RETURNS ABOVE VARIABLE EXPENSES	212.97

Table A-13. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

64790105.C01

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Cotton, Lint	3	28	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHESEL PLOW OT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Trietien MTR 45C (Trietien)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE19FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			Trietien 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotomex, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Assamex'	298,504						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Outlion 2L (Atraphis Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARBOW GE15FT	0.07	0.08								
	12	4	DRILL, PLAIN, DISCORAIN OT14	0.16	0.17							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
Cotton, Lint	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHESEL PLOW OT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Trietien MTR 45C (Trietien)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE19FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			Trietien 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotomex, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Assamex'	298,504						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Outlion 2L (Atraphis Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								

Table A-13. (Continued)

		KILL CODE	0.00	0.00								
Wheat, Soft Red W	11	28	KILL CODE	0.00	0.00							
	11	28	CHESEL PLOW GT15FT	0.06	0.09							
	11	30	TANDEM DISK REG GE19FT	0.11	0.13							
	11	30	LANDALL DO-ALL	0.11	0.00							
	12	1	DRELL PLAINDISCGRAIN GT14	0.16	0.17						Wheat Seed, Winter	2.00
	3	15	CHEM APPL GE19FT TRACT MTD	0.04	0.04	Tir (L&EC)	4	OZ	0.60			
	3	30	CHEM APPL GE19FT TRACT MTD	0.04	0.04	Hermosa Extra (DF)	0.5	OZ	0.37			
	4	15	DRY FERT SPRDTR TRAILER MTD	0.09	0.10	34-0-0 or Ammonia	195.820894					
	4	15	LQUD FERT APPL TRAILER MTD	0.00	0.00	P2O5	40					
	4	15	LQUD FERT APPL TRAILER MTD	0.00	0.00	K2O	20					
Soybean, Grain	6	20	COMBINE SELF-PROP 2WD	0.34	0.36							
	6	20	TRUCK SGL AXLE-GAS 2 TON (SP)	0.34	0.36							
	6	20	KILL CODE	0.00	0.00							
	6	21	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500					
	6	22	CHESEL PLOW GT15FT	0.06	0.09							
	6	25	TANDEM DISK REG GE19FT	0.11	0.12							
	6	28	TANDEM DISK REG GE19FT	0.11	0.13							
	6	28	CHEM APPL ATT TO IMPL	0.11	0.00	Trefim MTF, ABC (Tifonakis)	1.5	PT	0.75			
	7	5	LANDALL DO-ALL	0.18	0.20							
	7	8	PLANTER REGULAR 8 ROW	0.10	0.11						Soybean Seed	0.67
	8	5	CHEM APPL GE19FT TLRL MTD	0.04	0.04	Bazagan, 4L (Bertramson)	1	PT	0.50			
	8	5	CHEM APPL GE19FT TLRL MTD	0.00	0.00	Blaser 2L	0.25	PT	0.13			
	8	15	ROW CULTIVATOR GE15FT	0.13	0.14							
	8	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100					
Wheat Cover Crop	11	10	COMBINE ROW HD SP 2WD	0.18	0.20							
	11	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20							
	11	10	KILL CODE	0.00	0.00							
	11	12	TANDEM DISK REG GE19FT	0.11	0.12							
	11	13	PENSHING HARROW GE15FT	0.07	0.08							
	11	15	DRELL PLAINDISCGRAIN GT14	0.16	0.17						Wheat Seed, Winter	1.50
	3	25	ROTARY MOWER	0.33	0.36							
	3	25	KILL CODE	0.00	0.00							

Table A-13. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

64790105.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.44	0.61	0.32
CHISEL PLOW GT15FT	9.84	4.94	0	0.33	3.26	1.64
TANDEM DISK REG GE19FT	13.42	4.04	0	0.97	12.98	3.91
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.52	3.31	1.76
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.13	1.37	0.28
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.30	6.09	2.63
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.90	4.23	2.12
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.27	1.16	0.43
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.31	4.72	1.89
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.14	1.07	0.55
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.47	5.79	2.45
LANDALL, DO-ALL	11.34	3.55	0	0.29	3.31	1.03
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.08	0.19	0.07
LIQD FERT APPL TRAILER MTD	4.34	1.59	0	0.00	0.00	0.00
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.24	26.64	7.51
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.42	7.19	2.07
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.91	14.61	19.70
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.13	39.47	52.39
					242.40	148.39

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.38
2	FEBRUARY	0.00	5	MAY	0.21
3	MARCH	0.39	6	JUNE	0.44
FIRST QUARTER		0.39	SECOND QUARTER		1.03
7	JULY	0.26	10	OCTOBER	0.30
8	AUGUST	0.09	11	NOVEMBER	0.91
9	SEPTEMBER	0.00	12	DECEMBER	0.14
THIRD QUARTER		0.35	FOURTH QUARTER		1.35

Table A-14. Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

Beaver Creek Watershed							
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional							
COMMODITY 1: <u>Cotton</u>		REGION TYPE: <u>Watershed</u>		SOIL TYPE: <u>0</u>			
COMMODITY 2: <u>Vetch Cover</u>		REGION LD: <u>Beaver Creek Watershed</u>		EL INDEC: <u>0</u>			
COMMODITY 3: <u>Cotton</u>		FARM SIZE: <u>Large</u>		PRODUCTION PRACTICES: <u>Banding of Chemicals</u>			
COMMODITY 4: <u>Soft Red Winter Wheat</u>		TILLAGE: <u>Conventional</u>		Nutrient Management			
COMMODITY 5: <u>Soybean</u>		ALT. NUTRIENT: <u>RESIDUAL (last year peanuts)</u>		Broad Based Terraces			
COMMODITY 6: <u>Wheat Cover</u>		IRRIGATION: <u>Dry</u>		N.A.			
YEARS OF ROTATION: <u>3</u>		USDA PRODUCTION REGION: <u>Appalachian</u>					
64790105.C11							
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, List	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2055	8	Cotton, List	LB	0.647	1	725	469.08
2139	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							427.52
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.70	1	24	18.24
2703	1	Hairy Vetch Seed	LB	0.7	1	8	5.60
2701	1	Wheat Seed, Winter	BU	7.41	1	3.5	25.94
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
ANNUAL SUBTOTAL							39.64
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3500	27.30
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	792.8298507	94.19
401	2	0-20-20	LB	0.0895	1	600	53.70
200	2	P2O5	LB	0.26	1	40	10.40
300	2	K2O	LB	0.12	1	20	2.40
402	2	0-20-40	LB	0.0996666	1	100	9.97
ANNUAL SUBTOTAL							45.98
3 HERBICIDES							
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	4.5	18.56
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4139	3	Harmony Extra (DF)	OZ	13.15	1	0.5	6.58
4019	3	Basagran, 4L (Bentazone)	PT	8.48125	1	1	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
ANNUAL SUBTOTAL							21.81
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
806	6	Broad Base Terraces	AC	10.4355			31.31
7120	6	Terracor, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pix (.35L)	PT	12.6875	1	1	32.69
9049	6	DEF 6	PT	4.6675	1	3	16.00
7076	6	Tik (3.6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	9.39	54.94
MVC	6	MACHINE VARIABLE COST	AC				148.39
ANNUAL SUBTOTAL							185.73
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							2.00

Table A-14. (Continued)

ANNUAL TOTAL VARIABLE EXPENSES	224.96
ANNUAL RETURNS ABOVE VARIABLE EXPENSES	202.54

Table A-14. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation-Conventional

64790105.C11

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Cotton, List	3	28	DRY FERT SPDR. TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Thifan MTF, 4BC (Thifanalis)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			Temik150 (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR. TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia	298,504						
	5	5	DRY FERT SPDR. TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Soaking Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77lb/a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL, PLAIN DISC RAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
Cotton, List	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPDR. TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Thifan MTF, 4BC (Thifanalis)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			Temik150 (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR. TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia	298,504						
	5	5	DRY FERT SPDR. TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Soaking Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77lb/a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								

Wheat, Soft Red W	11	28	KILL CODE	0.00	0.00									
	11	29	CHESEL PLOW GT15FT	0.08	0.09									
	11	30	TANDEM DISK REG GE19FT	0.11	0.13									
	11	30	LANDALL DO-ALL	0.11	0.00									
	12	1	DRILL,PLAIN,DISCGRAIN GT14	0.16	0.17								Wheat Seed, Winter	2.00
	3	15	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Tix (3.6EC)	4	OZ	0.00			
	3	50	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Harmony Extra (DF)	0.5	OZ	0.37			
	4	15	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia'	195.820896							
	4	15	LIQUD FERT APPL TRAILER MTD	0.00	0.00	P205	40							
	4	15	LIQUD FERT APPL TRAILER MTD	0.00	0.00	K20	20							
	6	20	COMBINE SELF-PROP 2WD	0.24	0.26									
	Soybean, Grain	6	20	TRUCK SGL AXLE-GAS 2 TON (SP)	0.24	0.26								
6		20	KILL CODE	0.00	0.00									
6		21	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500							
6		22	CHESEL PLOW GT15FT	0.08	0.09									
6		25	TANDEM DISK REG GE19FT	0.11	0.12									
6		28	TANDEM DISK REG GE19FT	0.11	0.13									
6		28	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4EC (Treflan)	1.5	PT	0.75			
7		5	LANDALL DO-ALL	0.18	0.20									
7		8	PLANTER REGULAR 8 ROW	0.10	0.11								Soybean Seed	0.67
8		5	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Desagrin, 4L (Desagrin)	1	PT	0.50			
8		5	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13			
Wheat Cover Crop		8	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	8	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100							
	11	10	COMBINE ROW HD SP 2WD	0.18	0.20									
	11	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20									
	11	10	KILL CODE	0.00	0.00									
	11	12	TANDEM DISK REG GE19FT	0.11	0.12									
	11	13	FINISHING HARROW GE15FT	0.07	0.08									
	11	15	DRILL,PLAIN,DISCGRAIN GT14	0.16	0.17								Wheat Seed, Winter	1.50
	3	25	ROTARY MOWER	0.33	0.36									
	3	25	KILL CODE	0.00	0.00									

Table A-14. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

64790165.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.44	0.61	0.32
CHISEL PLOW GT15FT	9.84	4.94	0	0.33	3.26	1.64
TANDEM DISK REG GE19FT	13.42	4.04	0	0.97	12.98	3.91
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.52	3.31	1.76
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.13	1.37	0.28
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.30	6.09	2.63
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.90	4.23	2.12
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.27	1.16	0.43
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.31	4.72	1.89
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.14	1.07	0.55
DRILL PLAIN DISCGRAIN GT14	12.29	5.19	0	0.47	5.79	2.45
LANDALL DO-ALL	11.34	3.55	0	0.29	3.31	1.03
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.08	0.19	0.07
LIQUD FERT APPL TRAILER MTD	4.34	1.59	0	0.00	0.00	0.00
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.24	26.64	7.51
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.42	7.19	2.07
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.91	14.61	19.70
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.13	39.47	52.39
					242.40	148.39

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.38
2	FEBRUARY	0.00	5	MAY	0.21
3	MARCH	0.39	6	JUNE	0.44
FIRST QUARTER		0.39	SECOND QUARTER		1.03
7	JULY	0.26	10	OCTOBER	0.30
8	AUGUST	0.09	11	NOVEMBER	0.91
9	SEPTEMBER	0.00	12	DECEMBER	0.14
THIRD QUARTER		0.35	FOURTH QUARTER		1.35

Table A-15. Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

Beaver Creek Watershed							
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional							
COMMODITY 1: <u>Cotton</u>		REGION TYPE: <u>Watershed</u>		SOIL TYPE: <u>0</u>			
COMMODITY 2: <u>Vetch Cover</u>		REGION LD: <u>Beaver Creek Watershed</u>		EL INDEX: <u>0</u>			
COMMODITY 3: <u>Cotton</u>		FARM SIZE: <u>Large</u>		PRODUCTION PRACTICES: <u>Banding of Chemicals</u>			
COMMODITY 4: <u>Soft Red Winter Wheat</u>		TILLAGE: <u>Conventional</u>		Nutrient Management: <u>Nutrient Management</u>			
COMMODITY 5: <u>Soybean</u>		ALT. NUTRIENT: <u>RESIDUAL (1st year perennial)</u>		Contouring: <u>Contouring</u>			
COMMODITY 6: <u>Wheat Cover</u>		IRRIGATION: <u>Dry</u>		N.A.			
YEARS OF ROTATION: <u>3</u>		USDA PRODUCTION REGION: <u>Appalachian</u>		64790105.C21			
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, List	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2055	8	Cotton, List	LB	0.647	1	725	469.08
2139	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							427.52
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.76	1	24	18.24
2703	1	Hairy Vetch Seed	LB	0.7	1	8	5.60
2701	1	Wheat Seed, Winter	BU	7.41	1	3.5	25.94
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
ANNUAL SUBTOTAL							19.44
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3500	27.30
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	792.8298507	94.19
401	2	0-20-20	LB	0.0895	1	600	53.70
200	2	P2O5	LB	0.26	1	40	10.40
300	2	K2O	LB	0.12	1	20	2.40
402	2	0-20-40	LB	0.0996666	1	100	9.97
ANNUAL SUBTOTAL							45.96
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	4.5	18.56
4174	3	Cotoran, 4L	PT	4.755	1	3	14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4139	3	Harmony Extra (DF)	OZ	13.15	1	0.5	6.58
4019	3	Basagran, 4L (Bentazone)	PT	8.48125	1	1	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
ANNUAL SUBTOTAL							21.81
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3,77 lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Fit (.35L)	PT	12.6875	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
7076	6	Tilt (3.6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	10.33	60.43
MVC	6	MACHINE VARIABLE COST	AC				163.23
ANNUAL SUBTOTAL							99.88
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							2.00

Table A-15. (Continued)

	ANNUAL TOTAL VARIABLE EXPENSES	221.32
	ANNUAL RETURNS ABOVE VARIABLE EXPENSES	206.20

Table A-15. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

64790105.C21

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Cotton, Lint	3	28	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Treflan MTR, 48C (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	34-0-0 or 34-0-0-0	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1	PT	0.50	Soaking Coats	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cymazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE10FT TLRL MTD	0.04	0.05			Outlook 2L (Azoxystrobin)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE10FT TLRL MTD	0.04	0.05			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TLRL MTD	0.04	0.05			Vydate C-LV (2,778a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.12	0.13								
	12	1	FINISHING HARROW GE15FT	0.08	0.09								
	12	4	DRILL PLAIN DISC GRN GT14	0.17	0.19							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.36	0.40								
Cotton, Lint	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Treflan MTR, 48C (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	34-0-0 or 34-0-0-0	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1	PT	0.50	Soaking Coats	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cymazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE10FT TLRL MTD	0.04	0.05			Outlook 2L (Azoxystrobin)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE10FT TLRL MTD	0.04	0.05			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TLRL MTD	0.04	0.05			Vydate C-LV (2,778a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								

[illegible]

Table A-15. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -Conventional

64790105.C21

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.48	0.67	0.36
CHISEL PLOW GT15FT	9.84	4.94	0	0.37	3.59	1.80
TANDEM DISK REG GE19FT	13.42	4.04	0	1.06	14.27	4.30
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.57	3.65	1.94
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.15	1.51	0.30
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.33	6.70	2.89
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.29	10.63	2.52
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.99	4.65	2.33
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.30	1.28	0.47
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.44	77.71	36.50
COTTON TRAILER	28.12	11.64	0	0.37	10.45	4.32
ROTARY MOWER	3.60	1.45	0	1.44	5.19	2.08
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.16	1.18	0.61
DRILL PLAIN DISC GRAIN GT14	12.29	5.19	0	0.52	6.37	2.69
LANDALL DO-ALL	11.34	3.55	0	0.32	3.64	1.14
CHEM APPL GE30FT TRACT MTD	2.44	0.91	0	0.09	0.21	0.08
LIQD FERT APPL TRAILER MTD	4.34	1.59	0	0.00	0.00	0.00
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.26	29.30	8.26
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.46	7.91	2.28
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.19	0.16	0.08
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.20	18.07	8.97
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	2.10	16.07	21.67
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.55	43.42	57.63
					266.64	163.23

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.42	
2 FEBRUARY	0.00		5 MAY	0.23	
3 MARCH	0.43		6 JUNE	0.49	
FIRST QUARTER		0.43	SECOND QUARTER		1.13
7 JULY	0.28		10 OCTOBER	0.33	
8 AUGUST	0.10		11 NOVEMBER	1.01	
9 SEPTEMBER	0.00		12 DECEMBER	0.16	
THIRD QUARTER		0.38	FOURTH QUARTER		1.49

Table A-16. Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -No-Till

Beaver Creek Watershed							
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -No-Till							
COMMODITY 1: Cotton		REGION TYPE: Watershed		SOIL TYPE: 0			
COMMODITY 2: Vetch Cover		REGION LB: Beaver Creek Watershed		SL INDEX: 5			
COMMODITY 3: Cotton		FARM SIZE: Large		PRODUCTION PRACTICES: Banding of Chemicals			
COMMODITY 4: Soft Red Winter Wheat		TILLAGE: No-Till		Nutrient Management			
COMMODITY 5: Soybean		ALT. NUTRIENT: RESIDUAL (1st year perennial)		N.A.			
COMMODITY 6: Wheat Cover		DURATION: Dry		N.A.			
YEARS OF ROTATION: 3		USDA PRODUCTION REGION: Appalachia		64790105.N02			
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2199	8	Wheat, Soft Red Winter	BU	3.36	1	42	141.12
2107	8	Soybean, Grain	BU	5.8082	1	35	203.29
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							427.52
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.76	1	24	18.24
2703	1	Hairy Vetch Seed	LB	0.7	1	8	5.60
2701	1	Wheat Seed, Winter	BU	7.41	1	3	22.23
2690	1	Soybean Seed	BU	13.8	1	0.667	9.20
ANNUAL SUBTOTAL							18.42
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3500	27.30
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	792.8298507	94.19
401	2	0-20-20	LB	0.0895	1	600	53.70
431	2	10-30-30	LB	0.196	1	100	19.60
402	2	0-20-40	LB	0.0996666	1	100	9.97
ANNUAL SUBTOTAL							68.25
3 HERBICIDES							
4093	3	Roundup 4L (Glyphosate)	QT	22.25	1	2	44.50
4314	3	Gramoxone Extra, 2.5L (Paraquat)	PT	4.225	1	3.5	14.79
4360	3	Prowl 3.3 EC	QT	10.725	1	4	42.90
4176	3	Cotoran, 4L	PT	4.755	1	6	28.53
4144	3	MSMA, 4 Plus *	PT	2.18	1	8	17.44
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4139	3	Harmony Extra (DF)	OZ	13.15	1	0.5	6.58
4019	3	Basagran, 4L (Bentazone)	PT	8.48125	1	1	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
ANNUAL SUBTOTAL							58.80
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77lb) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
7120	6	Terrator, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pax (.35L)	PT	12.6875	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
7076	6	Tik (3.6EC)	OZ	2.62	1	4	10.48
LAB	6	LABOR COST	HR	5.85	1	7.32	42.83
MVC	6	MACHINE VARIABLE COST	AC				121.56
ANNUAL SUBTOTAL							79.32
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			5.00
ANNUAL SUBTOTAL							2.00

Table A-16. (Continued)

ANNUAL TOTAL VARIABLE EXPENSES	239.59
ANNUAL RETURNS ABOVE VARIABLE EXPENSES	187.93

Table A-16. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -No-Till

64790105.N02

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
Cotton, Lint	4	12	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000	Roundup 4L (Glyphosate)	1	QT			
	4	15	CHEM APPL SM SELF-PROP	0.07	0.07			Gramoxone Extra, 2.5L (Paraquat)	1	PT			
	4	15	CHEM APPL SM SELF-PROP	0.00	0.00							Cottonseed	12.00
	4	25	PLANTER NO-TILL 6 ROW	0.20	0.25			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Terrence, Super X Granular, 12.5%	10	LB	1.00		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Provel 3.3 EC	1.5	QT	1.25		
	5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotolan, 4L	1.5	PT	0.75		
	5	15	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	2	PT	1.00	Seeding Costs	4.00
	5	15	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cyanazine)	1.5	PT	1.50		
	5	25	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	2	PT	1.00		
	5	30	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Assamoni	298.504						
	5	30	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	6	15	CHEM APPL GEDOPT TRLR MTD	0.04	0.04			Outhien 2L (Asaphos Methyl)	1	PT	0.25		
	7	15	CHEM APPL GEDOPT TRLR MTD	0.04	0.04			Pin (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GEDOPT TRLR MTD	0.04	0.04			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	PLANTER NO-TILL 6 ROW	0.20	0.22							Hairy Vetch Seed	8.00
	4	10	ROTARY MOWER	0.33	0.36								
Cotton, Lint	4	10	KILL CODE	0.00	0.00								
	4	12	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000	Roundup 4L (Glyphosate)	1	QT			
	4	15	CHEM APPL SM SELF-PROP	0.07	0.07			Gramoxone Extra, 2.5L (Paraquat)	1	PT			
	4	15	CHEM APPL SM SELF-PROP	0.00	0.00							Cottonseed	12.00
	4	25	PLANTER NO-TILL 6 ROW	0.20	0.25			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Terrence, Super X Granular, 12.5%	10	LB	1.00		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Provel 3.3 EC	1.5	QT	1.25		
	5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotolan, 4L	1.5	PT	0.75		
	5	15	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	2	PT	1.00	Seeding Costs	4.00
	5	15	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cyanazine)	1.5	PT	1.50		
	5	25	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	2	PT	1.00		
	5	25	CHEM APPL SM SELF-PROP	0.00	0.00								
	5	30	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Assamoni	298.504						
	5	30	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	6	15	CHEM APPL GEDOPT TRLR MTD	0.04	0.04			Outhien 2L (Asaphos Methyl)	1	PT	0.25		
	7	15	CHEM APPL GEDOPT TRLR MTD	0.04	0.04			Pin (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GEDOPT TRLR MTD	0.04	0.04			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Wheat, Soft Red W	11	30	CHISEL PLOW GT15FT	0.08	0.09								
	12	1	TANDEM DISK RBO GE19FT	0.11	0.12								
	12	3	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	12	5	DRILL, NO-TILL, MIN-TILL, 20"	0.16	0.18							Wheat Seed, Water	1.50
	2	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Assamoni	195.820894						
	2	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	10-30-30	100						
	3	20	CHEM APPL GEDOPT TRLR MTD	0.04	0.04			TIR (3.6EC)	4	OZ	0.00		

Table A-16. (Continued)

Soybean, Grain	4	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04	Limestone	1500	Harmony Extra (DF)	0.5	OZ	0.37	Soybean Seed	0.67
	6	15	COMBINE ROW HD SP 2WD	0.18	0.30								
	6	15	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.30								
	6	15	KILL CODE	0.00	0.00								
	6	18	DRY PERT APPL TRACTOR MTD	0.09	0.10								
	6	20	PLANTER NO-TILL 6 ROW	0.20	0.23								
	6	30	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Granatone Extra, 2.5L (Pursuit)	1.5	PT	0.47		
	6	30	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Provi 3.3 EC	1	QT	0.80		
	7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Banagran, 4L (Bentazon)	1	PT	0.50		
	7	15	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
Wheat Cover Crop	7	20	DRY PERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100					Wheat Seed, Winter	1.50
	10	25	COMBINE ROW HD SP 2WD	0.18	0.30								
	10	25	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.30								
	10	25	KILL CODE	0.00	0.00								
	10	28	DRILL, NO-TILL, MIN-TILL, 20'	0.16	0.18								
	4	10	ROTARY MOWER	0.33	0.36								
	4	10	KILL CODE	0.00	0.00								

Table A-16. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Soft Red Winter Wheat-Soybean-Wheat Cover Rotation -No-Till

64790105.N02

MACHINE NAME	MACHINERY COSTS		POWER	HOURS PER ACRE	COST PER ACRE	
	COST PER HOUR					
	F.C.	V.C.	CODE		F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.44	0.61	0.32
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.52	19.33	4.58
PLANTER NO-TILL 6 ROW	16.45	9.76	0	0.80	13.16	7.81
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.40	2.54	1.35
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.39	1.66	0.61
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.31	4.72	1.89
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
DRILL, NO-TILL, MIN-TILL, 20'	27.34	12.11	0	0.33	8.95	3.97
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.37	32.86	16.31
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.37	6.28	1.81
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	2.07	15.87	21.39
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.64	15.64	20.76
TRACTOR 2WD 100 HP DIESEL	6.95	7.89	4	0.33	2.27	2.58
					207.14	121.56

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00	4	APRIL	0.53	
2 FEBRUARY	0.03	5	MAY	0.21	
3 MARCH	0.01	6	JUNE	0.28	
FIRST QUARTER		0.05	SECOND QUARTER		1.02
7 JULY	0.10	10	OCTOBER	0.50	
8 AUGUST	0.00	11	NOVEMBER	0.65	
9 SEPTEMBER	0.00	12	DECEMBER	0.12	
THIRD QUARTER		0.10	FOURTH QUARTER		1.27

Table A-17. Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional Tillage

Beaver Creek Watershed									
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional									
COMMODITY 1: <u>Cotton</u>			REGION TYPE: <u>Watershed</u>			SOIL TYPE: <u>8</u>			
COMMODITY 2: <u>Vetch Cover</u>			REGION I.D.: <u>Beaver Creek Watershed</u>			E.I. INDEX: <u>8</u>			
COMMODITY 3: <u>Cotton</u>			FARM SIZE: <u>Large</u>			PRODUCTION PRACTICES: <u>Bending of Chemicals</u>			
COMMODITY 4: <u>Vetch Cover</u>			TILLAGE: <u>Conventional</u>			<u>Nutrient Management</u>			
COMMODITY 5: <u>Corn</u>			ALT. NUTRIENT: <u>RESIDUAL (1st year perennial)</u>			<u>N.A.</u>			
COMMODITY 6: <u>Wheat Cover</u>			IRRIGATION: <u>Dry</u>			<u>N.A.</u>			
YEARS OF ROTATION: <u>3</u>			USDA PRODUCTION REGION: <u>Appalachian</u>						
64790106.C01									
ITEM CODE	CATEGORY CODE		NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT	
					NATIONAL	INDEX			
REVENUE									
2055	8	Cotton, Lint	LB	0.647	1	725	469.08		
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00		
2055	8	Cotton, Lint	LB	0.647	1	725	469.08		
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00		
2053	8	Corn, Grain	BU	2.4909	1	120	298.91		
2601	8	Wheat Cover Crop	BU	0	1	42	0.00		
SUBTOTAL OF ANNUAL REVENUE							412.36		
VARIABLE EXPENSES									
1 SEED									
2660	1	Cottonseed	LB	0.76	1	24	18.24		
2703	1	Hairy Vetch Seed	LB	0.7	1	16	11.20		
2655	1	Corn Seed, Hybrid	1,000 kernels	1	1	23	23.00		
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5	11.12		
ANNUAL SUBTOTAL							21.19		
2 FERTILIZER & LIME									
501	2	Limestone	LB	0.0078	1	3000	23.40		
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	970.1462687	115.25		
401	2	0-20-20	LB	0.0895	1	600	53.70		
403	2	0-45-45	LB	0.17905	1	111.1	19.89		
ANNUAL SUBTOTAL							78.75		
3 HERBICIDES									
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	3	12.38		
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27		
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36		
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34		
4006	3	AAtrex, 4L	PT	2.0925	1	2	4.19		
4051	3	Dual SE (Metolachlor)	PT	8.6125	1	1.25	10.77		
ANNUAL SUBTOTAL							19.10		
4 INSECTICIDES									
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40		
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60		
1247	4	Vydate C-LV (3,77Bt) 1 Gal	OZ	0.5234375	1	16	8.38		
ANNUAL SUBTOTAL							12.79		
6 OTHER COSTS									
803	6	Scouting Costs	AC				8.00		
7120	6	Terraclor, Super X Granular, 12.5%	LB	1.42	1	20	28.40		
9038	6	Pix (.35L)	PT	12.6875	1	1	12.69		
9049	6	DEF 6	PT	4.6675	1	3	14.00		
LAB	6	LABOR COST	HR	5.85	1	8.60	50.29		
MVC	6	MACHINE VARIABLE COST	AC				155.88		
ANNUAL SUBTOTAL							83.09		
7 VARIABLE HARVEST COSTS									
810	7	Custom Aerial Chemical Application	AC	5			6.00		
ANNUAL SUBTOTAL							2.56		
ANNUAL TOTAL VARIABLE EXPENSES							268.51		
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							265.44		

Table A-17. (Continued)

Beaver Creek Watershed Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional													
CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
Cotton, Lint	3	28	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4BC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terrestrial, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotonec, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Assorted'	298.504						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
Hairy Vetch Cover	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
Hairy Vetch Cover	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
Hairy Vetch Cover	12	4	DRILL PLAIN DISC RAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPDR TRAILER MTD	0.09	0.10	Limestone	1000						
Cotton, Lint	3	30	CHESEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4BC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terrestrial, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotonec, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPDR TRAILER MTD	0.09	0.10	34-0-0 or 'Assorted'	298.504						
	5	5	DRY FERT SPDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
Cotton, Lint	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
Cotton, Lint	11	28	ROTARY MOWER	0.33	0.36								

Table A-17. (Continued)

Hairy Vetch Cover	11	28	KILL CODE	0.00	0.00														
	11	30	TANDEM DISK REG GE19FT	0.11	0.12														
	12	1	FINISHING HARROW GE15FT	0.07	0.08														
	12	4	DRILL,PLAIN,DISCGRAIN GT14	0.16	0.17													Hairy Vetch Seed	8.00
Corn, Grain	3	15	ROTARY MOWER	0.33	0.36														
	3	15	KILL CODE	0.00	0.00														
	3	18	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000												
	3	20	CHESEL PLOW GT15FT	0.08	0.09														
	4	10	TANDEM DISK REG GE19FT	0.11	0.12														
	4	15	CULTI-MULCH ROLLER GE18FT	0.07	0.07														
	4	20	PLANTER REGULAR 8 ROW	0.10	0.13													Corn Seed, Hybrid	23.00
	4	20	DRY FERT SPRDR TRAILER MTD	0.10	0.00	34-0-0 or 16-0-0 or 16-0-0	373.137313												
	4	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1												
	5	15	CHEM APPL LT30FT TRACT MTD	0.10	0.11			AA985, 4L	2	PT	1.00								
	5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual EE (Metolachlor)	1.25	PT	1.25								
	10	10	COMBINE ROW HD SP 2WD	0.18	0.20														
	10	10	TRUCK SOL AXLE GAS 2 TON (SP)	0.18	0.20														
	10	10	KILL CODE	0.00	0.00														
Wheat Cover Crop	10	12	TANDEM DISK REG GE19FT	0.11	0.12														
	10	12	FINISHING HARROW GE15FT	0.07	0.08														
	10	15	DRILL,PLAIN,DISCGRAIN GT14	0.16	0.17													Wheat Seed, Winter	1.50
	3	25	ROTARY MOWER	0.33	0.36														
	3	25	KILL CODE	0.00	0.00														

Table A-17. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

64790106.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.54	0.75	0.40
CHISEL PLOW GT15FT	9.84	4.94	0	0.25	2.45	1.23
TANDEM DISK REG GE19FT	13.42	4.04	0	0.86	11.53	3.47
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.41	2.63	1.40
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.20	2.06	0.41
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.30	6.09	2.63
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.77	3.63	1.82
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.23	1.00	0.37
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.64	5.90	2.37
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.21	1.61	0.83
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.47	5.79	2.45
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.24	0.09
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.57	12.01	16.19
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.24	40.51	53.78
					205.58	135.48

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.45
2	FEBRUARY	0.00	5	MAY	0.24
3	MARCH	0.55	6	JUNE	0.12
FIRST QUARTER		0.55	SECOND QUARTER		0.82
7	JULY	0.15	10	OCTOBER	0.56
8	AUGUST	0.00	11	NOVEMBER	0.62
9	SEPTEMBER	0.00	12	DECEMBER	0.17
THIRD QUARTER		0.15	FOURTH QUARTER		1.35

Table A-18. Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional Tillage

Beaver Creek Watershed							
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional							
COMMODITY 1: <u>Bt Cotton</u>		REGION TYPE: <u>Watershed</u>		SOIL TYPE: <u>0</u>			
COMMODITY 2: <u>Vetch Cover</u>		REGION LD: <u>Beaver Creek Watershed</u>		E.I. INDEX: <u>0</u>			
COMMODITY 3: <u>Bt Cotton</u>		FARM SIZE: <u>Large</u>		PRODUCTION PRACTICES: <u>Banding of Chemicals</u>			
COMMODITY 4: <u>Vetch Cover</u>		TILLAGE: <u>Conventional</u>		<u>Nutrient Management</u>			
COMMODITY 5: <u>Corn</u>		ALT. NUTRIENT: <u>RESIDUAL (1st year perennial)</u>		<u>Bt Cotton</u>			
COMMODITY 6: <u>Wheat Cover</u>		IRRIGATION: <u>Dry</u>		<u>N.A.</u>			
YEARS OF ROTATION : <u>3</u>		USDA PRODUCTION REGION <u>Appalachian</u>					
64790106.C02							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	ANNUAL
CODE	CODE			NATIONAL	INDEX		AMOUNT
REVENUE							
2180	8	Bt Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2180	8	Bt Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2053	8	Corn, Grain	BU	2.4909	1	120	298.91
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							412.35
VARIABLE EXPENSES							
1 SEED							
2661	1	Bt Cottonseed	LB	0.84	1	24	20.16
2704	1	Bt Cotton Seed Royalty Fee	AC	35	1	2	70.00
2703	1	Hairy Vetch Seed	LB	0.7	1	16	11.20
2655	1	Corn Seed, Hybrid	1,000 kernels	1	1	23	23.00
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5	11.12
ANNUAL SUBTOTAL							48.16
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3000	23.40
101	2	34-0-0 or 'Ammonium Nitrate (33.5% N)	LB	0.1188	1	970.1462647	115.25
401	2	0-20-20	LB	0.0895	1	600	53.70
403	2	0-45-45	LB	0.17905	1	111.1	19.89
ANNUAL SUBTOTAL							70.75
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	3	12.38
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4006	3	A.Atrez, 4L	PT	2.0925	1	2	4.19
4051	3	Dual SE (Metolachlor)	PT	8.6125	1	1.25	10.77
ANNUAL SUBTOTAL							19.10
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pix (.35L)	PT	12.6875	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
LAB	6	LABOR COST	HR	5.85	1	8.60	50.29
MVC	6	MACHINE VARIABLE COST	AC				135.88
ANNUAL SUBTOTAL							83.09
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							2.00
ANNUAL TOTAL VARIABLE EXPENSES							232.89
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							179.47

Table A-18. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

64790106.CUZ

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Bt Cotton, Lint	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF 48C (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty P	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotonec, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia'	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TKLR MTD	0.04	0.04			Outlook 2L (Asaphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TKLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TKLR MTD	0.04	0.04			Vydate C-LV (3,778a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEP 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL PLAIN DISC RAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
Bt Cotton, Lint	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF 48C (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty P	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotonec, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia'	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE10FT TKLR MTD	0.04	0.04			Outlook 2L (Asaphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE10FT TKLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE10FT TKLR MTD	0.04	0.04			Vydate C-LV (3,778a) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEP 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								

Table A-18. (Continued)

Hairy Vetch Cover	11	28	KILL CODE	0.00	0.00								
	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL,PLAIN,DISCGRAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
Corn, Grain	3	15	ROTARY MOWER	0.33	0.36								
	3	15	KILL CODE	0.00	0.00								
	3	18	DRY PERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	20	CHISEL PLOW GT15FT	0.08	0.09								
	4	10	TANDEM DISK REG GE19FT	0.11	0.12								
	4	15	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	20	PLANTER REGULAR 8 ROW	0.10	0.13							Corn Seed, Hybrid	23.00
	4	20	DRY PERT SPRDR TRAILER MTD	0.10	0.00	34-0-0 or 'Ammonia	973.137313						
	4	20	DRY PERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
	5	15	CHEM APPL LT30FT TRACT MTD	0.10	0.11			AAtres, 4L	2	PT	1.00		
	5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual EE (Metolachlor)	1.25	PT	1.25		
	10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
Wheat Cover Crop	10	10	KILL CODE	0.00	0.00								
	10	12	TANDEM DISK REG GE19FT	0.11	0.12								
	10	12	FINISHING HARROW GE15FT	0.07	0.08								
	10	15	DRILL,PLAIN,DISCGRAIN GT14	0.16	0.17							Wheat Seed, Winter	1.50
	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								

Table A-18. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

64790104.C02

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.54	0.75	0.40
CHISEL PLOW GT15FT	9.84	4.94	0	0.25	2.45	1.23
TANDEM DISK REG GE19FT	13.42	4.04	0	0.86	11.53	3.47
CHEM APPL ATT TO DMPL	6.35	3.37	0	0.41	2.63	1.40
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.20	2.06	0.41
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.30	6.09	2.63
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.77	3.63	1.82
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.23	1.00	0.37
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.64	5.90	2.37
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.21	1.61	0.83
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.47	5.79	2.45
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.24	0.09
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.57	12.01	16.19
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.24	40.51	53.78
					205.54	135.88

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00	4	APRIL	0.45	
2 FEBRUARY	0.00	5	MAY	0.24	
3 MARCH	0.55	6	JUNE	0.12	
FIRST QUARTER		0.55	SECOND QUARTER		0.82
7 JULY	0.15	10	OCTOBER	0.56	
8 AUGUST	0.00	11	NOVEMBER	0.62	
9 SEPTEMBER	0.00	12	DECEMBER	0.17	
THIRD QUARTER		0.15	FOURTH QUARTER		1.35

Table A-19. Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional Tillage

Beaver Creek Watershed									
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional									
COMMODITY 1: <u>Cotton</u>			REGION TYPE: <u>Watershed</u>			SOIL TYPE: <u>0</u>			
COMMODITY 2: <u>Vetch Cover</u>			REGION I.D.: <u>Beaver Creek Watershed</u>			E.I. INDEX: <u>0</u>			
COMMODITY 3: <u>Cotton</u>			FARM SIZE: <u>Large</u>			PRODUCTION PRACTICES: <u>Banding of Chemicals</u>			
COMMODITY 4: <u>Vetch Cover</u>			TILLAGE: <u>Conventional</u>			<u>Nutrient Management</u>			
COMMODITY 5: <u>Corn</u>			ALT. NUTRIENT: <u>RESIDUAL (1st year perennial)</u>			<u>Broad Based Terraces</u>			
COMMODITY 6: <u>Wheat Cover</u>			IRRIGATION: <u>Dry</u>			<u>N.A.</u>			
YEARS OF ROTATION: <u>3</u>			USDA PRODUCTION REGION: <u>Appalachian</u>						
							64790106.C11		
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	ANNUAL		
CODE	CODE			NATIONAL	INDEX		AMOUNT		
REVENUE									
2055	8	Cotton, List	LB	0.647	1	725	469.08		
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00		
2055	8	Cotton, List	LB	0.647	1	725	469.08		
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00		
2053	8	Corn, Grain	BU	2.4909	1	120	298.91		
2601	8	Wheat Cover Crop	BU	0	1	42	0.00		
SUBTOTAL OF ANNUAL REVENUE							412.35		
VARIABLE EXPENSES									
1	SEED								
2660	1	Cottonseed	LB	0.76	1	24	18.24		
2703	1	Hairy Vetch Seed	LB	0.7	1	16	11.20		
2655	1	Corn Seed, Hybrid	1,000 kernels	1	1	23	23.00		
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5	11.12		
ANNUAL SUBTOTAL							21.19		
2	FERTILIZER & LIME								
501	2	Limestone	LB	0.0078	1	3000	23.40		
101	2	34-0-0 or 'Ammonium Nitrate (33.5% N)	LB	0.1188	1	970.1462687	115.25		
401	2	0-20-20	LB	0.0895	1	600	53.70		
403	2	0-45-45	LB	0.17905	1	111.1	19.89		
ANNUAL SUBTOTAL							76.75		
3	HERBICIDES								
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	3	12.38		
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27		
4144	3	MSMA, 4 Plus +	PT	2.18	1	2	4.36		
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34		
4006	3	AAtrex, 4L	PT	2.0925	1	2	4.19		
4051	3	Dual 8E (Metolachlor)	PT	8.6125	1	1.25	10.77		
ANNUAL SUBTOTAL							19.10		
4	INSECTICIDES								
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40		
1152	4	Orthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60		
1247	4	Vydate C-LV (3,77Bz) 1 Gal	OZ	0.5234375	1	16	8.38		
ANNUAL SUBTOTAL							12.79		
6	OTHER COSTS								
803	6	Scouting Costs	AC				8.00		
806	6	Broad Base Terraces	AC	10.4355			51.51		
7120	6	Terraclor, Super X Granular, 12.5%	LB	1.42	1	20	28.40		
9038	6	Pix (.35L)	PT	12.6875	1	1	12.69		
9049	6	DEF 6	PT	4.6675	1	3	14.00		
LAB	6	LABOR COST	HR	5.85	1	8.60	50.29		
MVC	6	MACHINE VARIABLE COST	AC				135.88		
ANNUAL SUBTOTAL							93.52		
7	VARIABLE HARVEST COSTS								
810	7	Custom Aerial Chemical Application	AC	5			6.00		
ANNUAL SUBTOTAL							2.00		
ANNUAL TOTAL VARIABLE EXPENSES							219.34		
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							193.01		

Table A-19. (Continued)

Beaver Creek Watershed													
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional													
CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Cotton, List	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Triphen MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoren, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia	298.504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL PLAIN DISC GRAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
Cotton, List	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Triphen MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoren, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia	298.504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								

Table A-19. (Continued)

[illegible]

Table A-19. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

64790106.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.54	0.75	0.40
CHISEL PLOW GT15FT	9.84	4.94	0	0.25	2.45	1.23
TANDEM DISK REG GE19FT	13.42	4.04	0	0.86	11.53	3.47
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.41	2.63	1.40
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.20	2.06	0.41
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.30	6.09	2.63
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.77	3.63	1.82
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.23	1.00	0.37
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.64	5.90	2.37
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.21	1.61	0.83
DRILL PLAIN DISCGRAIN GT14	12.29	5.19	0	0.47	5.79	2.45
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.24	0.09
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.57	12.01	16.19
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.24	40.51	53.78
					205.56	135.88

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.45
2	FEBRUARY	0.00	5	MAY	0.24
3	MARCH	0.55	6	JUNE	0.12
FIRST QUARTER		0.55	SECOND QUARTER		0.82
7	JULY	0.15	10	OCTOBER	0.56
8	AUGUST	0.00	11	NOVEMBER	0.62
9	SEPTEMBER	0.00	12	DECEMBER	0.17
THIRD QUARTER		0.15	FOURTH QUARTER		1.35

Table A-20. Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional Tillage

Beaver Creek Watershed
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

COMMODITY 1: Bt Cotton REGION TYPE: Watershed SOIL TYPE: 0
 COMMODITY 2: Vetch Cover REGION LD: Beaver Creek Watershed E.L. INDEX: 0
 COMMODITY 3: Bt Cotton FARM SIZE: Large PRODUCTION PRACTICES: Banding of Chemicals
 COMMODITY 4: Vetch Cover TILLAGE: Conventional Nutrient Management
 COMMODITY 5: Corn ALT. NUTRIENT: RESIDUAL (1st year perennial) Bt Cotton
 COMMODITY 6: Wheat Cover IRRIGATION: Dry Broad Based Terraces
 YEARS OF ROTATION: 3 USDA PRODUCTION REGION: Appalachian 64790106.C12

ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2180	8	Bt Cotton, List	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2180	8	Bt Cotton, List	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2053	8	Corn, Grain	BU	2.4909	1	120	298.91
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							412.35
VARIABLE EXPENSES							
1 SEED							
2661	1	Bt Cottonseed	LB	0.84	1	24	20.16
2704	1	Bt Cotton Seed Royalty Fee	AC	35	1	2	70.00
2703	1	Hairy Vetch Seed	LB	0.7	1	16	11.20
2655	1	Corn Seed, Hybrid	1,000 kernels	1	1	23	23.00
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5	11.12
ANNUAL SUBTOTAL							45.16
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3000	23.40
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	970.1462687	115.25
401	2	0-20-20	LB	0.0895	1	600	53.70
403	2	0-45-45	LB	0.17905	1	111.1	19.89
ANNUAL SUBTOTAL							70.75
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	3	12.38
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4006	3	AAtrex, 4L	PT	2.0925	1	2	4.19
4051	3	Dual SE (Metolachlor)	PT	8.6125	1	1.25	10.77
ANNUAL SUBTOTAL							19.10
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
806	6	Broad Base Terraces	AC	10.4355			31.31
7120	6	Terracolor, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pix (.35L)	PT	12.6875	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
LAB	6	LABOR COST	HR	5.85	1	8.60	50.29
MVC	6	MACHINE VARIABLE COST	AC				135.88
ANNUAL SUBTOTAL							93.52
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							2.00
ANNUAL TOTAL VARIABLE EXPENSES							243.32

Table A-20. (Continued)

ANNUAL RETURNS ABOVE VARIABLE EXPENSES	1992
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Table A-20. (Continued)

Beaver Creek Watershed													
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional													
CROP	DATE		MACHINE NAME	MACHINE LABOR		FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY		TIME	TIME	NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Bt Cotton, Late	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty Fee	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE18FT TLRL MTD	0.04	0.04			Outlion 2L (Azaphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE18FT TLRL MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE18FT TLRL MTD	0.04	0.04			Vydate C-LV (3.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL PLAIN DISC RAIN GT14	0.16	0.17							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.33	0.36								
Bt Cotton, Late	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty Fee	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or 'Ammonia	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE18FT TLRL MTD	0.04	0.04			Outlion 2L (Azaphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE18FT TLRL MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE18FT TLRL MTD	0.04	0.04			Vydate C-LV (3.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								

Hairy Vetch Cover	11	28	KILL CODE	0.00	0.00								
	11	30	TANDEM DISK REG GE19FT	0.11	0.12								
	12	1	FINISHING HARROW GE15FT	0.07	0.08								
	12	4	DRILL PLAIN DISCGRAIN GT14	0.16	0.17								
	3	15	ROTARY MOWER	0.33	0.36								
Corn, Grain	3	15	KILL CODE	0.00	0.00								
	3	18	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	20	CHESEL PLOW GT15FT	0.08	0.09								
	4	10	TANDEM DISK REG GE19FT	0.11	0.12								
	4	15	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	20	PLANTER REGULAR 8 ROW	0.10	0.12								
	4	20	DRY FERT SPRDR TRAILER MTD	0.10	0.09	34-0-0 or 'Ammonia'	373.137313						
	4	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
	5	15	CHEM APPL LT30FT TRACT MTD	0.10	0.11			AA100, 4L	2	PT	1.00		
	5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual 8E (Metolachlor)	1.25	PT	1.25		
Wheat Cover Crop	10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	10	TRUCK SGL AXLE GAS 2 TON (SP)	0.18	0.20								
	10	10	KILL CODE	0.00	0.00								
	10	12	TANDEM DISK REG GE19FT	0.11	0.12								
	10	12	FINISHING HARROW GE15FT	0.07	0.08								
	10	15	DRILL PLAIN DISCGRAIN GT14	0.16	0.17								
	3	25	ROTARY MOWER	0.33	0.36								
	3	25	KILL CODE	0.00	0.00								

Table A-20. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

64790106.C13

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.54	0.75	0.40
CHISEL PLOW GT15FT	9.84	4.94	0	0.25	2.45	1.23
TANDEM DISK REG GE19FT	13.42	4.04	0	0.86	11.53	3.47
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.41	2.63	1.40
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.20	2.06	0.41
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.30	6.09	2.63
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.77	3.63	1.82
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.23	1.00	0.37
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.64	5.90	2.37
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.21	1.61	0.83
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.47	5.79	2.45
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.24	0.09
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.57	12.01	16.19
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.24	40.51	53.78
					205.58	135.88

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.45
2	FEBRUARY	0.00	5	MAY	0.24
3	MARCH	0.55	6	JUNE	0.12
FIRST QUARTER		0.55	SECOND QUARTER		0.82
7	JULY	0.15	10	OCTOBER	0.56
8	AUGUST	0.00	11	NOVEMBER	0.62
9	SEPTEMBER	0.00	12	DECEMBER	0.17
THIRD QUARTER		0.15	FOURTH QUARTER		1.35

Table A-21. Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional Tillage

Beaver Creek Watershed						
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional						
COMMODITY 1: Cotton		REGION TYPE: Watershed	SQL TYPE: 0			
COMMODITY 2: Vetch Cover		REGION LD: Beaver Creek Watershed	Economic			
COMMODITY 3: Cotton		FARM SIZE: Large	PRODUCTION PRACTICES: Banding of Chemicals			
COMMODITY 4: Vetch Cover		TILLAGE: Conventional	Nutrient Management			
COMMODITY 5: Corn		ALT. NUTRIENT: RESIDUAL (1st year perennial)	Covering			
COMMODITY 6: Wheat Cover		IRRIGATION: Dry	N/A			
YEARS OF ROTATION: 3		USDA PRODUCTION REGION: Appalachia		64790106.C21		
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		ANNUAL AMOUNT
				NATIONAL	INDEX	
REVENUE						
2055	8	Cotton, List	LB	0.647	1	725 469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4 0.00
2055	8	Cotton, List	LB	0.647	1	725 469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4 0.00
2053	8	Corn, Grain	BU	2.4909	1	120 298.91
2601	8	Wheat Cover Crop	BU	0	1	42 0.00
SUBTOTAL OF ANNUAL REVENUE						412.35
VARIABLE EXPENSES						
1 SEED						
2660	1	Cottonseed	LB	0.76	1	28 12.24
2703	1	Hairy Vetch Seed	LB	0.7	1	16 11.20
2655	1	Corn Seed, Hybrid	1,000 Earsels	1	1	23 23.00
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5 11.12
ANNUAL SUBTOTAL						21.19
2 FERTILIZER & LIME						
501	2	Limestone	LB	0.0078	1	3000 23.40
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	970.1462687 115.25
401	2	0-20-20	LB	0.0895	1	600 53.70
403	2	0-45-45	LB	0.17905	1	111.1 19.89
ANNUAL SUBTOTAL						70.75
3 HERBICIDES						
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	3 12.38
4176	3	Canoran, 4L	PT	4.755	1	3 14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2 4.36
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3 11.34
4006	3	AAtrex, 4L	PT	2.0925	1	2 4.19
4051	3	Dual SE (Metolachlor)	PT	8.6125	1	1.25 10.77
ANNUAL SUBTOTAL						39.10
4 INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7 22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2 7.60
1247	4	Vydate C-LV (3.77lb) 1 Gal	OZ	0.5234375	1	16 8.38
ANNUAL SUBTOTAL						32.79
6 OTHER COSTS						
803	6	Scouting Costs	AC			8.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	20 28.40
9038	6	Pix (35L)	PT	12.6875	1	1 12.69
9049	6	DEF 6	PT	4.6675	1	3 14.00
LAB	6	LABOR COST	HR	5.85	1	9.46 55.32
MVC	6	MACHINE VARIABLE COST	AC			149.47
ANNUAL SUBTOTAL						89.29
7 VARIABLE HARVEST COSTS						
810	7	Custom Aerial Chemical Application	AC	5		6.00
ANNUAL SUBTOTAL						2.00
ANNUAL TOTAL VARIABLE EXPENSES						215.12
ANNUAL RETURNS ABOVE VARIABLE EXPENSES						197.24

Table A-21. (Continued)

Beaver Creek Watershed													
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional													
CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Cotton, Lent	3	28	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Trifluralin MTF, 48C (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotonec, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	34-0-0 or 1Ammonia	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.05			Outlook 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.05			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.05			Vydate C-LV (3.77lb) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.12	0.13								
	12	1	FINISHING HARROW GE15FT	0.08	0.09								
	12	4	DRILL-PLANT-DISCOVERAIN GT14	0.17	0.19							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.36	0.40								
Cotton, Lent	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Trifluralin MTF, 48C (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotonec, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	34-0-0 or 1Ammonia	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1	PT	0.50	Seeding Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.05			Outlook 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.05			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.05			Vydate C-LV (3.77lb) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								

Table A-21. (Continued)[illegible]

Table A-21. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

64790106.C21

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.59	0.82	0.44
CHISEL PLOW GT15FT	9.84	4.94	0	0.27	2.69	1.35
TANDEM DISK REG GE19FT	13.42	4.04	0	0.95	12.69	3.82
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.46	2.90	1.54
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.22	2.26	0.45
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.33	6.70	2.89
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.29	10.63	2.52
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.85	3.99	2.00
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.26	1.10	0.40
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.44	77.71	36.50
COTTON TRAILER	28.12	11.64	0	0.37	10.45	4.32
ROTARY MOWER	3.60	1.45	0	1.80	6.49	2.61
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.23	1.77	0.91
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.52	6.37	2.69
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.11	0.27	0.10
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.20	18.07	8.97
TRUCK 5GL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.20	3.45	0.99
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.72	13.21	17.81
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.67	44.56	59.16
					226.13	149.47

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.50
2	FEBRUARY	0.00	5	MAY	0.27
3	MARCH	0.60	6	JUNE	0.13
FIRST QUARTER		0.60	SECOND QUARTER		0.90
7	JULY	0.17	10	OCTOBER	0.62
8	AUGUST	0.00	11	NOVEMBER	0.68
9	SEPTEMBER	0.00	12	DECEMBER	0.18
THIRD QUARTER		0.17	FOURTH QUARTER		1.48

Table A-22. Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional Tillage

Beaver Creek Watershed							
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional							
COMMODITY 1: Bt Cotton		REGION TYPE: Watershed		SOIL TYPE: 0			
COMMODITY 2: Vetch Cover		REGION LD: Beaver Creek Watershed		EL INDEX: 0			
COMMODITY 3: Bt Cotton		FARM SIZE: Large		PRODUCTION PRACTICES: Banding of Chemicals			
COMMODITY 4: Vetch Cover		TILLAGE: Conventional		Nutrient Management			
COMMODITY 5: Corn		ALT. NUTRIENT: RESIDUAL (1st year perennial)		Bt Cotton			
COMMODITY 6: Wheat Cover		IRRIGATION: Dry		Covercrops			
YEARS OF ROTATION: 3		USDA PRODUCTION REGION: Appalachian		64790106.C22			
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2180	8	Bt Cotton, List	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2180	8	Bt Cotton, List	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2053	8	Corn, Grain	BU	2.4909	1	120	298.91
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							412.38
VARIABLE EXPENSES							
1 SEED							
2661	1	Bt Cottonseed	LB	0.84	1	24	20.16
2704	1	Bt Cotton Seed Royalty Fee	AC	35	1	2	70.00
2703	1	Hairy Vetch Seed	LB	0.7	1	16	11.20
2655	1	Corn Seed, Hybrid	1,000 kernels	1	1	23	23.00
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5	11.12
ANNUAL SUBTOTAL							45.16
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3000	23.40
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	970.1462687	115.25
401	2	0-20-20	LB	0.0895	1	600	53.70
403	2	0-45-45	LB	0.17905	1	111.1	19.89
ANNUAL SUBTOTAL							70.75
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	3	12.38
4176	3	Cotoran, 4L	PT	4.755	1	3	14.27
4144	3	MSMA, 4 Plus *	PT	2.18	1	2	4.36
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4006	3	AAtrex, 4L	PT	2.0925	1	2	4.19
4051	3	Dual SE (Metolachlor)	PT	8.6125	1	1.25	10.77
ANNUAL SUBTOTAL							19.10
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
7120	6	Terraclor, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pix (.35L)	PT	12.6475	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
LAB	6	LABOR COST	HR	5.85	1	9.46	55.32
MVC	6	MACHINE VARIABLE COST	AC				149.47
ANNUAL SUBTOTAL							89.29
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							2.00
ANNUAL TOTAL VARIABLE EXPENSES							239.09
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							173.26

Table A-22. (Continued)

Beaver Creek Watershed													
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional													
64790106.C22													
CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L/acre	NAME	RATE
Bt Cotton, Lint	3	28	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Thiflan MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty F	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotoran, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	34-0-0 or 'Ammonia	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GE19FT	0.12	0.13								
	12	1	FINISHING HARROW GE15FT	0.08	0.09								
	12	4	DRILL PLAIN DISC GRN GT14	0.17	0.19							Hairy Vetch Seed	8.00
	3	25	ROTARY MOWER	0.36	0.40								
Bt Cotton, Lint	3	25	KILL CODE	0.00	0.00								
	3	28	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	30	CHESEL PLOW GT15FT	0.09	0.10								
	4	1	TANDEM DISK REG GE19FT	0.12	0.13								
	4	5	TANDEM DISK REG GE19FT	0.12	0.15								
	4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Thiflan MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
	4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty F	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotoran, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	34-0-0 or 'Ammonia	298,504						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1	PT	0.50	Scouting Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
	7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Vydate C-LV (3.77Ba) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.36	0.40								
	10	5	COTTON TRAILER	0.09	0.10								
	11	25	COTTON PICKER SELF-PROP	0.36	0.40								
	11	25	COTTON TRAILER	0.09	0.10								
	11	28	ROTARY MOWER	0.36	0.40								

Table A-22. (Continued)

	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	TANDEM DISK REG GEI9FT	0.12	0.13								
	12	1	FINISHING HARROW GEI5FT	0.08	0.09								
	12	6	DRILL PLAIN DISC GRAIN GT14	0.17	0.19							Hairy Vetch Seed	8.00
	3	15	ROTARY MOWER	0.36	0.40								
	3	15	KILL CODE	0.00	0.00								
Corn, Grain	3	18	DRY FERT SPRDTR TRAILER MTD	0.10	0.11	Limestone	1000						
	3	20	CHESEL PLOW GT15FT	0.09	0.10								
	4	10	TANDEM DISK REG GEI9FT	0.12	0.13								
	4	15	CULTI-MULCH ROLLER GEI#FT	0.07	0.08								
	4	20	PLANTER REGULAR 8 ROW	0.11	0.14							Corn Seed, Hybrid	23.00
	4	20	DRY FERT SPRDTR TRAILER MTD	0.11	0.00	34-0-0 or "Ammon"	373.137313						
	4	20	DRY FERT SPRDTR TRAILER MTD	0.00	0.00	0-45-45	111.1						
	5	15	CHEM APPL LT30FT TRACT MTD	0.11	0.12			AAsretx_4L	2	PT	1.00		
	5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual 8E (Metolachlor)	1.25	PT	1.25		
	10	10	COMBINE ROW HD SP 2WD	0.20	0.22								
	10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.20	0.22								
	10	10	KILL CODE	0.00	0.00								
Wheat Cover Crop	10	12	TANDEM DISK REG GEI9FT	0.12	0.13								
	10	12	FINISHING HARROW GEI5FT	0.08	0.09								
	10	15	DRILL PLAIN DISC GRAIN GT14	0.17	0.19							Wheat Seed, Winter	1.50
	3	25	ROTARY MOWER	0.36	0.40								
	3	25	KILL CODE	0.00	0.00								

Table A-22. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -Conventional

64790106.C22

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.59	0.82	0.44
CHISEL PLOW GT15FT	9.84	4.94	0	0.27	2.69	1.35
TANDEM DISK REG GE19FT	13.42	4.04	0	0.95	12.69	3.82
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.46	2.90	1.54
CULTI-MULCH ROLLER GE11FT	10.18	2.05	0	0.22	2.26	0.45
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.33	6.70	2.89
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.29	10.63	2.52
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.85	3.99	2.00
CHEM APPL GE30FT TKLR MTD	4.26	1.56	0	0.26	1.10	0.40
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.44	77.71	36.50
COTTON TRAILER	28.12	11.64	0	0.37	10.45	4.32
ROTARY MOWER	3.60	1.45	0	1.80	6.49	2.61
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
FINISHING HARROW GE15FT	7.54	3.89	0	0.23	1.77	0.91
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.52	6.37	2.69
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.11	0.27	0.10
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.20	18.07	8.97
TRUCK 5GL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.20	3.45	0.99
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	1.72	13.21	17.81
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	4.67	44.56	59.16
					226.13	149.47

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.50
2	FEBRUARY	0.00	5	MAY	0.27
3	MARCH	0.60	6	JUNE	0.13
FIRST QUARTER		0.60	SECOND QUARTER		0.90
7	JULY	0.17	10	OCTOBER	0.62
8	AUGUST	0.00	11	NOVEMBER	0.68
9	SEPTEMBER	0.00	12	DECEMBER	0.18
THIRD QUARTER		0.17	FOURTH QUARTER		1.48

Table A-23. Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till

Beaver Creek Watershed							
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till							
COMMODITY 1: Cotton		REGION TYPE: Watershed		SOIL TYPE: 0			
COMMODITY 2: Vetch Cover		REGION LD: Beaver Creek Watershed		EL INDEX: 0			
COMMODITY 3: Cotton		FARM SIZE: Large		PRODUCTION PRACTICES: Banding of Chemicals			
COMMODITY 4: Vetch Cover		TILLAGE: No-Till		Nutrient Management			
COMMODITY 5: Corn		ALT. NUTRIENT: RESIDUAL (1st year perennial)		N.A.			
COMMODITY 6: Wheat Cover		IRRIGATION: Dry ~		N.A.			
YEARS OF ROTATION: 3		USDA PRODUCTION REGION: Appalachia		64790104.N01			
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop	TON	0	1	2.4	0.00
2053	8	Corn, Grain	BU	2.4909	1	120	298.91
2601	8	Wheat Cover Crop	BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE							412.35
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.76	1	24	18.24
2703	1	Hairy Vetch Seed	LB	0.7	1	16	11.20
2655	1	Corn Seed, Hybrid	1,000 kernels	1	1	23	23.00
2701	1	Wheat Seed, Winter	BU	7.41	1	1.5	11.12
ANNUAL SUBTOTAL							21.19
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	3000	23.40
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	970.1462687	115.25
401	2	0-20-20	LB	0.0895	1	600	53.70
403	2	0-45-45	LB	0.17905	1	111.1	19.89
ANNUAL SUBTOTAL							70.75
3 HERBICIDES							
4093	3	Roundup 4L (Glyphosate)	QT	22.25	1	2	44.50
4314	3	Gramoxone Extra, 2.5L (Paraquat)	PT	4.225	1	3.5	14.79
4360	3	Prowl 3.3 EC	QT	10.725	1	3	32.18
4176	3	Cotoran, 4L	PT	4.755	1	6	28.53
4144	3	MSMA, 4 Pins *	PT	2.18	1	8	17.44
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	3	11.34
4006	3	AAtrex, 4L	PT	2.0925	1	2.3125	4.84
4051	3	Dual SE (Metolachlor)	PT	8.6125	1	1.25	10.77
ANNUAL SUBTOTAL							54.79
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77lbs) 1 Gal	OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL							12.79
6 OTHER COSTS							
803	6	Scouting Costs	AC				8.00
7120	6	Terrachlor, Super X Granular, 12.5%	LB	1.42	1	20	28.40
9038	6	Pix (.35L)	PT	12.6475	1	1	12.69
9049	6	DEF 6	PT	4.6675	1	3	14.00
LAB	6	LABOR COST	HR	5.85	1	6.90	40.36
MVC	6	MACHINE VARIABLE COST	AC				111.54
ANNUAL SUBTOTAL							71.66
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			6.00
ANNUAL SUBTOTAL							2.00
ANNUAL TOTAL VARIABLE EXPENSES							233.18

Table A-23. (Continued)

ANNUAL RETURNS ABOVE VARIABLE EXPENSES	
	199.17

Table A-23. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till

64790106.N01

CROP	DATE		MACHINE	MACHINE	LABOR	FERTILIZER		CHEMICAL					OTHER INPUTS	
	MON	DAY	NAME	TIME	TIME	NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE	
Cotton, Lint	4	13	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000							
	4	15	CHEM APPL SM SELF-PROP	0.07	0.07			Roundup 4L (Glyphosate)	1	QT				
	4	15	CHEM APPL SM SELF-PROP	0.00	0.00			Gramoxone Extra, 2.5L (Paraquat)	1	PT				
	4	25	PLANTER NO-TILL 6 ROW	0.20	0.25							Cottonseed	12.00	
	4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Temik15G (Aldicarb)	3.5	LB	0.50			
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terrador, Super X Granular, 12.5%	10	LB	1.00			
	5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Prowl 3.3 EC	1.5	QT	1.25			
	5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotolan, 4L	1.5	PT	0.75			
	5	15	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75			
	5	15	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00	Scouting Costs	4.00	
	5	25	CHEM APPL SM SELF-PROP	0.07	0.07			Bladex 4L (Cyanazine)	1.5	PT	1.50			
	5	25	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00			
	5	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or Ammonia	298,504							
	5	30	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300							
	6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Outlion 2L (Azaphos Methyl)	1	PT	0.25			
	7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02			
	7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (0.77lbs) 1 Gal	8	OZ	0.25			
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00	
	10	5	COTTON PICKER SELF-PROP	0.33	0.36									
	10	5	COTTON TRAILER	0.08	0.09									
	11	25	COTTON PICKER SELF-PROP	0.33	0.36									
	11	25	COTTON TRAILER	0.08	0.09									
	11	28	ROTARY MOWER	0.33	0.36									
	11	28	KILL CODE	0.00	0.00									
Hairy Vetch Cover	11	30	PLANTER NO-TILL 6 ROW	0.20	0.22							Hairy Vetch Seed	8.00	
	4	12	ROTARY MOWER	0.33	0.36									
	4	12	KILL CODE	0.00	0.00									
Cotton, Lint	4	13	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000							
	4	15	CHEM APPL SM SELF-PROP	0.07	0.07			Roundup 4L (Glyphosate)	1	QT				
	4	15	CHEM APPL SM SELF-PROP	0.00	0.00			Gramoxone Extra, 2.5L (Paraquat)	1	PT				
	4	25	PLANTER NO-TILL 6 ROW	0.20	0.25							Cottonseed	12.00	
	4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Temik15G (Aldicarb)	3.5	LB	0.50			
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terrador, Super X Granular, 12.5%	10	LB	1.00			
	5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Prowl 3.3 EC	1.5	QT	1.25			
	5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotolan, 4L	1.5	PT	0.75			
	5	15	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75			
	5	15	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00	Scouting Costs	4.00	
	5	25	CHEM APPL SM SELF-PROP	0.07	0.07			Bladex 4L (Cyanazine)	1.5	PT	1.50			
	5	25	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00			
	5	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or Ammonia	298,504							
	5	30	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300							
	6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Outlion 2L (Azaphos Methyl)	1	PT	0.25			
	7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02			
	7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (0.77lbs) 1 Gal	8	OZ	0.25			
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00	
	10	5	COTTON PICKER SELF-PROP	0.33	0.36									
	10	5	COTTON TRAILER	0.08	0.09									
	11	25	COTTON PICKER SELF-PROP	0.33	0.36									
	11	25	COTTON TRAILER	0.08	0.09									
	11	28	ROTARY MOWER	0.33	0.36									
	11	28	KILL CODE	0.00	0.00									
Hairy Vetch Cover	11	30	PLANTER NO-TILL 6 ROW	0.20	0.22							Hairy Vetch Seed	8.00	
	4	15	ROTARY MOWER	0.33	0.36									
	4	15	KILL CODE	0.00	0.00									
Corn, Grain	4	18	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000							
	4	20	PLANTER NO-TILL 6 ROW	0.20	0.22							Corn Seed, Hybrid	25.00	
	4	25	CHEM APPL LT30FT TRACT MTD	0.10	0.11			Gramoxone Extra, 2.5L (Paraquat)	1.5	PT	0.47			
	5	5	CHEM APPL LT30FT TRACT MTD	0.10	0.12			AAtro, 4L	2.3125	PT	1.16			

Table A-23. (Continued)

	5	5	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual 8E (Metolachlor)	1.25	PT	1.25		
	5	20	DRY FERT SPRDR TRAILER MTD	0.10	0.00	34-0-0 or 'Ammonia'	373.137313						
	5	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
	10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	10	TRUCK SOL AXLE-GAS 2 TON (SP)	0.18	0.20								
	10	10	KILL CODE	0.00	0.00								
Wheat Cover Crop	10	12	DRELL, NO-TILL, MIN-TILL, 20'	0.16	0.18							Wheat Seed, Winter	1.50
	4	12	ROTARY MOWER	0.33	0.36								
	4	12	KILL CODE	0.00	0.00								

Table A-23. (Continued)

Beaver Creek Watershed
Cotton-Vetch Cover-Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till

647981062N01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER	HOURS PER ACRE	COST PER ACRE	
	P.C.	V.C.			P.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.53	0.74	0.40
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.52	19.33	4.58
PLANTER NO-TILL 6 ROW	16.45	9.76	0	1.00	16.45	9.76
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.40	2.54	1.35
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.23	1.00	0.37
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	28.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.64	5.90	2.37
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.20	0.48	0.18
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
DRILL, NO-TILL, MIN-TILL, 20'	27.34	12.11	0	0.16	4.48	1.98
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	2.06	15.77	21.26
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.62	15.48	20.55
TRACTOR 2WD 100 HP DIESEL	6.95	7.89	4	0.33	2.27	2.58
					184.17	111.54

ANNUAL LABOR REQUIREMENTS					
MONTH		LABOR (hrs/ac)	MONTH		LABOR (hrs/ac)
1	JANUARY	0.00	4	APRIL	0.78
2	FEBRUARY	0.00	5	MAY	0.25
3	MARCH	0.00	6	JUNE	0.03
FIRST QUARTER		0.00	SECOND QUARTER		1.06
7	JULY	0.06	10	OCTOBER	0.50
8	AUGUST	0.00	11	NOVEMBER	0.69
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.06	FOURTH QUARTER		1.19

Table A-24. Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till

Beaver Creek Watershed								
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till								
COMMODITY 1: <u>Bt Cotton</u>		REGION TYPE: <u>Watershed</u>		SOIL TYPE: <u>0</u>				
COMMODITY 2: <u>Vetch Cover</u>		REGION ID: <u>Beaver Creek Watershed</u>		EL INDEX: <u>0</u>				
COMMODITY 3: <u>Bt Cotton</u>		FARM SIZE: <u>Large</u>		PRODUCTION PRACTICES: <u>Banding of Chemicals</u>				
COMMODITY 4: <u>Vetch Cover</u>		TILLAGE: <u>No-Till</u>		<u>Nutrient Management</u>				
COMMODITY 5: <u>Corn</u>		ALT. NUTRIENT: <u>RESIDUAL (1st year peanuts)</u>		<u>Bt Cotton</u>				
COMMODITY 6: <u>Wheat Cover</u>		IRRIGATION: <u>Dry</u>		<u>N.A.</u>				
YEARS OF ROTATION: <u>3</u>		USDA PRODUCTION REGION: <u>Appalachian</u>						
64790106.N02								
ITEM	CATEGORY		NAME	UNITS	PRICE		QUANTITY	ANNUAL
CODE	CODE				NATIONAL	INDEX		AMOUNT
REVENUE								
2180	8	Bt Cotton, List		LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop		TON	0	1	2.4	0.00
2180	8	Bt Cotton, List		LB	0.647	1	725	469.08
2602	8	Hairy Vetch Cover Crop		TON	0	1	2.4	0.00
2053	8	Corn, Grain		BU	2.4909	1	120	298.91
2601	8	Wheat Cover Crop		BU	0	1	42	0.00
SUBTOTAL OF ANNUAL REVENUE								412.35
VARIABLE EXPENSES								
1 SEED								
2661	1	Bt Cottonseed		LB	0.84	1	24	20.16
2704	1	Bt Cotton Seed Royalty Fee		AC	35	1	2	70.00
2703	1	Hairy Vetch Seed		LB	0.7	1	16	11.20
2655	1	Corn Seed, Hybrid	1,000 kernels		1	1	23	23.00
2701	1	Wheat Seed, Winter		BU	7.41	1	1.5	11.12
ANNUAL SUBTOTAL								45.16
2 FERTILIZER & LIME								
501	2	Limestone		LB	0.0078	1	3000	23.40
101	2	34-0-0 or Ammonium Nitrate (33.5% N)		LB	0.1188	1	970.1462687	115.25
401	2	0-20-20		LB	0.0895	1	600	53.70
403	2	0-45-45		LB	0.17905	1	111.1	19.89
ANNUAL SUBTOTAL								70.75
3 HERBICIDES								
4093	3	Roundup 4L (Glyphosate)		QT	22.25	1	2	44.50
4314	3	Gramoxone Extra, 2.5L (Paraquat)		PT	4.225	1	3.5	14.79
4360	3	Prowl 3.3 EC		QT	10.725	1	3	32.18
4176	3	Cotoran, 4L		PT	4.755	1	6	28.53
4144	3	MSMA, 4 Plus *		PT	2.18	1	8	17.44
4022	3	Bladex 4L (Cyanazine)		PT	3.78	1	3	11.34
4006	3	AAtrex, 4L		PT	2.0925	1	2.3125	4.84
4051	3	Dual 8E (Metolachlor)		PT	8.6125	1	1.25	10.77
ANNUAL SUBTOTAL								54.79
4 INSECTICIDES								
1124	4	Temik 15G (Aldicarb)		LB	3.2	1	7	22.40
1152	4	Guthion 2L (Azinphos Methyl)		PT	3.8	1	2	7.60
1247	4	Vydate C-LV (3.77lbs) 1 Gal		OZ	0.5234375	1	16	8.38
ANNUAL SUBTOTAL								12.79
6 OTHER COSTS								
803	6	Scouting Costs		AC				8.00
7120	6	Terraclor, Super X Granular, 12.5%		LB	1.42	1	20	28.40
9038	6	Pix (.35L)		PT	12.6875	1	1	12.69
9049	6	DEF 6		PT	4.6675	1	3	14.00
LAB	6	LABOR COST		HR	5.85	1	6.90	40.34
MVC	6	MACHINE VARIABLE COST		AC				111.54
ANNUAL SUBTOTAL								71.64
7 VARIABLE HARVEST COSTS								
810	7	Custom Aerial Chemical Application		AC	5			6.00
ANNUAL SUBTOTAL								2.00

Table A-24. (Continued)

	ANNUAL TOTAL VARIABLE EXPENSES	2011
	ANNUAL RETURNS ABOVE VARIABLE EXPENSES	1993

Table A-24. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till

64790106.N02

CROP	DATE		MACHINE	MACHINE	LABOR	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY	NAME	TIME	TIME	NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Bt Cotton, Lint	4	13	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	4	15	CHEM APPL SM SELF-PROP	0.07	0.07			Roundup 4L (Glyphosate)	1	QT			
	4	15	CHEM APPL SM SELF-PROP	0.00	0.00			Gramoxone Extra, 2.5L (Paraquat)	1	PT			
	4	25	PLANTER NO-TILL 6 ROW	0.20	0.25							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Temik15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty P	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12.5%	10	LB	1.00		
	5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Prowl 3.3 EC	1.5	QT	1.25		
	5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotolan, 4L	1.5	PT	0.75		
	5	15	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	15	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00	Scouting Costs	4.00
	5	25	CHEM APPL SM SELF-PROP	0.07	0.07			Bladex 4L (Cyanazine)	1.5	PT	1.50		
	5	25	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00		
	5	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or Ammonia	298,504						
	5	30	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	6	15	CHEM APPL GESFT TLRL MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	15	CHEM APPL GESFT TLRL MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GESFT TLRL MTD	0.04	0.04			Vydate C-LV (0.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	PLANTER NO-TILL 6 ROW	0.20	0.22							Hairy Vetch Seed	8.00
	4	12	ROTARY MOWER	0.33	0.36								
	4	12	KILL CODE	0.00	0.00								
Bt Cotton, Lint	4	13	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	4	15	CHEM APPL SM SELF-PROP	0.07	0.07			Roundup 4L (Glyphosate)	1	QT			
	4	15	CHEM APPL SM SELF-PROP	0.00	0.00			Gramoxone Extra, 2.5L (Paraquat)	1	PT			
	4	25	PLANTER NO-TILL 6 ROW	0.20	0.25							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Temik15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty P	35.00
	4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12.5%	10	LB	1.00		
	5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Prowl 3.3 EC	1.5	QT	1.25		
	5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotolan, 4L	1.5	PT	0.75		
	5	15	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	15	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00	Scouting Costs	4.00
	5	25	CHEM APPL SM SELF-PROP	0.07	0.07			Bladex 4L (Cyanazine)	1.5	PT	1.50		
	5	25	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2	PT	1.00		
	5	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	34-0-0 or Ammonia	298,504						
	5	30	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	6	15	CHEM APPL GESFT TLRL MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	15	CHEM APPL GESFT TLRL MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GESFT TLRL MTD	0.04	0.04			Vydate C-LV (0.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Hairy Vetch Cover	11	30	PLANTER NO-TILL 6 ROW	0.20	0.22							Hairy Vetch Seed	8.00
	4	15	ROTARY MOWER	0.33	0.36								
	4	15	KILL CODE	0.00	0.00								
Corn, Grain	4	18	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	4	30	PLANTER NO-TILL 6 ROW	0.20	0.22							Corn Seed, Hybrid	23.00
	4	25	CHEM APPL LT30FT TRACT MTD	0.10	0.11			Gramoxone Extra, 2.5L (Paraquat)	1.5	PT	0.47		
	5	5	CHEM APPL LT30FT TRACT MTD	0.10	0.12			AAtret, 4L	2.3125	PT	1.16		

Table A-24. (Continued)

Wheat Cover Crop	5	5	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual RE (Metolachlor)	1.25	PT	1.25		
	5	20	DRY FERT SPRDR TRAILER MTD	0.10	0.00	34-0-0 or 'Assorted'	373.137313						
	5	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
	10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
	10	10	TRUCK SGL AXLE GAS 2 TON (SP)	0.18	0.20								
	10	10	KILL CODE	0.00	0.00								
	10	12	DRILL, NO-TILL, MIN-TILL, 20'	0.16	0.18							Wheat Seed, Winter	1.50
	4	12	ROTARY MOWER	0.33	0.36								
	4	12	KILL CODE	0.00	0.00								

Table A-24. (Continued)

Beaver Creek Watershed
Bt Cotton-Vetch Cover-Bt Cotton-Vetch Cover-Corn-Wheat Cover Rotation -No-Till

64790106.N02

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.53	0.74	0.40
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.52	19.33	4.58
PLANTER NO-TILL 6 ROW	16.45	9.76	0	1.00	16.45	9.76
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.40	2.54	1.35
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.23	1.00	0.37
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	1.31	70.65	33.18
COTTON TRAILER	24.12	11.64	0	0.34	9.50	3.93
ROTARY MOWER	3.60	1.45	0	1.64	5.90	2.37
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.20	0.48	0.18
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
DRILL, NO-TILL, MIN-TILL, 20'	27.34	12.11	0	0.16	4.48	1.98
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	2.06	15.77	21.26
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.62	15.48	20.55
TRACTOR 2WD 100 HP DIESEL	6.95	7.89	4	0.33	2.27	2.58
					184.17	111.54

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.78	
2 FEBRUARY	0.00		5 MAY	0.25	
3 MARCH	0.00		6 JUNE	0.03	
FIRST QUARTER		0.00	SECOND QUARTER		1.06
7 JULY	0.06		10 OCTOBER	0.50	
8 AUGUST	0.00		11 NOVEMBER	0.69	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.06	FOURTH QUARTER		1.19

Table A-25. Cotton-Switchgrass Rotation -Conventional Tillage

Beaver Creek Watershed
Cotton-Switchgrass Rotation -Conventional

COMMODITY 1: <u>Cotton</u>		REGION TYPE: <u>Watershed</u>		SOIL TYPE: <u>0</u>			
COMMODITY 2: <u>Switchgrass</u>		REGION LD: <u>Beaver Creek Watershed</u>		EL INDEX: <u>0</u>			
COMMODITY 3: _____		FARM SIZE: <u>Large</u>		PRODUCTION PRACTICES: <u>Banding of Chemicals</u>			
COMMODITY 4: _____		TILLAGE: <u>Conventional</u>		<u>N.A.</u>			
COMMODITY 5: _____		ALT. NUTRIENT: <u>NONE</u>		<u>N.A.</u>			
COMMODITY 6: _____		IRRIGATION: <u>Dry</u>		<u>N.A.</u>			
YEARS OF ROTATION: <u>4</u>		USDA PRODUCTION REGION: <u>Appalachian</u>					
64790108.C01							
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.647	1	725	469.08
2143	8	Switchgrass	TON	46.44	1	10.5	487.62
SUBTOTAL OF ANNUAL REVENUE							239.17
VARIABLE EXPENSES							
1 SEED							
2660	1	Cottonseed	LB	0.76	1	12	9.12
2702	1	Switchgrass Seed	LB	4.71	1	5	23.55
ANNUAL SUBTOTAL							32.67
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1000	7.80
109	2	Urea (44%-46% N)	LB	0.27	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300	26.85
432	2	40-14-25	LB	0.107412658	1	250	26.85
ANNUAL SUBTOTAL							30.36
3 HERBICIDES							
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.125	1	1.5	6.19
4176	3	Cotoran, 4L	PT	4.755	1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18	1	1	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	1.5	5.67
4006	3	AAtrex, 4L	PT	2.0925	1	5	10.46
ANNUAL SUBTOTAL							7.91
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	3.5	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	1	3.80
1247	4	Vydate C-LV (3,77Rt) 1 Gal	OZ	0.5234375	1	8	4.19
1054	4	Paradan 4F	PT	8.85625	1	4	35.43
ANNUAL SUBTOTAL							13.63
6 OTHER COSTS							
803	6	Scouting Costs	AC				4.00
7120	6	Terracot, Super X Granular, 12.5%	LB	1.42	1	10	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.5	6.34
9049	6	DEF 6	PT	4.6675	1	1.5	7.00
LAB	6	LABOR COST	HR	5.85	1	10.41	60.89
MVC	6	MACHINE VARIABLE COST	AC				127.21
ANNUAL SUBTOTAL							54.91
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			3.00
ANNUAL SUBTOTAL							0.75
ANNUAL TOTAL VARIABLE EXPENSES							115.77
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							123.41

Table A-25. (Continued)

Beaver Creek Watershed Cotton-Switchgrass Rotation -Conventional													
CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
Cotton, Late	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Treflan MTR 48C (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			Temik 15G (Aldicarb)	3.5	LB	0.50		
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46% N)	222.22						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Soaking Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cymazyme)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Switchgrass	4	10	CHISEL PLOW LE15FT	0.18	0.20								
	4	15	OFFSET DISK/HTDUTY LE13FT	0.18	0.20								
	4	20	FIELD CULTIVATOR LT15FT	0.15	0.16								
	4	30	PLANTER REGULAR 8 ROW	0.10	0.13							Switchgrass Seed	5.00
	4	30	CHEM APPL LT30FT TRACT MTD	0.10	0.00			AAtres, 4L	5	pt	2.00		
	4	30	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Raxden 4F	4	pt	2.00		
	6	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	10	25	MOWER COND, PTO	0.19	0.21								
	10	30	BALER, PTO LARGE	1.00	1.10								
	4	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	6	1	MOWER COND, PTO	0.19	0.21								
	6	5	BALER, PTO LARGE	1.00	1.10								
	6	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	10	1	MOWER COND, PTO	0.19	0.21								
	10	5	BALER, PTO LARGE	1.00	1.10								
	4	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	6	1	MOWER COND, PTO	0.19	0.21								
	6	5	BALER, PTO LARGE	1.00	1.10								
	6	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	10	1	MOWER COND, PTO	0.19	0.21								
	10	5	BALER, PTO LARGE	1.00	1.10								
	10	5	KILL CODE	0.00	0.00								

Table A-25. (Continued)

Beaver Creek Watershed
Cotton-Switchgrass Rotation -Conventional

64790108.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.61	0.85	0.45
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.20	4.06	1.75
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
CHISEL PLOW LE15FT	6.77	3.40	0	0.18	1.22	0.61
OFFSET DIS/LGHTDUTY LE13FT	4.11	1.24	0	0.18	0.74	0.22
FIELD CULTIVATOR LT15FT	3.42	1.37	0	0.15	0.50	0.20
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.25	0.09
MOWER COND, PTO	9.90	4.26	0	0.95	9.45	4.07
BALER, PTO LARGE	10.77	4.40	SP	5.00	53.84	21.98
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.02	9.73	12.91
TRACTOR 2WD 85 HP DIESEL	5.44	7.84	3	1.04	5.68	8.18
TRACTOR 2WD 100 HP DIESEL	6.95	7.89	4	5.95	41.38	46.96
					186.53	127.21

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.35	
2 FEBRUARY	0.00		5 MAY	0.08	
3 MARCH	0.05		6 JUNE	0.77	
FIRST QUARTER		0.05	SECOND QUARTER		1.20
7 JULY	0.06		10 OCTOBER	1.10	
8 AUGUST	0.00		11 NOVEMBER	0.20	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.06	FOURTH QUARTER		1.30

Table A-26. Bt Cotton-Switchgrass Rotation -Conventional Tillage

Beaver Creek Watershed
Bt Cotton-Switchgrass Rotation -Conventional

COMMODITY 1: <u>Bt Cotton</u>	REGION TYPE: <u>Watershed</u>	SOIL TYPE: <u>0</u>
COMMODITY 2: <u>Switchgrass</u>	REGION LD: <u>Beaver Creek Watershed</u>	EL INDEX: <u>0</u>
COMMODITY 3: _____	FARM SIZE: <u>Large</u>	PRODUCTION PRACTICES: <u>Banding of Chemicals</u>
COMMODITY 4: _____	TILLAGE: <u>Conventional</u>	<u>Bt Cotton</u>
COMMODITY 5: _____	ALT. NUTRIENT: <u>NONE</u>	<u>N.A.</u>
COMMODITY 6: _____	IRRIGATION: <u>Dry</u>	<u>N.A.</u>
YEARS OF ROTATION: <u>4</u>	USDA PRODUCTION REGION: <u>Appalachian</u>	

64790108.C02

ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	ANNUAL AMOUNT
				NATIONAL	INDEX		
REVENUE							
2180	8	Bt Cotton, Lint	LB	0.647	1	725	469.08
2143	8	Switchgrass	TON	46.44	1	10.5	487.62
SUBTOTAL OF ANNUAL REVENUE							239.17
VARIABLE EXPENSES							
1 SEED							
2661	1	Bt Cottonseed	LB	0.84	1	12	10.08
2704	1	Bt Cotton Seed Royalty Fee	AC	35	1	1	35.00
2702	1	Switchgrass Seed	LB	4.71	1	5	23.55
ANNUAL SUBTOTAL							17.14
2 FERTILIZER & LIME							
501	2	Limestone	LB	0.0078	1	1000	7.80
109	2	Urea (44%-46% N)	LB	0.27	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300	26.85
432	2	40-14-25	LB	0.107412658	1	250	26.85
ANNUAL SUBTOTAL							30.38
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.125	1	1.5	6.19
4176	3	Cotoran, 4L	PT	4.755	1	1.5	7.13
4144	3	MSMA, 4 Plus *	PT	2.18	1	1	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.78	1	1.5	5.67
4006	3	AAtrex, 4L	pt	2.0925	1	5	10.46
ANNUAL SUBTOTAL							7.91
4 INSECTICIDES							
1124	4	Temik 15G (Aldicarb)	LB	3.2	1	3.5	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8	1	1	3.80
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234375	1	8	4.19
1054	4	Furadan 4F	pt	8.85625	1	4	35.43
ANNUAL SUBTOTAL							13.65
6 OTHER COSTS							
803	6	Scouting Costs	AC				4.00
7120	6	Terraclov, Super X Granular, 12.5%	LB	1.42	1	10	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.5	6.34
9049	6	DEF 6	PT	4.6675	1	1.5	7.00
LAB	6	LABOR COST	HR	5.85	1	10.41	60.89
MVC	6	MACHINE VARIABLE COST	AC				127.21
ANNUAL SUBTOTAL							54.91
7 VARIABLE HARVEST COSTS							
810	7	Custom Aerial Chemical Application	AC	5			3.00
ANNUAL SUBTOTAL							0.75
ANNUAL TOTAL VARIABLE EXPENSES							124.76
ANNUAL RETURNS ABOVE VARIABLE EXPENSES							114.42

Table A-26. (Continued)

Beaver Creek Watershed
Bt Cotton-Switchgrass Rotation -Conventional

64790108.C02

CROP	DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
	MON	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
Bt Cotton, Lint	3	28	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						
	3	30	CHISEL PLOW GT15FT	0.08	0.09								
	4	1	TANDEM DISK REG GE19FT	0.11	0.12								
	4	5	TANDEM DISK REG GE19FT	0.11	0.13								
	4	5	CHEM APPL ATT TO DMPL	0.11	0.00			Triflun MTF, 4EC (Trifluralin)	1.5	PT	0.75		
	4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
	4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.00
	4	25	CHEM APPL ATT TO DMPL	0.10	0.00			TemB15G (Aldicarb)	3.5	LB	0.50	Bt Cotton Seed Royalty P	35.00
	4	25	CHEM APPL ATT TO DMPL	0.00	0.00			Terracot, Super X Granular, 12.5%	10	LB	1.00		
	4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotolan, 4L	1.5	PT	0.75		
	5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46% N)	222.22						
	5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
	5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
	5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1	PT	0.50	Soaking Costs	4.00
	5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Blades 4L (Cyanazine)	1.5	PT	3.00		
	6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	6	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1	PT	0.25		
	7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
	7	15	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Pix (35L)	0.5	PT	0.02		
	7	20	CHEM APPL GE15FT TRLR MTD	0.04	0.04			Vydax C-LV (0.77lbs) 1 Gal	8	OZ	0.25		
	9	15	CUSTOM AERIAL CHEMICAL APPL	0.00	0.00			DEF 6	1.5	PT	0.65	Custom Aerial Chemical A	3.00
	10	5	COTTON PICKER SELF-PROP	0.33	0.36								
	10	5	COTTON TRAILER	0.08	0.09								
	11	25	COTTON PICKER SELF-PROP	0.33	0.36								
	11	25	COTTON TRAILER	0.08	0.09								
	11	28	ROTARY MOWER	0.33	0.36								
	11	28	KILL CODE	0.00	0.00								
Switchgrass	4	10	CHISEL PLOW LE15FT	0.18	0.20								
	4	15	OFFSET DISK/HTDUTY LE13FT	0.18	0.20								
	4	20	FIELD CULTIVATOR LT15FT	0.15	0.16								
	4	30	PLANTER REGULAR 8 ROW	0.10	0.13							Switchgrass Seed	5.00
	4	30	CHEM APPL LT30FT TRACT MTD	0.10	0.00			AAres, 4L	5	pt	2.00		
	4	30	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Paradan 4F	4	pt	2.00		
	6	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	10	25	MOWER COND, PTO	0.19	0.21								
	10	30	BALER, PTO LARGE	1.00	1.10								
	4	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	6	1	MOWER COND, PTO	0.19	0.21								
	6	5	BALER, PTO LARGE	1.00	1.10								
	6	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	10	1	MOWER COND, PTO	0.19	0.21								
	10	5	BALER, PTO LARGE	1.00	1.10								
	4	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	6	1	MOWER COND, PTO	0.19	0.21								
	6	5	BALER, PTO LARGE	1.00	1.10								
	6	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	40-14-25	50						
	10	1	MOWER COND, PTO	0.19	0.21								
	10	5	BALER, PTO LARGE	1.00	1.10								
	10	5	KILL CODE	0.00	0.00								

Table A-26. (Continued)

Beaver Creek Watershed
Bt Cotton-Switchgrass Rotation -Conventional

64790108.C02

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.61	0.85	0.45
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.20	4.06	1.75
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
KILL CODE	0.00	0.00	SP	0.00	0.00	0.00
CHISEL PLOW LE15FT	6.77	3.40	0	0.18	1.22	0.61
OFFSET DIS/LGHTDUTY LE13FT	4.11	1.24	0	0.18	0.74	0.22
FIELD CULTIVATOR LT15FT	3.42	1.37	0	0.15	0.50	0.20
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.25	0.09
MOWER COND, PTO	9.90	4.26	0	0.95	9.45	4.07
BALER, PTO LARGE	10.77	4.40	SP	5.00	53.84	21.98
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.02	9.73	12.91
TRACTOR 2WD 85 HP DIESEL	5.44	7.84	3	1.04	5.68	8.18
TRACTOR 2WD 100 HP DIESEL	6.95	7.89	4	5.95	41.38	46.96
					186.53	127.21

ANNUAL LABOR REQUIREMENTS					
MONTH	LABOR (hrs/ac)		MONTH	LABOR (hrs/ac)	
1 JANUARY	0.00		4 APRIL	0.35	
2 FEBRUARY	0.00		5 MAY	0.08	
3 MARCH	0.05		6 JUNE	0.77	
FIRST QUARTER		0.05	SECOND QUARTER		1.20
7 JULY	0.06		10 OCTOBER	1.10	
8 AUGUST	0.00		11 NOVEMBER	0.20	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.06	FOURTH QUARTER		1.30

Table A-27. Corn-Conventional Tillage

Beaver Creek Watershed Corn-Conventional							
COMMODITY: <u>Corn</u>		TILLAGE: <u>Conventional</u>					
PREVIOUS CROP: <u>Corn</u>		FARM SIZE: <u>Large</u>		IRRIGATION: <u>Dry</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>N.A.</u>		SOIL TYPE: <u>0</u>			
REGION LD: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		EL INDEX: <u>0</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
647901D0.C01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2053	8	Corn, Grain	BU	2.4909	1	120.00	298.91
VARIABLE EXPENSES							
1	SEED						
2655	1	Corn Seed, Hybrid	1,000 kernels	1.0000	1	23.00	23.00
						SUBTOTAL	23.00
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	277.78	75.00
403	2	0-45-45	LB	0.1791	1	111.10	19.89
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	102.69
3	HERBICIDES						
4006	3	AAtrex, 4L	PT	2.0925	1	2.00	4.19
4051	3	Dual 8E (Metolachlor)	PT	8.6125	1	1.25	10.77
						SUBTOTAL	14.95
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	1.02	5.95
MVC	6	Machine Variable Costs	AC				18.03
						SUBTOTAL	23.98
						TOTAL VARIABLE EXPENSES	164.62
						RETURNS ABOVE VARIABLE EXPENSES	134.29

Table A-27. (Continued)

Beaver Creek Watershed
Corn-Conventional

647901D0.C01

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
3	20	CHISEL PLOW GT15FT	0.08	0.09	Urea (44%-46%) 0-45-45	277.78 111.1	AAtrex, 4L Dual 8E (Metolachlor)	2.00 1.25	PT PT	1.00 1.25	Corn Seed, Hybrid	23.000
4	10	TANDEM DISK REG GE19FT	0.11	0.12								
4	15	CULTI-MULCH ROLLER GE11FT	0.07	0.07								
4	20	PLANTER REGULAR 8 ROW	0.10	0.13								
4	20	DRY FERT SPRDR TRAILER MTD	0.10	0.00								
4	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00								
5	15	CHEM APPL LT30FT TRACT MTD	0.10	0.11								
5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00								
10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
10	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-27. (Continued)

Beaver Creek Watershed
Corn-Conventional

647901D0.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW 6T15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG 6E19FT	13.42	4.04	0	0.11	1.44	0.43
CULTI-MULCH ROLLER 6E18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.19	0.26	0.14
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.24	0.09
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.54	5.18	6.88
					30.23	12.03

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.32	
2 FEBRUARY	0.00		5 MAY	0.11	
3 MARCH	0.09		6 JUNE	0.00	
FIRST QUARTER		0.09	SECOND QUARTER		0.42
7 JULY	0.00		10 OCTOBER	0.50	
8 AUGUST	0.00		11 NOVEMBER	0.00	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.00	FOURTH QUARTER		0.50

Table A-28. Corn-Conventional Tillage

Beaver Creek Watershed Corn-Conventional							
COMMODITY: <u>Corn</u>		TILLAGE: <u>Conventional</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Corn</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Broad Based Terraces</u>		E.I. INDEX: <u>0</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>					
647901D0.C11							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2053	8	Corn, Grain	BU	2.4909	1	120.00	298.91
VARIABLE EXPENSES							
1	SEED						
2655	1	Corn Seed, Hybrid	1,000 kernels	1.0000	1	23.00	23.00
						SUBTOTAL	23.00
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	277.78	75.00
403	2	0-45-45	LB	0.1791	1	111.10	19.89
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	102.69
3	HERBICIDES						
4006	3	AAtrex, 4L	PT	2.0925	1	2.00	4.19
4051	3	Dual 8E (Metolachlor)	PT	8.6125	1	1.25	10.77
						SUBTOTAL	14.95
6	OTHER COSTS						
806	6	Broad Base Terraces	AC	10.4355			10.44
LAB	6	Labor Costs	HR	5.8500	1	1.02	5.95
MVC	6	Machine Variable Costs	AC				18.03
						SUBTOTAL	34.41
TOTAL VARIABLE EXPENSES							175.86
RETURNS ABOVE VARIABLE EXPENSES							123.05

Table A-28. (Continued)

Beaver Creek Watershed
Corn-Conventional

647901D0.C11

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
3	20	CHISEL PLOW GT15FT	0.08	0.09								
4	10	TANDEM DISK REG GE19FT	0.11	0.12								
4	15	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
4	20	PLANTER REGULAR 8 ROW	0.10	0.13							Corn Seed, Hybrid	23.000
4	20	DRY FERT SPRDR TRAILER MTD	0.10	0.00	Urea (44%-46%)	277.78						
4	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
5	15	CHEM APPL LT30FT TRACT MTD	0.10	0.11			AAtrex,AL	2.00	PT	1.00		
5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual 8E (Metolachlor)	1.25	PT	1.25		
10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
10	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-28. (Continued)

Beaver Creek Watershed
Corn-Conventional

647901D9.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
DRY FERT SPKDR TRAILER MTD	1.99	0.74	0	0.19	0.26	0.14
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.10	0.24	0.09
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.54	5.18	6.88
					30.23	18.03

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.32
2	FEBRUARY	0.00	5	MAY	0.11
3	MARCH	0.09	6	JUNE	0.00
FIRST QUARTER		0.09	SECOND QUARTER		0.42
7	JULY	0.00	10	OCTOBER	0.50
8	AUGUST	0.00	11	NOVEMBER	0.00
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.00	FOURTH QUARTER		0.50

Table A-29. Corn-Conventional Tillage

Beaver Creek Watershed Corn-Conventional							
COMMODITY: <u>Corn</u>		TILLAGE: <u>Conventional</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Corn</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Conserving</u>		EL. INDEX: <u>0</u>			
REGION LD.: <u>Beaver Creek Watershed</u>		N.A.		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		N.A.					
647901D0.C13							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2053	8	Corn, Grain	BU	2.4909	1	120.00	299.31
VARIABLE EXPENSES							
1	SEED						
2655	1	Corn Seed, Hybrid	1,000 kernels	1.0000	1	23.00	23.00
						SUBTOTAL	23.00
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	277.78	75.00
403	2	0-45-45	LB	0.1791	1	111.10	19.89
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	102.69
3	HERBICIDES						
4006	3	AAtmsr,AL	PT	2.0925	1	2.00	4.19
4051	3	Dual SS (Metolachlor)	PT	8.6125	1	1.25	10.77
						SUBTOTAL	14.95
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	1.12	6.55
MVC	6	Machine Variable Costs	AC				19.83
						SUBTOTAL	26.37
TOTAL VARIABLE EXPENSES							147.45
RETURNS ABOVE VARIABLE EXPENSES							151.86

Table A-29. (Continued)

Beaver Creek Watershed
Corn-Conventional

647901D0.C13

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
3	20	CHISEL PLOW GT15FT	0.09	0.10								
4	10	TANDEM DISK REG GE19FT	0.12	0.13								
4	15	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
4	20	PLANTER REGULAR 8 ROW	0.11	0.14							Corn Seed, Hybrid	23.000
4	20	DRY FERT SPRDR TRAILER MTD	0.11	0.00	Urea (44%-46%)	277.78						
4	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
5	15	CHEM APPL LT30FT TRACT MTD	0.11	0.12			AAtrex,AL	2.00	PT	1.00		
5	15	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual SE (Metolachlor)	1.25	PT	1.25		
10	10	COMBINE ROW HD SP 2WD	0.20	0.22								
10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.20	0.22								
10	15	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						

Table A-29. (Continued)

Beaver Creek Watershed
Corn-Conventional

647901D0.C13

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.12	1.59	0.48
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.75	0.15
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.21	0.29	0.15
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.11	0.27	0.10
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.20	18.07	8.97
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.20	3.45	0.99
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.60	5.70	7.57
					33.25	19.83

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.35
2	FEBRUARY	0.00	5	MAY	0.12
3	MARCH	0.10	6	JUNE	0.00
FIRST QUARTER		0.10	SECOND QUARTER		0.47
7	JULY	0.00	10	OCTOBER	0.55
8	AUGUST	0.00	11	NOVEMBER	0.00
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.00	FOURTH QUARTER		0.55

Table A-30. Corn-No-Till

Beaver Creek Watershed Corn-No-Till							
COMMODITY: <u>Corn</u>		TILLAGE: <u>No-Till</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Corn</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>9</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>N.A.</u>		EL INDEX: <u>9</u>			
REGION LD.: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>					
647901D0.N01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2053	8	Corn, Grain	BU	2.4909	1	120.00	298.91
VARIABLE EXPENSES							
1	SEED						
2655	1	Corn Seed, Hybrid	1,000 kernels	1.0000	1	23.00	23.00
SUBTOTAL							23.00
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	277.78	75.00
403	2	0-45-45	LB	0.1791	1	111.10	19.89
501	2	Limestone	LB	0.0078	1	1000.00	7.80
SUBTOTAL							102.69
3	HERBICIDES						
4314	3	Gramoxone Extra, 2.5L (Paraquat)	PT	4.2250	1	1.50	6.34
4006	3	AAtrex, 4L	PT	2.0925	1	2.31	4.84
4051	3	Dual II (Metolachlor)	PT	8.6125	1	1.25	10.77
SUBTOTAL							21.94
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	0.95	5.56
MVC	6	Machine Variable Costs	AC				17.45
SUBTOTAL							23.01
TOTAL VARIABLE EXPENSES							176.64
RETURNS ABOVE VARIABLE EXPENSES							128.26

Table A-30. (Continued)

Beaver Creek Watershed
Corn-No-Till

647901D0.N01

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/Lacre	NAME	RATE
4	20	PLANTER NO-TILL 6 ROW	0.20	0.22							Corn Seed, Hybrid	23.000
4	25	CHEM APPL LT30FT TRACT MTD	0.10	0.11			Gramoxone Extra, 2.5L (Paraquat)	1.50	PT	0.47		
5	5	CHEM APPL LT30FT TRACT MTD	0.10	0.12			AAtrex 4L	2.31	PT	1.16		
5	5	CHEM APPL LT30FT TRACT MTD	0.00	0.00			Dual SE (Metolachlor)	1.25	PT	1.25		
5	20	DRY FERT SPRDR TRAILER MTD	0.10	0.00	Urea (44%-46%)	277.78						
5	20	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-45-45	111.1						
10	10	COMBINE ROW HD SP 2WD	0.18	0.20								
10	10	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
10	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-30. (Continued)

Beaver Creek Watershed
Corn-No-Till

647901D0.N01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
PLANTER NO-TILL 6 ROW	16.45	9.76	0	0.20	3.29	1.95
CHEM APPL LT30FT TRACT MTD	2.48	0.91	0	0.20	0.48	0.18
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.18	0.26	0.14
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.48	4.61	6.12
					28.21	17.45

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.33
2	FEBRUARY	0.00	5	MAY	0.12
3	MARCH	0.00	6	JUNE	0.00
FIRST QUARTER		0.00	SECOND QUARTER		0.45
7	JULY	0.00	10	OCTOBER	0.50
8	AUGUST	0.00	11	NOVEMBER	0.00
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.00	FOURTH QUARTER		0.50

Table A-31. Cotton-Conventional Tillage

Beaver Creek Watershed Cotton-Conventional							
COMMODITY: <u>Cotton</u>		TILLAGE: <u>Conventional</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Cotton</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>9</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		EL INDEX: <u>9</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		<u>N.A.</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
647901B0.C01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.6470	1	725.00	469.08
VARIABLE EXPENSES							
1	SEED						
2660	1	Cottonseed	LB	0.7600	1	12.00	9.12
SUBTOTAL							9.12
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0078	1	1000.00	7.80
SUBTOTAL							94.65
3	HERBICIDES						
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.1250	1	1.50	6.19
4176	3	Cotoran, 4L	PT	4.7550	1	1.50	7.13
4144	3	MSMA, 4 Plus *	PT	2.1800	1	1.00	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
SUBTOTAL							21.17
4	INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234	1	8.00	4.19
SUBTOTAL							19.19
6	OTHER COSTS						
7120	6	Terracor, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
LAB	6	Labor Costs	HR	5.8500	1	2.70	15.77
MVC	6	Machine Variable Costs	AC				43.70
SUBTOTAL							91.01
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
SUBTOTAL							3.00
TOTAL VARIABLE EXPENSES							238.14
RETURNS ABOVE VARIABLE EXPENSES							236.93

Table A-31. (Continued)

Beaver Creek Watershed
Cotton-Conventional

647901B0.C01

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/Lacre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.08	0.09								
4	1	TANDEM DISK REG GE19FT	0.11	0.12								
4	5	TANDEM DISK REG GE19FT	0.11	0.13								
4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4EC (Trifluralin)	1.50	PT	0.75		
4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.000
4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.50	LB	0.50		
4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12	10.00	LB	1.00		
4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoran, 4L	1.50	PT	0.75		
5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46%)	222.22						
5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1.00	PT	0.50	Scouting Costs	4.000
5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.50	PT	3.00		
6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1.00	PT	0.25		
7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (.35L)	0.50	PT	0.02		
7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77 lbs) 1 Gal	8.00	OZ	0.25		
9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.50	PT	0.65	Custom Aerial Application Co	3.000
10	5	COTTON PICKER SELF-PROP	0.33	0.36								
10	5	COTTON TRAILER	0.08	0.09								
11	25	COTTON PICKER SELF-PROP	0.33	0.36								
11	25	COTTON TRAILER	0.08	0.09								
11	30	ROTARY MOWER	0.33	0.36								
12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-31. (Continued)

Beaver Creek Watershed
Cotton-Conventional

647901B0.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.02	9.73	12.91
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
					70.85	43.70

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)		MONTH	
1	JANUARY	0.00		4	APRIL
2	FEBRUARY	0.00		5	MAY
3	MARCH	0.09		6	JUNE
FIRST QUARTER		0.09		SECOND QUARTER	
7	JULY	0.23		10	OCTOBER
8	AUGUST	0.00		11	NOVEMBER
9	SEPTEMBER	0.00		12	DECEMBER
THIRD QUARTER		0.23		FOURTH QUARTER	

Table A-32. Bt Cotton-Conventional Tillage

Beaver Creek Watershed Bt Cotton-Conventional							
COMMODITY: <u>Bt Cotton</u>		TILLAGE: <u>Conventional</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Bt Cotton</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		BL INDEX: <u>0</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>Bt Cotton</u>		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>					
647901E0.C02							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2180	8	Bt Cotton, Lint	LB	0.6470	1	725.00	469.08
VARIABLE EXPENSES							
1	SEED						
2661	1	Bt Cottonseed	LB	0.8360	1	12.00	10.03
2704	1	Bt Cotton Seed Royalty Fee	AC	35.0000	1	1.00	35.00
SUBTOTAL							45.03
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0078	1	1000.00	7.80
SUBTOTAL							94.65
3	HERBICIDES						
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.1250	1	1.50	6.19
4176	3	Cotoran, 4L	PT	4.7550	1	1.50	7.13
4144	3	MSMA, 4 Plus *	PT	2.1800	1	1.00	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
SUBTOTAL							21.17
4	INSECTICIDES						
1124	4	Tamark 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3.77 lbs) 1 Gal	OZ	0.5234	1	8.00	4.19
SUBTOTAL							19.19
6	OTHER COSTS						
7120	6	Terraclos, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
LAB	6	Labor Costs	HR	5.8500	1	2.70	15.77
MVC	6	Machine Variable Costs	AC				43.70
SUBTOTAL							91.91
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
SUBTOTAL							3.00
TOTAL VARIABLE EXPENSES							274.85
RETURNS ABOVE VARIABLE EXPENSES							196.02

Table A-32. (Continued)

Beaver Creek Watershed
Bt Cotton-Conventional

647901B0.C02

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.08	0.09								
4	1	TANDEM DISK REG GE19FT	0.11	0.12								
4	5	TANDEM DISK REG GE19FT	0.11	0.13								
4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4EC (Trifluralin)	1.50	PT	0.75		
4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.000
4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik15G (Aldicarb)	3.50	LB	0.50	Bt Cotton Seed Royalty Fee	35.000
4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12	10.00	LB	1.00		
4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoran, 4L	1.50	PT	0.75		
5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46%)	222.22						
5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1.00	PT	0.50	Scouting Costs	4.000
5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.50	PT	3.00		
6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1.00	PT	0.25		
7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (.35L)	0.50	PT	0.02		
7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77/lbs) 1 Gal	8.00	OZ	0.25		
9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.50	PT	0.65	Custom Aerial Application Co	3.000
10	5	COTTON PICKER SELF-PROP	0.33	0.36								
10	5	COTTON TRAILER	0.08	0.09								
11	25	COTTON PICKER SELF-PROP	0.33	0.36								
11	25	COTTON TRAILER	0.08	0.09								
11	30	ROTARY MOWER	0.33	0.36								
12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-32. (Continued)

Beaver Creek Watershed
Bt Cotton-Conventional

647901B0.C02

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW 6T15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.02	9.73	12.91
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
					70.45	43.70

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.32
2	FEBRUARY	0.00	5	MAY	0.31
3	MARCH	0.09	6	JUNE	0.18
FIRST QUARTER		0.09	SECOND QUARTER		1.02
7	JULY	0.23	10	OCTOBER	0.45
8	AUGUST	0.00	11	NOVEMBER	0.81
9	SEPTEMBER	0.00	12	DECEMBER	0.10
THIRD QUARTER		0.23	FOURTH QUARTER		1.36

Table A-33. Cotton-Conventional Tillage

Beaver Creek Watershed Cotton-Conventional							
COMMODITY: <u>Cotton</u>		TILLAGE: <u>Conventional</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Cotton</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		E.I. INDEX: <u>0</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>Broad Based Terraces</u>		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>					
647901B0.C11							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.6470	1	725.00	469.08
VARIABLE EXPENSES							
1	SEED						
2660	1	Cottonseed	LB	0.7600	1	12.00	9.12
						SUBTOTAL	9.12
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	89.90
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	94.55
3	HERBICIDES						
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.1250	1	1.50	6.19
4176	3	Cotomax, 4L	PT	4.7550	1	1.50	7.13
4144	3	MSMA, 4 Plus *	PT	2.1800	1	1.00	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
						SUBTOTAL	21.17
4	INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3.77lbs) 1 Gal	OZ	0.5234	1	8.00	4.19
						SUBTOTAL	19.39
6	OTHER COSTS						
7120	6	Terraclor, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
806	6	Broad Base Terraces	AC	10.4355			10.44
LAB	6	Labor Costs	HR	5.8500	1	2.70	15.77
MVC	6	Machine Variable Costs	AC				43.70
						SUBTOTAL	101.45
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
						SUBTOTAL	3.00
TOTAL VARIABLE EXPENSES							248.58
RETURNS ABOVE VARIABLE EXPENSES							220.50

Table A-33. (Continued)

Beaver Creek Watershed
Cotton-Conventional

047901B0.C11

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/Lacre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.08	0.09								
4	1	TANDEM DISK REG GE19FT	0.11	0.12								
4	5	TANDEM DISK REG GE19FT	0.11	0.13								
4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4EC (Trifluralin)	1.50	PT	0.75		
4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Cottonseed	12.000
4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik 15G (Aldicarb)	3.50	LB	0.50		
4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracolor, Super X Granular, 12	10.00	LB	1.00		
4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoran, 4L	1.50	PT	0.75		
5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46%)	222.22						
5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1.00	PT	0.50	Scouting Costs	4.000
5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.50	PT	3.00		
6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1.00	PT	0.25		
7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (.35L)	0.50	PT	0.02		
7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77/lbs) 1 Gal	8.00	OZ	0.25		
9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.50	PT	0.65	Custom Aerial Application Co	3.000
10	5	COTTON PICKER SELF-PROP	0.33	0.36								
10	5	COTTON TRAILER	0.08	0.09								
11	25	COTTON PICKER SELF-PROP	0.33	0.36								
11	25	COTTON TRAILER	0.08	0.09								
11	30	ROTARY MOWER	0.33	0.36								
12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-33. (Continued)

Beaver Creek Watershed
Cotton-Conventional

647901B0.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
TRACTOR 2WD 140 HP DIESEL	9.55	12.68	6	1.02	9.73	12.91
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
					70.85	43.70

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.52	
2 FEBRUARY	0.00		5 MAY	0.31	
3 MARCH	0.09		6 JUNE	0.18	
FIRST QUARTER		0.09	SECOND QUARTER		1.02
7 JULY	0.23		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.81	
9 SEPTEMBER	0.00		12 DECEMBER	0.10	
THIRD QUARTER		0.23	FOURTH QUARTER		1.36

Table A-34. Bt Cotton-Conventional Tillage

Beaver Creek Watershed Bt Cotton-Conventional							
COMMODITY: <u>Bt Cotton</u>		TILLAGE: <u>Conventional</u>					
PREVIOUS CROP: <u>Bt Cotton</u>		FARM SIZE: <u>Large</u>		IRRIGATION: <u>Dry</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		SOIL TYPE: <u>0</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>Bt Cotton</u>		E.I. INDEX: <u>0</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>Broad Based Terraces</u>		ALT. NUTRIENTS: <u>None</u>			
64790180.C12							
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	AMOUNT
				NATIONAL	INDEX		
REVENUE							
2180	8	Bt Cotton, List	LB	0.6470	1	725.00	469.08
VARIABLE EXPENSES							
1	SEED						
2661	1	Bt Cottonseed	LB	0.8360	1	12.00	10.03
2704	1	Bt Cotton Seed Royalty Fee	AC	35.0000	1	1.00	35.00
						SUBTOTAL	45.03
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	94.65
3	HERBICIDES						
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.1250	1	1.50	6.19
4176	3	Cotoran, 4L	PT	4.7550	1	1.50	7.13
4144	3	MSMA, 4 Plus *	PT	2.1800	1	1.00	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
						SUBTOTAL	21.17
4	INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Orthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3.77lbs) 1 Gal	OZ	0.5234	1	8.00	4.19
						SUBTOTAL	19.39
6	OTHER COSTS						
7120	6	Terracor, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
806	6	Broad Base Terraces	AC	10.4355			10.44
LAB	6	Labor Costs	HR	5.8500	1	2.70	15.77
MVC	6	Machine Variable Costs	AC				43.70
						SUBTOTAL	101.45
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
						SUBTOTAL	3.00
TOTAL VARIABLE EXPENSES							209.87
RETURNS ABOVE VARIABLE EXPENSES							258.21

Table A-34. (Continued)

Beaver Creek Watershed
Bt Cotton-Conventional

647901B0.C12

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/Lacre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.08	0.09								
4	1	TANDEM DISK REG GE19FT	0.11	0.12								
4	5	TANDEM DISK REG GE19FT	0.11	0.13								
4	5	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4BC (Trifluralin)	1.50	PT	0.75		
4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
4	25	PLANTER REGULAR 8 ROW	0.10	0.13							Bt Cottonseed	12.000
4	25	CHEM APPL ATT TO IMPL	0.10	0.00			Temik15G (Aldicarb)	3.50	LB	0.50	Bt Cotton Seed Royalty Fee	35.000
4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracolor, Super X Granular, 12	10.00	LB	1.00		
4	30	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoran, 4L	1.50	PT	0.75		
5	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46%)	222.22						
5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
5	30	CHEM APPL SM SELF-PROP	0.07	0.07			MSMA, 4 Plus *	1.00	PT	0.50	Scouting Costs	4.000
5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.50	PT	3.00		
6	10	ROW CULTIVATOR GE15FT	0.13	0.14								
6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1.00	PT	0.25		
7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (.35L)	0.50	PT	0.02		
7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77lb) 1 Gal	8.00	OZ	0.25		
9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.50	PT	0.65	Custom Aerial Application Co	3.000
10	5	COTTON PICKER SELF-PROP	0.33	0.36								
10	5	COTTON TRAILER	0.08	0.09								
11	25	COTTON PICKER SELF-PROP	0.33	0.36								
11	25	COTTON TRAILER	0.08	0.09								
11	30	ROTARY MOWER	0.33	0.36								
12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-34. (Continued)

Beaver Creek Watershed
Bt Cotton-Conventional

647001B0.C12

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW 6T15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG 6E19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.21	1.32	0.70
CULTI-MULCH ROLLER 6E18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL 5M SELF-PROP	37.13	8.79	SP	0.13	4.83	1.14
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
ROW CULTIVATOR 6E15FT	4.72	2.37	0	0.38	1.81	0.91
CHEM APPL 6E30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.02	9.73	12.91
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
					70.85	43.70

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.52
2	FEBRUARY	0.00	5	MAY	0.31
3	MARCH	0.09	6	JUNE	0.18
FIRST QUARTER		0.09	SECOND QUARTER		1.02
7	JULY	0.23	10	OCTOBER	0.45
8	AUGUST	0.00	11	NOVEMBER	0.81
9	SEPTEMBER	0.00	12	DECEMBER	0.10
THIRD QUARTER		0.23	FOURTH QUARTER		1.36

Table A-35. Cotton-Conventional Tillage

Beaver Creek Watershed Cotton-Conventional							
COMMODITY: <u>Cotton</u>		TILLAGE: <u>Conventional</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Cotton</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		EL INDEX: <u>0</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>Cottonseed</u>		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>					
647901B0.C21							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.6470	1	725.00	469.08
VARIABLE EXPENSES							
1	SEED						
2660	1	Cottonseed	LB	0.7600	1	12.00	9.12
						SUBTOTAL	9.12
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	94.65
3	HERBICIDES						
4110	3	Treflan MTF, 4BC (Trifluralin)	PT	4.1250	1	1.50	6.19
4176	3	Cotoran, 4L	PT	4.7550	1	1.50	7.13
4144	3	MSMA, 4 Pies *	PT	2.1800	1	1.00	2.18
4022	3	Biodex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
						SUBTOTAL	21.17
4	INSECTICIDES						
1124	4	Tomik 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3.77lbs) 1 Gal	OZ	0.5234	1	8.00	4.19
						SUBTOTAL	19.39
6	OTHER COSTS						
7120	6	Terracot, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
LAB	6	Labor Costs	HR	5.8500	1	2.97	17.35
MVC	6	Machine Variable Costs	AC				48.87
						SUBTOTAL	94.96
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
						SUBTOTAL	3.00
TOTAL VARIABLE EXPENSES							244.99
RETURNS ABOVE VARIABLE EXPENSES							224.99

Table A-35. (Continued)

Beaver Creek Watershed
Cotton-Conventional

647901B0.C21

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.09	0.10								
4	1	TANDEM DISK REG GE19FT	0.12	0.13								
4	5	TANDEM DISK REG GE19FT	0.12	0.15								
4	5	CHEM APPL ATT TO IMPL	0.12	0.00			Treflan MTF, 4EC (Trifluralin)	1.50	PT	0.75		
4	10	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
4	25	PLANTER REGULAR 8 ROW	0.11	0.14							Cottonseed	12.000
4	25	CHEM APPL ATT TO IMPL	0.11	0.00			Temik 15G (Aldicarb)	3.50	LB	0.50		
4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12	10.00	LB	1.00		
4	30	CHEM APPL SM SELF-PROP	0.07	0.08			Cotoran, 4L	1.50	PT	0.75		
5	5	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Urea (44%-46%)	222.22						
5	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
5	30	CHEM APPL SM SELF-PROP	0.07	0.08			MSMA, 4 Plus *	1.00	PT	0.50	Scouting Costs	4.000
5	30	CHEM APPL SM SELF-PROP	0.00	0.00			Bladex 4L (Cyanazine)	1.50	PT	3.00		
6	10	ROW CULTIVATOR GE15FT	0.14	0.16								
6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Guthion 2L (Azinphos Methyl)	1.00	PT	0.25		
7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Pix (.35L)	0.50	PT	0.02		
7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Vydate C-LV (3.77lbs) 1 Gal	8.00	OZ	0.25		
9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.50	PT	0.65	Custom Aerial Application Co	3.000
10	5	COTTON PICKER SELF-PROP	0.36	0.40								
10	5	COTTON TRAILER	0.09	0.10								
11	25	COTTON PICKER SELF-PROP	0.36	0.40								
11	25	COTTON TRAILER	0.09	0.10								
11	30	ROTARY MOWER	0.36	0.40								
12	15	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	1000						

Table A-35. (Continued)

Beaver Creek Watershed
Cotton-Conventional

647901B0.C21

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.24	3.17	0.95
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.23	1.45	0.77
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.75	0.15
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.14	5.32	1.26
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.19	0.27	0.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.42	1.99	1.00
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.13	0.55	0.20
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.72	38.86	18.25
COTTON TRAILER	28.12	11.64	0	0.19	5.22	2.16
ROTARY MOWER	3.60	1.45	0	0.36	1.30	0.52
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.12	10.70	14.20
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.68	5.22	7.04
					77.93	48.07

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.58
2	FEBRUARY	0.00	5	MAY	0.34
3	MARCH	0.10	6	JUNE	0.20
FIRST QUARTER		0.10	SECOND QUARTER		1.12
7	JULY	0.25	10	OCTOBER	0.50
8	AUGUST	0.00	11	NOVEMBER	0.89
9	SEPTEMBER	0.00	12	DECEMBER	0.11
THIRD QUARTER		0.25	FOURTH QUARTER		1.50

Table A-36. Bt Cotton-Conventional Tillage

Beaver Creek Watershed Bt Cotton-Conventional							
COMMODITY: <u>Bt Cotton</u>		TILLAGE: <u>Conventional</u>					
PREVIOUS CROP: <u>Bt Cotton</u>		FARM SIZE: <u>Large</u>		IRRIGATION: <u>Dry</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		SOIL TYPE: <u>g</u>			
REGION LD.: <u>Beaver Creek Watershed</u>		<u>Bt Cotton</u>		E.I. INDEX: <u>g</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>Conventional</u>		ALT. NUTRIENTS: <u>None</u>			
647901B0.C22							
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	AMOUNT
				NATIONAL	INDEX		
REVENUE							
2180	8	Bt Cotton, Lint	LB	0.6470	1	725.00	469.88
VARIABLE EXPENSES							
1	SEED						
2661	1	Bt Cottonseed	LB	0.8360	1	12.00	10.03
2704	1	Bt Cotton Seed Royalty Fee	AC	35.0000	1	1.00	35.00
						SUBTOTAL	45.03
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	94.65
3	HERBICIDES						
4110	3	Treflan MTF,4EC (Trifluralin)	PT	4.1250	1	1.50	6.19
4176	3	Cotoran, 4L	PT	4.7550	1	1.50	7.13
4144	3	MSMA, 4 Plus *	PT	2.1800	1	1.00	2.18
4022	3	Bladex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
						SUBTOTAL	21.17
4	INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3,77lb) 1 Gal	OZ	0.5234	1	8.00	4.19
						SUBTOTAL	19.19
6	OTHER COSTS						
7120	6	Terraclor, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
LAB	6	Labor Costs	HR	5.8500	1	2.97	17.35
MVC	6	Machine Variable Costs	AC				48.07
						SUBTOTAL	96.96
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
						SUBTOTAL	3.00
TOTAL VARIABLE EXPENSES							289.00
RETURNS ABOVE VARIABLE EXPENSES							189.88

Table A-36. (Continued)

Beaver Creek Watershed
Bt Cotton-Conventional

647901E0.C22

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.09	0.10	Urea (44%-46%) 0-20-20 <							

Table A-36. (Continued)

Beaver Creek Watershed
Bt Cotton-Conventional

647901B0.C22

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.24	3.17	0.95
CHEM APPL ATT TO DMPL	6.35	3.37	0	0.23	1.45	0.77
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.75	0.15
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.14	5.32	1.26
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.19	0.27	0.14
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.42	1.99	1.00
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.13	0.55	0.20
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.72	38.86	18.25
COTTON TRAILER	28.12	11.64	0	0.19	5.22	2.16
ROTARY MOWER	3.60	1.45	0	0.36	1.30	0.52
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	1.12	10.70	14.20
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.68	5.22	7.04
					77.93	48.07

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.58
2	FEBRUARY	0.00	5	MAY	0.34
3	MARCH	0.10	6	JUNE	0.20
FIRST QUARTER		0.10	SECOND QUARTER		1.12
7	JULY	0.25	10	OCTOBER	0.50
8	AUGUST	0.00	11	NOVEMBER	0.89
9	SEPTEMBER	0.00	12	DECEMBER	0.11
THIRD QUARTER		0.25	FOURTH QUARTER		1.50

Table A-37. Cotton-No-Till

Beaver Creek Watershed Cotton-No-Till							
COMMODITY: <u>Cotton</u>		TILLAGE: <u>No-Till</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Cotton</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>g</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		S.I. INDEX: <u>g</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		<u>N.A.</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
647901ED.N01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2055	8	Cotton, Lint	LB	0.6470	1	725.00	469.08
VARIABLE EXPENSES							
1	SEED						
2660	1	Cottonseed	LB	0.7600	1	12.00	9.12
SUBTOTAL							9.12
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	60.00
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0074	1	1000.00	7.80
SUBTOTAL							94.65
3	HERBICIDES						
4093	3	Roundup 4L (Glyphosate)	QT	22.2500	1	1.00	22.25
4314	3	Gramoxone Extra, 2.5L (Paraquat)	PT	4.2250	1	1.00	4.23
4360	3	Prowl 3.3 EC	QT	10.7250	1	1.50	16.09
4176	3	Cotoran, 4L	PT	4.7550	1	3.00	14.27
4144	3	MSMA, 4 Plus *	PT	2.1800	1	4.00	8.72
4022	3	Bladex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
SUBTOTAL							71.22
4	INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3.77lbs) 1 Gal	OZ	0.5234	1	8.00	4.19
SUBTOTAL							19.19
6	OTHER COSTS						
7120	6	Terracor, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
LAB	6	Labor Costs	HR	5.8500	1	2.12	12.42
MVC	6	Machine Variable Costs	AC				35.35
SUBTOTAL							79.30
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
SUBTOTAL							3.00
TOTAL VARIABLE EXPENSES							276.48
RETURNS ABOVE VARIABLE EXPENSES							192.60

Table A-37. (Continued)

Beaver Creek Watershed
Cotton-No-Till

647901E0.N01

OPERATION SCHEDULE														
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS			
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE		
4	15	CHEM APPL SM SELF-PROP	0.07	0.07	Urea (44%-46%) 0-20-20	222.22 300	Roundup 4L (Glyphosate)	1.00	QT	Cottonseed	12.000			
4	15	CHEM APPL SM SELF-PROP	0.00	0.00			Gramoxone Extra, 2.5L (Paraquat)	1.00	PT					
4	25	PLANTER NO-TILL 6 ROW	0.20	0.25										
4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Temik15G (Aldicarb)	3.50	LB			0.50		
4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terracot, Super X Granular, 12	10.00	LB			1.00		
5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Prowl 3.3 EC	1.50	QT	1.25				
5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotoran, 4L	1.50	PT	0.75				
5	15	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoran, 4L	1.50	PT	0.75				
5	15	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2.00	PT	1.00	Scouting Costs	4.000		
5	25	CHEM APPL SM SELF-PROP	0.07	0.07			Bladex 4L (Cyanazine)	1.50	PT	1.50				
5	25	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2.00	PT	1.00				
5	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10										
5	30	DRY FERT SPRDR TRAILER MTD	0.00	0.00										
6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04					Guthion 2L (Azinphos Methyl)	1.00	PT	0.25		
7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04					Pix (.35L)	0.50	PT	0.02		
7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04					Vydate C-LV (3.77lbs) 1 Gal	8.00	OZ	0.25		
9	15	CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00					DEF 6	1.50	PT	0.65	Custom Aerial Application Co	3.000
10	5	COTTON PICKER SELF-PROP	0.33	0.36										
10	5	COTTON TRAILER	0.08	0.09										
11	25	COTTON PICKER SELF-PROP	0.33	0.36										
11	25	COTTON TRAILER	0.08	0.09										
11	30	ROTARY MOWER	0.33	0.36										
12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000								

Table A-37. (Continued)

Beaver Creek Watershed
Cotton-No-Till

647901B0.N01

MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
PLANTER NO-TILL 6 ROW	16.45	9.76	0	0.20	3.29	1.95
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.20	1.27	0.67
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.37	3.52	4.68
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
					64.49	35.33

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.32	
2 FEBRUARY	0.00		5 MAY	0.31	
3 MARCH	0.00		6 JUNE	0.04	
FIRST QUARTER		0.00	SECOND QUARTER		0.68
7 JULY	0.09		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.81	
9 SEPTEMBER	0.00		12 DECEMBER	0.10	
THIRD QUARTER		0.09	FOURTH QUARTER		1.01

Table A-38. Bt Cotton-No-Till

Beaver Creek Watershed Bt Cotton-No-Till							
COMMODITY: <u>Bt Cotton</u>		TILLAGE: <u>No-Till</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Bt Cotton</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>9</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Banding of Chemicals</u>		EL INDEX: <u>9</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>		<u>Bt Cotton</u>		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>					
647901B0.N02							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2180	8	Bt Cotton, Lint	LB	0.6470	1	725.00	469.08
VARIABLE EXPENSES							
1	SEED						
2661	1	Bt Cottonseed	LB	0.8360	1	12.00	10.03
2704	1	Bt Cotton Seed Royalty Fee	AC	35.0000	1	1.00	35.00
						SUBTOTAL	45.03
2	FERTILIZER & LIME						
109	2	Urea (44%-46% N)	LB	0.2700	1	222.22	60.90
401	2	0-20-20	LB	0.0895	1	300.00	26.85
501	2	Limestone	LB	0.0078	1	1000.00	7.80
						SUBTOTAL	94.45
3	HERBICIDES						
4093	3	Roundup 4L (Glyphosate)	QT	22.2500	1	1.00	22.25
4314	3	Gramoxone Extra, 2.5L (Paraquat)	PT	4.2250	1	1.00	4.23
4360	3	Provi 3.3 EC	QT	10.7250	1	1.50	16.09
4176	3	Cotoran, 4L	PT	4.7550	1	3.00	14.27
4144	3	MSMA, 4 Plus *	PT	2.1800	1	4.00	8.72
4022	3	Bladex 4L (Cyanazine)	PT	3.7800	1	1.50	5.67
						SUBTOTAL	71.22
4	INSECTICIDES						
1124	4	Temik 15G (Aldicarb)	LB	3.2000	1	3.50	11.20
1152	4	Guthion 2L (Azinphos Methyl)	PT	3.8000	1	1.00	3.80
1247	4	Vydate C-LV (3,77Bz) 1 Gal	OZ	0.5234	1	8.00	4.19
						SUBTOTAL	19.19
6	OTHER COSTS						
7120	6	Terracot, Super X Granular, 12.5%	LB	1.4200	1	10.00	14.20
9038	6	Pix (.35L)	PT	12.6875	1	0.50	6.34
9049	6	DEF 6	PT	4.6675	1	1.50	7.00
803	6	Scouting Costs	AC				4.00
LAB	6	Labor Costs	HR	5.8500	1	2.12	12.42
MVC	6	Machine Variable Costs	AC				35.33
						SUBTOTAL	79.30
7	VARIABLE HARVEST COSTS						
810	7	Custom Aerial Application Cost	AC	5.0000			3.00
						SUBTOTAL	3.00
TOTAL VARIABLE EXPENSES							342.39
RETURNS ABOVE VARIABLE EXPENSES							154.69

Table A-38. (Continued)

Beaver Creek Watershed
Bt Cotton-No-Till

647901E0.N02

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/Acre	NAME	RATE
4	15	CHEM APPL SM SELF-PROP	0.07	0.07			Roundup 4L (Glyphosate)	1.00	QT			
4	15	CHEM APPL SM SELF-PROP	0.00	0.00			Gramoxone Extra, 2.5L (Paraquat)	1.00	PT			
4	25	PLANTER NO-TILL 6 ROW	0.20	0.25							Bt Cottonseed	12.000
4	25	CHEM APPL ATT TO IMPL	0.20	0.00			Temik 15G (Aldicarb)	3.50	LB	0.50	Bt Cotton Seed Royalty Fee	35.000
4	25	CHEM APPL ATT TO IMPL	0.00	0.00			Terraclor, Super X Granular, 12	10.00	LB	1.00		
5	5	CHEM APPL SM SELF-PROP	0.07	0.07			Prowl 3.3 EC	1.50	QT	1.25		
5	5	CHEM APPL SM SELF-PROP	0.00	0.00			Cotoran, 4L	1.50	PT	0.75		
5	15	CHEM APPL SM SELF-PROP	0.07	0.07			Cotoran, 4L	1.50	PT	0.75		
5	15	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2.00	PT	1.00	Scouting Costs	4.000
5	25	CHEM APPL SM SELF-PROP	0.07	0.07			Bladex 4L (Cyanazine)	1.50	PT	1.50		
5	25	CHEM APPL SM SELF-PROP	0.00	0.00			MSMA, 4 Plus *	2.00	PT	1.00		
5	30	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Urea (44%-46%)	222.22						
5	30	DRY FERT SPRDR TRAILER MTD	0.00	0.00	0-20-20	300						
6	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Guthion 2L (Azinphos Methyl)	1.00	PT	0.25		
7	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Pix (.35L)	0.50	PT	0.02		
7	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Vydate C-LV (3.77lbs) 1 Gal	8.00	OZ	0.25		
9	15	CUSTOM AERIAL CHEMICAL APPLIC	0.00	0.00			DEF 6	1.50	PT	0.65	Custom Aerial Application Co	3.000
10	5	COTTON PICKER SELF-PROP	0.33	0.36								
10	5	COTTON TRAILER	0.08	0.09								
11	25	COTTON PICKER SELF-PROP	0.33	0.36								
11	25	COTTON TRAILER	0.08	0.09								
11	30	ROTARY MOWER	0.33	0.36								
12	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	1000						

Table A-38. (Continued)

Beaver Creek Watershed
Bt Cotton-No-Till

647901B0.N02

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHEM APPL SM SELF-PROP	37.13	8.79	SP	0.26	9.67	2.29
PLANTER NO-TILL 6 ROW	16.45	9.76	0	0.20	3.29	1.95
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.20	1.27	0.67
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.17	0.24	0.13
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.12	0.50	0.18
CUSTOM AERIAL CHEMICAL APPLICATION	0.00	0.00	SP	0.00	0.00	0.00
COTTON PICKER SELF-PROP	53.95	25.34	SP	0.65	35.32	16.59
COTTON TRAILER	28.12	11.64	0	0.17	4.75	1.96
ROTARY MOWER	3.60	1.45	0	0.33	1.18	0.47
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.37	3.52	4.68
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.62	4.75	6.40
					64.49	35.33

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.32	
2 FEBRUARY	0.00		5 MAY	0.31	
3 MARCH	0.00		6 JUNE	0.04	
FIRST QUARTER		0.00	SECOND QUARTER		0.68
7 JULY	0.09		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.81	
9 SEPTEMBER	0.00		12 DECEMBER	0.10	
THIRD QUARTER		0.09	FOURTH QUARTER		1.36

Table A-39. Grain Sorghum-Conventional Tillage

Beaver Creek Watershed Grain Sorghum-Conventional							
COMMODITY: <u>Grain Sorghum</u>			TILLAGE: <u>Conventional</u>				
PREVIOUS CROP: <u>Grain Sorghum</u>			FARM SIZE: <u>Large</u>		IRRIGATION: <u>Dry</u>		
REGION TYPE: <u>Watershed</u>			PRACTICES: <u>N.A.</u>		SOIL TYPE: <u>0</u>		
REGION LD: <u>Beaver Creek Watershed</u>			<u>N.A.</u>		EL INDEX: <u>0</u>		
PRODUCTION REGION: <u>Appalachian</u>			<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>		
647901M0.C01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2102	8	Sorghum, Grain	BU	2.3220	1	88.00	204.34
VARIABLE EXPENSES							
1	SEED						
2665	1	Grain Sorghum Seed, Hybrid	LB	0.7230	1	8.00	5.78
						SUBTOTAL	5.78
2	FERTILIZER & LIME						
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	29.85	3.55
434	2	40-20-20 *	LB	0.1165	1	200.00	23.30
501	2	Limestone	LB	0.0078	1	800.00	6.24
						SUBTOTAL	33.08
3	HERBICIDES						
4051	3	Dual 8E (Metolachlor)	PT	8.6125	1	2.00	17.23
						SUBTOTAL	17.23
4	INSECTICIDES						
1069	4	Lorsban 4E (Chlorpyrifos) 48/gal EC	PT	6.0500	1	1.25	7.56
						SUBTOTAL	7.56
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	1.14	6.66
MVC	6	Machine Variable Costs	AC				19.91
						SUBTOTAL	26.57
TOTAL VARIABLE EXPENSES							90.22
RETURNS ABOVE VARIABLE EXPENSES							114.11

Table A-39. (Continued)

Beaver Creek Watershed
Grain Sorghum-Conventional

647901M0.C01

OPERATION SCHEDULE													
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS		
MONTH	DAY				NAME	LBS.	NAME	RATE	UNTS	A/L/acre	NAME	RATE	
3	30	CHISEL PLOW GT15FT	0.08	0.09									
4	15	TANDEM DISK REG GE19FT	0.11	0.13									
4	15	FERT APPL ATT TO IMPL	0.11	0.00	34-0-0 or 1/2 amm	29.85							
4	15	FERT APPL ATT TO IMPL	0.00	0.00	40-20-20	200							
5	25	CULTI-MULCH ROLLER GE18FT	0.07	0.07									
5	30	PLANTER REGULAR 8 ROW	0.10	0.11								Grain Sorghum Seed, Hybrid	8.000
6	5	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Dual 8E (Metolachlor)	2.00	PT	2.00			
6	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Lorsban 4E (Chlorpyrifos) 4#/g	1.25	PT	0.63			
7	10	ROW CULTIVATOR GE15FT	0.13	0.14									
10	30	COMBINE ROW HD SP 2WD	0.18	0.20									
10	30	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20									
11	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	800							

Table A-39. (Continued)

**Beaver Creek Watershed
Grain Sorghum-Conventional**

647901M0.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
FERT APPL ATT TO IMPL	4.34	2.30	0	0.11	0.47	0.25
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.08	0.33	0.12
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.13	0.60	0.30
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.09	0.12	0.06
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.65	6.22	8.26
					32.29	19.91

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.13
2	FEBRUARY	0.00	5	MAY	0.18
3	MARCH	0.09	6	JUNE	0.09
FIRST QUARTER		0.09	SECOND QUARTER		0.40
7	JULY	0.14	10	OCTOBER	0.41
8	AUGUST	0.00	11	NOVEMBER	0.10
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.14	FOURTH QUARTER		0.50

Table A-40. Grain Sorghum-Conventional Tillage

Beaver Creek Watershed Grain Sorghum-Conventional							
COMMODITY: <u>Grain Sorghum</u>		TILLAGE: <u>Conventional</u>					
PREVIOUS CROP: <u>Grain Sorghum</u>		FARM SIZE: <u>Large</u>		IRRIGATION: <u>Dry</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Broad Based Terraces</u>		SOIL TYPE: <u>0</u>			
REGION LD.: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		E.I. INDEX: <u>0</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
647901M0.C11							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2102	8	Sorghum, Grain	BU	2.3220	1	88.00	204.34
VARIABLE EXPENSES							
1	SEED						
2665	1	Grain Sorghum Seed, Hybrid	LB	0.7230	1	8.00	5.78
SUBTOTAL							5.78
2	FERTILIZER & LIME						
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	29.85	3.55
434	2	40-20-20	LB	0.1165	1	200.00	23.30
501	2	Limestone	LB	0.0078	1	800.00	6.24
SUBTOTAL							33.08
3	HERBICIDES						
4051	3	Dual 8E (Metolachlor)	PT	8.6125	1	2.00	17.23
SUBTOTAL							17.23
4	INSECTICIDES						
1069	4	Lorsban 4E (Chlorpyrifos) 48/gal EC	PT	6.0500	1	1.25	7.56
SUBTOTAL							7.56
6	OTHER COSTS						
806	6	Broad Base Terraces	AC	10.4355			10.44
LAB	6	Labor Costs	HR	5.8500	1	1.14	6.66
MVC	6	Machine Variable Costs	AC				19.91
SUBTOTAL							37.00
TOTAL VARIABLE EXPENSES							100.44
RETURNS ABOVE VARIABLE EXPENSES							103.68

Table A-40. (Continued)

Beaver Creek Watershed
Grain Sorghum-Conventional

647901M0.C11

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.08	0.09								
4	15	TANDEM DISK REG GE19FT	0.11	0.13								
4	15	FERT APPL ATT TO IMPL	0.11	0.00	34-0-0 or 'Amm	29.85						
4	15	FERT APPL ATT TO IMPL	0.00	0.00	40-20-20	200						
5	25	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
5	30	PLANTER REGULAR 8 ROW	0.10	0.11								Grain Sorghum Seed, Hybrid 8.000
6	5	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Dual 8E (Metolachlor)	2.00	PT	2.00		
6	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Lorsban 4E (Chlorpyrifos) 4#/g	1.25	PT	0.63		
7	10	ROW CULTIVATOR GE15FT	0.13	0.14								
10	30	COMBINE ROW HD SP 2WD	0.18	0.20								
10	30	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
11	15	DRY FERT SPRDR TRAILER MTD	0.09	0.10	Limestone	800						

Table A-40. (Continued)

Beaver Creek Watershed
Grain Sorghum-Conventional

647901M0.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
FERT APPL ATT TO IMPL	4.34	2.30	0	0.11	0.47	0.25
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.08	0.33	0.12
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.13	0.60	0.30
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.09	0.12	0.06
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.65	6.22	8.26
					32.29	19.91

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.13	
2 FEBRUARY	0.00		5 MAY	0.18	
3 MARCH	0.09		6 JUNE	0.09	
FIRST QUARTER		0.09	SECOND QUARTER		0.40
7 JULY	0.14		10 OCTOBER	0.41	
8 AUGUST	0.00		11 NOVEMBER	0.10	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.14	FOURTH QUARTER		0.50

Table A-41. Grain Sorghum-Conventional Tillage

Beaver Creek Watershed Grain Sorghum-Conventional							
COMMODITY: <u>Grain Sorghum</u>		TILLAGE: <u>Conventional</u>					
PREVIOUS CROP: <u>Grain Sorghum</u>		FARM SIZE: <u>Large</u>		IRRIGATION: <u>Dry</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>Contouring</u>		SOIL TYPE: <u>0</u>			
REGION LD.: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		E.I. INDEX: <u>0</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
647901M0.C13							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2102	8	Sorghum, Grain	BU	2.3220	1	88.00	204.34
VARIABLE EXPENSES							
1	SEED						
2665	1	Grain Sorghum Seed, Hybrid	LB	0.7230	1	8.00	5.78
						SUBTOTAL	5.78
2	FERTILIZER & LIME						
101	2	34-0-0 or Ammonium Nitrate (33.5% N)	LB	0.1188	1	29.85	3.55
434	2	40-20-20 "	LB	0.1165	1	200.00	23.30
501	2	Limestone	LB	0.0078	1	800.00	6.24
						SUBTOTAL	33.08
3	HERBICIDES						
4051	3	Dual 8E (Metolachlor)	PT	8.6125	1	2.00	17.23
						SUBTOTAL	17.23
4	INSECTICIDES						
1069	4	Lorsban 4E (Chlorpyrifos) 48/gal EC	PT	6.0500	1	1.25	7.56
						SUBTOTAL	7.56
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	1.25	7.32
MVC	6	Machine Variable Costs	AC				21.90
						SUBTOTAL	29.23
TOTAL VARIABLE EXPENSES							92.88
RETURNS ABOVE VARIABLE EXPENSES							111.46

Table A-41. (Continued)

Beaver Creek Watershed
Grain Sorghum-Conventional

647901M0.C13

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
3	30	CHISEL PLOW GT15FT	0.09	0.10								
4	15	TANDEM DISK REG GE19FT	0.12	0.15								
4	15	FERT APPL ATT TO IMPL	0.12	0.00	34-0-0 or 'Amm	29.85						
4	15	FERT APPL ATT TO IMPL	0.00	0.00	40-20-20	200						
5	25	CULTI-MULCH ROLLER GE18FT	0.07	0.08								
5	30	PLANTER REGULAR 8 ROW	0.11	0.12							Grain Sorghum Seed, Hybrid	8.000
6	5	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Dual IE (Metolachlor)	2.00	PT	2.00		
6	20	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Lorban 4E (Chlorpyrifos) 4#/g	1.25	PT	0.63		
7	10	ROW CULTIVATOR GE15FT	0.14	0.16								
10	30	COMBINE ROW HD SP 2WD	0.20	0.22								
10	30	TRUCK SGL AXLE-GAS 2 TON (SP)	0.20	0.22								
11	15	DRY FERT SPRDR TRAILER MTD	0.10	0.11	Limestone	800						

Table A-41. (Continued)

Beaver Creek Watershed
Grain Sorghum-Conventional

647901M0.C13

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.12	1.59	0.48
FERT APPL ATT TO IMPL	4.34	2.30	0	0.12	0.51	0.27
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.75	0.15
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.09	0.37	0.13
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.14	0.66	0.33
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.20	18.07	8.97
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.20	3.45	0.99
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.10	0.13	0.07
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.72	6.84	9.08
					35.32	21.90

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.15	
2 FEBRUARY	0.00		5 MAY	0.20	
3 MARCH	0.10		6 JUNE	0.09	
FIRST QUARTER		0.10	SECOND QUARTER		0.44
7 JULY	0.16		10 OCTOBER	0.45	
8 AUGUST	0.00		11 NOVEMBER	0.11	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.16	FOURTH QUARTER		0.55

Table A-42. Soybean-Conventional Tillage

Beaver Creek Watershed Soybean-Conventional							
COMMODITY: Soybean		TILLAGE: Conventional					
PREVIOUS CROP: Soybean		FARM SIZE: Large		IRRIGATION: Dry			
REGION TYPE: Watershed		PRACTICES: N.A.		SOIL TYPE: 6			
REGION I.D.: Beaver Creek Watershed		N.A.		E.I. INDEX: 6			
PRODUCTION REGION: Appalachian		N.A.		ALT. NUTRIENTS: None			
647901NO.C01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35.00	203.29
VARIABLE EXPENSES							
1	SEED						
2690	1	Soybean Seed	BU	13.8000	1	0.67	9.20
						SUBTOTAL	9.20
2	FERTILIZER & LIME						
402	2	0-20-40 *	LB	0.0997	1	100.00	9.97
501	2	Limestone	LB	0.0078	1	1500.00	11.70
						SUBTOTAL	21.67
3	HERBICIDES						
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.1250	1	1.50	6.19
4019	3	Basagran, 4L (Bentazon)	PT	8.4813	1	1.00	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
						SUBTOTAL	14.52
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	1.44	8.41
MVC	6	Machine Variable Costs	AC				25.97
						SUBTOTAL	32.38
TOTAL VARIABLE EXPENSES							79.77
RETURNS ABOVE VARIABLE EXPENSES							123.52

Table A-42. (Continued)

Beaver Creek Watershed
Soybean-Conventional

647901NO.C01

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L./acre	NAME	RATE
3	15	CHISEL PLOW GT15FT	0.08	0.09								
3	25	TANDEM DISK RBG GE19FT	0.11	0.12								
4	15	TANDEM DISK RBG GE19FT	0.11	0.13								
4	15	CHEM APPL ATT TO IMPL	0.11	0.00			Treflan MTF, 4EC (Trifluralin)	1.50	PT	0.75		
4	20	LANDALL, DO-ALL	0.18	0.20								
4	25	PLANTER REGULAR 8 ROW	0.10	0.11							Soybean Seed	0.667
5	5	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Basagran, 4L (Bentazon)	1.00	PT	0.50		
5	5	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
5	15	ROW CULTIVATOR GE15FT	0.13	0.14								
5	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
10	25	COMBINE ROW HD SP 2WD	0.18	0.20								
10	25	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
11	15	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500						

Table A-42. (Continued)

Beaver Creek Watershed
Soybean-Conventional

647901N0.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.11	0.68	0.36
LANDALL, DO-ALL	11.34	3.55	0	0.18	2.09	0.65
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.04	0.17	0.06
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.13	0.60	0.30
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.75	7.16	9.50
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.17	1.34	1.81
					37.48	23.97

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.45
2	FEBRUARY	0.00	5	MAY	0.28
3	MARCH	0.21	6	JUNE	0.00
FIRST QUARTER		0.21	SECOND QUARTER		0.73
7	JULY	0.00	10	OCTOBER	0.41
8	AUGUST	0.00	11	NOVEMBER	0.10
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.00	FOURTH QUARTER		0.50

Table A-43. Soybean-Conventional Tillage

Beaver Creek Watershed Soybean-Conventional							
COMMODITY: Soybean		TILLAGE: Conventional					
PREVIOUS CROP: Soybean		FARM SIZE: Large		IRRIGATION: Dry			
REGION TYPE: Watershed		PRACTICES: Broad Based Terraces		SOIL TYPE: 8			
REGION I.D.: Beaver Creek Watershed		N.A.		E.I. INDEX: 8			
PRODUCTION REGION: Appalachian		N.A.		ALT. NUTRIENTS: None			
647901N0.C11							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35.00	203.29
VARIABLE EXPENSES							
1 SEED							
2690	1	Soybean Seed	BU	13.8000	1	0.67	9.20
						SUBTOTAL	9.20
2 FERTILIZER & LIMES							
402	2	0-20-40 *	LB	0.0997	1	100.00	9.97
501	2	Limestone	LB	0.0078	1	1500.00	11.70
						SUBTOTAL	21.67
3 HERBICIDES							
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.1250	1	1.50	6.19
4019	3	Basagran, 4L (Bentazon)	PT	8.4813	1	1.00	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
						SUBTOTAL	16.52
6 OTHER COSTS							
806	6	Broad Base Terraces	AC	10.4355			10.44
LAB	6	Labor Costs	HR	5.8500	1	1.44	8.41
MVC	6	Machine Variable Costs	AC				23.97
						SUBTOTAL	42.82
TOTAL VARIABLE EXPENSES							90.20
RETURNS ABOVE VARIABLE EXPENSES							113.08

Table A-43. (Continued)

Beaver Creek Watershed
Soybean-Conventional

647901N0.C11

DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	OPERATION SCHEDULE							OTHER INPUTS	
MONTH	DAY				FERTILIZER		CHEMICAL				ALLacre	NAME	RATE
					NAME	LBS.	NAME	RATE	UNITS				
3	15	CHISEL PLOW GT15FT	0.08	0.09									
3	25	TANDEM DISK REG GE19FT	0.11	0.12									
4	15	TANDEM DISK REG GE19FT	0.11	0.13									
4	15	CHEM APPL ATT TO DMPL	0.11	0.00			Treflan MTF, 4EC (Trifluralin)	1.50	PT	0.75			
4	20	LANDALL, DO-ALL	0.18	0.20									
4	25	PLANTER REGULAR 8 ROW	0.10	0.11								Soybean Seed	0.667
5	5	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Basagran, 4L (Bentazon)	1.00	PT	0.50			
5	5	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13			
5	15	ROW CULTIVATOR GE15FT	0.13	0.14									
5	20	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100							
10	25	COMBINE ROW HD SP 2WD	0.18	0.20									
10	25	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20									
11	15	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500							

Table A-43. (Continued)

Beaver Creek Watershed
Soybean-Conventional

647901N0.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER	TOTAL HOURS	COST PER ACRE	
	F.C.	V.C.			PER ACRE	F.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.21	2.88	0.87
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.11	0.68	0.36
LANDALL, DO-ALL	11.34	3.55	0	0.18	2.09	0.65
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.10	2.03	0.88
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.04	0.17	0.06
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.13	0.60	0.30
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.75	7.16	9.50
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.17	1.34	1.81
					37.48	23.97

LABOR SCHEDULE			
MONTH	LABOR (hrs/acre)	MONTH	LABOR (hrs/acre)
1 JANUARY	0.00	4 APRIL	0.45
2 FEBRUARY	0.00	5 MAY	0.28
3 MARCH	0.21	6 JUNE	0.00
FIRST QUARTER		SECOND QUARTER	
	0.21		0.73
7 JULY	0.00	10 OCTOBER	0.41
8 AUGUST	0.00	11 NOVEMBER	0.10
9 SEPTEMBER	0.00	12 DECEMBER	0.00
THIRD QUARTER		FOURTH QUARTER	
	0.00		0.50

Table A-44. Soybean-Conventional Tillage

**Beaver Creek Watershed
Soybean-Conventional**

COMMODITY: Soybean	TILLAGE: Conventional	
PREVIOUS CROP: Soybean	FARM SIZE: Large	IRRIGATION: Dry
REGION TYPE: Watershed	PRACTICES: Conventional	SOIL TYPE: 9
REGION LD.: Beaver Creek Watershed	N.A.	EI INDEX: 9
PRODUCTION REGION: Appalachian	N.A.	ALT. NUTRIENTS: None

647901NO.C13

ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	AMOUNT
				NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35.00	203.29
VARIABLE EXPENSES							
1	SEED						
2690	1	Soybean Seed	BU	13.8000	1	0.67	9.20
SUBTOTAL							9.20
2	FERTILIZER & LIME						
402	2	0-20-40 *	LB	0.0997	1	100.00	9.97
501	2	Limestone	LB	0.0078	1	1500.00	11.70
SUBTOTAL							21.67
3	HERBICIDES						
4110	3	Treflan MTF, 4EC (Trifluralin)	PT	4.1250	1	1.50	6.19
4019	3	Basagran, 4L (Bentazon)	PT	8.4813	1	1.00	8.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
SUBTOTAL							16.52
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	1.58	9.25
MVC	6	Machine Variable Costs	AC				26.37
SUBTOTAL							35.62
TOTAL VARIABLE EXPENSES							63.01
RETURNS ABOVE VARIABLE EXPENSES							120.28

Table A-44. (Continued)

Beaver Creek Watershed
Soybean-Conventional

647901N0.C13

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
3	15	CHISEL PLOW GT15FT	0.09	0.10								
3	25	TANDEM DISK REG GE19FT	0.12	0.13								
4	15	TANDEM DISK REG GE19FT	0.12	0.15								
4	15	CHEM APPL ATT TO IMPL	0.12	0.00			Treflan MTF, 4EC (Trifluralin)	1.50	PT	0.75		
4	20	LANDALL, DO-ALL	0.20	0.22								
4	25	PLANTER REGULAR 8 ROW	0.11	0.12							Soybean Seed	0.667
5	5	CHEM APPL GE30FT TRLR MTD	0.04	0.05			Basagran, 4L (Bentazon)	1.00	PT	0.50		
5	5	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Biazex 2L	0.25	PT	0.13		
5	15	ROW CULTIVATOR GE15FT	0.14	0.16								
5	20	DRY FERT APPL TRACTOR MTD	0.10	0.11	0-20-40	100						
10	25	COMBINE ROW HD SP 2WD	0.20	0.22								
10	25	TRUCK SGL AXLE-GAS 2 TON (SP)	0.20	0.22								
11	15	DRY FERT APPL TRACTOR MTD	0.10	0.11	Limestone	1500						

Table A-44. (Continued)

Beaver Creek Watershed
Soybean-Conventional

647801N0.C13

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.24	3.17	0.95
CHEM APPL ATT TO IMPL	6.35	3.37	0	0.12	0.75	0.40
LANDALL, DO-ALL	11.34	3.55	0	0.20	2.30	0.72
PLANTER REGULAR 8 ROW	20.30	8.76	0	0.11	2.23	0.96
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.04	0.18	0.07
ROW CULTIVATOR GE15FT	4.72	2.37	0	0.14	0.66	0.33
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.19	0.16	0.08
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.20	18.07	8.97
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.20	3.45	0.99
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.82	7.87	10.45
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.19	1.47	1.99
					41.22	26.37

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00	4	APRIL	0.49	
2 FEBRUARY	0.00	5	MAY	0.31	
3 MARCH	0.23	6	JUNE	0.00	
FIRST QUARTER		0.23	SECOND QUARTER		0.80
7 JULY	0.00	10	OCTOBER	0.45	
8 AUGUST	0.00	11	NOVEMBER	0.11	
9 SEPTEMBER	0.00	12	DECEMBER	0.00	
THIRD QUARTER		0.00	FOURTH QUARTER		0.55

Table A-45. Soybean-No-Till

Beaver Creek Watershed Soybean-No-Till							
COMMODITY: <u>Soybean</u>			TILLAGE: <u>No-Till</u>		IRRIGATION: <u>Dry</u>		
PREVIOUS CROP: <u>Soybean</u>			FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>		
REGION TYPE: <u>Watershed</u>			PRACTICES: <u>N.A.</u>		SL INDEX: <u>0</u>		
REGION ID: <u>Beaver Creek Watershed</u>			<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>		
PRODUCTION REGION: <u>Appalachian</u>			<u>N.A.</u>				
647901NO.N01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2107	8	Soybean, Grain	BU	5.8082	1	35.00	203.29
VARIABLE EXPENSES							
1	SEED						
2690	1	Soybean Seed	BU	13.8000	1	0.67	9.20
						SUBTOTAL	9.20
2	FERTILIZER & LIME						
402	2	0-20-40	LB	0.0997	1	100.00	9.97
501	2	Limestone	LB	0.0078	1	1500.00	11.70
						SUBTOTAL	21.67
3	HERBICIDES						
4314	3	Gramoxone Extra, 2.5L (Paraquat)	PT	4.2250	1	1.50	6.34
4360	3	Prowl 3.3 EC	QT	10.7250	1	1.00	10.73
4019	3	Basagran, 4L (Bentazon)	PT	8.4813	1	1.00	3.48
4146	3	Blazer 2L	PT	7.3875	1	0.25	1.85
						SUBTOTAL	27.39
6	OTHER COSTS						
LAB	6	Labor Costs	HR	5.8500	1	0.90	5.28
MVC	6	Machine Variable Costs	AC				16.54
						SUBTOTAL	21.83
TOTAL VARIABLE EXPENSES							80.09
RETURNS ABOVE VARIABLE EXPENSES							123.20

Table A-45. (Continued)

Beaver Creek Watershed
Soybean-No-Till

647901N0.N01

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A./Acre	NAME	RATE
5	5	PLANTER NO-TILL 6 ROW	0.20	0.22							Soybean Seed	0.667
5	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Gramoxone Extra, 2.5L (Paraquat)	1.50	PT	0.47		
5	15	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Prowl 3.3 EC	1.00	QT	0.80		
6	5	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Basagran, 4L (Bentazon)	1.00	PT	0.50		
6	5	CHEM APPL GE30FT TRLR MTD	0.00	0.00			Blazer 2L	0.25	PT	0.13		
6	10	DRY FERT APPL TRACTOR MTD	0.09	0.10	0-20-40	100						
10	25	COMBINE ROW HD SP 2WD	0.18	0.20								
10	25	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								
11	15	DRY FERT APPL TRACTOR MTD	0.09	0.10	Limestone	1500						

Table A-45. (Continued)

Beaver Creek Watershed
Soybean-No-Till

647901N0.N01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
PLANTER NO-TILL 6 ROW	16.45	9.76	0	0.20	3.29	1.95
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.08	0.33	0.12
DRY FERT APPL TRACTOR MTD	0.81	0.43	0	0.17	0.14	0.08
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.28	2.66	3.53
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.17	1.34	1.81
					27.33	16.54

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00	4	APRIL	0.00	
2 FEBRUARY	0.00	5	MAY	0.26	
3 MARCH	0.00	6	JUNE	0.14	
FIRST QUARTER		0.00	SECOND QUARTER		0.40
7 JULY	0.00	10	OCTOBER	0.41	
8 AUGUST	0.00	11	NOVEMBER	0.10	
9 SEPTEMBER	0.00	12	DECEMBER	0.00	
THIRD QUARTER		0.00	FOURTH QUARTER		0.50

Table A-46. Soft Red Winter Wheat-Conventional Tillage

Beaver Creek Watershed
Soft Red Winter Wheat-Conventional

COMMODITY: <u>Soft Red Winter Wheat</u>	TILLAGE: <u>Conventional</u>	
PREVIOUS CROP: <u>Soft Red Winter Wheat</u>	FARM SIZE: <u>Large</u>	IRRIGATION: <u>Dry</u>
REGION TYPE: <u>Watershed</u>	PRACTICES: <u>N.A.</u>	SOIL TYPE: <u>0</u>
REGION I.D.: <u>Beaver Creek Watershed</u>	<u>N.A.</u>	EL INDEX: <u>0</u>
PRODUCTION REGION: <u>Appalachian</u>	<u>N.A.</u>	ALT. NUTRIENTS: <u>None</u>

64790120.C01

ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	AMOUNT
				NATIONAL	INDEX		
REVENUE							
2199	8	Wheat, Soft Red Winter	BU	3.3600	1	42.00	141.32
VARIABLE EXPENSES							
1	SEED						
2701	1	Wheat Seed, Winter	BU	7.5000	1	2.00	15.00
SUBTOTAL							15.00
2	FERTILIZER & LIMES						
102	2	Anhydrous Ammonia	LB	0.2900	1	80.00	23.20
200	2	P2O5 *	LB	0.2600	1	40.00	10.40
300	2	K20 *	LB	0.1200	1	20.00	2.40
SUBTOTAL							36.00
3	HERBICIDES						
4139	3	Harmony Extra (DF)	OZ	13.1500	1	0.50	6.58
SUBTOTAL							6.58
6	OTHER COSTS						
7076	6	Tilt (3.6EC)	OZ	2.6200	1	4.00	10.48
LAB	6	Labor Costs	HR	5.8500	1	1.04	4.31
MVC	6	Machine Variable Costs	AC				14.78
SUBTOTAL							33.57
TOTAL VARIABLE EXPENSES							91.15
RETURNS ABOVE VARIABLE EXPENSES							49.97

Table A-46. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-Conventional

647901Z0.C01

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	ALLure	NAME	RATE
10	1	CHISEL PLOW GT15FT	0.08	0.09								
10	10	TANDEM DISK REG GE19FT	0.11	0.13								
10	10	LANDALL, DO-ALL	0.11	0.00								
10	20	DRILL, PLAIN, DISCGRAIN GT14	0.16	0.17								
3	15	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Tik (3.6EC)	4.00	OZ	0.00		
3	30	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Harmony Extra (DP)	0.50	OZ	0.37		
4	15	LQUD FERT APPL TRAILER MTD	0.07	0.07	Anhydrous Am	80						
4	15	LQUD FERT APPL TRAILER MTD	0.00	0.00	P2O5	40						
4	15	LQUD FERT APPL TRAILER MTD	0.00	0.00	K20	20						
7	5	COMBINE SELF-PROP 2WD	0.24	0.26								
7	5	TRUCK SGL AXLE-GAS 2 TON (SP)	0.24	0.26								
											Wheat Seed, Winter	2.000

Table A-46. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-Conventional

64700120.C01

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
LANDALL, DO-ALL	11.34	3.55	0	0.11	1.22	0.38
DRILL, PLAIN, DISCGRAIN GT14	12.29	5.19	0	0.16	1.93	0.82
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.08	0.19	0.07
LIQD FERT APPL TRAILER MTD	4.34	1.59	0	0.07	0.28	0.10
COMBINE SELF-PROP 2WD	112.12	31.62	5P	0.24	26.64	7.51
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.24	4.05	1.17
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.35	3.32	4.41
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.14	1.10	1.48
					40.99	16.78

LABOR SCHEDULE					
MONTH		LABOR (hrs/acre)	MONTH		LABOR (hrs/acre)
1	JANUARY	0.00	4	APRIL	0.07
2	FEBRUARY	0.00	5	MAY	0.00
3	MARCH	0.09	6	JUNE	0.00
FIRST QUARTER		0.09	SECOND QUARTER		0.07
7	JULY	0.52	10	OCTOBER	0.40
8	AUGUST	0.00	11	NOVEMBER	0.00
9	SEPTEMBER	0.00	12	DECEMBER	0.00
THIRD QUARTER		0.52	FOURTH QUARTER		0.40

Table A-47. Soft Red Winter Wheat-Conventional Tillage

Beaver Creek Watershed Soft Red Winter Wheat-Conventional									
COMMODITY: <u>Soft Red Winter Wheat</u>			TILLAGE: <u>Conventional</u>						
PREVIOUS CROP: <u>Soft Red Winter Wheat</u>			FARM SIZE: <u>Large</u>			IRRIGATION: <u>Dry</u>			
REGION TYPE: <u>Watershed</u>			PRACTICES: <u>Broad Based Terraces</u>			SOIL TYPE: <u>0</u>			
REGION I.D.: <u>Beaver Creek Watershed</u>			<u>N.A.</u>			EL. INDEX: <u>0</u>			
PRODUCTION REGION: <u>Appalachian</u>			<u>N.A.</u>			ALT. NUTRIENTS: <u>None</u>			
64790120.C11									
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT		
CODE	CODE			NATIONAL	INDEX				
REVENUE									
2139	8	Wheat, Soft Red Winter	BU	3.3600	1	42.00	141.12		
VARIABLE EXPENSES									
1	SEED								
2701	1	Wheat Seed, Winter	BU	7.5000	1	2.00	15.00		
						SUBTOTAL	15.00		
2	FERTILIZER & LIME								
102	2	Anhydrous Ammonia	LB	0.2900	1	80.00	23.20		
200	2	P2O5 *	LB	0.2600	1	40.00	10.40		
300	2	K2O *	LB	0.1200	1	20.00	2.40		
						SUBTOTAL	36.00		
3	HERBICIDES								
4139	3	Harmony Extra (DP)	OZ	13.1500	1	0.50	6.58		
						SUBTOTAL	6.58		
6	OTHER COSTS								
7076	6	Tilt (3.6EC)	OZ	2.6200	1	4.00	10.48		
806	6	Broad Base Terraces	AC	10.4355			10.44		
LAB	6	Labor Costs	HR	5.8500	1	1.08	4.31		
MVC	6	Machine Variable Costs	AC				16.78		
						SUBTOTAL	44.01		
TOTAL VARIABLE EXPENSES							101.58		
RETURNS ABOVE VARIABLE EXPENSES							39.54		

Table A-47. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-Conventional

647901Z0.C11

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A.L/acre	NAME	RATE
10	1	CHISEL PLOW GT15FT	0.08	0.09								
10	10	TANDEM DISK REG GE19FT	0.11	0.13								
10	10	LANDALL, DO-ALL	0.11	0.00								
10	20	DRILL,PLAIN,DISCGRAIN GT14	0.16	0.17							Wheat Seed, Winter	2.000
3	15	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Tik (3.6EC)	4.00	OZ	0.00		
3	30	CHEM APPL GE30FT TRACT MTD	0.04	0.04			Harmony Extra (DF)	0.50	OZ	0.37		
4	15	LQUD FERT APPL TRAILER MTD	0.07	0.07	Anhydrous Amm	80						
4	15	LQUD FERT APPL TRAILER MTD	0.00	0.00	P205	40						
4	15	LQUD FERT APPL TRAILER MTD	0.00	0.00	K20	20						
7	5	COMBINE SELF-PROP 2WD	0.24	0.26								
7	5	TRUCK SGL AXLE-GAS 2 TON (SF)	0.24	0.26								

Table A-47. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-Conventional

64790120.C11

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
LANDALL, DO-ALL	11.34	3.55	0	0.11	1.22	0.38
DRILL,PLAIN,DISCGRAIN GT14	12.29	5.19	0	0.16	1.93	0.82
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.08	0.19	0.07
LQUD FERT APPL TRAILER MTD	4.34	1.59	0	0.07	0.28	0.10
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.24	26.64	7.51
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.24	4.05	1.17
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.35	3.32	4.41
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.14	1.10	1.48
					40.99	16.78

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.07	
2 FEBRUARY	0.00		5 MAY	0.00	
3 MARCH	0.09		6 JUNE	0.00	
FIRST QUARTER		0.09	SECOND QUARTER		0.07
7 JULY	0.52		10 OCTOBER	0.40	
8 AUGUST	0.00		11 NOVEMBER	0.00	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.52	FOURTH QUARTER		0.40

Table A-48. Soft Red Winter Wheat-Conventional Tillage

Beaver Creek Watershed Soft Red Winter Wheat-Conventional							
COMMODITY: <u>Soft Red Winter Wheat</u>			TILLAGE: <u>Conventional</u>		IRRIGATION: <u>Dry</u>		
PREVIOUS CROP: <u>Soft Red Winter Wheat</u>			FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>		
REGION TYPE: <u>Watershed</u>			PRACTICES: <u>Conserving</u>		E.I. INDEX: <u>0</u>		
REGION I.D.: <u>Beaver Creek Watershed</u>			N.A. _____		ALT. NUTRIENTS: <u>None</u>		
PRODUCTION REGION: <u>Appalachian</u>			N.A. _____				
647901Z0.C13							
ITEM CODE	CATEGORY CODE	NAME	UNITS	PRICE		QUANTITY	AMOUNT
				NATIONAL	INDEX		
REVENUE							
2199	8	Wheat, Soft Red Winter	BU	3.3600	1	42.00	141.12
VARIABLE EXPENSES							
1	SEED						
2701	1	Wheat Seed, Winter	BU	7.5000	1	2.00	15.00
						SUBTOTAL	15.00
2	FERTILIZER & LIMES						
102	2	Anhydrous Ammonia	LB	0.2900	1	80.00	23.20
200	2	P2O5 *	LB	0.2400	1	40.00	10.40
300	2	K2O *	LB	0.1200	1	20.00	2.40
						SUBTOTAL	36.00
3	HERBICIDES						
4199	3	Harmony Extra (DF)	OZ	13.1500	1	0.50	6.58
						SUBTOTAL	6.58
6	OTHER COSTS						
7076	6	Tilt (3.6EC)	OZ	2.6200	1	4.00	10.48
LAB	6	Labor Costs	HR	5.8500	1	1.19	4.94
MVC	6	Machine Variable Costs	AC				18.46
						SUBTOTAL	35.88
TOTAL VARIABLE EXPENSES							95.46
RETURNS ABOVE VARIABLE EXPENSES							47.66

Table A-48. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-Conventional

64790120.C13

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	A/L/acre	NAME	RATE
10	1	CHISEL PLOW GT15FT	0.09	0.10								
10	10	TANDEM DISK REG GE19FT	0.12	0.15								
10	10	LANDALL, DO-ALL	0.12	0.00								
10	20	DRILL, PLAIN, DISCGRAIN GT14	0.17	0.19								
3	15	CHEM APPL GE30FT TRACT MTD	0.04	0.05			Tik (3.6EC)	4.00	OZ	0.00		
3	30	CHEM APPL GE30FT TRACT MTD	0.04	0.05			Harmony Extra (DF)	0.50	OZ	0.37		
4	15	LIQUD FERT APPL TRAILER MTD	0.07	0.08	Anhydrous Am	80						
4	15	LIQUD FERT APPL TRAILER MTD	0.00	0.00	P205	40						
4	15	LIQUD FERT APPL TRAILER MTD	0.00	0.00	K20	20						
7	5	COMBINE SELF-PROP 2WD	0.26	0.29								
7	5	TRUCK SGL AXLE-GAS 2 TON (SP)	0.26	0.29								
											Wheat Seed, Winter	2.000

Table A-48. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-Conventional

64790120.C13

MACHINERY COSTS						
MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.09	0.90	0.45
TANDEM DISK REG GE19FT	13.42	4.04	0	0.12	1.59	0.48
LANDALL, DO-ALL	11.34	3.55	0	0.12	1.34	0.42
DRILL, PLAIN, DISCGRAIN GT14	12.29	5.19	0	0.17	2.12	0.90
CHEM APPL GE30FT TRACT MTD	2.48	0.91	0	0.09	0.21	0.08
LQUD FERT APPL TRAILER MTD	4.34	1.59	0	0.07	0.31	0.11
COMBINE SELF-PROP 2WD	112.12	31.62	SP	0.26	29.30	8.26
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.26	4.46	1.28
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.38	3.65	4.85
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.16	1.21	1.63
					45.09	18.46

LABOR SCHEDULE					
MONTH	LABOR (hrs/acre)		MONTH	LABOR (hrs/acre)	
1 JANUARY	0.00		4 APRIL	0.08	
2 FEBRUARY	0.00		5 MAY	0.00	
3 MARCH	0.09		6 JUNE	0.00	
FIRST QUARTER		0.09	SECOND QUARTER		0.08
7 JULY	0.58		10 OCTOBER	0.44	
8 AUGUST	0.00		11 NOVEMBER	0.00	
9 SEPTEMBER	0.00		12 DECEMBER	0.00	
THIRD QUARTER		0.58	FOURTH QUARTER		0.44

Table A-49. Soft Red Winter Wheat-No-Till

Beaver Creek Watershed Soft Red Winter Wheat-No-Till							
COMMODITY: <u>Soft Red Winter Wheat</u>		TILLAGE: <u>No-Till</u>		IRRIGATION: <u>Dry</u>			
PREVIOUS CROP: <u>Soft Red Winter Wheat</u>		FARM SIZE: <u>Large</u>		SOIL TYPE: <u>0</u>			
REGION TYPE: <u>Watershed</u>		PRACTICES: <u>N.A.</u>		EL INDEX: <u>0</u>			
REGION LD.: <u>Beaver Creek Watershed</u>		<u>N.A.</u>		ALT. NUTRIENTS: <u>None</u>			
PRODUCTION REGION: <u>Appalachian</u>		<u>N.A.</u>					
647901ZD.N01							
ITEM	CATEGORY	NAME	UNITS	PRICE		QUANTITY	AMOUNT
CODE	CODE			NATIONAL	INDEX		
REVENUE							
2139	8	Wheat, Soft Red Winter	BU	3.3600	1	42.00	141.12
VARIABLE EXPENSES							
1	SEED						
2701	1	Wheat Seed, Winter	BU	7.5000	1	1.50	11.25
						SUBTOTAL	11.25
2	FERTILIZER & LIMES						
102	2	Anhydrous Ammonia	LB	0.2900	1	80.00	23.20
431	2	10-30-30	LB	0.1960	1	100.00	19.60
						SUBTOTAL	42.80
3	HERBICIDES						
4139	3	Harmony Extra (DF)	OZ	13.1500	1	0.50	6.58
						SUBTOTAL	6.58
6	OTHER COSTS						
7076	6	Till (3.6EC)	OZ	2.6200	1	4.00	10.48
LAB	6	Labor Costs	HR	5.8500	1	1.05	6.35
MVC	6	Machine Variable Costs	AC				19.27
						SUBTOTAL	35.89
TOTAL VARIABLE EXPENSES							96.52
RETURNS ABOVE VARIABLE EXPENSES							44.60

Table A-49. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-No-Till

647901Z0.N01

OPERATION SCHEDULE												
DATE		MACHINE NAME	MACHINE TIME	LABOR TIME	FERTILIZER		CHEMICAL				OTHER INPUTS	
MONTH	DAY				NAME	LBS.	NAME	RATE	UNITS	AL/acre	NAME	RATE
10	15	CHISEL PLOW GT15FT	0.08	0.09	Anhydrous Amm 10-30-30	80 100						Wheat Seed, Winter 1.500
10	20	TANDEM DISK REG GE19FT	0.11	0.12								
10	25	CULTI-MULCH ROLLER GE18FT	0.07	0.07								
10	30	DRILL, NO-TILL, MIN-TILL, 20'	0.16	0.18								
2	5	DRY FERT SPRDR TRAILER MTD	0.09	0.10								
2	5	DRY FERT SPRDR TRAILER MTD	0.00	0.00								
3	20	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Tik (3.6EC)	4.00	OZ	0.00		
4	15	CHEM APPL GE30FT TRLR MTD	0.04	0.04			Harmony Extra (DF)	0.50	OZ	0.37		
6	15	COMBINE ROW HD SP 2WD	0.18	0.20								
6	15	TRUCK SGL AXLE-GAS 2 TON (SP)	0.18	0.20								

Table A-49. (Continued)

Beaver Creek Watershed
Soft Red Winter Wheat-No-Till

647901Z0.N01

MACHINE NAME	COST PER HOUR		POWER CODE	TOTAL HOURS PER ACRE	COST PER ACRE	
	F.C.	V.C.			F.C.	V.C.
CHISEL PLOW GT15FT	9.84	4.94	0	0.08	0.82	0.41
TANDEM DISK REG GE19FT	13.42	4.04	0	0.11	1.44	0.43
CULTI-MULCH ROLLER GE18FT	10.18	2.05	0	0.07	0.69	0.14
DRILL, NO-TILL, MIN-TILL, 20'	27.34	12.11	0	0.16	4.48	1.98
DRY FERT SPRDR TRAILER MTD	1.39	0.74	0	0.09	0.12	0.06
CHEM APPL GE30FT TRLR MTD	4.26	1.56	0	0.08	0.33	0.12
COMBINE ROW HD SP 2WD	89.23	44.29	SP	0.18	16.43	8.16
TRUCK SGL AXLE-GAS 2 TON (SP)	17.05	4.91	0	0.18	3.14	0.90
TRACTOR 2WD 160 HP DIESEL	9.55	12.68	6	0.42	4.03	5.34
TRACTOR 2WD 135 HP DIESEL	7.67	10.34	5	0.17	1.27	1.71
					32.74	19.27

LABOR SCHEDULE			
MONTH	LABOR (hrs/acre)	MONTH	LABOR (hrs/acre)
1 JANUARY	0.00	4 APRIL	0.04
2 FEBRUARY	0.10	5 MAY	0.00
3 MARCH	0.04	6 JUNE	0.41
FIRST QUARTER		SECOND QUARTER	
	0.14		0.45
7 JULY	0.00	10 OCTOBER	0.46
8 AUGUST	0.00	11 NOVEMBER	0.00
9 SEPTEMBER	0.00	12 DECEMBER	0.00
THIRD QUARTER		FOURTH QUARTER	
	0.00		0.46

VITA

Stephen Paul Slinsky was born in Memphis, Tennessee, October 16, 1970. After graduating from Collierville High School in Collierville, Tennessee, he enrolled in The University of Tennessee, Knoxville. During his undergraduate program, he was employed as a student worker in the Agricultural Policy Analysis Center (APAC). In May of 1992, he obtained a Bachelor of Science degree in Agriculture in May of 1992 with a major in Animal Science and a minor in Agricultural Economics. The following June, he accepted a full-time Research Assistant position with the Agricultural Policy Analysis Center and began working toward a Master's degree. Following completion of the requirements for the Master of Science degree in Agricultural Economics at The University of Tennessee, Knoxville in December 1996, he continues to work with the Agricultural Policy Analysis Center.

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