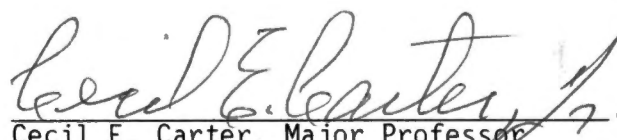
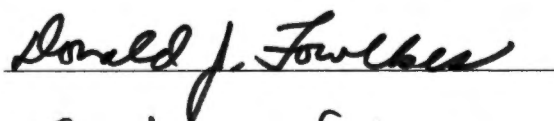


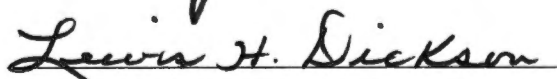
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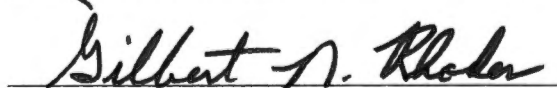
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CHARACTERISTICS OF DARK FIRED TOBACCO PRODUCERS, THEIR FARM
OPERATIONS, THEIR USE OF RECOMMENDED PRODUCTION
PRACTICES, AND EXTENSION CONTACTS

A Thesis
Presented for the
Master of Science
Degree
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ABSTRACT

The major purpose of this study was to characterize Tennessee dark fired tobacco producers, their farm operations, their use of recommended production practices, and the number of contacts they had with Extension. Data were obtained through personal interviews by County Extension Agents with randomly selected dark fired tobacco producers in six counties where production is important. Information was obtained about the general production characteristics of dark fired tobacco producers, their use of recommended production and marketing practices in 1983 and the number of contacts they had with Extension Agents over a 12-month period.

The data were coded and punched on computer cards and computations were made by the University of Tennessee Computing Center. The Chi Square statistical test was used to determine relationships between the dependent and independent variables, with the 0.05 probability level indicating significance.

Major findings included the following:

1. Seventy percent of the dark fired tobacco producers had a high school education or less and 63 percent were full-time farmers.
2. Fifty-five percent of producers grew 4 acres or more of dark fired tobacco in 1983 and almost 60 percent leased additional acreage.
3. Dark fired tobacco producers averaged 7.4 Extension contacts during the 12-month period prior to the study. They attended 0.6

tobacco meetings, made 2.6 visits to the Extension office, telephoned the Extension office 2.8 times, and received 1.3 visits from the Extension Agent during those 12 months.

4. Seventeen percent of producers reported no Extension contacts during the 12 months studied.

5. Producers growing 5 acres or more had higher yields per acre than smaller producers.

6. One third of the producers surveyed grew dark fired tobacco varieties other than those recommended by Extension.

7. Yields of dark fired tobacco increased as the percent of land fertilized by soil test increased.

8. Fifty-two percent of producers did not lime any of their tobacco land by soil test.

9. Fifty-nine percent of producers applied nitrogen at the recommended rate per acre.

10. The percent of producers applying 160-200 pounds of nitrogen per acre increased as the number of Extension contacts increased.

11. Thirty-four percent of producers had none of their tobacco land in permanent sod within the last 3 years.

12. Forty-one percent of producers surveyed had black shank present on their farm, while only 30 percent of producers used a black shank resistant variety.

13. Producers topping their tobacco in the button and early flower stages had higher yields per acre than those topping later than early flower.

14. Producers harvesting their crop when 50 percent or less was ripe had lower yields per acre than producers harvesting when more than 50 percent of tobacco was ripe.

15. Seventy percent of producers sold their tobacco while it was in the barn.

Recommendations were also made.

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CHAPTER I

THE PROBLEM AND ITS SETTING

1. INTRODUCTION

Dark fired tobacco is produced primarily in nine North Central Middle Tennessee counties and in two West Tennessee counties. It is the principal source of cash income for many producers in these counties (13).*

Statistics from the Tennessee Crop Reporting Service indicate the importance of tobacco to Tennessee tobacco producers. Tobacco of all four types grown in Tennessee was the second most valuable crop produced in the state during 1982 and 1983. In 1983, Tennessee tobacco producers harvested 72,910 acres, producing 118,197,000 pounds of the crop. Cash receipts from the sale of tobacco in 1983 totaled \$212,428,000. Tennessee also ranked high in tobacco production when compared to other tobacco producing states, ranking third behind North Carolina and Kentucky in 1983.

Fifteen percent of the tobacco produced in Tennessee in 1983 was dark fired tobacco. Dark fired tobacco producers harvested 11,600 acres, producing more than 17,500,000 pounds of the dark leaf. Income from the sale of the 1983 crop totaled \$32,655,000 (12).

*Numbers in parentheses refer to alphabetically listed sources in the Bibliography.

Because dark fired tobacco production is such an important part of Tennessee agriculture, it is important that dark fired tobacco producers have research-verified information available to help increase production efficiency. Dark fired tobacco producers can increase production efficiency with the adoption of recommended production and marketing practices.

The Tennessee Agricultural Extension Service has the responsibility of aiding with the diffusion of research-verified information and encouraging producers to adopt recommended production and marketing practices. County Extension Agents use a variety of teaching methods to promote the adoption of recommended practices. These include farm visits, group meetings, telephone calls and office calls.

The present study was done to help characterize Tennessee dark fired tobacco producers and their farms, and to determine the influence of the number of contacts producers had with Extension agents on producer adoption of recommended production and marketing practices and yields per acre.

2. NEED FOR THE STUDY

The Cooperative Extension Service is funded by federal, state, and county governments. In this era of increased competition for these public funds, it is important that the Cooperative Extension Service provide evidence that its educational efforts indeed do make a difference in the adoption of recommended practices and in our society in general. This study strives to provide such support.

This study is also important to County Extension Agents, as it provides a means by which they may evaluate their current educational efforts in dark fired tobacco program areas and establish future efforts and goals.

3. PURPOSE OF THE STUDY

The purpose of this study was to characterize dark fired tobacco producers, their farm operations; their use of recommended production practices, and the number of contacts producers had with Extension.

Specific objectives were:

1. To characterize dark fired tobacco producers, their farm operations, and the number and types of contacts producers had with Extension.
2. To determine the extent to which dark fired tobacco producers used recommended production and marketing practices.
3. To determine the relationships between farm characteristics and producer use of recommended production practices, and yields per acre of dark fired tobacco.
4. To determine the relationships between dark fired tobacco producer characteristics and the number of contacts producers had with Extension.
5. To determine the relationships between the number of contacts dark fired tobacco producers had with Extension, and producer use of recommended production and marketing practices and yields per acre.

4. LIMITATIONS OF THE STUDY

The 1983 Tennessee Dark Fired Tobacco Survey conducted by County Extension Agents provided data for the study. The study was limited to data obtained from 118 dark fired tobacco producers in four Middle Tennessee and two West Tennessee counties. Data for the study were obtained by County Extension Agents through personal interviews with dark fired tobacco producers in the six counties.

5. METHODS OF INVESTIGATION

Population and Sample Studied

The population for this study consisted of 118 dark fired tobacco producers in 6 Tennessee counties. County Extension Agents conducted the interviews using the 1983 Tennessee Dark Fired Tobacco Survey as the survey instrument. The Nth number technique was used by each Extension Agent to identify the dark fired tobacco producers to be interviewed. The number of producers surveyed per county was varied according to the number of acres grown in the county. The number of producers surveyed included 25 from Robertson County, 25 from Montgomery County, 19 from Dickson County, 19 from Henry County, 15 from Weakley County, and 15 from Houston County.

Survey Instrument

The survey instrument was developed by Extension Specialists at The University of Tennessee, Knoxville. The instrument consisted of five main parts, including (1) general information, (2) plant bed

practices, (3) field practices, (4) personal information about the producer, and (5) information regarding the type and number of contacts the producer had with Extension during the previous 12 months. Questions related to recommended production practices were included in the plant bed practices and field practices sections. Practices surveyed included variety grown, weed control, fertilization, insect control, disease control, topping and suckering, harvesting, and marketing practices.

Interview Technique

Personal interviews were scheduled between the County Extension Agent and dark fired tobacco producers in each participating county in order to complete the 1983 Tennessee Dark Fired Tobacco Survey. The interviews were conducted in the Fall of 1983.

Methods of Analysis

Following the completion of survey interviews, the survey instruments were returned to the Agricultural Extension Education department of the University of Tennessee for analysis. Descriptive statistics were used to summarize the data. These included frequencies, means, and ranges. The Chi Square statistical test was used to determine relationships between various dependent and independent variables. The 0.05 probability level was used to determine the significance of the relationships.

6. DEFINITION OF TERMS

1. Dark Fired Tobacco Producer. An individual who obtains a portion of his or her income from the production and sale of dark fired tobacco.

2. Extension Contacts. A communication between the producer and an Extension Agent. Extension contacts studied include the number of tobacco meetings attended, number of visits to the Extension office, number of telephone calls made to the Extension office, the number of Extension farm visits received, and the total number of Extension contacts dark fired tobacco producers reported having with Extension during the previous 12 months.

3. Recommended Practice. A research-verified and commonly accepted production procedure which, if performed correctly and on a regular basis, will increase yield and/or quality of tobacco.

CHAPTER II

REVIEW OF RELATED STUDIES

There have been no prior studies conducted in Tennessee related to dark fired tobacco production, characteristics of producers, etc. Several studies have been conducted regarding relationships between the characteristics of burley tobacco producers and their yields per acre, their use of recommended production practices, and their contacts with Extension. Other studies have been conducted in Tennessee relating selected characteristics of the producers of other row crops, livestock producers, and dairy producers to their yields per acre or per animal unit, their use of recommended production practices, and their contacts with Extension.

Studies were reviewed relating to: (1) characteristics of producers and their farm operations, (2) relationships between producer use of recommended production practices and yields per acre, (3) relationships between producer use of recommended production practices and the contacts producers had with Extension Agents, and (4) relationships between the characteristics of producers and their farm operations and the contacts producers had with Extension.

1. CHARACTERISTICS OF PRODUCERS AND THEIR FARM OPERATIONS

Related studies were reviewed regarding the ages, education, and employment status of producers.

Age

In a 1984 study of Tennessee burley producers, Glenn Turner found the mean age of all burley producers was 48 years, with a range of 65 years (14).

In a 1964 study of burley producers in Trousdale County, Clyde Webster determined 87 percent of the producers interviewed were 40 years of age or older. There was no trend shown relating yield levels to any definite age category (15).

In a 1962 study of Williamson County burley producers, Nathan Lowe found that 18 percent of the producers were under 40 years of age, 51 percent were between 40 and 60, and 31 percent were over 60 (7).

In an Anderson County study of burley producers in 1964, E. F. Iven concluded that differences in producer age levels did not appear to be a limiting factor in burley yields (4).

Jamieson Jenkins found in his 1977 study of soybean producers that 16 percent were 60 years old and older. The mean age of the soybean producers was 46.5 years (5).

Pat Freeman found the average Tennessee Grade A dairyman in his study was 50 years old (3).

In a 1982 study of Tennessee beef producers, Floyd Rutter found the average age of producers to be 50.8 years. Of the 1024 producers who gave their age, 56 (5.5 percent) were less than 30 years old, 387 (37.8 percent) were between 30 and 49 years, and 581 (56.7 percent) were 50 years old and older (11).

Education

Glenn Turner found in his 1984 study of burley tobacco producers that 70.1 percent had no formal education after high school, 10.8 percent had some education past high school, and 12.4 percent were college graduates. There was no response from 6.8 percent of the producers surveyed (14).

In a 1964 study, E. F. Iven determined the Anderson County burley producers that had completed nine or more years of school had somewhat higher average net returns than did those with less schooling (4).

In a 1962 study of burley producers in Williamson County, Nathan Lowe found some indication that producers who had completed high school had somewhat higher yields per acre (7).

Data comparing educational level of burley producers in Trousdale County with yield per acre appeared inconsequential in Clyde Webster's 1964 study (15).

In a 1977 study of soybean producers, Jamieson Jenkins found 40 percent of the producers had at least some college training, while the educational level reached by the remaining 60 percent of the producers was high school or less (5).

The average Grade A dairyman in Pat Freeman's 1975 study of Tennessee Grade A dairy producers had completed high school (3).

Employment

In a 1984 study of 1,358 Tennessee burley tobacco producers, Glenn Turner found 47.3 percent derived all of their income from the

farm, 18.8 percent were employed part-time off of the farm, 19.9 percent reported working full time in addition to their work on the farm, and 7.6 percent of the producers were retired (14).

E. F. Iven determined in his 1964 study of burley tobacco producers in Anderson County that operators who depended primarily on outside income tended to have lower net returns per acre from tobacco (4).

In his 1977 study of Tennessee soybean producers, Jamieson Jenkins found that 86 percent of the producers were full-time farmers, 12 percent were employed part-time off the farm, and 2 percent reported employment in other businesses (5).

Floyd Rutter reported in his 1982 study of Tennessee beef producers that 549 (53.2 percent) were full-time farm operators, while 483 (46.8 percent) were part-time farm operators (11).

2. RELATIONSHIPS BETWEEN PRODUCER USE OF RECOMMENDED PRODUCTION PRACTICES AND YIELDS PER ACRE

In his 1981 study of Tennessee burley producers surveyed in 1973 and 1978, Roger Robinson determined that significantly higher yields were achieved by producers that utilized nearly all of the recommended production practices (10).

E. F. Iven found in his 1964 study of Anderson County burley producers that the producers using more of the recommended production practices had above average net returns (4).

Nathan Lowe determined in his 1962 study of Williamson County burley producers that the failure of producers to use recommended production practices was related to low yields (7).

Clyde Webster reported in his 1964 study of burley producers in Trousdale County that producers with above average yields were found to be following more research-verified practices than those producers with below average yields (14).

In a 1982 study of corn producers, Ronald Johnson found that producers using more recommended practices had higher yields per acre (6).

In a 1978 study, Solomon Yabaya reported corn yields were significantly related to each of the eight practices studied. Producers using the recommended practices harvested significantly more bushels per acre than those producers not using the practices (16).

John Bradley found in his 1980 study of cotton producers that cotton yields increased as the total use of the nine recommended production practices studied increased (2).

3. RELATIONSHIPS BETWEEN PRODUCER USE OF RECOMMENDED PRODUCTION PRACTICES AND THE CONTACTS PRODUCERS HAD WITH EXTENSION AGENTS

In a 1981 study of burley tobacco producers, Roger Robinson found that the use of recommended practices increased as the number of contacts producers had with Extension increased (10).

Ron Johnson determined in his 1982 study of corn producers that those producers using most of the recommended production practices had frequent contacts with Extension Agents (6).

In another study of corn producers in 1978, Solomon Yabaya found that producer use of five recommended practices was significantly related to the total number of Extension contacts made between producers and Extension agents (16).

Paul McCallie found in his 1985 study of wheat producers that the percent of acreage soil tested for wheat production increased as the number of total Extension contacts producers had with Extension increased (8).

In a 1978 study, Pat Freeman found that the total number of recommended dairy production practices used by Grade A milk producers was significantly related to the total number of Extension contacts producers had with Extension agents (8).

Floyd Rutter determined in a study of beef cattle producers in 1982 that there was a significant relationship between the total number of contacts beef producers had with Extension and producer use of certain recommended beef production practices (11).

4. RELATIONSHIPS BETWEEN THE CHARACTERISTICS OF PRODUCERS AND THEIR FARM OPERATIONS AND THE CONTACTS PRODUCERS HAD WITH EXTENSION

In a 1973 study, Melvin Arnett determined the influence of selected factors on the number of office visits and telephone calls

made by producers to the Wilson County Extension office. Regarding a number of farm enterprises, Arnett found a significant relationship between the producer's major farm enterprise and the number of Extension office visits made by the producer. Those producers listing dairy, beef, and tobacco as their major farm enterprise made more visits than did those producers listing swine, sheep, and poultry.

Arnett also found that the age of the producer was not significantly related to the number of telephone calls or office visits the producer made to the Wilson County Extension office. However, there was a tendency for producers under 55 years of age to make more calls and more visits (1).

Pat Freeman determined in his 1978 study of Grade A dairy producers that as the age of producers increased, the total number of contacts producers had with Extension decreased significantly. Further, Freeman reported that as the educational level attained by the dairy producer increased, the total number of contacts producers had with Extension Agents also increased (3).

Also relating to the educational level reached by the producer, Arnett found in his 1973 study that those producers attending high school and college made significantly more Extension office visits than did those producers with less formal education. There was also a tendency for the more educated producers to make more telephone calls to the Wilson County Extension Office.

Arnett also determined that there was a tendency for part-time farmers to make more phone calls to the Extension office than did other categories of producers (1).

Jamieson Jenkins found in his 1972 study of soybean producers that the major occupation of the producer (full-time versus part-time farmers) was significantly related to the total number of Extension meetings the producers attended. Part-time farmers tended to attend fewer meetings. However, the producer's major occupation did not significantly influence the number of office visits or telephone calls the producer made to the Extension office, or the number of farm visits made by Extension agents to producers (5).

In a 1982 study of beef producers, David Rutter determined that full-time producers averaged slightly more total contacts with Extension than part-time producers. Full-time producers averaged 17 contacts versus 15 contacts by part-time producers (11).

This review of previous Extension studies provides some insight into the specifics of this study. The influence of certain independent variables on the use of recommended dark fired tobacco production practices will be emphasized in this investigation.

CHAPTER III

CHARACTERISTICS OF TENNESSEE DARK FIRED TOBACCO PRODUCERS

The purposes of this chapter are to characterize dark fired tobacco producers with regard to personal characteristics, characteristics of their farming operations, the number and type of contacts producers had with Extension and producer use of Extension recommended production and marketing practices.

The findings presented in this chapter are organized into two sections. Section 1 includes characteristics of dark fired tobacco producers, their farming operations, and the number and type of contacts producers had with Extension. Section 2 consists of information regarding dark fired tobacco producer use of recommended production and marketing practices.

1. CHARACTERISTICS OF DARK FIRED TOBACCO PRODUCERS, THEIR FARMING OPERATIONS, AND THE NUMBER AND TYPE OF CONTACTS PRODUCERS HAD WITH EXTENSION

Findings regarding selected characteristics of dark fired tobacco producers, their farming operations, and the number and type of contacts producers had with Extension in the 12 months prior to this study are presented in this section. The three subsections include: (1) producer characteristics, (2) farm characteristics, and (3) Extension contacts. Findings regarding these characteristics

are summarized in Table 1. The number and percent of producers are given for each variable. The mean and range are given where appropriate.

Producer Characteristics

Selected producer characteristics found in Table 1 include age, education and employment of producer. Each characteristic is discussed under separate headings below.

Age of producer. Table 1 shows that of 118 total respondents, 57 (48.3 percent) were under 43 years of age. Thirty-seven producers (31.4 percent) were 43 to 59 years of age and 22 producers (18.6 percent) were 60 years of age and older. Two producers (1.7 percent) did not respond. The mean age of all dark fired tobacco producers was 44 and the range was 75.

Education of producer. Eighty-three (70.3 percent) of the 118 dark fired producers had attained an educational level of high school graduate or less. Sixteen producers (13.6 percent) had received some college education and 17 producers (14.4 percent) were college graduates. Two producers (1.7 percent) did not respond.

Employment of producer. Seventy-four (62.7 percent) of the 118 total respondents were full-time farmers. Twenty producers (16.9 percent) were employed part-time off of the farm and 16 producers (13.6 percent) held full-time employment off of the farm. Six producers (5.1 percent) reported being retired, 1 producer (0.8 percent) reported other employment and 1 producer (0.8 percent) did not respond.

TABLE 1. Characteristics of Dark Fired Tobacco Producers, Their Farming Operations, and the Number and Type of Contacts Producers Had With Extension

Characteristic	Number of Producers	Percent of Producers
<u>Producer Characteristics</u>		
Age of Producer		
Under 43	57	48.3
43 to 59	37	31.4
60 and over	22	18.6
No response	2	1.7
TOTAL	118	100.0
Mean = 44, Range = 75		
Education of Producer		
High school or less	83	70.3
Some college	16	13.6
College graduate	17	14.4
No response	2	1.7
TOTAL	118	100.0
Employment of Producer		
Full-time farm	74	62.7
Part-time off farm	20	16.9
Full-time off farm	16	13.6
Retired	6	5.1
Other	1	0.8
No response	1	0.8
TOTAL	118	100.0
<u>Farm Characteristics</u>		
Acres grown		
1	14	11.9
2	19	16.1
3	18	15.3
4	15	12.7
5	6	5.1
6	12	10.2
Over 6	34	28.8
TOTAL	118	100.0

TABLE 1 (Continued)

Characteristic	Number of Producers	Percent of Producers
<u>Farm Characteristics (Continued)</u>		
Acres leased		
None leased	49	41.5
Some leased	69	58.5
TOTAL	118	100.0
Mean = 3, Range = 47		
Yields per acre		
800 to 1,450 pounds	35	29.7
1,500 to 1,970 pounds	52	44.1
2,000 to 3,000 pounds	28	23.7
No response	3	2.5
TOTAL	118	100.0
Mean = 1,703 pounds, Range = 2,200 pounds		
<u>Extension Contacts</u>		
Number of tobacco meetings attended		
0	74	62.7
1	24	20.3
2	16	13.6
3 or more	4	3.4
TOTAL	118	100.0
Mean = 0.6, Range = 5		
Number of office visits made		
0	40	33.9
1 or 2	38	32.2
3 to 5	21	17.8
6 or more	19	16.1
TOTAL	118	100.0
Mean = 2.6, Range = 25		
Number of telephone calls made to Extension office		
0	42	35.6
1 to 5	53	44.9
6 or more	23	19.5
TOTAL	118	100.0
Mean = 2.8, Range = 25		

TABLE 1 (Continued)

Characteristic	Number of Producers	Percent of Producers
<u>Extension Contacts (Continued)</u>		
Number of farm visits received from Extension Agent		
0	55	46.6
1 or 2	41	34.7
3 or more	22	18.6
TOTAL	118	100.0
Mean = 1.3, Range = 12		
Total number of Extension contacts		
0	20	16.9
1 to 5	46	39.0
6 or more	52	44.1
TOTAL	118	100.0
Mean = 7.4, Range = 52		

Farm Characteristics

Findings regarding farm characteristics are summarized in this subsection of Table 1. These characteristics include the number of acres of dark fired tobacco grown in 1983, whether or not some of the acres grown were leased, and tobacco yields per acre.

Acres grown. Fourteen (11.9 percent) of the 118 producers grew 1 acre of dark fired tobacco. Some 19 producers (16.1 percent) grew 2 acres, 18 producers (15.3 percent) grew 3 acres, 15 producers (12.7 percent) grew 4 acres, and 6 producers (5.1 percent) grew 5 acres. Twelve producers (10.2 percent) grew 6 acres and 34 producers (28.8 percent) reported growing more than 6 acres of dark fired tobacco.

Acres leased. Forty-nine (41.5 percent) of the producers did not lease additional acreage for tobacco production. Some 69 producers (58.5 percent) did lease additional acreage for tobacco production. The mean number of acres leased was 3 and the range was 47.

Yields per acre. Thirty-five (29.7 percent) of the 118 dark fired tobacco producers had tobacco yields between 800 and 1,450 pounds per acre. Fifty-two producers (44.1 percent) reported a yield of between 1,500 and 1,970 pounds of tobacco per acre. Some 28 producers (23.7 percent) had a yield between 2,000 and 3,000 pounds per acre. Three producers (2.5 percent) did not respond. The mean yield per acre was 1,703 pounds and the range was 2,200.

Extension Contacts

In this subsection of Table 1 Extension contacts are summarized. These contacts include number of tobacco meetings attended, number of office visits made, number of telephone calls made to the Extension office, number of farm visits made by the Extension Agent, and the total number of Extension contacts.

Number of tobacco meetings attended. Seventy-four (62.7 percent) of the 118 total respondents had not attended any tobacco meetings. Twenty-four producers (20.3 percent) attended 1 tobacco meeting while 16 producers (13.6 percent) attended 2 tobacco meetings. Three or more tobacco meetings were attended by 4 producers (3.4 percent). The mean number of tobacco meetings attended was 0.6 and the range was 5.

Number of office visits made. Forty (33.9 percent) of the 118 producers did not make any visits to the Extension office. Some 38 producers (32.2 percent) made 1 or 2 visits to the Extension office while 21 producers (17.8 percent) reported making 3 to 5 visits to the Extension office. Nineteen producers (16.1 percent) made 6 or more visits to the Extension office. The mean number of office visits made was 2.6 and the range was 25.

Number of telephone calls made to Extension office. Forty-two (35.6 percent) of the 118 producers made no phone calls to the Extension office. Some 53 producers (44.9 percent) made 1 to 5 telephone calls to the Extension office while 23 producers (19.5

percent) made 6 or more telephone calls. The mean number of telephone calls made to the Extension office was 2.8 and the range was 25.

Number of farm visits received from Extension Agent. Fifty-five (46.6 percent) of the 118 total respondents had not received any farm visits from the Extension Agent. Some 41 producers (34.7 percent) received 1 or 2 farm visits from the Extension Agent while 22 producers (18.6 percent) received 3 or more visits from the Extension Agent. The mean number of farm visits received was 1.3 and the range was 12.

Total number of Extension contacts. Twenty (16.9 percent) of the 118 tobacco producers did not have any contacts with Extension. Some 46 producers (39.0 percent) made from 1 to 5 Extension contacts while 52 producers (44.1 percent) made 6 or more Extension contacts. The mean number of contacts between Extension and producers was 7.4 and the range was 52.

2. DARK FIRED TOBACCO PRODUCER USE OF RECOMMENDED PRODUCTION AND MARKETING PRACTICES

This section presents findings regarding dark fired tobacco producer use of Extension recommended production and marketing practices and is divided into three subsections which include: (1) plant bed practices, (2) field practices, and (3) marketing practices. Data regarding these practices are found in Table 2. The number and percent of producers are given for each variable. The mean and range are given where appropriate.

TABLE 2. Dark Fired Tobacco Producer Use of Recommended Production and Marketing Practices

Recommended Practice	Number of Producers	Percent of Producers
<u>Plant Bed Practice</u>		
Weed control		
Method used		
Chemical	105	89.0
Burned	11	9.3
No response	2	1.7
TOTAL	118	100.0
Chemical used for weed control before seeding		
Methyl Bromide	101	85.6
Other	8	6.8
No response	9	7.6
TOTAL	118	100.0
When chemical applied		
Fall	54	45.8
Spring	58	49.2
No response	6	5.1
TOTAL	118	100.0
Enide used for clover control		
No	61	51.7
Yes	54	45.8
No response	3	2.5
TOTAL	118	100.0
Used 50 to 75 pounds 4-16-8 fertilizer or equivalent		
No	12	10.2
Yes	101	85.6
No response	5	4.2
TOTAL	118	100.0

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
Seeding		
Teaspoons seed used per 9 x 100 ft. bed		
1	20	16.9
2	67	56.8
3	23	19.5
4	5	4.2
No response	3	2.5
TOTAL	118	100.0
Month seeded		
February	31	26.3
March	82	69.5
April	4	3.4
No response	1	0.8
TOTAL	118	100.0
Insect control		
No	44	37.3
Yes	63	53.4
No response	11	9.3
TOTAL	118	100.0
Disease control		
Most severe disease problem		
Blue Mold	11	9.3
Anthrachnose	7	5.9
Damping-off	11	9.3
No problem	89	75.4
TOTAL	118	100.0
Used Ridomil to control blue mold		
No	44	37.3
Yes	66	55.9
No response	8	6.8
TOTAL	118	100.0
Treat for other diseases		
No	97	82.2
Yes	14	11.9
No response	7	5.9
TOTAL	118	100.0

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
<u>Field Practices</u>		
Primary variety grown		
Broad Leaf Madole	46	39.0
Black Mammoth	14	11.9
DF-300	9	7.6
DF-911	10	8.5
No response or DNA	39	33.1
TOTAL	118	100.0
Percent tobacco land in permanent sod within last 3 years		
0	40	33.9
1 to 75	14	11.9
100	64	54.2
TOTAL	118	100.0
Mean = 58.6, Range = 100		
Fertilization		
Take soil sample		
No	52	44.1
Yes	66	55.9
TOTAL	118	100.0
Percent tobacco land fertilized by soil test		
0	52	44.1
50 to 75	4	3.4
100	61	51.7
No response	1	0.8
TOTAL	118	100.0
Mean = 54, Range = 100		
Percent tobacco limed by soil test		
0	61	51.7
25 to 50	3	2.5
100	52	44.1
No response	2	1.7
TOTAL	118	100.0
Mean = 46, Range = 100		

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
Pounds nitrogen applied per acre		
150 or less	24	20.3
160 to 200	70	59.3
210 or more	24	20.3
TOTAL	118	100.0
Mean = 200, Range = 500		
Nitrogen applied as sidedressing		
No	52	44.1
Yes	65	55.1
No response	1	0.8
TOTAL	118	100.0
Month tobacco transplanted		
April	3	2.5
May	73	61.9
June	42	35.6
TOTAL	118	100.0
Weed control		
Methods used		
Cultivation	15	12.7
Chemical	9	7.6
Cultivation and chemical	94	79.7
TOTAL	118	100.0
Major weed problem		
Grasses	52	44.1
Broadleaf weeds	59	50.0
No response	7	5.9
TOTAL	118	100.0
Used Prowl for weed control		
No	42	35.6
Yes	67	56.8
No response	9	7.6
TOTAL	118	100.0

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
Used Devrinol for weed control		
No	86	72.9
Yes	10	8.5
No response	22	18.6
TOTAL	118	100.0
Used Enide for weed control		
No	71	60.2
Yes	20	16.9
No response	27	22.9
TOTAL	118	100.0
Herbicides used in combination		
No	76	64.4
Yes	17	14.4
No response	25	21.2
TOTAL	118	100.0
Soil insect control		
Soil insects were a problem		
No	86	72.9
Yes	30	25.4
No response	2	1.7
TOTAL	118	100.0
Soil treated for soil insects		
No	69	58.5
Yes	42	35.6
No response	7	5.9
TOTAL	118	100.0
Foilage insect control		
Foilage insects were a problem		
No	18	15.3
Yes	99	83.9
No response	1	0.8
TOTAL	118	100.0

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
Major insect problem		
Aphids	2	1.7
Budworms	49	41.5
Flea Beetles	22	18.6
Grasshoppers	1	0.8
Hornworms	27	22.9
No response	17	14.4
TOTAL	118	100.0
Spray for foilage insects		
No	4	3.4
Yes	112	94.9
No response	2	1.7
TOTAL	118	100.0
Insecticide used		
Orthene	56	47.5
Lannate	31	26.3
Thiodan	4	3.4
Penncap-M	3	2.5
Dylox/Proxol	1	0.8
Sevin	2	1.7
Malathion	4	3.4
No response	17	14.4
TOTAL	118	100.0
Scout field before spraying		
No	33	28.0
Yes	77	65.3
No response	8	6.8
TOTAL	118	100.0
Apply soil treatment for foilage insects		
No	57	48.3
Yes	61	51.7
TOTAL	118	100.0
Material applied		
Furadan	64	54.2
Di-syston	1	0.8
No response	53	44.9
TOTAL	118	100.0

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
Insecticide applied in transplant water		
No	59	50.0
Yes	57	48.3
No response	2	1.7
TOTAL	118	100.0
Diseases		
Major disease problem		
Blue mold	5	4.2
Black shank	18	15.3
Black root rot	4	3.4
Wildfire	2	1.7
Mosaic	5	4.2
Fusarium wilt	3	2.5
TVMW	1	0.8
No response	80	67.8
TOTAL	118	100.0
Major disease on resistant varieties		
No	56	47.5
Yes	23	19.5
No response	39	33.1
TOTAL	118	100.0
Use Ridomil to control blue mold		
No	59	50.0
Yes	51	43.2
No response	8	6.8
TOTAL	118	100.0
Rate of Ridomil per acre		
1 quart	2	1.7
2 quarts	25	21.2
3 quarts	9	7.6
4 quarts	13	11.0
Over 4 quarts	2	1.7
No response	67	56.8
TOTAL	118	100.0

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
Black shank present on farm		
No	69	58.5
Yes	48	40.7
No response	1	0.8
TOTAL	118	100.0
Black shank resistant variety used		
No	62	52.5
Yes	35	29.7
No response	21	17.8
TOTAL	118	100.0
Use 4 quarts Ridomil per acre		
No	57	48.3
Yes	20	16.9
No response	41	34.7
TOTAL	118	100.0
Topping and suckering		
Stage most tobacco topped		
Button	38	32.2
Early flower	67	56.8
Later	13	11.0
TOTAL	118	100.0
Sucker control method used		
Contact	44	37.3
Systemic	15	12.7
Contact and systemic	53	44.9
Hand suckered	6	5.1
TOTAL	118	100.0
Harvesting		
Days from topping to cutting		
26 or less	21	17.8
27 to 35	74	62.7
36 or more	23	19.5
TOTAL	118	100.0
Mean = 32, Range = 98		

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
Percent tobacco ripe when cut		
10 to 50	21	17.8
60 to 85	52	44.1
90 or more	44	37.3
No response	1	0.8
TOTAL	118	100.0
Mean = 76, Range = 90		
Tobacco allowed to wilt before handling		
No	3	2.5
Yes	114	96.6
No response	1	0.8
TOTAL	118	100.0
Scaffold tobacco before housing		
No	10	8.5
Yes	107	90.7
No response	1	0.8
TOTAL	118	100.0
Tobacco piled before housing		
No	70	59.3
Yes	46	39.0
No response	2	1.7
TOTAL	118	100.0
Housing		
Tobacco housed 8 to 12 inches apart on tiers		
No	17	14.4
Yes	100	84.7
No response	1	0.8
TOTAL	118	100.0
Percent tobacco house-burned		
0	91	77.1
10 to 50	27	22.9
TOTAL	118	100.0
Mean = 3, Range = 50		

TABLE 2 (Continued)

Recommended Practice	Number of Producers	Percent of Producers
<u>Marketing Practices</u>		
Number of grades made		
1	1	0.8
2	24	20.3
3	73	61.9
4	17	14.4
5	2	1.7
No response	1	0.8
TOTAL	118	100.0
Mean = 3, Range = 4		
Percent tobacco hand tied		
0	13	11.0
40 or less	16	13.6
80 to 100	89	75.4
TOTAL	118	100.0
Mean = 78, Range = 100		
Sold while in barn		
No	34	28.3
Yes	83	70.3
No response	1	0.8
TOTAL	118	100.0

Plant Bed Practices

Selected plant bed practices included in this summary include weed control, used 50-75 pounds 4-16-8 fertilizer or equivalent, seeding, insect control and disease control.

Weed control. Practices studied include method used, chemical used for weed control before seeding, when chemical applied and Enide used for clover control.

Method used. Findings presented in Table 2 indicated that 105 (89.0 percent) of the 118 total respondents used chemical control for plant bed weeds, and 11 producers (9.3 percent) burned plant beds to control weeds.

Chemical used for weed control before seeding. One hundred one (85.6 percent) of the 118 producers surveyed used methyl bromide for chemical weed control before seeding. Only 8 producers (6.8 percent) used other chemicals for weed control before seeding.

When chemical applied. Fifty-eight (49.2) of the 118 producers responding applied their chemicals for weed control in the Spring. Some 54 producers (45.8 percent) applied their chemical weed control in the Fall.

Enide used for clover control. Fifty-four (45.8 percent) of the 118 total respondents used Enide for clover control in the plant bed. Some 61 producers (51.7 percent) did not use Enide for clover control.

Used 50 to 75 pounds 4-16-8 fertilizer or equivalent. One hundred one (85.6 percent) of the 118 producers used 50 to 75 pounds of 4-16-8 fertilizer or its equivalent per 9 x 100 ft. bed. Some 12 producers (10.2 percent) did not use 50 to 75 pounds of 4-16-8 fertilizer or its equivalent per 9 x 100 ft. tobacco plant bed.

Seeding. Practices studied include teaspoons seed used per 9 x 100 ft. bed and month seeded.

Teaspoons seed used per 9 x 100 ft. bed. Sixty-seven (56.8 percent) of the 118 total respondents used 2 teaspoons of tobacco seed per 9 x 100 ft. bed. Some 20 producers (16.9 percent) used 1 teaspoon per 9 x 100 ft. bed, 23 producers (19.5 percent) used 3 teaspoons, and 5 producers (4.2 percent) used 4 teaspoons.

Month seeded. Thirty-one (26.3 percent) of the 118 total respondents seeded their plant beds in February, and 82 producers (69.5 percent) seeded their plant beds in March. Some 4 producers (3.4 percent) seeded their tobacco plant beds in April.

Insect control. Sixty-three (53.4 percent) of the 118 producers surveyed used insect control in the plant bed. Some 44 producers (37.3 percent) did not use insect control in the plant bed.

Disease control. Variables studied include most severe disease problem, used Ridomil to control blue mold, and treat for other diseases.

Most severe disease problem. Eleven (9.3 percent) of the 118 total respondents considered blue mold to be their most severe disease problem in the plant bed, 7 producers (5.9 percent) felt that anthracnose was their most severe disease problem, and 11 producers (9.3 percent) designated damping-off as their most severe disease problem. Some 89 producers (75.4 percent) indicated they had no disease problem.

Used Ridomil to control blue mold. Forty-four (37.3 percent) of the 118 total respondents did not use Ridomil to control blue mold. Some 66 producers (55.9 percent) did use Ridomil for blue mold control in the plant bed.

Treat for other diseases. Ninety-seven (82.2 percent) of the 118 total respondents did not treat for other diseases in the plant bed. Some 14 producers (11.9 percent) did treat for other diseases in the plant bed.

Field Practices

Findings regarding the use of selected field practices are summarized in this subsection. These include primary variety grown, percent tobacco land in permanent sod within last 3 years, fertilization, month tobacco transplanted, weed control, soil insect control, foliage insect control, diseases, topping and suckering, harvesting and housing practices.

Primary variety grown. Forty-six (39.0 percent) of the 118 total respondents grew primarily Broad Leaf Madole while 14 (11.9 percent) grew Black Mammoth. Nine producers (7.8 percent) selected DF-300 as their primary variety, while 10 producers (8.5 percent) grew primarily DF-911. Some 39 producers (33.1 percent) had no response.

Percent tobacco land in permanent sod within last three years. Forty (33.9 percent) of the 118 producers surveyed had none of their tobacco land in permanent sod within the last three years. Some 14 producers (11.9 percent) had from 1 to 75 percent of their tobacco land in permanent sod within the last 3 years and 64 producers (54.2 percent) reported 100 percent of their tobacco land had been in permanent sod within the last 3 years. The mean percent of tobacco land in permanent sod within the last 3 years was 58.6 with a range of 100.

Fertilization. Practices studied include take soil sample, percent tobacco land fertilized by soil test, percent tobacco land limed by soil test, pounds nitrogen applied per acre, and nitrogen applied as sidedressing.

Take soil sample. Fifty-two (44.1 percent) of the 118 producers did not take soil samples from their tobacco ground. Some 66 producers (55.9 percent) did take soil samples.

Percent tobacco land fertilized by soil test. Fifty-two (44.1 percent) of the total respondents did not fertilize their

tobacco land by soil test results. Four producers (3.4 percent) fertilized from 50 to 75 percent of their tobacco land according to soil test results. Some 61 producers (51.7 percent) fertilized 100 percent of their tobacco land based on their soil test results. The mean percentage was 54 and the range was 100.

Percent tobacco land limed by soil test. Sixty-one (51.7 percent) of the 118 producers did not lime any of their tobacco land based on soil test. Three producers (2.5 percent) limed from 25 to 50 percent of their tobacco land according to soil test results, and 52 producers (44.1 percent) limed 100 percent of their tobacco land following soil test recommendations. The mean percent was 46 and the range was 100.

Pounds nitrogen applied per acre. Twenty-four (20.3 percent) of the 118 producers surveyed applied 150 pounds or less of nitrogen per acre, and 70 producers (59.3 percent) applied from 160 to 200 pounds of nitrogen per acre. Some 24 producers (20.3 percent) applied 210 pounds or more of nitrogen per acre. The mean pounds of nitrogen applied per acre was 200 and the range was 500.

Nitrogen applied as sidedressing. Fifty-two (44.1 percent) of the 118 producers did not apply nitrogen as a sidedressing. Some 65 producers (55.1 percent) applied nitrogen as a sidedressing to their tobacco.

Month tobacco transplanted. Three (2.5 percent) of the 118 total respondents transplanted their tobacco during the month of

April. Seventy-three producers (61.9 percent) transplanted their tobacco during May, and 42 producers (35.6 percent) transplanted their tobacco during the month of June.

Weed control. Practices studied include methods used, major weed problem, chemical used for weed control, and herbicides used in combination.

Methods used. Fifteen (12.7 percent) of the 118 total respondents used cultivation as the sole method of weed control, and 9 producers (7.6 percent) used chemical weed control. Some 94 producers (79.7 percent) used a combination of cultivation and chemical weed control.

Major weed problem. Fifty-two (44.1 percent) of the 118 producers surveyed identified grasses as their major weed problem in the field. Some 59 producers (50.0 percent) identified broadleaf weeds as their major field weed problem.

Used Prowl for weed control. Forty-two (35.6 percent) of the 118 producers surveyed did not use Prowl for weed control. Some 67 producers (56.8 percent) did use Prowl in their field weed control program.

Used Devrinol for weed control. Eighty-six (72.9 percent) of the 118 total respondents did not use Devrinol for weed control. Ten producers (8.5 percent) did use Devrinol in their weed control program.

Used Enide for weed control. Seventy-one (60.2 percent) of the 118 producers did not use Enide for weed control. Twenty producers (16.9 percent) did use Enide in their tobacco weed control program.

Herbicides used in combination. Seventy-six (64.4 percent) of the 118 producers did not use a combination of herbicides in their weed control program.

Soil insect control. Variables studied include were soil insects a problem and was soil treated for soil insects.

Soil insects were a problem. Eighty-six (72.9 percent) of the producers reported soil insects were not a problem. Some 30 (25.4 percent) of the producers reported that soil insects were a problem.

Soil treated for soil insects. Sixty-nine (58.5 percent) of the 118 producers did not treat their soil for soil insect control. Some 42 producers (35.6 percent) did treat their tobacco soil for soil insect control.

Foliage insect control. Variables studied include foliage insects were a problem, major insect problem, spray for foliage insects, insecticide used, scout field before spraying, apply soil treatment, material applied, and insecticide applied in transplant water.

Foliage insects were a problem. Eighteen (15.3 percent) of the 118 total respondents had no problem with foliage insects. Some 99 producers (83.9 percent) did report having a problem with foliage insects.

Major insect problem. Two (1.7 percent) of the 118 producers reported aphids as their major foliage insect problem. Some 49 producers (41.5 percent) indicated budworms were the major insect problem, 22 producers (18.6 percent) reported flea beetles as the major insect problem, and 1 producer (0.8 percent) reported grasshoppers as the major insect problem. Some 27 producers (22.9 percent) indicated hornworms were their major foliage insect problem.

Spray for foliage insects. Four (3.4 percent) of the 118 tobacco producers surveyed did not spray for foliage insects. Some 112 producers (94.9 percent) sprayed tobacco for foliage insect control.

Insecticide used. Fifty-six (47.5 percent) of the 118 total respondents used Orthene for foliage insect control. Thirty-one producers (26.3 percent) used Lannate, 4 producers (3.4 percent) used Thiodan, 3 producers (2.5 percent) used PennCap-M, and 1 producer (0.8 percent) used Dylox/Proxol for foliage insect control. Two producers (1.7 percent) used Sevin, and 4 producers (3.4 percent) used Malathion for foliage insect control.

Scout field before spraying. Thirty-three (28.0 percent) of the 118 producers did not scout their field before spraying. Some

77 producers (65.3 percent) did scout their field before spraying for foliage insects.

Apply soil treatment for foliage insects. Fifty-seven producers (48.3 percent) did not apply a soil treatment for foliage insects. Some 61 (51.7 percent) of the 118 total respondents did apply a soil treatment for foliage insect control.

Material applied. Sixty-four (54.2 percent) of the 118 tobacco producers applied Furadan as a soil treatment for foliage insect control. One producer (0.8 percent) used Di-syston for insect control.

Insecticide applied in transplant water. Fifty-nine (50.0 percent) of the 118 total respondents did not apply insecticide in the transplant water. Some 57 producers (48.3 percent) did apply insecticide in the transplant water.

Diseases. Variables studied include major disease problem, major disease on resistant varieties, use Ridomil to control blue mold, rate of Ridomil per acre, black shank present on farm, black shank resistant variety used and use 4 quarts Ridomil per acre.

Major disease problem. Five (4.2 percent) of the 118 producers surveyed indicated blue mold was their major disease problem. Eighteen producers (15.3 percent) reported black shank as their major disease problem, 4 producers (3.4 percent) reported black root rot, 2 producers (1.7 percent) reported wildfire, and 5 producers (4.2

percent) reported mosaic. Fusarium wilt was the major disease problem for 3 producers (2.5 percent) and 1 producer (0.8 percent) reported TVMW as their major disease problem.

Major disease on resistant varieties. Fifty-six (47.5 percent) of the 118 producers surveyed did not have their major disease problem on resistant tobacco varieties. Some 23 producers (19.5 percent) did have their major disease problem on resistant varieties.

Use Ridomil to control blue mold. Fifty-nine (50.0 percent) of the producers did not use Ridomil for blue mold control. Some 51 producers (43.2 percent) did use Ridomil in the field for blue mold control.

Rate of Ridomil per acre. Two producers (1.7 percent) used 1 quart of Ridomil per acre, 25 producers (21.2 percent) used 2 quarts per acre, and 9 producers (7.6 percent) used 3 quarts per acre. Thirteen producers (11.0 percent) used 4 quarts of Ridomil per acre, and 2 producers (1.7 percent) used over 4 quarts per acre.

Black shank present on farm. Sixty-nine (58.5 percent) of the 118 producers did not have black shank present on their farm. Some 48 producers (40.7 percent) indicated that black shank was present on their farm.

Black shank resistant variety used. Sixty-two (52.5 percent) of the 118 total respondents did not use a black shank

resistant variety. Some 35 producers (29.7 percent) did use a tobacco variety with black shank resistance.

Use 4 quarts Ridomil per acre. Fifty-seven (48.3 percent) of the 118 producers did not use 4 quarts Ridomil per acre, and 20 producers (16.9 percent) did use Ridomil at the 4 quarts per acre rate.

Topping and suckering. Practices studied include stage most tobacco topped and sucker control method used.

Stage most tobacco topped. Thirty-eight (32.2 percent) of the 118 total respondents topped most of their tobacco in the button stage. Some 67 producers (56.8 percent) topped most of their tobacco in the early flower stage, and 13 producers (11.0 percent) topped most of their tobacco in a later stage.

Sucker control method used. Forty-four (37.3 percent) of the 118 producers surveyed used a contact material for sucker control, and 15 producers (12.7 percent) used a systemic material for sucker control. Some 53 producers (44.0 percent) used contact and systemic materials for sucker control, and 6 producers (5.1 percent) hand suckered their tobacco.

Harvesting. Practices studied include days from topping to cutting, percent tobacco ripe when cut, tobacco allowed to wilt before handling, scaffold tobacco before handling, and tobacco piled before handling.

Days from topping to cutting. Twenty-one (17.8 percent) of the 118 tobacco producers cut their tobacco 26 days or less from the time the tobacco was topped. Some 74 producers (62.7 percent) cut their tobacco from 27 to 35 days after topping, and 23 producers (19.5 percent) cut their tobacco 36 days or more after topping. The mean days from topping to cutting was 32 with a range of 98.

Percent tobacco ripe when cut. Twenty-one (17.8 percent) of the 118 producers cut their tobacco when 10 to 50 percent of the crop was ripe. Some 52 producers (44.1 percent) cut when 60 to 85 percent was ripe, and 44 producers (37.3 percent) cut their tobacco when 90 percent or more of the crop was ripe. The mean percent of tobacco ripe when cut was 76 with a range of 90.

Tobacco allowed to wilt before handling. Three (2.5 percent) of the 118 total respondents did not allow their tobacco to wilt before handling, and 114 producers (96.6 percent) allowed their tobacco to wilt before handling.

Scaffold tobacco before housing. Ten (8.5 percent) of the 118 producers did not scaffold tobacco before housing, and 107 producers (90.7 percent) did scaffold tobacco before housing.

Tobacco piled before housing. Seventy (59.3 percent) of the 118 tobacco producers did not pile tobacco before housing, and 46 producers (39.0 percent) did pile tobacco before housing.

Housing. Practices studied include tobacco housed 8 to 12 inches apart on tiers, and percent tobacco house-burned.

Tobacco housed 8 to 12 inches apart on tiers. Seventeen (14.4 percent) of the 118 total respondents did not house tobacco 8 to 12 inches apart on tiers, and 100 producers (84.7 percent) did house tobacco 8 to 12 inches apart on tiers.

Percent tobacco house-burned. Ninety-one (77.1 percent) of the 118 producers did not house-burn any tobacco, and 27 producers (22.9 percent) house-burned between 10 and 50 percent. The mean percent house burned was 3 with a range of 50.

Marketing Practices

Selected marketing practices included in this analysis of Table 2 (page 23) were number of grades made, percent tobacco hand tied and whether or not tobacco was sold while in the barn.

Number of grades made. Only 1 (0.8 percent) of the 118 tobacco producers made 1 grade of tobacco. Some 24 producers (20.3 percent) made 2 grades, 73 producers (61.9 percent) made 3 grades, and 17 producers (14.4 percent) made 4 grades. Two producers (1.7 percent) made 5 grades of tobacco. The mean number of grades made was 3 with a range of 4.

Percent tobacco hand tied. Thirteen (11.0 percent) of the 118 producers surveyed did not hand tie any tobacco. Some 16 producers (13.6 percent) hand tied 40 percent or less, and 89 producers (75.4

percent) hand tied between 80 and 100 percent of their tobacco. The mean percent of tobacco hand tied was 78 with a range of 100.

Sold while in barn. Thirty-four (28.3 percent) of the 118 producers did not sell their tobacco while in the barn, and 83 producers (70.3 percent) did sell their tobacco while in the barn.

Chapter Summary

Findings summarized in Chapter III indicated the average Tennessee dark fired tobacco producer to be 44 years old. Most producers were full-time farmers and had a high school education or less. Almost half the producers grew five acres or more of the dark leaf, and 59 percent of producers leased additional acres for dark tobacco production. The average yield was 1,703 pounds. The average dark fired tobacco producer attended less than 1 tobacco meeting, visited the Extension office 3 times, telephoned the Extension office 3 times, and received an average of 1 visit from the County Extension Agent. Producers averaged 7 total contacts with Extension in the 12 months prior to the study.

Most producers (85.6 percent) used methyl bromide for weed control in the plant bed, and almost half (45.8 percent) used Enide for clover control. Almost all producers used the recommended amount of fertilizer in the plant bed. More than half of the producers treated for insect and disease control, including the use of Ridomil to control blue mold.

Concerning field practices, more than a third of the producers (39.0 percent) grew Broad Leaf Madole, while a third of producers

grew varieties other than those listed in the survey. An average of 58.6 percent of the tobacco land had been in permanent sod within the last 3 years, and 54 percent of the land had been fertilized by soil test. However, less than half (46 percent) of the tobacco land had been limed by soil test. An average of 200 pounds of nitrogen was applied per acre. More than half the producers (56.8 percent) used Prowl for weed control in the field. Almost all producers (94.9 percent) sprayed for foliage insect control, with most producers (65.3 percent) scouting their fields before spraying. Black shank was present on more than one-third of the farms, and less than a third of the producers grew black shank resistant varieties. A majority of the tobacco (89.0 percent) was topped in the button or early flower stages, and three-fourths of the tobacco was cut when ripe.

The average producer made 3 grades of tobacco, and an average of 78 percent of the tobacco was hand tied. Three out of four producers sold their tobacco while it was in the barn.

CHAPTER IV

RELATIONSHIPS BETWEEN FARM CHARACTERISTICS, PRODUCER USE OF RECOMMENDED PRODUCTION PRACTICES AND YIELDS PER ACRE OF DARK FIRED TOBACCO

The purposes of this chapter are to present findings regarding the relationships between farm characteristics and yields per acre of dark fired tobacco, and relationships between producer use of recommended production practices and yields per acre of dark fired tobacco.

1. RELATIONSHIPS BETWEEN FARM CHARACTERISTICS, PRODUCER USE OF RECOMMENDED PRODUCTION PRACTICES AND YIELDS PER ACRE OF DARK FIRED TOBACCO

This section presents findings regarding the relationships between farm characteristics, producer use of recommended production practices and yields per acre of dark fired tobacco. Findings are divided into two subsections and include: (1) farm characteristics and yields per acre, and (2) field practices and yields per acre. Data regarding these relationships are found in Table 3. Yields per acre are reported in the numbers and percents of producers with yields below the mean yield per acre and with yields above the mean yield per acre.

The chi square test was used to determine the relationships between the independent variables and yields per acre. The 0.05 probability level was used to determine significant relationships.

TABLE 3. Relationships Between Farm Characteristics, Producer Use of Recommended Production Practices and Yields Per Acre of Dark Fired Tobacco

Name of Variable	Yield Per Acre					
	Below Mean		Above Mean		Total	
	N	%	N	%	N	%
<u>Farm Characteristics</u>						
Acres Grown						
4 acres and under	42	63.6	24	36.4	66	100
5 acres and over	22	42.3	30	57.7	52	100
	$\chi^2 = 4.506$ $p = 0.034$					
Acres Leased						
None leased	34	69.4	15	30.6	49	100
Some leased	30	43.5	39	56.5	69	100
	$\chi^2 = 6.740$ $p = 0.009$					
<u>Field Practices</u>						
Primary Variety Grown						
Broad Leaf Madole	25	54.3	21	45.7	46	100
Black Mammoth	7	50.0	7	50.0	14	100
DF-300	4	44.4	5	55.6	9	100
DF-911	4	40.0	6	60.0	10	100
	$\chi^2 = 0.846$ $p = 0.838$					
Percent tobacco land in permanent sod within last 3 years						
0	23	57.5	17	42.5	40	100
1 to 75	5	35.7	9	64.3	14	100
100	36	56.3	28	43.8	64	100
	$\chi^2 = 2.211$ $p = 0.331$					
Fertilization						
Take soil sample						
No	36	69.2	16	30.8	52	100
Yes	28	42.4	38	57.6	66	100
	$\chi^2 = 7.375$ $p = 0.007$					
Percent tobacco land fertilized by soil test						
0	35	67.3	17	32.7	52	100
50 to 75	1	25.0	3	75.0	4	100
100	28	45.9	33	54.1	61	100
	$\chi^2 = 6.665$ $p = 0.036$					
Percent tobacco land limed by soil test						
0	38	62.3	23	37.7	61	100
25 to 50	1	33.3	2	66.7	3	100
100	25	48.1	27	51.9	52	100
	$\chi^2 = 2.888$ $p = 0.236$					
Pounds nitrogen applied per acre						
150 lbs. or less	14	58.3	10	41.7	24	100
160 to 200 lbs.	38	54.3	32	45.7	70	100
210 lbs. and over	12	50.0	12	50.0	24	100
	$\chi^2 = .336$ $p = 0.845$					

TABLE 3 (Continued)

Name of Variable	Yield Per Acre					
	Below Mean		Above Mean		Total	
	N	%	N	%	N	%
Weed control						
Methods used						
Cultivation	9	60.0	6	40.0	15	100
Chemicals	5	55.6	4	44.4	9	100
Both	50	53.2	44	46.8	94	100
	$\chi^2 = .248 \quad p = 0.883$					
Used Paarlán for weed control						
No	43	55.1	35	44.9	78	100
Yes	10	55.6	8	44.4	18	100
	$\chi^2 = 0.0 \quad p = 1.0$					
Used Prowl for weed control						
No	27	64.3	15	35.7	42	100
Yes	31	46.3	36	53.7	67	100
	$\chi^2 = 2.681 \quad p = 0.102$					
Used Enide for weed control						
No	40	56.2	31	43.7	71	100
Yes	10	50.0	10	50.0	20	100
	$\chi^2 = .062 \quad p = 0.804$					
Soil insect control						
No	38	55.1	31	44.9	69	100
Yes	23	54.8	19	45.2	42	100
	$\chi^2 = 0.0 \quad p = 1.0$					
Foliage insect control						
Spray for foliage insects						
No	4	100	-	-	4	100
Yes	60	53.6	52	46.4	112	100
	$\chi^2 = 1.751 \quad p = 0.186$					
Scout field before spraying						
No	15	45.5	18	54.5	33	100
Yes	44	57.1	33	42.9	77	100
	$\chi^2 = .843 \quad p = 0.359$					
Apply soil treatment for foliage insects						
No	34	59.6	23	40.4	57	100
Yes	30	49.2	31	50.8	61	100
	$\chi^2 = .913 \quad p = 0.339$					
Apply insecticide in transplant water						
No	30	50.8	29	49.2	59	100
Yes	34	59.6	23	40.4	57	100
	$\chi^2 = .587 \quad p = 0.444$					
Diseases						
Used Ridomil to control blue mold						
No	35	59.3	24	40.7	59	100
Yes	24	47.1	27	52.9	51	100
	$\chi^2 = 1.198 \quad p = 0.274$					

TABLE 3 (Continued)

Name of Variable	Yield Per Acre					
	Below Mean		Above Mean		Total	
	N	%	N	%	N	%
Black shank resistant variety used						
No	23	37.1	39	62.9	62	100
Yes	26	74.3	9	25.7	35	100
	$\chi^2 = 10.934$		$p = 0.0009$			
Topping and suckering						
Stage most tobacco topped						
Button	13	34.2	25	65.8	38	100
Early flower	40	59.7	27	40.3	67	100
Later	11	84.6	2	15.4	13	100
	$\chi^2 = 11.780$		$p = 0.003$			
Sucker control method used						
Contact	23	52.3	21	47.7	44	100
Systemic	12	80.0	3	20.0	15	100
Contact and systemic	24	45.3	29	54.7	53	100
Hand suckered	5	83.3	1	16.7	6	100
	$\chi^2 = 7.838$		$p = 0.050$			
Percent tobacco ripe when cut						
10 to 50	19	90.5	2	9.5	21	100
60 to 85	21	40.4	31	59.6	52	100
90 and over	24	54.5	20	45.5	44	100
	$\chi^2 = 15.148$		$p = 0.0005$			

Farm Characteristics and Yields Per Acre

Selected farm characteristics in Table 3 include acres grown and acres leased.

Acres grown. The chi square test indicated a significant relationship between acres grown and yields per acre. Producers growing 5 acres or more of dark fired tobacco had significantly higher yields than producers growing 4 acres or less. Fifty-eight percent of producers growing 5 acres or more of dark fired tobacco had above average yields per acre whereas just over 36 percent of producers growing 4 acres or less had above average yields.

Acres leased. The chi square test showed a significant relationship between acres leased and yields per acre. Producers leasing additional acreage had significantly higher yields than producers not leasing additional acreage. Fifty-seven percent of producers leasing additional acreage for tobacco production had above average yields per acre, while 31 percent of producers not leasing additional acreage reported above average yields.

Field Practices and Yields Per Acre

Table 3 presents findings regarding the relationships between practice use and yields per acre. Practices studied include primary variety grown, percent tobacco land in permanent sod within last 3 years, fertilization, weed control, soil insect control, foliage insect control, diseases, topping and suckering and percent tobacco ripe when cut.

Primary variety grown. The chi square test indicated that the relationship between primary variety grown and yield was not significant. Sixty percent of producers growing primarily DF-911 had above average yields per acre. A range of 46 to 56 percent of producers growing primarily Broad Leaf Madole, Black Mammoth, and DF-300 had above average yields.

Percent tobacco land in permanent sod within last 3 years. The chi square test indicated the relationship between the percent tobacco land in permanent sod within the last 3 years and yield not significant at the 0.05 probability. Sixty-four percent of producers having 1 to 75 percent of their tobacco land in permanent sod within the last 3 years had above average yields per acre. Only 44 percent of producers having 100 percent of their tobacco land in sod within the last 3 years had above average yields, and 43 percent of producers with none of their tobacco land in sod reported above average yields.

Fertilization. Practices studied include take soil sample, percent tobacco land fertilized by soil test, percent tobacco land limed by soil test, and pounds nitrogen applied per acre.

Take soil sample. The chi square test indicated the relationship between taking soil samples and yields per acre to be significant at the 0.05 probability level. Producers taking soil samples had significantly higher yields than producers not taking soil samples.

Percent tobacco land fertilized by soil test. The chi square test showed a significant relationship between the percent tobacco land fertilized by soil test and yield per acre. Yield increased as the percent land fertilized by soil test increased. Fifty-four percent of producers fertilizing 100 percent of their tobacco land by soil test reported above average yields per acre compared to 33 percent of producers fertilizing none of their land by soil test.

Percent tobacco land limed by soil test. The chi square test indicated there was not a significant relationship between the percent land limed by soil test and yield. Sixty-seven percent of producers liming 25 to 50 percent of their tobacco land by soil test had above average yields per acre. Fifty-two percent of producers who limed 100 percent and 38 percent who limed none of their tobacco land by soil test had above average yields.

Pounds nitrogen applied per acre. The chi square test indicated that the relationship between pounds of nitrogen applied per acre and yield was not significant. Fifty percent of producers applying 210 pounds or more of nitrogen per acre reported above average yields per acre, 46 percent of producers applying 160 to 200 pounds of nitrogen per acre had above average yields, and 42 percent of producers applying 150 pounds or less had above average yields.

Weed control. Practices studied include methods used, used Paarlan for weed control, used Prowl for weed control, and used Enide for weed control.

Methods used. The chi square test showed there was not a significant relationship at the 0.05 probability level between weed control methods used and yield. Forty-seven percent of producers using both cultivation and chemical weed control methods had above average yields per acre. Forty-four percent of those using only chemicals for weed control had above average yields, and 40 percent of those using only cultivation reported above average yields.

Used Paarlán for weed control. The chi square test indicated there was not a significant relationship between the use of Paarlán for weed control and yield. Almost 56 percent of producers who used Paarlán and 55 percent who did not use Paarlán had below average yields per acre.

Used Prowl for weed control. The chi square test indicated there was not a significant relationship between use of Prowl for weed control and yield. Fifty-four percent of producers who used Prowl and 36 percent who did not use Prowl for weed control reported above average yields per acre.

Used Enide for weed control. The chi square test showed the relationship between the use of Enide for weed control and yield not significant. Fifty percent of producers using Enide and 44 percent who did not use Enide for weed control had above average yields per acre.

Soil insect control. The chi square test indicated there was not a significant relationship between soil treatment for soil insects and yield.

Foliage insect control. Practices studied include spray for foliage insects, scout field before spraying, apply soil treatment for foliage insects, and apply insecticide in transplant water.

Spray for foliage insects. The chi square test showed the relationship between spraying for foliage insects and yield not to be significant. One hundred percent of producers who did not spray and 54 percent of producers who did spray for foliage insects had below average yields per acre.

Scout field before spraying. The chi square test indicated there was not a significant relationship between scouting the field before spraying and yield. Fifty-seven percent of producers who scouted and 46 percent who did not scout their fields before spraying had below average yields per acre.

Apply soil treatment for foliage insects. The chi square test showed the relationship between the application of soil treatment for foliage insects and yield not significant. Approximately 51 percent of producers who applied soil treatment for foliage insects and 40 percent who did not apply treatment had above average yields per acre.

Apply insecticide in transplant water. The chi square test showed there was not a significant relationship between the application of insecticide in the transplant water and yield. Forty-nine percent of producers who did not apply and 40 percent who did apply an insecticide in the transplant water had above average yields per acre.

Diseases. Variables studied include use Ridomil to control blue mold and black shank resistant variety used.

Used Ridomil to control blue mold. The chi square test determined the relationship between the application of Ridomil to control blue mold and yield not to be significant. Almost 53 percent of producers using Ridomil to control blue mold had above average yields per acre. However, about 41 percent of producers not using Ridomil had above average yields per acre.

Black shank resistant variety used. The chi square test indicated a significant relationship between use of a black shank resistant variety and yields per acre. Producers using a black shank resistant variety had significantly lower yield than did producers not using a resistant variety. Seventy-four percent of producers using a black shank resistant variety had below average yields per acre, while only 37 percent of those using a black shank susceptible variety reported below average yields.

Topping and suckering. Practices studied include stage most tobacco topped and sucker control method used.

Stage most tobacco topped. The chi square test showed a significant relationship at the 0.05 probability level between the stage most tobacco was topped and yield per acre. Producers topping tobacco in earlier stages had higher yields than producers topping later than early flower stage. Almost 66 percent of producers topping tobacco in the button stage, 40 percent of producers topping in early flower stage and 15 percent of producers topping tobacco later than early flower had above average yields per acre.

Sucker control method used. The chi square test indicated a significant relationship between sucker control method used and yield per acre. Producers using a contact material alone or in combination with a systemic material had higher yields than did producers using other sucker control methods. Forty-eight percent of producers using a contact material for sucker control and 55 percent of producers using a combination of contact and systemic materials reported above average yields per acre. Only 20 percent of producers using a systemic material and 17 percent of those hand suckering their tobacco had above average yields.

Percent tobacco ripe when cut. The chi square test showed a significant relationship between the percent of tobacco ripe when cut and yield per acre. A greater percent of producers cutting their tobacco when 10 to 50 percent of the crop was ripe had lower yields

per acre than did producers cutting their crop when more than 50 percent was ripe. Approximately 90 percent of producers cutting tobacco when 10 to 50 percent of the crop was ripe had below average yields per acre. Fifty-five percent of producers cutting when 90 percent or more was ripe and 40 percent of producers cutting when 60 to 85 percent of the crop was ripe had below average yields per acre.

Chapter Summary

Findings summarized in this chapter revealed that acres grown and acres leased were significantly related to yields per acre. Producers growing more acres and producers leasing additional acres had higher yields per acre. The author speculates that more of the larger producers are full-time farmers and are more efficient than the smaller acreage, part-time farmers.

Eight of the 25 field production practices studied were significantly related to yield. Producers taking soil samples, and producers fertilizing their tobacco land by soil tests had higher yields per acre. Producers using black shank susceptible varieties had higher yields per acre. This is not surprising since most producers indicated black shank was not present on their farm. Producers topping most of their tobacco in the button and early flower stages and utilizing a contact material or a combination of contact and systemic materials for sucker control reported higher yields per acre. Producers harvesting their tobacco crop when less than half the crop was ripe had lower yields per acre.

CHAPTER V

RELATIONSHIPS BETWEEN PRODUCER CHARACTERISTICS, THEIR USE OF RECOMMENDED PRODUCTION AND MARKETING PRACTICES, YIELDS PER ACRE AND TOTAL EXTENSION CONTACTS

The purposes of this chapter are to present findings regarding the relationships between producer characteristics, their use of recommended production and marketing practices, yields per acre and total Extension contacts.

Study findings are presented in two sections. Section 1 summarizes findings regarding relationships between producer characteristics and the number of contacts producers had with Extension. Section 2 summarizes findings regarding the number of contacts producers had with Extension and their use of recommended production and marketing practices, and the number of contacts producers had with Extension and yields per acre.

Extension contacts are categorized into three groups, including not any, 1 to 5, and 6 or more. These contacts include number of tobacco meetings attended, number of telephone calls and visits made to the Extension office, and the number of farm visits made by Extension agents. Results of cross tabulations and the chi square test are summarized. The 0.05 probability level was used to determine the significance of relationships.

1. RELATIONSHIPS BETWEEN PRODUCER CHARACTERISTICS AND THE NUMBER OF CONTACTS PRODUCERS HAD WITH EXTENSION

Presented in this section are findings regarding relationships between selected producer characteristics and the total number of contacts producers had with Extension during the 12-month period prior to this study. Selected producer characteristics include age of producer, education of producer, and employment of producer (Table 4).

Age of Producer

The chi square test determined there was not a significant relationship between the age of the producers and the number of contacts producers had with Extension. Five percent of producers 60 years of age and over had 6 or more Extension contacts during the previous 12 months, compared to 19 percent of producers under 43 years of age and 24 percent of producers from 43 to 58 years of age.

Education of Producer

The chi square analysis indicated there was not a significant relationship at the 0.05 probability level between the education of the producers and the number of contacts producers had with Extension. However, there was a tendency for those producers with more education to have more Extension contacts. Thirty-one percent of producers with some college education had 6 or more contacts with Extension, compared to 17 percent of producers with a high school education or less and 18 percent of producers with college degrees.

TABLE 4. Relationships Between Producer Characteristics and the Number of Contacts Producers Had With Extension

Producer Characteristics	Extension Contacts						
	None		1 to 5		6 or more		Total
	N	%	N	%	N	%	
Age of Producer							
Under 43	10	17.5	36	63.2	11	19.3	57 100
43 to 59	5	13.5	23	62.2	9	24.3	37 100
60 and over	4	18.2	17	77.3	1	4.5	22 100
	$\chi^2 = 3.922$		$p = 0.417$		$df = 4$		
Education of producer							
High school or less	15	18.1	54	65.1	14	16.9	83 100
Some college	1	6.3	10	62.5	5	31.3	16 100
College graduate	3	17.6	11	64.7	3	17.6	17 100
	$\chi^2 = 2.659$		$p = 0.616$		$df = 4$		
Employment of producer							
Full-time farm	4	5.4	52	70.3	18	24.3	74 100
Part-time job off farm	8	40.0	9	45.0	3	15.0	20 100
Full-time job off farm	4	25.0	11	68.8	1	6.3	16 100
Retired	3	50.0	3	50.0	-	-	6 100
Other	-	-	1	100.0	-	-	1 100
	$\chi^2 = 23.421$		$p = 0.003$		$df = 8$		

Employment of Producer

The chi square test determined this relationship to be significant at the 0.05 probability level. Producers employed full-time on the farm had more Extension contacts than producers employed part-time off the farm, full-time off the farm, retired, or reporting other employment. Only 5 percent of producers employed full-time on the farm reported no Extension contacts, while percentages of producers in other employment categories having no Extension contacts ranged from 25 to 50 percent.

Table Summary

The number of contacts dark fired tobacco producers had with Extension was not significantly related to the age or education of producers. A significant relationship was indicated between the employment of producers and the number of contacts they had with Extension. Producers employed full-time on the farm had more Extension contacts than did producers in other employment categories.

2. RELATIONSHIPS BETWEEN THE NUMBER OF CONTACTS PRODUCERS HAD WITH EXTENSION, AND PRODUCER USE OF RECOMMENDED PRODUCTION AND MARKETING PRACTICES AND YIELDS PER ACRE

This section presents findings regarding the relationships between the number of contacts producers had with Extension and producer use of recommended production and marketing practices and yields per acre. Production practices include selected plant bed and field production practices.

Summary of data regarding these relationships are found in Table 5. Findings are divided into four subsections: (1) plant bed practices, (2) field practices, (3) marketing practices, and (4) yields per acre.

Extension Contacts and Plant Bed Practice Use

This subsection summarizes findings regarding relationships between Extension contacts and practice use. Practices studied include weed control, used 50 to 75 pounds 4-16-8 fertilizer or equivalent, use insect control, and disease control.

Weed control. Practices studied include method used, chemical used for weed control before seeding, when chemical applied, and Enide used for clover control.

Method used. The chi square test determined there was not a significant relationship between the number of contacts producers had with Extension and the weed control method used. However, there was a tendency for producers with more Extension contacts to use chemical weed control in the plant bed. One hundred percent of producers with 6 or more Extension contacts used chemical weed control in the plant bed, while 90 percent of producers with no Extension contacts used chemical weed control.

Chemical used for weed control before seeding. The chi square test indicated there was not a significant relationship between the number of contacts producers had with Extension and the

TABLE 5. Relationships Between the Number of Contacts Producers Had With Extension, and Producer Use of Recommended Production and Marketing Practices and Yields Per Acre

Practice	Extension Contacts						x ²	p
	Not Any		One-Five		Six-Over			
	N	%	N	%	N	%		
<u>Plant Bed Practices</u>								
Weed Control								
Method used								
Chemical	17	89.5	66	88.0	22	100.0		
Burned	2	10.5	9	12.0				
TOTAL	19	100.0	75	100.0	22	100.0	2.882	0.237
Chemical used for weed control before seeding								
Methyl bromide	17	94.4	63	91.3	21	95.6		
Other	1	5.6	6	8.7	1	4.5		
TOTAL	18	100.0	69	100.0	22	100.0	0.523	0.770
When chemical applied								
Fall	7	36.8	36	50.7	11	50.0		
Spring	12	63.2	35	49.3	11	50.0		
TOTAL	19	100.0	71	100.0	22	100.0	1.189	0.552
Enide used for clover control								
No	13	68.4	42	56.0	6	28.6		
Yes	6	31.6	33	44.0	15	71.4		
TOTAL	19	100.0	75	100.0	21	100.0	7.116	0.029
Used 50 to 75 pounds 4-16-8 fertilizer or equivalent								
No	3	15.8	9	12.3				
Yes	16	84.2	64	87.7	21	100.0		
TOTAL	19	100.0	73	100.0	21	100.0	3.255	0.196
Use insect control								
No	7	35.0	28	42.2	9	42.9		
Yes	13	65.0	38	57.6	12	57.1		
TOTAL	20	100.0	66	100.0	21	100.0	0.382	0.826
Disease control								
Use Ridomil to control blue mold								
No	10	50.0	32	47.1	2	9.1		
Yes	10	50.0	36	52.9	20	90.9		
TOTAL	20	100.0	68	100.0	22	100.0	11.003	0.004
Treat for other diseases								
No	19	100.0	64	90.1	14	66.7		
Yes	-	-	7	9.9	7	33.3		
TOTAL	19	100.0	71	100.0	21	100.0	11.411	0.003
<u>Field Practices</u>								
Primary variety grown								
Broad Leaf Madole	10	76.9	26	52.0	10	62.5		
Black Mammoth	3	23.1	8	16.0	3	18.8		
DF-300	-	-	8	16.0	1	6.3		
DF-911	-	-	8	16.0	2	12.5		
TOTAL	13	100.0	50	100.0	16	100.0	6.338	0.368

TABLE 5 (Continued)

Practice	Extension Contacts						x ²	p
	Not Any		One-Five		Six-Over			
	N	%	N	%	N	%		
Percent tobacco land in permanent sod within last 3 years								
0	6	30.0	31	40.8	3	13.6		
1 to 75	3	15.0	8	10.5	3	13.6		
100	11	55.0	37	48.7	16	72.7		
TOTAL	20	100.0	76	100.0	22	100.0	5.978	0.201
Fertilization								
Take soil sample								
No	11	55.0	38	50.0	3	13.6		
Yes	9	45.0	38	50.0	19	86.4		
TOTAL	20	100.0	76	100.0	22	100.0	10.321	0.006
Percent tobacco land fertilized by soil test								
Not any	12	60.0	36	48.0	4	18.2		
50 to 75	3	15.0	1	1.3				
All to 100	5	25.0	38	50.7	18	81.8		
TOTAL	20	100.0	75	100.0	22	100.0	20.842	0.0003
Percent tobacco land limed by soil test								
Not any	12	63.2	43	57.3	6	27.3		
25 to 50	1	5.3	1	1.3	1	4.5		
All to 100	6	31.6	31	41.3	15	68.2		
TOTAL	19	100.0	75	100.0	22	100.0	8.339	0.080
Pounds nitrogen applied per acre								
150 lbs. or less	9	45.0	14	18.4	1	4.5		
160 to 200 lbs.	8	40.0	47	61.8	15	68.2		
210 lbs. and over	3	15.0	15	19.7	6	27.3		
TOTAL	20	100.0	76	100.0	22	100.0	11.261	0.024
Weed control								
Methods used								
Cultivation	5	25.0	9	11.8	1	4.5		
Chemical	2	10.0	7	9.2				
Both	13	65.0	60	78.9	21	95.5		
TOTAL	20	100.0	76	100.0	22	100.0	6.884	0.142
Used Paarlán for weed control								
No	14	77.8	51	81.0	13	86.7		
Yes	4	22.2	12	19.0	2	13.3		
TOTAL	18	100.0	63	100.0	15	100.0	0.435	0.805
Used Prowl for weed control								
No	11	57.9	29	41.4	2	10.0		
Yes	8	42.1	41	58.6	18	90.0		
TOTAL	19	100.0	70	100.0	20	100.0	10.129	0.006

TABLE 5 (Continued)

Practice	Extension Contacts								x ²	p
	Not Any		One-Five		Six-Over					
	N	%	N	%	N	%				
Used Devrinol for weed control										
No	16	100.0	59	95.2	11	61.1				
Yes	-	-	3	4.8	7	38.9				
TOTAL	16	100.0	61	100.0	18	100.0	19.565	0.001		
Used Enide for weed control										
No	12	75.0	46	76.7	13	86.7				
Yes	4	25.0	14	23.3	2	13.3				
TOTAL	16	100.0	60	100.0	15	100.0	0.803	0.669		
Herbicides used in combination										
No	11	68.8	54	90.0	11	64.7				
Yes	5	31.3	6	10.0	6	35.3				
TOTAL	16	100.0	60	100.0	17	100.0	7.850	0.020		
Soil treated for soil insects										
No	12	63.2	47	67.1	10	45.5				
Yes	7	36.8	23	32.9	12	54.5				
TOTAL	19	100.0	70	100.0	22	100.0	3.357	0.187		
Foliage insect control										
Spray for foliage insects										
No	2	10.5	2	2.7						
Yes	17	89.5	73	97.3	22	100.0				
TOTAL	19	100.0	75	100.0	22	100.0	3.782	0.151		
Scout field before spraying										
No	4	21.1	23	32.9	6	28.6				
Yes	15	78.9	47	67.1	15	71.4				
TOTAL	19	100.0	70	100.0	21	100.0	1.017	0.601		
Apply soil treatment for foliage insects										
No	13	65.0	37	48.7	7	31.8				
Yes	7	35.0	39	51.3	15	68.2				
TOTAL	20	100.0	76	100.0	22	100.0	4.631	0.099		
Insecticide applied in transplant water										
No	9	47.4	41	54.7	9	40.9				
Yes	10	52.6	34	45.3	13	59.1				
TOTAL	19	100.0	75	100.0	22	100.0	1.399	0.497		
Material applied in transplant water										
Orthene	6	54.5	13	39.4						
Vydate	3	27.3	17	51.5	13	100.0				
Diazinon	2	18.2	3	9.1						
TOTAL	11	100.0	33	100.0	13	100.0	14.431	0.006		

TABLE 5 (Continued)

Practice	Not Any		Extension Contacts				x ²	p
	N	%	One-Five		Six-Over			
			N	%	N	%		
Diseases								
Use Ridomil to control blue mold								
No	12	66.7	40	57.1	7	31.8		
Yes	6	33.3	30	42.9	15	68.2		
TOTAL	18	100.0	70	100.0	22	100.0	5.786	0.055
Black shank present on farm								
No	17	85.0	44	58.7	8	36.4		
Yes	3	15.0	31	41.3	14	63.4		
TOTAL	20	100.0	75	100.0	22	100.0	10.251	0.006
Black shank resistant variety used								
No	7	46.7	35	58.3	20	90.9		
Yes	8	53.3	25	41.7	2	9.1		
TOTAL	15	100.0	60	100.0	22	100.0	9.696	0.008
Topping and suckering								
Stage most tobacco topped								
Button	5	25.0	26	34.2	7	31.8		
Early flower	13	65.0	42	55.3	12	54.5		
Later	2	10.0	8	10.5	3	13.6		
TOTAL	20	100.0	76	100.0	22	100.0	0.879	0.928
Sucker control method used								
Contact	9	45.0	30	39.5	5	22.7		
Systemic	4	20.0	9	11.8	2	9.1		
Contact and systemic	6	30.0	32	42.1	15	68.2		
Hand suckered	1	5.0	5	6.5				
TOTAL	20	100.0	76	100.0	22	100.0	8.003	0.238
Harvesting								
Days from topping to cutting								
26 days or less	2	10.0	12	15.8	7	31.8		
27 to 35 days	13	65.0	49	64.5	12	54.5		
36 days and over	5	25.0	15	19.7	3	13.6		
TOTAL	20	100.0	76	100.0	22	100.0	4.274	0.370
Percent tobacco ripe when cut								
10 to 50	4	21.1	14	18.4	3	13.6		
60 to 85	9	47.4	33	43.4	10	45.5		
90 and over	6	31.6	29	38.2	9	40.9		
TOTAL	19	100.0	76	100.0	22	100.0	0.652	0.957
Tobacco allowed to wilt before handling								
No	1	5.0	1	1.3	1	4.5		
Yes	19	95.0	74	98.7	21	95.5		
TOTAL	20	100.0	75	100.0	22	100.0	1.275	0.529

TABLE 5 (Continued)

Practice	Extension Contacts						χ^2	p
	Not Any		One-Five		Six-Over			
	N	%	N	%	N	%		
Scaffold tobacco before handling								
No	2	10.0	5	6.7	3	13.6		
Yes	18	90.0	70	93.3	19	86.4		
TOTAL	20	100.0	75	100.0	22	100.0	1.122	0.571
Tobacco housed 8 to 12 inches apart								
No	4	20.0	9	12.0	4	18.2		
Yes	16	80.0	66	88.0	18	81.8		
TOTAL	20	100.0	75	100.0	22	100.0	1.105	0.576
<u>Marketing Practices</u>								
Number of grades made								
1	1	5.0						
2	6	30.0	16	21.3	2	9.1		
3	10	50.0	48	64.0	15	68.2		
4	2	10.0	10	13.3	5	22.7		
5	1	5.0	1	1.3				
TOTAL	20	100.0	75	100.0	22	100.0	10.872	0.209
Percent tobacco hand tied								
Not any	2	10.0	9	11.8	2	9.1		
40 or less	1	5.0	11	14.5	4	18.2		
80 to 100	17	85.0	56	73.7	16	72.7		
TOTAL	20	100.0	76	100.0	22	100.0	1.909	0.753
Sold while in barn								
No	8	42.1	23	30.3	3	13.6		
Yes	11	57.9	53	69.7	19	86.4		
TOTAL	19	100.0	76	100.0	22	100.0	4.161	0.125
Yields per acre								
Under 1,500 pounds	7	35.0	23	30.3	8	36.4		
1,500 to 1,999 pounds	11	55.0	35	46.1	6	27.3		
2,000 pounds and over	2	10.0	18	23.7	8	36.4		
TOTAL	20	100.0	76	100.0	22	100.0	5.343	0.254

chemical used for weed control before seeding in the plant bed. Ninety-six percent of producers with 6 or more Extension contacts used methyl bromide for plant bed weed control compared to 91 percent of producers with 1 to 5 Extension contacts.

When chemical applied. The chi square test determined there was not a significant relationship at the 0.05 probability level between the number of contacts producers had with Extension and when chemical weed control was applied. However, a higher percent of producers reporting Extension contacts tend to apply chemical weed control in the Fall. Thirty-seven percent of producers having no Extension contacts during the previous 12 months applied their chemical weed control to the plant bed in the Fall, while 50 percent of producers reporting 6 or more Extension contacts applied chemical weed control in the Fall.

Enide used for clover control. The chi square test revealed a significant relationship between the number of contacts producers had with Extension and producer use of Enide for clover control. The percent of producers using Enide increased as the number of Extension contacts increased. Thirty-two percent of tobacco producers having no Extension contacts during the previous 12 months used Enide for clover control in the plant bed, while 71 percent of producers with 6 or more Extension contacts used Enide.

Used 50 to 75 pounds 4-16-8 fertilizer or equivalent. The chi square test revealed there was not a significant relationship

at the 0.05 probability level between the number of contacts producers had with Extension and producer use of 50 to 75 pounds of 4-16-8 fertilizer or its equivalent. However, there was a tendency for producers with more Extension contacts to use 50 to 75 pounds of 4-16-8 fertilizer or its equivalent. One hundred percent of producers reporting 6 or more Extension contacts used 50 to 75 pounds of 4-16-8 fertilizer or its equivalent on the plant bed, while only 84 percent of producers reporting no Extension contacts used the recommended amount of fertilizer.

Use insect control. The chi square test determined there was not a significant relationship between the number of contacts producers had with Extension and the use of insect control in the plant bed. Sixty-five percent of producers reporting no Extension contacts used insect control, while 57 percent of producers with 6 or more Extension contacts used insect control.

Disease control. Practices studied include use Ridomil to control blue mold and treat for other diseases.

Use Ridomil to control blue mold. The chi square test determined the relationship between the number of contacts producers had with Extension and producer use of Ridomil significant at the 0.05 probability level. The percent of producers using Ridomil to control blue mold in the plant bed increased as the number of contacts producers had with Extension increased. Ninety-one percent

of producers with 6 or more Extension contacts used Ridomil to control blue mold, compared to 50 percent of producers with no Extension contacts.

Treat for other diseases. The chi square test determined a significant relationship between the number of contacts producers had with Extension and treatment for other diseases in the plant bed. The percent of producers treating for other diseases in the plant bed increased as the number of Extension contacts increased. Thirty-three percent of producers reporting 6 or more Extension contacts treated for other diseases in the plant bed, while none of the producers reporting no Extension contacts treated for other diseases. Other plant bed diseases include angular leaf spot, anthrachrose, damping-off, etc.

Extension Contacts and Field Practice Use

This subsection summarizes findings regarding Extension contacts and practice use. Practices include primary variety grown, percent tobacco land in permanent sod within last 3 years, fertilization, weed control, soil treated for soil insects, foliage insect control, diseases, topping and suckering, harvesting, and tobacco housed 8 to 12 inches apart on tiers.

Primary variety grown. The chi square test revealed there was not a significant relationship between the number of contacts producers had with Extension and the primary variety grown. Seventy-seven percent of tobacco producers reporting no Extension contacts

grew primarily Broad Leaf Madole, while 52 percent of producers with 1 to 5 contacts grew primarily Broad Leaf Madole.

Percent tobacco land in permanent sod within last 3 years.

The chi square test indicated there was not a significant relationship between the number of contacts producers had with Extension and the percent of tobacco land in permanent sod within the last 3 years. Seventy-three percent of producers reporting 6 or more contacts with Extension had 100 percent of their tobacco land in permanent sod within the last 3 years, while 49 percent of producers with 1 to 5 Extension contacts had 100 percent of their tobacco land in permanent sod within the last 3 years.

Fertilization. Practices studied include take soil sample, percent tobacco land fertilized by soil test, percent tobacco land limed by soil test, and pounds nitrogen applied per acre.

Take soil sample. The chi square test determined a significant relationship between the number of Extension contacts and the percent of producers taking soil samples. The percent of producers taking soil samples increased as the number of Extension contacts increased. Survey of these data indicated 86 percent of the producers having 6 or more Extension contacts took soil samples, compared to 45 percent of producers with no Extension contacts.

Percent tobacco land fertilized by soil test. The chi square test determined a very significant relationship between the number of contacts producers had with Extension and the percent

tobacco land fertilized by soil test results. The percent of producers fertilizing all of their tobacco land by soil test increased as the number of Extension contacts increased. Analysis of these data revealed 82 percent of producers with 6 or more contacts fertilized 100 percent of their tobacco land by soil test, while only 25 percent of producers reporting no Extension contacts fertilized all of their tobacco land by soil test.

Percent tobacco land limed by soil test. The chi square test determined there was not a significant relationship at the 0.05 probability level between the number of contacts producers had with Extension and the percent tobacco land limed by soil test. These data indicated 68 percent of producers reporting 6 or more Extension contacts limed 100 percent of their tobacco land by soil test, while 32 percent of producers with no Extension contacts reported liming 100 percent of their tobacco land by soil test results.

Pounds nitrogen applied per acre. The chi square test indicated a significant relationship between the number of contacts producers had with Extension and the pounds nitrogen applied per acre. The percentage of producers applying 160 pounds or more nitrogen per acre increased as the number of Extension contacts increased. These data revealed 68 percent of producers with 6 or more Extension contacts applied 160 to 200 pounds nitrogen per acre, while 40 percent of producers with no Extension contacts applied nitrogen at the same rate.

Weed control. Practices studied include methods used, used Paarlan for weed control, used Prowl for weed control, used Devrinol for weed control, used Enide for weed control and herbicides used in combination.

Methods used. The chi square test determined there was not a significant relationship at the 0.05 probability level between the number of contacts producers had with Extension and weed control methods used. However, there was a tendency for the percent of producers using both cultivation and chemical weed control methods increase as the number of Extension contacts increased. Examination of these data indicated 96 percent of producers with 6 or more Extension contacts used cultivation and chemical methods to control weeds, compared to 65 percent of producers reporting no Extension contacts.

Used Paarlan for weed control. The chi square test determined there was not a significant relationship between the number of contacts producers had with Extension and the use of Paarlan for weed control. However, there was a tendency for the percent of producers using Paarlan to decrease as Extension contacts increased. These data in Table 5 show 22 percent of the producers reporting no Extension contacts used Paarlan for weed control, compared to 13 percent of producers with 6 or more contacts.

Used Prowl for weed control. The chi square test indicated a significant relationship was determined between the number

of contacts producers had with Extension and the use of Prowl for weed control. The percent of producers using Prowl for weed control increased as the number of Extension contacts increased. These data indicated 90 percent of producers having 6 or more contacts with Extension used Prowl for weed control, while only 42 percent of producers with no Extension contacts used Prowl.

Used Devrinol for weed control. The chi square test determined the relationship between the number of contacts producers had with Extension and the use of Devrinol for weed control to be significant. The percent of producers using Devrinol increased as the number of Extension contacts increased. Thirty-nine percent of producers with 6 or more Extension contacts used Devrinol for weed control, compared to 5 percent of producers reporting 1 to 5 Extension contacts.

Used Enide for weed control. The chi square test determined the relationship between the number of contacts producers had with Extension and the use of Enide for weed control not to be significant. Twenty-five percent of producers with no Extension contacts used Enide for weed control, compared to 13 percent of producers with 6 or more contacts.

Herbicides used in combination. The chi square test showed a significant relationship between the number of contacts producers had with Extension and their use of herbicides in combination. However, the direction of the relationship is not clear due

to the numbers involved. Ninety percent of producers reporting 1 to 5 Extension contacts did not use herbicides in combination, while 65 percent of producers with 6 or more contacts did not use herbicides in combination.

Soil treated for soil insects. The chi square test determined there was not a significant relationship between the number of contacts producers had with Extension and the treatment of soil for soil insects. Fifty-five percent of producers having 6 or more contacts with Extension treated their soil for soil insects, compared to 33 percent of producers reporting 1 to 5 Extension contacts.

Foliage insect control. Practices studied include spray for foliage insects, scout field before spraying, apply soil treatment for foliage insects, insecticide applied in transplant water, and material applied in transplant water.

Spray for foliage insects. The chi square test indicated there was not a significant relationship between the number of contacts producers had with Extension and their spraying tobacco for foliage insects. One hundred percent of producers reporting 6 or more contacts with Extension sprayed their tobacco for foliage insects, while 90 percent of producers with no Extension contacts sprayed for insects.

Scout field before spraying. The chi square test indicated the relationship between the number of contacts producers

had with Extension and scouting their fields before spraying not significant. Seventy-nine percent of producers reporting no Extension contacts scouted their tobacco fields before spraying, compared to 67 percent of producers with 1 to 5 contacts scouting before spraying.

Apply soil treatment for foliage insects. The chi square test determined the relationship between the number of contacts producers had with Extension and the application of a soil treatment for foliage insects not significant at the 0.05 probability level. However, there was a tendency for the percent of producers applying soil treatment for foliage insects to increase as the number of Extension contacts increased. Sixty-eight percent of producers with 6 or more Extension contacts applied soil treatment for foliage insects, while 35 percent of producers having no Extension contacts followed the practice.

Insecticide applied in transplant water. The chi square test determined the relationship between the number of contacts producers had with Extension and the application of an insecticide in the transplant water not significant. Fifty-nine percent of producers having 6 or more Extension contacts applied insecticide in the transplant water, compared to 45 percent of producers with 1 to 5 contacts and 53 percent of producers reporting no Extension contacts.

Material applied in transplant water. The chi square test determined a significant relationship between the number of

contacts producers had with Extension and the material used in the transplant water. The percent of producers using Vydate in the transplant water increased as the number of Extension contacts increased. One hundred percent of producers reporting 6 or more contacts with Extension used Vydate in the transplant water, compared to 27 percent of producers with no contacts using Vydate.

Diseases. Practices studied include use Ridomil to control blue mold, black shank present on farm, and black shank resistant variety used.

Use Ridomil to control blue mold. The chi square test determined there was not a significant relationship at the 0.05 probability level between the number of contacts producers had with Extension and use of Ridomil to control blue mold. However, there was a tendency for the percent of producers using Ridomil to control blue mold to increase as the number of Extension contacts increased. Sixty-eight percent of producers having 6 or more Extension contacts used Ridomil to control blue mold, compared to 33 percent of producers reporting no Extension contacts using Ridomil for blue mold control.

Black shank present on farm. The chi square test determined a significant relationship between the number of contacts producers had with Extension and the presence of black shank present on the farm. The percent of producers reporting black shank present on their farms increased as the number of Extension contacts increased.

Sixty-three percent of producers reporting 6 or more Extension contacts had black shank present on their farm, while 15 percent of producers with no contacts reported black shank present.

Black shank resistant variety used. The chi square test determined the relationship between the number of contacts producers had with Extension and the use of a black shank resistant variety to be significant at the 0.05 level. The percent of producers using a black shank resistant variety decreased as the number of Extension contacts increased. Fifty-three percent of producers with no Extension contacts used a black shank resistant variety, compared to 9 percent of producers with 6 or more contacts.

Topping and suckering. Practices studied include stage most tobacco topped and sucker control method used.

Stage most tobacco topped. The chi square test indicated there was not a significant relationship between the number of contacts producers had with Extension and the stage most tobacco was topped. Ninety percent of the producers reporting no Extension contacts topped their tobacco in the button or early flower stages, compared to 86 percent of producers with 6 or more contacts.

Sucker control method used. The chi square test determined the relationship between the number of contacts producers had with Extension and the sucker control methods used not significant at the 0.05 probability level. However, there was a tendency for

the percent of producers using both contact and systemic sucker control to increase as the number of Extension contacts increased. Sixty-eight percent of producers having 6 or more contacts with Extension used contact and systemic sucker control methods, compared to 30 percent of producers with no Extension contacts using both methods.

Harvesting. Practices studied include days from topping to cutting, percent tobacco ripe when cut, tobacco allowed to wilt before handling, and scaffold tobacco before housing.

Days from topping to cutting. The chi square test determined there was not a significant relationship between the number of contacts producers had with Extension and the number of days from topping to cutting. There was a tendency, however, for the percent of producers cutting tobacco 36 days or more after topping to decrease as the number of Extension contacts increased. Twenty-five percent of producers with no Extension contacts cut their tobacco 36 days or more after topping compared to 14 percent of producers with 6 or more Extension contacts.

Percent tobacco ripe when cut. The chi square test indicated the relationship between the number of contacts producers had with Extension and the percent tobacco ripe when cut not significant at the 0.05 level. However, there was a tendency for the percent tobacco ripe when cut to increase as the number of contacts producers had with Extension increased. Forty-one percent of producers

having 6 or more Extension contacts cut their tobacco when 90 percent or more of the crop was ripe, compared to 32 percent of producers with no Extension contacts.

Tobacco allowed to wilt before handling. The chi square test indicated there was not a significant relationship between the number of contacts producers had with Extension and producers allowing tobacco to wilt before handling. Ninety-nine percent of producers with 1 to 5 Extension contacts allowed tobacco to wilt before handling, while 95 percent of producers with no Extension contacts allowed tobacco to wilt.

Scaffold tobacco before housing. The chi square test determined there was not a significant relationship between the number of contacts producers had with Extension and placing tobacco on scaffolds before housing. Ninety-three percent of producers with 1 to 5 Extension contacts did scaffold tobacco before housing, compared to 86 percent of producers with 6 or more Extension contacts.

Tobacco housed 8 to 12 inches apart on tiers. The chi square test indicated there was not significant relationship between the number of contacts producers had with Extension and housing tobacco 8 to 12 inches apart on tiers. Eighty-eight percent of producers reporting 1 to 5 Extension contacts housed tobacco 8 to 12 inches apart on tiers, while 80 percent of producers with no Extension contacts housed tobacco in this manner.

Extension Contacts and Marketing Practices

This subsection presents findings regarding the number and grades made, percent tobacco hand-tied, and whether the crop was sold while in barn.

Number of grades made. The chi square test determined the relationship between the number of contacts producers had with Extension and the number of grades made not to be significant at the 0.05 probability level. Sixty-eight percent of the producers having 6 or more contacts with Extension made 3 grades of tobacco, while 50 percent of producers reporting no Extension contacts made 3 grades.

Percent tobacco hand tied. The chi square test determined there was not a significant relationship between the number of contacts producers had with Extension and the percent tobacco hand tied. Eighty-five percent of producers reporting no Extension contacts hand tied 80 percent or more of their crop compared to 73 percent of producers with 6 or more Extension contacts.

Sold while in the barn. The chi square test indicated the relationship between the number of contacts producers had with Extension and the selling of the crop while in the barn not to be significantly related. However, there was a tendency for the percent of producers selling their crop in the barn to increase as the number of Extension contacts increased. Eighty-six percent of producers having 6 or more Extension contacts sold their tobacco while it was in the barn, while 58 percent of producers with no Extension contacts did the same.

Extension Contacts and Yields Per Acre

The chi square test indicated there was not a significant relationship between the number of contacts producers had with Extension and tobacco yields per acre. Thirty-six percent of producers with 6 or more Extension contacts averaged 2,000 pounds of tobacco per acre or more compared to 10 percent of producers reporting no Extension contacts.

Table Summary

Significant relationships existed between the number of contacts producers had with Extension and the use of selected plant bed practices, field practices, marketing practices, and yields per acre.

Plant bed practices significantly related to the number of contacts producers had with Extension were the use of Enide for clover control, Ridomil for blue mold control, and treatment for other diseases. As the number of Extension contacts increased, the percent of producers using Enide for clover control increased, the percent using Ridomil to control blue mold increased, and the percent treating plant beds for other diseases also increased.

Field practices significantly related to the number of contacts producers had with Extension were take soil sample, percent tobacco land fertilized by soil test, pounds nitrogen applied per acre, used Prowl for weed control, used Devrinol for weed control, herbicides used in combination, material applied in transplant water, black shank present on farm, and black shank resistant variety used.

As the number of Extension contacts increased, the percent of producers taking soil samples increased, the percent of tobacco land fertilized by soil test increased, and the percent producers applying 160 pounds or more of nitrogen per acre increased. The percent of producers using Prowl increased as the number of Extension contacts increased, and the same was true with Devrinol. The number of contacts producers had with Extension was significantly related to the use of herbicides in combination. However, the direction of the relationship was not clear. The use of Vydate in the transplant water increased as the number of Extension contacts increased. The percent of producers reporting black shank present on their farm increased as the number of Extension contacts increased, while use of a black shank resistant variety decreased as contacts increased. None of the marketing practices or yields per acre were significantly related to the number of contacts producers had with Extension.

Although not significantly related, several tendencies were revealed upon further analysis of the findings presented in this section. There was a tendency for producers having more Extension contacts to use chemical weed control in the plant bed and to apply the chemical in the Fall. Producers with more contacts tended to use 50 to 75 pounds 4-16-8 fertilizer or its equivalent in the plant bed. Producers with more Extension contacts tended to use both cultivation and chemical weed control methods, and also decrease use of Paarlan. Producers with more Extension contacts tended to apply a soil treatment for foliage insects and use Ridomil for blue mold

control. The percent of producers using both contact and systemic sucker control tended to increase as the number of Extension contacts increased. The percent of producers cutting tobacco 36 days or more after topping tended to decrease as Extension contacts increased, and the percent tobacco ripe when cut tended to increase as Extension contacts increased. In marketing their crop, there was a tendency for producers having more Extension contacts to sell their crop while in the barn.

CHAPTER VI

SUMMARY OF MAJOR FINDINGS

1. PURPOSE AND SPECIFIC OBJECTIVES

Purpose

The purpose of this study was to characterize dark fired tobacco producers, their farm operations, their use of recommended production practices, and the number of contacts producers had with Extension.

Specific Objectives

The specific objectives were:

1. To characterize dark fired tobacco producers and their farm operations, and the number and types of contacts producers had with Extension.
2. To determine the extent that dark fired tobacco producers used recommended production and marketing practices.
3. To determine the relationships between farm characteristics and producer use of recommended production practices, and yields per acre of dark fired tobacco.
4. To determine the relationship between dark fired tobacco producer characteristics and the number of contacts producers had with Extension.
5. To determine the relationships between the number of contacts dark fired tobacco producers had with Extension, and producer use of recommended production and marketing practices and yields per acre.

2. METHODS OF INVESTIGATION

Population and Sample Studied

The population for this study consisted of 118 dark fired tobacco producers in 6 Tennessee counties. County Extension Agents conducted the interviews using the 1983 Tennessee Dark Fired Tobacco Survey as the survey instrument. The Nth number technique was used by each Extension Agent to identify the dark fired tobacco producers to be interviewed. The number of producers surveyed per county was varied according to the number of acres grown in the county. The number of producers surveyed included 25 from Robertson County, 25 from Montgomery County, 19 from Dickson County, 19 from Henry County, 15 from Weakley County, and 15 from Houston County.

Survey Instrument

The interview schedule was developed by Extension Specialists at The University of Tennessee, Knoxville. The instrument consisted of five main parts, including: (1) general information, (2) plant bed practices, (3) field practices, (4) personal information about the producer, and (5) information regarding the type and number of contacts the producer had with Extension during the previous 12 months. Questions related to recommended production practices were included in the plant bed practices and field practices sections. Practices surveyed included variety grown, weed control, fertilization, insect control, disease control, topping and suckering, harvesting, and marketing practices.

Interview Technique

Personal interviews were scheduled between the County Extension Agent and dark fired tobacco producers in each participating county in order to complete the 1983 Tennessee Dark Fired Tobacco Survey. The interviews were conducted in the Fall of 1983.

Methods of Analysis

Following the completion of survey interviews, the survey instruments were returned to the Agricultural Extension Education department at the University of Tennessee for analysis. Descriptive statistics were used to summarize the data. These included frequencies, means, and ranges. The Chi Square Statistical test was used to determine relationships between various dependent and independent variables. The 0.05 probability level was used to determine the significance of the relationships.

3. FINDINGS

The findings of the data presented in this study are organized according to the study objectives and the tables presented in earlier chapters.

Characteristics of Tennessee Dark Fired Tobacco Producers

Findings in this section are divided into 3 subsections including: (1) producer characteristics, (2) farm characteristics, and (3) Extension contacts.

Producer characteristics. Almost half the producers surveyed in 1983 were under 43 years old. Their average age was 44 years, with a range of 75 years. Seven out of 10 growers surveyed had a high school education or less, and almost two-thirds (63 percent) of them were full-time farmers.

Farm characteristics. More than one-fourth (29 percent) of the producers surveyed grew more than 6 acres of dark fired tobacco in 1983. Some 59 percent of the growers leased additional acreage for dark fired tobacco production, leasing an average of 3 acres with a range of 47 acres. Almost half of those surveyed (44 percent) reported yields between 1,500 and 1,970 pounds. The average yield was 1,703 pounds per acre, with a range of 2,200 pounds.

Extension contacts. Sixty-three percent of those surveyed had attended no tobacco meetings in the 12 months prior to the study. The average dark fired producer attended less than 1 tobacco meeting, with a range of 5 meetings being reported. Growers made an average of 3 visits to the County Extension office, with a range of 25 visits being indicated. The average producer made 3 telephone calls to the County Extension office, with a range of 25. Growers received an average of just over 1 farm visit from their Extension Agent, with a range of 12 visits reported. The average number of contacts between dark fired growers and Extension was 7, with a range of 52 total contacts.

Dark Fired Tobacco Producer Use of Recommended

Production and Marketing Practices

Findings summarized in this section are organized into 3 sub-sections including plant bed practices, field practices, and marketing practices.

Plant bed practices. Almost all (89 percent) dark fired tobacco producers surveyed in 1983 using chemical weed control prior to seeding the plant bed. The primary chemical used was methyl bromide. About half the producers applied the chemical in the Fall, with the other half applying the chemical in the Spring. More than half (52 percent) of the producers did not use Enide for clover control. Most producers (86 percent) used the recommended amount of fertilizer. More than half the producers used 2 teaspoons seed per 9 x 100 ft. bed, and most beds were sown in March. Most producers (53 percent) used insect control, and 56 percent used Ridomil to control blue mold.

Field practices. Broad Leaf Madole was the primary variety grown by almost 40 percent of the producers. Most producers (54 percent) reported 100 percent of their tobacco land had been in permanent sod within the last 3 years. More than half the growers surveyed (56 percent) took soil samples. Fifty-two percent fertilized 100 percent of their tobacco land by soil test, while less than half (44 percent) limed all their tobacco land by soil test. Most producers (59 percent) applied the recommended rate of nitrogen per acre, and more than half the producers (55 percent) applied some

nitrogen as a side dressing. Most tobacco (62 percent) was transplanted in May, and more than three-fourths of the producers used a combination of cultivation and chemicals to control weeds. Almost 60 percent of the producers surveyed used Prowl for weed control. Just over one-third of the producers treated the soil for soil insects, while 52 percent of the producers treated the soil for foliage insect control. Forty-eight percent of producers applied the soil insecticide in the transplant water. Almost all producers (95 percent) sprayed their tobacco for foliage insects, with about half the producers using Orthene. More than half the producers (65 percent) scouted their fields before spraying. More than two-thirds of the producers reported no major disease problem. Forty-three percent of the producers used Ridomil to control blue mold. Almost 41 percent of producers indicated black shank present on their farm, but less than a third of producers used a black shank resistant variety. Almost all producers (89 percent) topped their tobacco in the button or early flower stages. More than a third of producers used a contact material for sucker control, and almost half (45 percent) used a combination of contact and systemic materials for sucker control. Almost two-thirds of the producers cut their tobacco 27 to 35 days after topping, with the average being 32 days. Most of the tobacco was ripe when cut. Ninety-seven percent of producers allowed their tobacco to wilt before handling, and more than 90 percent of producers placed their tobacco on scaffolds before housing. Almost 85 percent of producers housed their crop 8 to 12 inches apart on tiers.

Marketing practices. The average dark fired tobacco producer surveyed made 3 grades of tobacco, with the range in the study being 4 grades. Seventy-five percent of producers hand tied between 80 and 100 percent of their tobacco, and 11 percent of the producers hand tied none. More than two-thirds of the producers (70 percent) in the 1983 survey sold their tobacco while it was in the barn.

Relationships Between Farm Characteristics, Producer Use
of Recommended Production Practices and Yields Per Acre
of Dark Fired Tobacco

Findings in this section are divided into 2 subsections including: (1) farm characteristics and yields per acre, and (2) field practices and yields per acre.

Farm characteristics and yields per acre. Producers growing more acres of dark fired tobacco and producers leasing additional acreage had significantly higher yields per acre than producers growing smaller acreage and not leasing additional acres.

Field practices and yields per acre. Producers taking soil samples and producers fertilizing their tobacco land by soil tests had higher yields per acre than producers not taking soil samples and those not fertilizing by soil tests. Producers not using black shank resistant varieties had higher yields per acre than producers growing black shank resistant varieties. Producers topping most of their tobacco in the button and early flower stages had higher yields per acre than producers topping tobacco in later stages of maturity.

Producers utilizing contact materials or a combination of contact and systemic materials for sucker control had higher yields per acre than producers using only systemic materials or hand suckering methods. Producers cutting their tobacco when more than half the crop was ripe had higher yields per acre than producers harvesting when less than half the crop was ripe.

Relationships Between Producer Characteristics, Their Use of Recommended Production Practices and Marketing Practices, Yields Per Acre, and Total Extension Contacts

Findings in this section are divided into 2 subsections, including: (1) relationships between producer characteristics and the number of contacts producers had with Extension, and (2) relationships between the number of contacts producers had with Extension, and producer use of recommended production and marketing practices and yields per acre.

Relationships between producer characteristics and the number of contacts producers had with Extension. Producer characteristics included in this section were age, education and employment. Producers employed full-time on the farm had more Extension contacts than producers employed part-time off the farm, full-time off the farm, retired, or reporting other employment.

Relationships between the number of contacts producers had with Extension, and producer use of recommended production and marketing practices and yields per acre. Analysis of data summarized in this

section determined the significance of relationships between the number of Extension contacts and producer use of selected plant bed practices, field practices, marketing practices and yields per acre.

Significant relationships were revealed in 3 of the 8 plant bed practices studied. As the number of Extension contacts increased, the percent of producers using Enide for clover control increased, the percent using Ridomil to control blue mold increased, and the percent treating plant beds for the other diseases increased.

Nine significant relationships were indicated between the number of Extension contacts and 29 field production practices studied. The percent of producers taking soil samples, the percent tobacco land fertilized by soil test, and the percent producers applying 160 pounds or more of nitrogen per acre increased as the number of Extension contacts increased. The percent of producers using Prowl increased as Extension contacts increased, and the same was true with Devrinol. A significant relationship was found between the number of Extension contacts and the use of herbicides in combination. The use of Vydate in the transplant water increased as the number of Extension contacts increased. The percent of producers reporting black shank present on their farm increased as Extension contacts increased, while use of a black shank resistant variety decreased as contacts increased.

None of the marketing practices studied or yields per acre were significantly related to the number of contacts producers had with Extension. However, several tendencies were indicated between

the number of Extension contacts and selected production and marketing practices.

4. IMPLICATIONS AND RECOMMENDATIONS

Analysis of the data indicated that 17 percent of producers reported no Extension contacts during the 12 months prior to the study. Positive relationships were found between the use of selected recommended practices and the number of contacts producers had with Extension. Implications are that Extension Agents could increase the use of recommended practices by increasing the number of contacts with dark fired tobacco producers.

The data indicated 63 percent of the producers surveyed were employed full-time on the farm. These full-time producers reported more Extension contacts than did those employed part-time off the farm, full-time off the farm, retired, or having other employment. Since the data indicate a significant relationship between the number of contacts producers had with Extension and producers use of selected recommended practices, it is implied that part-time producers are using fewer practices and thus need to receive more contacts from Extension Agents. Extension Agents should formulate plans and set goals to reach more part-time producers. Educational programs may be presented at times which encourage part-time producer participation. The use of newsletters, newspaper articles, and radio programs may also increase the number of Extension contacts with part-time producers, increase adoption of recommended practices, and help the part-time producer increase his/her production efficiency.

Those producers growing 5 acres or more of dark fired tobacco and those leasing additional acreage for tobacco production had higher yields per acre than the smaller producers and those leasing no additional acres. Perhaps the smaller producers may not be as efficient in their production. Extension Agents should attempt to target the smaller producers and encourage adoption of recommended practices in an effort to help these producers increase yields and become more efficient.

The data indicated one-third of the producers surveyed grew varieties other than those recommended by Extension. This indicates a need for recommended varieties to meet the needs of the growers. Research for improved varieties should continue in order to meet these needs.

Dark fired tobacco producers taking soil samples had higher yields per acre than those not taking soil samples. Analysis of data also indicated the percent of producers taking soil samples increased as the number of Extension contacts increased. The implications are that producers taking soil samples are more likely to use recommended fertilization practices, and the number of soil samples taken by producers increase as Extension contacts increase. Extension should increase its contact with dark tobacco growers and encourage the adoption of this practice in an effort to increase yields.

Producers who fertilized their tobacco land by soil test had above average yields per acre. Also, the percent of tobacco land fertilized by soil test increased as the number of contacts producers

had with Extension increased. It is implied that Extension Agents need to increase contacts with producers and continue to emphasize the importance of fertilizing by soil test as a means to increase yields and improve production efficiency.

Fifty-two percent of producers surveyed did not lime any of their tobacco land by soil test recommendation. Research has indicated the importance of liming according to soil tests as a means of maintaining proper soil pH and increasing yields. The data in this study imply that many producers are not following this recommendation. Extension Agents should increase contacts with producers and encourage adoption of this practice in an effort to increase production efficiency and yields per acre.

Some 20 percent of producers surveyed used 150 pounds or less of nitrogen per acre, while another 20 percent applied 210 pounds or more per acre. The data also indicated the percent of producers following the recommendation of applying 160 to 200 pounds of nitrogen per acre increased as the number of Extension contacts increased. Extension Agents may increase the percent producers using the recommended rate of nitrogen per acre by increasing the number of contacts with dark fired growers.

Thirty-four percent of the tobacco land of producers surveyed had not been in permanent sod within the last 3 years. The importance of this practice has been demonstrated through research as it aids in disease control and increases the water holding capacity of soil. Extension Agents should encourage producers to follow this practice.

The data indicated 41 percent of producers had black shank on their farms, yet only 30 percent of those surveyed used a black shank resistant variety of tobacco. Along with other management practices, producers may increase yields per acre by utilizing a black shank resistant variety of tobacco in an area where the disease is present. Extension Agents should continue to explore available management options with growers for tobacco production in black shank infested areas.

The data indicated producers topping their tobacco later than the button or early flower stages had lower yields per acre. The significance of this relationship implies the importance of topping in the button or early flower stages. This is supported by previous research findings and Extension Agents need to emphasize to producers the importance of topping their tobacco at the proper time to maximize yields.

Ninety-one percent of producers cutting their tobacco when 50 percent or less of the crop was ripe reported below average yields per acre. This implies that as the percent of tobacco ripe when cut increases, yield per acre will increase. Since 16 percent of producers surveyed fell into this category, Extension Agents should encourage producers to become more efficient in their production by cutting their tobacco when ripe.

5. RECOMMENDATIONS FOR FURTHER STUDY

1. As long as dark fired tobacco production maintains its importance to Tennessee agriculture and the individual counties

involved, similar studies should be made periodically to determine the characteristics of dark fired tobacco producers, their farming operations, their use of recommended production and marketing practices, and the relationships between these characteristics and the number and type of Extension contacts.

2. Further studies should survey a higher population of dark fired tobacco producers, and should more closely represent the scope of production in the counties designated.

3. A further study to compare characteristics, recommended practice adoption, and Extension contacts of Eastern dark fired producers with Western dark fired producers.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Arnett, Melvin Haskel. "Influence of Selected Factors on Numbers of Office Visits and Telephone Calls Made to the Wilson County Extension Office, Lebanon, Tennessee." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1973.
2. Bradley, John Franks. "Relationships Between Characteristics of Cotton Producers, Their Production Operations and Their Use of Management Practices and the Number of Contacts They Had With Extension." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1980.
3. Freeman, Pat Perkins. "Relationships Between Characteristics of Grade A Dairy Producers, Their Farming Operation and Their Use of Management Practices and the Number of Contacts They Had With Extension." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1978.
4. Iven, E. F. "Tobacco Production Practices and Net Returns Per Acre from Burley Tobacco in Anderson County, Tennessee." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1964.
5. Jenkins, Jamieson H. "Relationship Between Selected Characteristics of Soybean Producers and Their Management Practices and Participation in the Extension Program in Fayette County, Tennessee." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1977.
6. Johnson, Ronald B. "Relationships Between Characteristics of Corn Producers, Their Farming Operations and Their Use of Recommended Production Practices and the Number of Contacts They Had With Extension in 1979." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1982.
7. Lowe, Nathan J. "A Study of the Production Practice of Burley Tobacco Growers in Williamson County." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1962.
8. McCallie, Paul Thomas. "Relationship Between Characteristics of Wheat Producers, Their Farming Operations and Their Use of Recommended Production Practices and the Number of Contacts They Had With Extension in 1982." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1985.

9. Perry, James DeWayne. "Relationships Between Characteristics of Tennessee Swine Producers, Number of Contacts They Had With County Agricultural Extension Agents, and Numbers of Recommended Swine Production Practices Adopted." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1980.
10. Robinson, Roger Dale. "Characteristics of Tennessee Burley Tobacco Producers and Relationships Between Selected Production Practices and Extension Contact Variables." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1981.
11. Rutter, Floyd David. "Relationships Between Characteristics of Beef Producers, Their Production Operations and Their Use of Management Practices, and the Number of Contacts They Had With Extension." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1982.
12. Tennessee Department of Agriculture--Tennessee Crop Reporting Service. Tennessee Agricultural Statistics 1984 Annual Bulletin, Bulletin T-21, 1984.
13. The University of Tennessee Agricultural Extension Service Publication 899. "Dark Tobacco Production in Tennessee." Knoxville, Tennessee, 1980.
14. Turner, Glenn Kevin. "Relationships Between Burley Tobacco Marketing Practice Use and Tennessee Producers' Personal and Farm Characteristics and Their Contacts With County Extension Agents." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1985.
15. Webster, W. Clyde. "Development of an Extension Approach to Teaching Recommended Production Practices to Burley Tobacco Producers in Trousdale County, Tennessee." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1964.
16. Yabaya, Solomon Ahyuwa. "Relationships Between the Frequency of Contacts Corn Producers in Tennessee Had With County Extension Agents and Their Adoption of Eight Corn Production Practices." Unpublished Master's Thesis. The University of Tennessee, Knoxville, 1978.

1983 Dark Fired Tobacco Survey*
(See Instructions on Last Page)Card No. 1
(1)County
(2) (3) (4)Respondent No. 0 0
(5) (6)

A. General Information (1983 crop)

1. Total acres grown on this farm? (acres)
(7) (8)
2. Total acres leased? (acres)
(9) (10)
3. Yield per acre? (pounds)
(11) (12) (13) (14)

B. Plant Beds (1983 crop)

1. Weed control (plant bed)
 - a. Method used?* (1 = chemical; 2 = burned; 3 = other; 9 = DNA)
(15)
 - b. Chemicals used before seeding? (1 = Methyl Bromide; 2 = other; 9 = DNA)
(16)
 - c. When applied? (1 = Fall; 2 = Spring; 9 = DNA)
(17)
 - d. How effective? (1 = not very effective; 2 = effective; 3 = very effective; 9 = DNA)
(18)
 - e. Did you use Enide after seeding where clover was a problem? (1 = no; 2 = yes)
(19)
 - f. How effective? (1 = not very effective; 2 = effective; 3 = very effective; 9 = DNA)
(20)
2. Fertilization (plant bed)
 - a. Used the equivalent of 50 to 75 pounds of 4-16-8 per 9 x 100 foot bed? (1 = no; 2 = yes)
(21)
 - b. Did the amount of fertilizer exceed the equivalent of 75 pounds of 4-16-8 per 9 x 100 foot bed? (1 = no; 2 = yes)
(22)
3. Seeding (plant bed)
 - a. Number of level teaspoons seed used per 9 x 100 foot bed? (actual number)
(23)
 - b. Month seeded? (1 = Feb.; 2 = March; 3 = April; 4 = other)
(24)
4. Type of plant bed cover used? (1 = Cotton; 2 = Nylon; 3 = Polyester; 4 = other)
(25)
5. Insects (plant bed)
 - a. Most severe insect problem? (1 = Flea Beetles; 2 = Aphids; 3 = Vegetable Weevil; 4 = Grub Worms; 5 = Cutworms; 6 = Slugs; 9 = no problem)
(26)
 - b. Did you spray or dust to control insects? (1 = no; 2 = yes)
(27)
 - c. Did you use an insect control? (1 = no; 2 = yes). If yes, insecticide used? (1 = Di-systom; 2 = Malathion; 3 = Orthene; 4 = Dylox; 5 = Diazinon; 6 = Sevin; 9 = DNA)
(29)
 - d. How effective? (1 = not very effective; 2 = effective; 3 = very effective; 9 = DNA)
(30)
6. Diseases (plant bed)
 - a. Most severe disease problem? (1 = Blue Mold; 2 = Anthracnose; 3 = Damping-off; 4 = Angular Leaf Spot; 5 = Wildfire; 6 = Mosaic; 7 = other; 9 = DNA)
(31)
 - b. Did you treat plant bed at seeding time with Ridomil to control Blue Mold? (1 = no; 2 = yes)
(32)
 - c. How effective? (1 = not very effective; 2 = effective; 3 = very effective; 9 = DNA)
(33)
 - d. Did you treat plant bed to control other diseases? (1 = no; 1 = yes)
(34)
 - e. How effective? (1 = not very effective; 2 = effective; 3 = very effective; 9 = DNA)
(35)

*Coding Instructions:

1. All entries are right justified.
2. Fill each blank column.
3. A zero (0) = none.
4. A nine (9) in each column = do not know, does not apply, or no response.

C. Field Practices (1983 crop)

1. Primary variety grown? _____ (1 = Broad Leaf Madole; 2 = Black Mammoth; 3 = DF-300; 4 = DF 911; 5 = other) (36)
2. Land selection (1983 crop)
 - a. Tobacco after grass? _____ (actual percent of tobacco land which was in permanent sod within past three (3) years) (37) (38) (39)
3. Fertilization (1983 crop)
 - a. Did you take a soil sample for this year's crop? _____ (1 = no; 2 = yes) (40)
 - b. Percent of tobacco land fertilized by soil test? _____ (actual percent) (41) (42) (43)
 - c. Percent of tobacco land limed by soil test? _____ (actual percent) (44) (45) (46)
 - d. Actual pounds of nitrogen (N) applied per acre? _____ (actual pounds N) (47) (48) (49)
 - e. Was part of the nitrogen applied as a side-dress? _____ (1 = no; 2 = yes) (50)
4. Transplanting to field
 - a. In what month did you set your tobacco? _____ (1 = April; 2 = May; 3 = June) (51)
5. Weed control in field
 - a. Method used? _____ (1 = cultivation; 2 = chemicals; 3 = both cultivation and chemicals) (52)
 - b. Major weed problem? _____ (1 = grasses; 2 = broadleaved weeds) (53)
 - c. Herbicides used? 1. Paraquat? _____ (1 = no; 2 = yes); 2. Prowl? _____ (1 = no; 2 = yes) (54) (55)
 3. Tillam? _____ (1 = no; 2 = yes); 4. Devrinol? _____ (1 = no; 2 = yes); 5. Enide? _____ (1 = no; 2 = yes); 6. Combination? _____ (1 = no; 2 = yes) (56) (57) (58) (59)
 - d. How effective was the herbicide? _____ (1 = not very effective; 2 = effective; 3 = very effective; 9 = DNA) (60)
6. Soil insects
 - a. Were soil insects a problem in 1983? _____ (1 = no; 2 = yes) (61)
 - b. If yes, which insect caused the greatest problem? _____ (1 = Cutworms; 2 = Grubworms; 3 = Wireworms; 4 = other; 9 = DNA) (62)
 - c. Did you treat the soil for insects? _____ (1 = no; 2 = yes) (63)
 - d. If treated, what did you use? _____ (1 = Lorsban; 2 = Diazinon; 3 = Di-syston 15G; 4 = Dyfonate; 5 = Mocap; 6 = Daanit 15G; 7 = other; 9 = DNA) (64)
 - e. How effective was the treatment? _____ (1 = not very effective; 2 = effective; 3 = very effective; 9 = DNA) (65)
7. Foliage insects
 - a. Foliar treatment
 1. Were foliage insects a problem in 1983? _____ (1 = no; 2 = yes) (66)
 2. If yes, major insect? _____ (1 = Aphids; 2 = Budworms; 3 = Flea Beetles; 4 = Grasshoppers; 5 = Japanese Beetles; 6 = Hornworms; 7 = Stink Bugs; 8 = Vegetable Weevil; 9 = DNA) (67)
 3. Did you spray for foliage insects? _____ (1 = no; 2 = yes) (68)
 4. If yes, insecticide used? _____ (1 = Orthene; 2 = Lannate or Nudrin; 3 = Thiodan; 4 = PennCap-M; 5 = Dylox/Proxol; 6 = Sevin; 7 = Supracide; 8 = Malathion; 9 = DNA) (69)
 5. How effective? _____ (1 = not very effective; 2 = effective; 3 = very effective) (70)
 6. Did you scout field before spraying? _____ (1 = no; 2 = yes) (71)
 - b. Soil treatment
 1. Did you apply a soil treatment for foliage insects in 1983? _____ (1 = no; 2 = yes) (72)
 2. If yes, what material did you apply? _____ (1 = Furadan; 2 = Di-syston; 9 = DNA) (73)
 3. How effective? _____ (1 = not very effective; 2 = effective; 3 = very effective) (74)
 4. Did you apply an insecticide in transplant water? _____ (1 = no; 2 = yes) (75)
 5. If yes, what material did you apply? _____ (1 = Orthene; 2 = Vydate; 3 = Diazinon; 9 = DNA) (76)

3

Card No. 2 County No. Respondent No. 0 0
 (1) (2) (3) (4) (5) (6)

8. Diseases

a. Major disease problem? (1 = Blue Mold; 2 = Black Shank; 3 = Black Root Rot; 4 =
 (7) Wildfire; 5 = Mosaic; 6 = Fusarium Wilt; 7 = Tobacco Vain Mottling Virus (TMV); 9 = DNA)

b. Did you have this disease on resistant varieties? (1 = no; 2 = yes)
 (8)

c. Did you use Ridomil to control Blue Mold? (1 = no; 2 = yes) 1. Rate per acre?
 (9) (1 = one (1) quart; 2 = two (2) quarts; 3 = three (3) quarts; 4 = four quarts;
 (10) 5 = more than 4 quarts; 9 = DNA)

d. Is Black Shank present on your farm? (1 = no; 2 = yes); 1. Did you use resistant
 (11) variety? (1 = no; 2 = yes); 2. Did you use 4 quarts of Ridomil per acre?
 (12) (13) (1 = no; 2 = yes; 9 = DNA)

D. 9. Topping and suckering

a. Stage when most of tobacco was topped? (1 = button; 2 = early flower; 3 = later)
 (14)

b. Sucker control method used? (1 = contact; 2 = systemic; 3 = contact plus
 (15) systemic; 4 = hand suckered)

c. How effective? (1 = not very effective; 2 = effective; 3 = very effective)
 (16)

10. Harvesting

a. Approximate number of days between topping and cutting? (days)
 (17) (18)

b. Method of cutting? (1 = split; 2 = spiked)
 (19)

c. Percent of tobacco ripe when cut? (percent)
 (20) (21) (22)

d. Harvesting method

1. After cutting, was tobacco allowed to wilt before handling? (1 = no; 2 = yes)
 (23)

2. After wilting, was tobacco placed on scaffold before housing? (1 = no; 2 =
 yes) (24)

3. Was tobacco piled before housing? (1 = no; 2 = yes)
 (25)

E. Housing

11. Was tobacco placed 8-12 inches apart on tier rails? (1 = no; 2 = yes)
 (26)

12. Was tobacco sold while still in your barn? (1 = no; 2 = yes)
 (27)

13. Preparation for market

a. Number of grades made of 1983 crop? (grades)
 (28)

b. Percent of tobacco hand tied? (percent)
 (29) (30) (31)

14. Percent of tobacco that house-burned? (percent)
 (32) (33) (34)

F. Information about farmer

1. Approximate age?
 (35) (36)

2. Approximate education? (1 = high school or less; 2 = some college; 3 = college
 graduate) (37)

3. Employment? (1 = full-time farm; 2 = part-time job off farm; 3 = full-time job off
 (38) farm; 4 = retired; 5 = other)

G. Extension contacts
 (NOTE: Agent and/or farmer should estimate the number of contacts the producer had with Ex-
 tension over the past 12-month)

1. Tobacco meetings attended? 3. Telephone calls to Extension office?
 (39) (42) (43)

2. Visits to Extension office? 4. Farm visits?
 (40) (41) (44) (45)

VITA

Robert G. Ary, Jr. was born October 27, 1952 in Huntsville, Alabama. He began his formal education in Nashville, Tennessee, and graduated from Murfreesboro Central High School in 1970.

He completed the requirements for a Bachelor of Science Degree in Agriculture from Middle Tennessee State University in 1978. He was also a member of the MTSU Block and Bridle Club.

He was employed as an Assistant Extension Agent in Bedford County, Tennessee on August 1, 1978. He transferred to Robertson County on November 1, 1982. He was promoted to Associate Extension Agent in 1986.

He is a member of the Tennessee Association of Extension 4-H Workers, the National Association of Extension 4-H Agents, the Tennessee Association of Agricultural Agents and Specialists, the National Association of County Agricultural Agents and the University of Tennessee National Alumni Association.

He is the oldest son of Robert and Charlene Ary of Midland, Tennessee. He is married to the former Judy Lynn Tillou of Hendersonville, Tennessee. They have two sons, Rob and Chad.