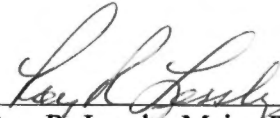


To the Graduate Council:

I am submitting herewith a thesis written by Michael Edward Barry entitled "Characteristics of White County, Tennessee Burley Tobacco Producers, Their Use of Selected Production Practices and Extension Contacts." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural and Extension Education.



Roy R. Lessly, Major Professor

We have read this thesis
and recommend its acceptance:




Accepted for the Council:



Associate Vice Chancellor and
Dean of The Graduate School

**CHARACTERISTICS OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO
PRODUCERS, THEIR USE OF SELECTED TOBACCO PRODUCTION
PRACTICES AND EXTENSION CONTACTS**

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Michael Edward Barry

May 1998

ACKNOWLEDGMENTS

The author wishes to express his sincere appreciation to his graduate committee chairman, Dr. Roy R. Lessly, for his guidance and encouragement during this study. Appreciation is also expressed to the other members of his graduate committee, Dr. Donald J. Fowlkes and Dr. John D. Todd, for their assistance and support in completing this thesis. Appreciation is also extended to Dr. Randol Waters for his assistance with data analysis.

Gratitude is expressed to Dr. D. M. Gossett, Vice-President for Agriculture, Institute of Agriculture; Dr. Charles Norman, Associate Dean, Agricultural Extension Service; and Dr. Rural Peace, District IV Supervisor, Agricultural Extension Service, The University of Tennessee, for granting time to complete graduate school.

Appreciation is also extended to Mr. Billy C. Adcock, White County Extension Agent, for his encouragement and assistance during this study. Gratitude is also extended to Ms. Cynthia McCall, Jackson County Extension Agent, for her assistance and direction for this study.

Loving appreciation is expressed to my wife, Gena, for her love, support, and understanding while in graduate school.

The author acknowledges the support and encouragement of his parents, Charles and Kay Barry, and his wife's parents, Levin and Rachel Billings, during the completion of this study.

ABSTRACT

The purpose of the study was to characterize White County, Tennessee burley tobacco producers, their personal and farm operation characteristics, number and types of contacts producers had with the Agricultural Extension Service, and their use of selected tobacco production practices.

The population for the study included all White County, Tennessee burley tobacco producers in 1997. The Nth number random sample technique was used to randomly select 85 burley tobacco producers to be included in the sample.

The survey instrument used in the study was developed by the researcher with the assistance of Agricultural Extension Service specialists from The University of Tennessee, Knoxville. The instrument consisted of five main parts, including: (1) general information; (2) transplant production; (3) field practices; (4) information about the farmer; and (5) the number and types of contacts producers had with the Agricultural Extension Service.

Personal interviews were scheduled between White County Extension Agents and White County burley tobacco producers in order to complete the 1997 White County, Tennessee Burley Tobacco Survey. The interviews were completed in the Fall of 1997 and returned to the Agricultural and Extension Education Department at the University of Tennessee, Knoxville for analysis in Fall 1997.

Following the completion of survey interviews, the survey instruments were

returned to the Agricultural and Extension Education Department at the University of Tennessee at Knoxville for analysis. Descriptive statistics were used to summarize the survey data. These include frequencies, means, medians, and modes. Because of the low number of tobacco producers surveyed, actual numbers and percentages were reported and no statistical tests were run to determine relationships between dependent and independent variables.

Major findings included the following:

1. Fifty-eight producers surveyed owned burley tobacco quota pounds which averaged 9527 pounds per producer.
2. Fifty-four producers surveyed leased in burley tobacco quota pounds which averaged 9419 pounds per producer.
3. Eighty-four producers grew an average of 5.4 acres of tobacco in 1997 and 45.2 percent of the producers grew 3.1 acres and more.
4. Seventy-one percent of the producers who produced tobacco transplants did so in conventional plant beds, and they accounted for 4 acres of plants per producer. Twenty-nine percent of the producers produced float system transplants, and they averaged 5.4 acres per producer.
5. A little more than eighty-five percent of the transplants purchased by White County tobacco producers were produced in float systems.
6. Twenty percent of the transplants purchased by White County tobacco producers were produced in another Tennessee County, compared to 57.1 percent that were produced in White County, and 22.9 percent produced in Kentucky.

7. Thirty-three percent of producers who took a soil sample did so every two years and less. The average soil sample frequency among all producers was 3.1 years.

8. Twenty-nine percent of White County producers topped their tobacco at the button to early flower stage. The average number of days between topping and cutting was 25 days among all producers.

9. The average age of White County, Tennessee burley tobacco producers surveyed was 48.5 years.

10. Seventy-seven percent of the producers reported having a high school degree or above.

11. Thirty-eight percent of the producers were full-time farmers.

12. Forty-eight percent of the producers reported one or more visits to the Agricultural Extension Service office, with an average of 1.1 visits among all producers.

13. Fifty-three percent of White County tobacco producers reported one or more telephone calls to the Agricultural Extension Service office, with an average of 1.8 calls among all producers.

14. Forty-eight percent of the producers reported receiving one or more farm visits from the County Extension Agent, with an average of 2 visits received among all producers.

15. The average total Agricultural Extension Service contacts among all producers was 5.9 contacts during the previous 12 month period.

TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND ITS SETTING.....	1
Need for the Study.....	1
Purpose and Objectives.....	3
Limitations of the Study.....	4
Methods and Procedures.....	4
Definition of Terms.....	5
II. REVIEW OF RELATED STUDIES.....	7
Personal and Farm Operation Characteristics of Tobacco Producers.....	7
Number and Type of Contacts Tobacco Producers had with the Agricultural Extension Service.....	9
Tobacco Producers' Use of Selected Tobacco Production Practices.....	11
III. CHARACTERISTICS OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS, THEIR FARM OPERATION, USE OF SELECTED PRODUCTION PRACTICES, AND AGRICULTURAL EXTENSION SERVICE CONTACTS.....	13
Farm Operation Characteristics of White County, Tennessee Burley Tobacco Producers.....	20
Transplant Production Practices of White County, Tennessee Burley Tobacco Producers.....	21
Field Practices of White County, Tennessee Burley Tobacco Producers.....	25
Personal Characteristics of White County, Tennessee Burley Tobacco Producers.....	30
Number and Type of Contacts White County, Tennessee Burley Tobacco Producers had with the Agricultural Extension Service.....	31
Chapter Summary.....	32

CHAPTER	PAGE
IV. RELATIONSHIPS BETWEEN SELECTED BURLEY TOBACCO PRODUCTION PRACTICES AND PERSONAL AND FARM OPERATION CHARACTERISTICS AND THE NUMBER OF TOTAL CONTACTS WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS HAD WITH THE AGRICULTURAL EXTENSION SERVICE.....	35
Relationships Between Selected Burley Tobacco Production Practices and the Number of Total Contacts White County, Tennessee Burley Tobacco Producers Had With the Agricultural Extension Service.....	37
Relationships Between Selected Personal and Farm Operation Characteristics of White County, Tennessee Burley Tobacco Producers and Their Total Number of Contacts With the Agricultural Extension Service.....	41
Relationships Between Selected Burley Tobacco Production Practices and the Age of White County, Tennessee Burley Tobacco Producers.....	44
Relationships Between Selected Burley Tobacco Production Practices and the Educational Level of White County, Tennessee Burley Tobacco Producers.....	48
Relationships Between Selected Burley Tobacco Production Practices and the Employment Status of White County, Tennessee Burley Tobacco Producers.....	53
Relationships Between Selected Burley Tobacco Production Practices and Operation Size of White County, Tennessee Burley Tobacco Producers.....	57
Chapter Summary.....	61
V. SUMMARY OF MAJOR FINDINGS.....	63
Purpose and Objectives.....	63
Methods and Procedures.....	64
Major Findings.....	65
Implications and Recommendations.....	73
Recommendations for Further Study.....	75
BIBLIOGRAPHY.....	76
APPENDIX.....	78
VITA.....	84

LIST OF TABLES

TABLE	PAGE
1. White County, Tennessee Burley Tobacco Producers Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts.....	14
2. Relationships Between Selected Burley Tobacco Production Practices and the Number of Total Contacts White County, Tennessee Burley Tobacco Producers Had With the Agricultural Extension Service.....	38
3. Relationships Between Selected Personal and Farm Operation Characteristics of White County, Tennessee Burley Tobacco Producers and Their Total Number of Contacts With the Agricultural Extension Service.....	42
4. Relationships Between Selected Burley Tobacco Production Practices and the Age of White County, Tennessee Burley Tobacco Producers.....	45
5. Relationships Between Selected Burley Tobacco Production Practices and the Educational Level of White County, Tennessee Burley Tobacco Producers.....	49
6. Relationships Between Selected Burley Tobacco Production Practices and the Employment Status of White County, Tennessee Burley Tobacco Producers.....	54
7. Relationships Between Selected Burley Tobacco Production Practices and Operation Size of White County, Tennessee Burley Tobacco Producers.....	58

CHAPTER I

THE PROBLEM AND ITS SETTING

Tennessee burley tobacco growers harvested 46,000 acres in 1996 with total production at 109 million pounds. Tobacco ranked as Tennessee's 3rd leading agricultural cash crop in 1996 generating 218 million dollars. In White County, producers harvested 750 acres of burley tobacco with total production at 1.4 million pounds in 1996 (5).*

Because tobacco production is such an important part of Tennessee and White County agriculture, it is essential that tobacco producers have research-verified information to help maintain efficient production. The mission of the University of Tennessee Agricultural Extension Service is to provide this information.

The study was done to help characterize White County, Tennessee burley tobacco producers and their personal and farm operation characteristics and to determine the influence of the number of contacts producers had with the Agricultural Extension Service upon the use of selected production practices.

I. NEED FOR THE STUDY

The Cooperative Extension Service charge is "to aid in diffusing among the people

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

of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same,” according to the Smith-Lever Act of 1914 (4). Furthermore, the Cooperative Extension Service is to assist people engaged in farming and homemaking to utilize more fully their own resources, and those available to them, in solving current problems and in meeting changing economic and social conditions. The Cooperative Extension Service is called ‘cooperative’, because it is funded by federal, state, and county governments.

Because tobacco production is such an integral part of Tennessee and White County farmers’ income, much agent time and contacts have been devoted to the dissemination of tobacco production information. Research-verified information is supplied to the general public and more specifically to tobacco producers through a variety of educational methods. These teaching methods include group meetings, farm visits, telephone calls, and office visits. County Extension Agents use these contacts to encourage producers to adopt and use recommended production practices.

The study was conducted to determine relationships between White County, Tennessee burley tobacco producers’ personal and farm operation characteristics and the number and types of contacts they had with the Agricultural Extension Service and their use of selected tobacco production practices.

The information presented from the study, when compared to earlier studies, can help County Extension Agents evaluate program progress and plan effective changes in educational programs and clientele contacts which would bring about increased use of selected recommended practices.

II. PURPOSE AND OBJECTIVES

The purpose of the study was to characterize White County, Tennessee burley tobacco producers, their personal and farm operation characteristics, number and types of contacts producers had with the Agricultural Extension Service, and their use of selected tobacco production practices.

Specific objectives are:

1. To characterize White County, Tennessee burley tobacco producers by age, education, employment status, acres grown, the number and types of contacts producers had with the Agricultural Extension Service, and their use of selected production practices.
2. To determine relationships between the number and type of contacts producers had with the Agricultural Extension Service and the use of selected tobacco production practices of White County, Tennessee burley tobacco producers.
3. To determine relationships between selected personal and farm operation characteristics of White County, Tennessee burley tobacco producers and the number and type of contacts producers had with the Agricultural Extension Service.
4. To determine relationships between selected personal and farm operation characteristics and the use of selected tobacco production practices of White County, Tennessee burley tobacco producers.

III. LIMITATIONS OF THE STUDY

Data for the study were provided from the 1997 White County Burley Tobacco Survey. The data was obtained by White County Extension Agents through personal interviews with burley tobacco producers. The study was limited to tobacco production information from the 1997 crop year from 85 White County, Tennessee burley tobacco producers.

IV. METHODS AND PROCEDURES

Population and Sample Studied

The population for the study included all White County, Tennessee burley tobacco producers in 1997. The Nth number random sample technique was used to randomly select 85 burley tobacco producers to be included in the sample.

Survey Instrument

The survey instrument used in the study was developed by the researcher with the assistance of Agricultural Extension Service specialists from The University of Tennessee, Knoxville. The instrument consisted of five main parts, including: (1) general information; (2) transplant production; (3) field practices; (4) information about the farmer; and (5) the number and types of contacts producers had with the Agricultural Extension Service.

Interview Technique

Personal interviews were scheduled between White County Extension Agents and

White County burley tobacco producers in order to complete the 1997 White County, Tennessee Burley Tobacco Survey. The interviews were completed in the Fall of 1997 and survey data were returned to the Agricultural and Extension Education Department at the University of Tennessee, Knoxville for analysis in Fall 1997.

Method of Analysis

Descriptive statistics were used to summarize the survey data. These include frequencies, means, medians, and modes. Because of the low number of tobacco producers surveyed, actual numbers and percentages were reported and no statistical tests were run to determine relationships between selected dependent and independent variables.

V. DEFINITION OF TERMS

1. Burley Tobacco Producer. Individual who obtains part of his/ her income from the production and sale of burley tobacco
2. County Extension Agent. A person who is employed by the Agricultural Extension Service to carry out the goals and objectives of the program
3. Extension Contacts. Refers to the number of tobacco meetings attended, number of office visits made to the Agricultural Extension Service office, telephone calls made to the Agricultural Extension Service office, number of farm visits received from County Extension Agents, and the total number of Agricultural Extension Service contacts burley tobacco producers reported having with Agricultural Extension Service over the previous 12 month period

4. 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

This chapter presents findings from previous studies that involved research related to the current study. Available studies were reviewed relating to: the personal and farm operation characteristics of tobacco producers, the number and type of Agricultural Extension Service contacts, and producers' use of selected tobacco production practices. All studies reported were conducted with tobacco producers in Tennessee. One study dealt with dark fired tobacco producers.

Section I presents findings related to the personal and farm operation characteristics of Tennessee tobacco producers.

Section II presents findings regarding the number and type of contacts tobacco producers had with the Agricultural Extension Service.

Section III presents findings related to tobacco producers' use of selected tobacco production practices.

I. PERSONAL AND FARM OPERATION CHARACTERISTICS OF TOBACCO PRODUCERS

This section presents findings from related studies concerning tobacco producers' age, education, employment status, and acres grown.

Age

Three studies reported findings relating to tobacco producers' age. A 1994

study of Tennessee burley tobacco producers by Cynthia McCall found the mean age of all burley producers was 48 years. Fifty-three percent of the producers were under the age of 50 years, while the other 47 percent were age 50 and over (2). A study of Tennessee dark fired tobacco producers by Robert Ary in 1986 found that the mean age of producers was 44 years (1). In another study of Tennessee burley tobacco producers in 1985, Glenn Turner found that the mean age of producers was 48 years (9).

Education

Three studies reported findings related to tobacco producers' education. In McCall's 1994 study, 76 percent of Tennessee burley tobacco producers had a high school education (2). Seventy percent of Tennessee dark fired tobacco producers had a high school education or less, 14 percent had completed some college, while another 14% were college graduates, according to Ary's 1986 study (1). Turner's study of burley tobacco producers in 1985 found that 70 percent had a high school education or less, 11 percent had some college, and 12 percent had completed college (9).

Employment Status

Three studies reported findings related to tobacco producers' employment status. McCall reported in a 1994 study that 51 percent of the tobacco producers surveyed farmed on a full-time basis (2). Ary's study of Tennessee dark fired tobacco producers in 1986 found that 63 percent of producers were full-time farmers, 17 percent were employed part-time off the farm, 14 percent were employed full-time off the farm, and 5 percent were retired (1). In a 1985 study of Tennessee burley tobacco producers, Glenn Turner found 47 percent derived all of their income from the farm, 19 percent were

employed part-time off the farm, 20 percent reported working full-time in addition to their work on the farm, and 8 percent of the producers were retired (9).

Acres Grown

Three studies reported findings related to tobacco acres grown by producers. Seventy-nine percent of Tennessee burley tobacco producers grew three acres or less, while 21 percent grew over three acres, and the mean acres per producer was 2.6 acres according to Cynthia McCall's 1994 study (2). Ary found in his 1986 study of Tennessee dark fired tobacco producers that 43 percent of the producers grew 3 or less acres, while the other 57 percent grew 4 or more acres (1). Turner's 1985 study of Tennessee burley tobacco producers reported that 79 percent grew three acres or less, while the other 21 percent grew four or more acres, and he reported 2.9 as the average tobacco acreage grown per producer (9).

II. NUMBER AND TYPE OF CONTACTS TOBACCO PRODUCERS HAD WITH THE AGRICULTURAL EXTENSION SERVICE

This section presents findings regarding the number and type of contacts tobacco producers had with the Agricultural Extension Service, including tobacco meetings attended, other Agricultural Extension Service meetings attended, visits made to the Agricultural Extension Service office, telephone calls made to the Agricultural Extension Service office, and farm visits received from County Extension Agent.

McCall's 1994 study showed that the majority (73 percent) of the surveyed tobacco producers reported one or more contacts with Agricultural Extension Service. Sixty-three percent of the producers received one or more farm visits from a County

Extension Agent, and 48 percent reported five or more total Agricultural Extension Service contacts during the past 12 months. In addition full-time tobacco producers reported more of all types of Agricultural Extension Service contacts than did part-time producers (2).

Robert Ary reported in his 1986 study that dark fired tobacco producers averaged 7.4 Agricultural Extension Service contacts during the 12-month period prior to the study. They attended 0.6 tobacco meetings, made 2.6 visits to the Agricultural Extension Service office, telephoned the Agricultural Extension Service office 2.8 times, and received 1.3 visits from the County Extension Agent during those 12 months. Seventeen percent of producers reported no Agricultural Extension Service contacts during the 12 months studied (1).

Turner's 1985 study concluded that Tennessee burley tobacco producers had averaged making 8.1 contacts per year with Agricultural Extension Service. They attended on the average 0.5 tobacco meetings, 1.1 other Agricultural Extension Service meetings, made 2.0 visits to the Agricultural Extension Service office, made 2.7 telephone calls to the Agricultural Extension Service office, and received 1.8 farm visits from County Extension Agents (9).

Roger Robinson's 1981 Tennessee burley tobacco study reported that producers who were using the recommended production, harvesting, and marketing practices reported a significantly larger number of contacts with County Extension Agents through meetings, office visits, telephone calls, and farm visits than those producers who were not using the recommended practices. This was not true for the practices of fertilizing and

liming according to soil test recommendations. Producers who felt they received the kind, amount, and quality of assistance they wanted from County Extension Agents reported making a significantly larger number of contacts with Agricultural Extension Service than those who were not satisfied with the help they received. All findings were at the .05 probability level (3).

III. TOBACCO PRODUCERS' USE OF SELECTED TOBACCO PRODUCTION PRACTICES

McCall's 1994 study of Tennessee burley tobacco producers found that approximately 54 percent of producers waited until full bloom to top their tobacco, and 63 percent allowed less than 28 days between topping and cutting. Forty-nine percent of the producers took soil samples every two years or less. The mean pounds of nitrogen per acre applied was 184 pounds (2).

Ary reported in his 1986 study of Tennessee dark fired tobacco producers that fifty-two percent of producers did not lime any of their tobacco land by soil test recommendations. Fifty-nine percent of producers applied nitrogen at the recommended rate per acre with a mean of 200 pounds per acre. Producers topping their tobacco in the button and early flower stages had higher yields per acre than those topping later than early flower. 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 (1).

Turner's 1985 study of Tennessee burley tobacco producers determined that 43 percent of the producers fertilized and limed tobacco land according to a soil test

recommendation. Thirty-one percent of the producers applied over 200 pounds of nitrogen per acre with a mean of 203 pounds per acre. Approximately 32 percent of producers waited until full bloom to top their tobacco, and 81 percent allowed less than 29 days between topping and cutting (9).

CHAPTER III

CHARACTERISTICS OF WHITE COUNTY, TENNESSEE

BURLEY TOBACCO PRODUCERS, THEIR FARM

OPERATION, USE OF SELECTED PRODUCTION

PRACTICES, AND AGRICULTURAL

EXTENSION SERVICE CONTACTS

The purpose of this chapter was to characterize White County, Tennessee burley tobacco producers, personal and farm operation characteristics, use of transplant production practices, use of field practices, and Agricultural Extension Service contacts. The findings presented in this chapter were organized into five sections. Section I presents findings regarding the farm operation characteristics of White County, Tennessee burley tobacco producers. Section II presents findings regarding the use of transplant production practices. Section III presents findings regarding the use of field practices. Section IV presents finding regarding the personal characteristics of White County, Tennessee burley tobacco producers. Section V presents findings regarding the number and type of contacts producers had with the Agricultural Extension Service during the past 12 months. Findings for each of these sections are found in Table 1.

TABLE 1. White County, Tennessee Burley Tobacco Producers Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts

Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts	Burley Tobacco Producers	
	Number	Valid Percent
FARM OPERATION CHARACTERISTICS		
Quota Pounds Owned		
3,200 pounds and less	29	50.0
3,201 pounds and more	29	50.0
Missing	27	Missing
Total	85	100.0
Statistics: Mean = 9526.6; Mode = 2500; Median = 3300 pounds		
Quota Pounds Leased In		
5,000 pounds and less	27	50.0
5,001 pounds and more	27	50.0
Missing	31	Missing
Total	85	100.0
Statistics: Mean = 9418.6; Mode = 5000; Median = 5100 pounds		
Acres Grown		
3 acres and less	46	54.8
3.1 acres and more	38	45.2
Missing	1	Missing
Total	85	100.0
Statistics: Mean = 5.4; Mode = .8; Median = 2.5 acres		
Tobacco Variety Grown*		
TN 86	23	22.1
TN 90	38	36.5
Clay 403	7	6.7
KY 14xL8	18	17.3
Other	18	17.3
TRANSPLANT PRODUCTION		
Transplants Produced on Farm by the Following Methods		
Direct seeded greenhouse	2	3.2
Direct seeded outdoor float beds	5	8.1
Plug and transfer float system	9	14.5
Purchased ready for floating (in trays)	2	3.2
Conventional bed	44	71.0
Missing	23	Missing
Total	85	100.0

TABLE 1. (Continued)

Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts	Burley Tobacco Producers	
	Number	Valid Percent
Transplants Produced on Farm *		
Sold	21	33.9
Planted	58	93.5
Transplants Purchased, Produced by the Following Methods		
Float systems	30	85.7
Conventional bed plants	5	14.3
Missing	50	Missing
Total	85	100.0
Transplants Purchased, Produced in		
White County	20	57.1
Another Tennessee County	7	20.0
Kentucky	8	22.9
Missing	50	Missing
Total	85	100.0
Styrofoam Float System Trays Disinfected		
No	10	58.8
Yes	7	41.2
Missing	68	Missing
Total	85	100.0
Size of Styrofoam Trays (number of cells per tray)		
200 cell	5	29.4
242 cell	9	52.9
253 cell	1	5.9
Multiple Sizes	2	11.8
Missing	68	Missing
Total	85	100.0
Soluble Salts Problems		
No	11	64.7
Yes	6	35.3
Missing	68	Missing
Total	85	100.0
Weather Damage		
None	6	35.3
Cold	9	52.9
Heat	2	11.8
Missing	68	Missing
Total	85	100.0

TABLE 1. (Continued)

Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts	Burley Tobacco Producers	
	Number	Valid Percent
Disease Problems *		
None	8	47.1
Damping off	6	35.3
Pythium root rot	5	29.4
Target spot	5	29.4
Other	1	5.9
Additional Heat Supplied		
No	11	64.7
Yes	6	35.3
Missing	68	Missing
Total	85	100.0
Additional Ventilation Supplied		
No	14	82.4
Yes	3	17.6
Missing	68	Missing
Total	85	100.0
FIELD PRACTICES		
Soil Sample Frequency		
2 years and less	28	33.3
3 years and more	43	51.2
Never	13	15.5
Missing	1	Missing
Total	85	100.0
Statistics: Mean = 3.1; Mode = 4; Median = 4 years		
Pounds Nitrogen Applied Per Acre		
200 pounds and less	20	23.8
201 to 300 pounds	38	45.2
301 pounds and more	26	31.0
Missing	1	Missing
Total	85	100.0
Statistics: Mean = 272.6; Mode = 300; Median = 290 pounds		
Tons of Lime Applied Per Acre		
1 ton	8	18.2
2 tons	27	61.4
3 tons and more	9	20.4
Missing	41	Missing
Total	85	100.0
Statistics: Mean = 2.3; Mode = 2; Median = 2 tons		

TABLE 1. (Continued)

Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts	Burley Tobacco Producers	
	Number	Valid Percent
Major Weed Problem		
Grass	45	53.6
Broadleaf	39	46.4
Missing	1	Missing
Total	85	100.0
Weed Control Method		
Cultivation only	35	41.7
Both cultivation and chemical	49	58.3
Missing	1	Missing
Total	85	100.0
Chemical Used for Weed Control *		
Devrinol	28	57.1
Prowl	39	79.6
Spartan	3	6.1
Command 3ME	2	4.1
Other	3	6.1
Blue Mold		
No	51	60.7
Yes	33	39.3
Missing	1	Missing
Total	85	100.0
Chemical Control Used for Blue Mold * #		
None	25	75.8
Ridomil	3	9.1
Dithane DF	1	3.0
Acrobat MZ	6	18.2
Other	3	9.1
Black Shank		
No	51	60.7
Yes	33	39.3
Missing	1	Missing
Total	85	100.0
Chemical Control Used for Black Shank #		
None	11	33.3
Ridomil	21	63.7
Other	1	3.0
Missing	52	Missing
Total	85	100.0

TABLE 1. (Continued)

Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts	Burley Tobacco Producers	
	Number	Valid Percent
Tomato Spotted Wilt Virus		
No	67	79.8
Yes	17	20.2
Missing	1	Missing
Total	85	100.0
Manganese Toxicity		
No	72	85.7
Yes	12	14.3
Missing	1	Missing
Total	85	100.0
Stage Tobacco Topped		
Button to early flower	24	28.6
Early flower to mid flower	41	48.8
Mid flower to full bloom	19	22.6
Missing	1	Missing
Total	85	100.0
Number of Days Between Topping and Cutting		
27 days and less	50	59.5
28 days and more	34	40.5
Missing	1	Missing
Total	85	100.0
Statistics: Mean = 25; Mode = 21; Median = 25 days		
PERSONAL CHARACTERISTICS		
Farmer's age		
40 years and less	28	32.9
41 to 59 years	33	38.9
60 years and more	24	28.2
Total	85	100.0
Statistics: Mean = 48.5; Mode = 36; Median = 48 years		
Farmer's Education		
Less than high school	20	23.5
High school graduate	48	56.5
Some college or college graduate	17	20.0
Total	85	100.0
Farmer's Employment		
Full-time farmer	32	37.6
Part-time farmer	53	62.4
Total	85	100.0

TABLE 1. (Continued)

Personal and Farm Operation Characteristics, Transplant Production and Field Practices, and Agricultural Extension Service Contacts	Burley Tobacco Producers	
	Number	Valid Percent
AGRICULTURAL EXTENSION SERVICE CONTACTS		
Tobacco Meetings Attended		
None	60	70.6
One or more	25	29.4
Total	85	100.0
Statistics: Mean = .5; Mode = 0; Median = 0 meetings		
Other Extension Meetings Attended		
None	56	65.9
One or more	29	34.1
Total	85	100.0
Statistics: Mean = .7; Mode = 0; Median = 0 meetings		
Visits to Extension Office		
None	44	51.8
One or more	41	48.2
Total	85	100.0
Statistics: Mean = 1.1; Mode = 0; Median = 0 visits		
Telephone Calls to Extension Office		
None	40	47.1
One or more	45	52.9
Total	85	100.0
Statistics: Mean = 1.8; Mode = 0; Median = 1 calls		
Farm Visits Received from Agent		
None	44	51.8
One or more	41	48.2
Total	85	100.0
Statistics: Mean = 2; Mode = 0; Median = 0 visits		
Total Extension Contacts		
None	23	27.0
One to four	27	31.8
Five or more	35	41.2
Total	85	100.0
Statistics: Mean = 5.9; Mode = 0; Median = 3 contacts		

only producers who responded yes were included

* total is not reported due to multiple responses given by producers

I. FARM OPERATION CHARACTERISTICS OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS

Presented in Section I are findings regarding farm operation characteristics as they relate to quota pounds owned, quota pounds leased in, quota pound leased out, acres grown, and variety grown. Frequencies and percentages are used to summarize the findings.

Quota Pounds Owned

Fifty-eight (68.2 percent) White County burley tobacco producers surveyed owned burley tobacco quota pounds. The average pounds owned among producers surveyed was 9526.6 pounds. Twenty-nine (50 percent) producers surveyed owned 3200 pounds and less. The other twenty-nine (50 percent) owned 3201 pounds and more.

Quota Pounds Leased In

Fifty-four (63.5 percent) tobacco producers surveyed leased in burley tobacco quota pounds. The average quota pounds leased in among the producers surveyed was 9418.6 pounds. Twenty-seven (50 percent) producers surveyed leased in 5000 pounds and less. The other twenty-seven (50 percent) producers surveyed leased in 5001 pounds and more.

Quota Pounds Leased Out

Among the tobacco producers surveyed, only one reported quota pounds leased out which was 2000 pounds.

Acres Grown

The average tobacco acres grown among White County burley tobacco producers

surveyed (84) in 1997 was 5.4 acres. Approximately 55 percent (46) of the producers grew 3 acres and less. The remaining 45.2 percent (38) of the producers surveyed grew 3.1 acres and more.

Tobacco Variety Grown

Twenty-three (22.1 percent) White County producers surveyed grew TN 86, which had a mean of 3.1 acres per producer. Thirty-eight (36.5 percent) producers surveyed grew TN 90, which had a mean of 3.7 acres per producer. Seven (6.7 percent) of the producers surveyed grew Clay 403, which had a mean of 19.6 acres per producer. Eighteen (17.3 percent) of the producers surveyed grew KY 14xL8, which had a mean of 3.2 acres per producer. Eighteen (17.3 percent) of the producers surveyed grew another variety. Varieties in the other category included Clay 501, Coop 543, R 610, KY 907, VA 509, R 141, Ms Burley 21xKY10, and KY 37xL8. Clay 501 had 1 producer with 1 acre. Coop 543 had 1 producer with .3 acre. Eight producers grew R 610 which had a mean of 2.3 acres per producer. KY 907 had 1 producer with 1.5 acres. Two producers grew VA 509 which had a mean of 7 acres per producer. Ms Burley 21xKY10 had 1 producer with .2 acre. R 141 had 1 producer with 1 acre. Three producers grew KY 37xL8 which had a mean of 3.5 acres per producer.

II. TRANSPLANT PRODUCTION PRACTICES OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS

Presented in Section II are findings regarding the use of selected transplant production practices of White County, Tennessee burley tobacco producers. Frequencies and percentages are used to summarize the findings.

Transplants Produced on Farm

Among the White County tobacco producers who produced transplants in 1997, 3.2 percent (2) produced an average of 21 acres of transplants by means of the direct seeded greenhouse method. The direct seeded outdoor float bed method was used by 8.1 percent (5) of the producers who grew an average of 5.2 acres of transplants. The plug and transfer float system was used by 14.5 percent (9) of the producers surveyed who averaged 2.7 acres of transplants. Transplants purchased ready for floating in trays was utilized by 3.2 percent (2) of the producers surveyed and accounted for an average of 2.2 acres of transplants per producer. The conventional bed method was used by 71 percent (44) of the producers surveyed and accounted for a mean of 4 acres of transplants per producer. Producers included in the survey may have utilized more than one method of production.

Among the White County producers who produced transplants on the farm, approximately 34 percent (21) sold an average of 3 acres of burley tobacco transplants. Approximately 94 percent (58) of the producers who produced transplants on the farm planted an average of 3.6 acres of the transplants they produced. The producers who sold and planted transplants added to more than 100.0 percent, since producers could respond to both.

Transplants Purchased

Among the transplants purchased by White County burley tobacco producers in 1997, 85.7 percent (30) of the producers purchased float system transplants. The float system transplants purchased had a mean of 7.6 acres of transplants. The remaining 14.3

percent (5) of White County producers purchased conventional bed plants. Conventional bed plants accounted for a mean of 2.3 acres of transplants per producer.

Approximately 57 percent (20) of the transplants that were purchased by White County producers were grown in White County. The mean acreage of transplants purchased in White County was 1.9 acres. Twenty percent (7) of producers purchased transplants grown in another Tennessee county, and these transplants accounted for a mean of 2.3 acres. Kentucky transplants were purchased by 22.9 percent (8) of the White County burley tobacco producers who purchased transplants and accounted for a mean of 23.4 acres.

Styrofoam Float Tray Disinfection

Approximately 59 percent (10) of White County tobacco producers who grew float system transplants used no disinfection on their styrofoam trays. The remaining 41.2 percent (7) of White County tobacco producers who grew float system transplants used some means of disinfection on their styrofoam trays. The bleach / water mixture of disinfection was used by 35.3 percent (6) of the producers, while methyl bromide fumigant accounted for the other 5.9 percent (1) of producers who used disinfection.

Styrofoam Float Tray Size

The 200 cell float tray was used by 29.4 percent (5) of the White County tobacco producers who grew float system transplants. The 242 cell float tray was used by 52.9 percent (9), and the 253 cell float tray was used by 5.9 percent (1). The remaining 11.8 percent (2) of producers used more than one size float tray.

Soluble Salts

Among the 17 White County tobacco producers surveyed who produced float system transplants, 64.7 percent (11) reported no problem with soluble salts. The remaining 35.3 percent (6) reported a problem with soluble salts levels in float systems.

Weather Damage

Approximately 53 percent (9) of the producers who produced float system transplants reported cold damage to their transplants. Heat damage was reported by 11.8 percent (2) of the producers, while the remaining 35.3 percent (6) of the producers responded to having no weather damage.

Disease Problems

Damping off was reported by 35.3 percent (6) of the White County burley tobacco producers who produced float system transplants. Pythium root rot was reported by 29.4 percent (5) of the producers. Target spot was reported by 29.4 percent (5) of the producers, while 5.9 percent (1) reported other disease problems, which included excess fertilization. The total percentage of producers exceeds 100.0, since producers could respond to more than one disease problem.

Heat Supplied

Approximately 65 percent (11) of the White County tobacco producers who grew float system transplants did not supply any additional heat to the system other than natural heat. The remaining 35.3 percent (6) supplied additional heat.

Ventilation Supplied

Approximately 82 percent (14) of White County tobacco producers who grew

float system transplants did not supply any additional ventilation to the system other than natural ventilation. The remaining 17.6 percent (3) supplied additional ventilation.

III. FIELD PRACTICES OF WHITE COUNTY, TENNESSEE

BURLEY TOBACCO PRODUCERS

Presented in Section III are findings regarding the use of selected field practices of White County, Tennessee burley tobacco producers. Frequencies and percentages are used to summarize the findings.

Soil Sample Frequency

A soil sample frequency of two years and less was reported by 33.3 percent (28) of the producers surveyed. Approximately 51 percent (43) of producers reported soil sample frequency of three years and more, while 15.5 percent (13) of the producers reported never taking soil samples. The mean soil sample frequency among all producers was 3.1 years.

The University of Tennessee Agricultural Extension Service recommends that soils which are to be used for high-value cash crops, such as tobacco and vegetables, should be analyzed annually for lime and fertilizer recommendations. However, the frequency of soil testing can vary depending upon cropping intensities, soil types, fertilization rates, tillage methods, weather conditions, and new research findings (6).

Pounds Nitrogen Applied Per Acre

Twenty (23.8 percent) tobacco producers reported applying 200 pounds or less of nitrogen per acre. Thirty-eight (45.2 percent) producers used 201 to 300 pounds of nitrogen per acre. The remaining twenty-six (31.0 percent) producers surveyed used 301

pounds and more nitrogen per acre. The average number of pounds of nitrogen applied per acre was 272.6 pounds.

The University of Tennessee Agricultural Extension Service recommends applying 150-200 pounds of nitrogen fertilizer annually for tobacco (7). However, the pounds of nitrogen applied per acre in 1997 may have been increased due to the weather conditions in White County in late Spring and early Summer. Excess moisture and unworkable field conditions for several weeks caused many producers who pre-applied nitrogen fertilizer early to reapply nitrogen before the crop was planted.

Tons of Lime Applied Per Acre

A little more than 18 percent (8) of the tobacco producers applied one ton of lime per acre, while 61.4 percent (27) applied two tons of lime per acre. The remaining 20.4 percent (9) of tobacco producers reported applying three tons or more lime per acre. The average number of tons of lime applied per acre was 2.3 tons.

According to The University of Tennessee Agricultural Extension Service, the desirable pH range for burley tobacco is 6.1-6.5. Tobacco soils need frequent liming to maintain these pH ranges (8).

Major Weed Problem

Approximately fifty-four percent (45) of White County tobacco producers reported that grass was the major weed problem, and the remaining 46.4 percent (39) of producers reported that some broadleaf weed was the major problem.

Weed Control Method

Approximately 42 percent (35) of producers reported that cultivation was the only

weed control method used. The remaining 58.3 percent (49) of producers reported that both cultivation and chemicals were used for weed control.

Chemical Used for Weed Control

Devrinol was used by 28 (57.1 percent) tobacco producers for weed control. Prowl was used by 39 (79.6 percent) tobacco producers for weed control. Spartan was used by 3 (6.1 percent) tobacco producers for weed control. Command 3ME was used by 2 (4.1 percent) tobacco producers for weed control. Three (6.1 percent) producers used another chemical for weed control. Included in the other category was Poast Plus, which was used by three producers. The producers who used chemicals for weed control added to more than 100.0 percent, since producers could respond to more than one chemical used.

Blue Mold

Fifty-one (60.7 percent) White County tobacco producers reported having no blue mold disease problem in 1997. The remaining thirty-three (39.3 percent) producers reported having blue mold in their tobacco.

Chemical Control Used for Blue Mold

Among the 33 producers who reported having blue mold, twenty-five (76 percent) reported using no chemical control for blue mold. Three (9.1 percent) producers who reported having blue mold used Ridomil for chemical blue mold control, while one (3.0 percent) producer used Dithane DF. Six (18.2 percent) tobacco producers who reported having blue mold used Acrobat MZ, and three (9.1 percent) producers used other chemicals for blue mold control. Chemicals in the other category included household

bleach. The producers who used chemicals for blue mold control added to more than 100.0 percent, since producers could respond to more than one chemical used.

Black Shank

Approximately 61 percent (51) of the producers reported they had no black shank disease problem in 1997. The remaining 39.3 percent (33) of the producers surveyed indicated they had a black shank problem.

The University of Tennessee Agricultural Extension Service recommends that producers should plant a black shank resistant variety and grow in rotation with grass crops, when black shank is present (8).

Chemical Control Used for Black Shank

Among the 33 White County burley tobacco producers who reported having black shank in 1997, 33.3 percent (11) reported using no chemical control for black shank. Approximately 64 percent (21) of tobacco producers who reported having black shank used Ridomil for chemical black shank control. The remaining 3 percent (1) of producers used other chemicals for black shank control. Chemicals in the other category included epsom salt and household bleach.

Tomato Spotted Wilt Virus

Approximately 80 percent (67) of White County tobacco producers reported no tomato spotted wilt virus in 1997. The remaining 20.2 percent (17) of the producers indicated having tomato spotted wilt virus in their tobacco in 1997.

Manganese Toxicity

Approximately 86 percent (72) of the White County producers surveyed in 1997

reported having no manganese toxicity problem in their tobacco. The remaining 14.3 percent (12) of the White County producers reported manganese toxicity in their tobacco in 1997.

Stage Tobacco Topped

Twenty-four (28.6 percent) tobacco producers indicated they topped their tobacco in the button to early flower stage, while forty-one (48.8 percent) producers reported they topped their tobacco in the early flower to mid flower stage. The remaining nineteen (22.6 percent) producers waited until the mid flower to full bloom stage to top their tobacco.

The University of Tennessee Agricultural Extension Service recommends topping burley when approximately one-third to one-half of the plants are in the elongated button to early flower stage to obtain highest yields (8).

Days Between Topping and Cutting

Fifty (59.5 percent) White County burley tobacco producers surveyed in 1997 allowed 27 days or less between topping and cutting their tobacco. The remaining thirty-four (40.5 percent) tobacco producers allowed 28 days or more between topping and cutting their tobacco. On the average White County burley tobacco producers waited 25 days between topping and cutting their tobacco.

The University of Tennessee Agricultural Extension Service recommends harvesting burley when it is ripe (middle leaves show distinct yellow tinge), and this generally occurs no earlier than 4 to 5 weeks after topping. This improves yield and quality (8).

IV. PERSONAL CHARACTERISTICS OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS

Presented in Section IV are findings related to personal characteristics with regard to farmer's age, farmer's education, and farmer's employment. Frequencies and percentages are used to summarize the findings.

Farmer's Age

The average age of White County burley tobacco producers surveyed was 48.5 years. Twenty-eight (32.9 percent) producers surveyed in 1997 were 40 years of age and less. Thirty-three (38.9 percent) producers were between the ages of 41 to 59 years. The remaining twenty-four (28.2 percent) tobacco producers were 60 years of age and older.

Farmer's Education

Among the White County burley tobacco producers surveyed, twenty (23.5 percent) had less than a high school education. Forty-eight (56.5 percent) producers were a high school graduate. The remaining 17 (20 percent) producers had completed some college or were a college graduate.

Farmer's Employment

Thirty-two (37.6 percent) tobacco producers surveyed reported they were a full-time farmer. The remaining fifty-three (62.4 percent) of producers indicated a part-time farm employment status.

V. NUMBER AND TYPE OF CONTACTS WHITE COUNTY,
TENNESSEE BURLEY TOBACCO PRODUCERS HAD
WITH THE AGRICULTURAL EXTENSION SERVICE

Section V presents findings regarding the number and type of contacts White County, Tennessee burley tobacco producers had with the Agricultural Extension Service. Agricultural Extension Service contacts used in this study were number of tobacco meetings producers attended, number of other Extension meetings producers attended, number of visits producers made to the Extension office, number of telephone calls producers made to the Extension office, number of farm visits producers received from a County Extension Agent, and total contacts producers had with the Agricultural Extension Service. Frequencies and percentages are used to summarize the findings.

Tobacco Meetings Attended

The average number of tobacco meetings attended by all producers was 0.5 meetings. Approximately 29 percent (25) of the producers attended one or more tobacco meetings, while 70.6 percent (60) attended no meetings.

Other Extension Meetings Attended

Approximately 34 percent (29) of the tobacco producers surveyed attended one or more other Extension meetings. The remaining 65.9 percent (56) of the tobacco producers surveyed attended no other Extension meetings. The average number of other Extension meetings producers attended was 0.7 meetings.

Visits to Extension Office

Forty-one (48.2 percent) tobacco producers made one or more visits to the

Extension office, while forty-four (51.8 percent) made no office visits. The average number of visits producers made to the Extension office was 1.1 visits.

Telephone Calls to Extension Office

Approximately 53 percent (45) of the tobacco producers surveyed made one or more telephone calls to the Extension office, while 47.1 percent (40) of the producers made no telephone calls to the Extension office. The average number of telephone calls made to the Extension office by all producers was 1.8 calls.

Farm Visits Received from Agent

The average number of farm visits producers received from County Extension Agents was 2 visits. Forty-one (48.2 percent) producers received one or more farm visits, while forty-four (51.8 percent) received no farm visits from County Extension Agents.

Total Extension Contacts

Thirty-five (41.2 percent) White County burley tobacco producers surveyed indicated they received five or more total Agricultural Extension Service contacts during the previous 12 month period. Twenty-seven (31.8 percent) tobacco producers reported one to four total Extension contacts, while the remaining twenty-three (27.0) reported no contacts with the Agricultural Extension Service during the previous 12 months.

VI. CHAPTER SUMMARY

Approximately 68 percent of the burley tobacco producers surveyed owned burley tobacco quota pounds. The average amount of pounds owned was 9526.6 pounds. Approximately 64 percent of the producers leased in tobacco quota pounds, and the average quota pounds leased in was 9418.6 pounds. Only one producer leased out

pounds. The average acreage of tobacco grown by White County producers was 5.4 acres. Approximately 37 percent of producers grew TN 90, which averaged 3.7 acres per producer. Seven producers grew Clay 403, which averaged 19.6 acres per producer.

Among the White County tobacco producers who grew transplants, 71 percent used the conventional bed method, which averaged 4 acres per producer. Among the White County burley tobacco producers who purchased transplants, 85.7 percent of the producers purchased float system transplants. Approximately 57 percent of the transplants that were purchased by White County producers were purchased in White County and averaged 1.9 acres per producer. Transplants grown in Kentucky were purchased by 22.9 percent of the White County tobacco producers surveyed and averaged 23.4 acres per producer. Seventeen White County burley tobacco producers grew transplants by float systems and responded to a series of float bed production questions pertaining to styrofoam trays, diseases, weather damage, heat and ventilation.

Approximately 33 percent of the tobacco producers surveyed reported a soil sample frequency of two years and less with the average frequency of all producers being 3.1 years. Approximately 45 percent of the producers applied 201 to 300 pounds of nitrogen per acre. The average nitrogen pounds per acre applied was 272.6 pounds. A little over 61 percent of the producers surveyed applied two tons of lime per acre and the average tons of lime applied per acre was 2.3 tons. A little over 58 percent of producers reported that both cultivation and chemicals were used for weed control. Prowl was used by 79.6 percent of the producers who used chemicals for weed control. Approximately 39 percent of the producers reported having blue mold in their tobacco. Among the 33

producers who reported having blue mold, 75.8 percent reported using no chemical control for blue mold. Approximately 39 percent of the tobacco producers surveyed reported having a black shank problem. Among the 33 producers who reported having black shank, 63.6 percent used Ridomil for chemical black shank control. A little over 20 percent of the producers reported having tomato spotted wilt virus in their tobacco. Approximately 14 percent of the producers reported manganese toxicity in their tobacco. Only 19 producers waited until mid flower to full bloom stage to top their tobacco, and the average White County burley tobacco producer waited 25 days between topping and cutting their tobacco.

The average age of White County burley tobacco producers surveyed was 48.5 years. Approximately 76 percent of the tobacco producers surveyed had a high school education or above, and 37.6 percent reported full-time farmer as their employment status.

Approximately 29 percent of the White County burley tobacco producers surveyed attended one or more tobacco meetings. Approximately 34 percent of the tobacco producers surveyed attended one or more other Extension meetings. A little more than 48 percent of the producers made one or more visits to the Extension office. Approximately 53 percent of the tobacco producers surveyed made one or more telephone calls to the Extension office. Approximately 48 percent of the tobacco producers received one or more farm visits from County Extension Agents. Approximately 41 percent of the tobacco producers surveyed indicated they received five or more total Agricultural Extension Service contacts during the previous 12 month period, and approximately 32 percent of the tobacco producers reported one to four total Extension contacts.

CHAPTER IV

RELATIONSHIPS BETWEEN SELECTED BURLEY TOBACCO PRODUCTION PRACTICES AND PERSONAL AND FARM OPERATION CHARACTERISTICS AND THE NUMBER OF TOTAL CONTACTS WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS HAD WITH THE AGRICULTURAL EXTENSION SERVICE

This chapter presents findings regarding the differences between selected personal characteristics, farm operation characteristics, and selected tobacco production practices and the number of total contacts White County, Tennessee burley tobacco producers had with the Agricultural Extension Service during the previous 12 months. The characteristics of the White County, Tennessee burley tobacco producers used in the study were: age, education, employment status, and acres grown. Total Agricultural Extension Service contacts included in the study were a sum of: tobacco meetings producers attended, number of other Extension meetings producers attended, number of visits producers made to the Extension office, number of telephone calls producers made to the Extension office, number of farm visits producers received from a County Extension Agent, and total contacts producers had with the Agricultural Extension Service. Because of the low number of burley tobacco producers surveyed in White County, actual numbers and percentages are reported and no statistical significance tests are reported. The data

were summarized in six tables with each table constituting a section.

Presented in Section I are findings regarding the relationships between White County, Tennessee burley tobacco producers' use of eight burley tobacco production practices and the number of total contacts they had with the Agricultural Extension Service during the previous 12 months.

Presented in Section II are findings regarding the relationships between personal and farm operation characteristics of White County, Tennessee burley tobacco producers and their total contacts with the Agricultural Extension Service during the previous 12 months.

Presented in Section III are findings regarding the relationships between eight burley tobacco production practices and the age of White County, Tennessee burley tobacco producers.

Presented in Section IV are findings regarding the relationships between eight burley tobacco production practices and the educational level of White County, Tennessee burley tobacco producers.

Presented in Section V are findings regarding the relationships between eight burley tobacco production practices and the employment status of White County, Tennessee burley tobacco producers.

Presented in Section VI are findings regarding the relationships between eight burley tobacco production practices and operation size of White County, Tennessee burley tobacco producers.

I. RELATIONSHIPS BETWEEN SELECTED BURLEY TOBACCO
PRODUCTION PRACTICES AND THE NUMBER OF TOTAL
CONTACTS WHITE COUNTY, TENNESSEE BURLEY
TOBACCO PRODUCERS HAD WITH THE
AGRICULTURAL EXTENSION SERVICE

This section (Table 2) presents data regarding the relationships between White County, Tennessee burley tobacco producers' use of eight burley tobacco production practices and the number of total contacts they had with the Agricultural Extension Service during the previous 12 months. Total Extension contacts were divided into three groups, producers who had no Extension contacts, producers who had one to four Extension contacts, and producers who had five or more Extension contacts. The producers' use of selected tobacco production practices are presented regarding eight field practices.

Soil Sample Frequency

A little more than 47 percent (16) of the producers who had five or more total Extension contacts, compared to 25.9 percent (7) who had one to four contacts and 21.7 percent (5) who had no contact with Extension, sampled their soil every two years and less.

Pounds Nitrogen Applied Per Acre

Approximately 32 percent (11) of the burley tobacco producers who had five or more total Extension contacts, compared to 59.3 percent (16) who had one to four contacts and 47.8 percent (11) who had no contact with Extension, applied 201 to 300

TABLE 2. Relationships Between Selected Burley Tobacco Production Practices and the Number of Total Contacts White County, Tennessee Burley Tobacco Producers Had With the Agricultural Extension Service

Selected Tobacco Production Practices	Total Extension Contacts					
	None		One to Four		Five or more	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
FIELD PRACTICES						
Soil Sample Frequency						
2 years and less	5	21.7	7	25.9	16	47.1
3 years and more	13	56.6	12	44.5	18	52.9
Never	5	21.7	8	29.6	0	0
Total	23	100.0	27	100.0	34	100.0
Pounds Nitrogen Applied Per Acre						
200 pounds and less	8	34.8	7	25.9	5	14.7
201 to 300 pounds	11	47.8	16	59.3	11	32.4
301 pounds and more	4	17.4	4	14.8	18	52.9
Total	23	100.0	27	100.0	34	100.0
Tons of Lime Applied Per Acre						
1 ton	2	40.0	2	13.3	4	16.7
2 tons	3	60.0	7	46.7	17	70.8
3 tons and more	0	0	6	40.0	3	12.5
Total	5	100.0	15	100.0	24	100.0
Weed Control Method						
Cultivation only	15	65.2	13	48.1	7	20.6
Cultivation and chemical	8	34.8	14	51.9	27	79.4
Total	23	100.0	27	100.0	34	100.0
Stage Tobacco Topped						
Button to early flower	4	17.4	6	22.2	14	41.2
Early flower to mid flower	11	47.8	13	48.2	17	50.0
Mid flower to full bloom	8	34.8	8	29.6	3	8.8
Total	23	100.0	27	100.0	34	100.0
Number of Days Between Topping and Cutting						
27 days and less	21	91.3	17	63.0	12	35.3
28 days and more	2	8.7	10	37.0	22	64.7
Total	23	100.0	27	100.0	34	100.0

TABLE 2. (Continued)

Selected Tobacco Production Practices	Total Extension Contacts					
	None		One to Four		Five or more	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
Black Shank						
No	13	56.5	23	85.2	15	44.1
Yes	10	43.5	4	14.8	19	55.9
Total	23	100.0	27	100.0	34	100.0
Chemical Control Used for Black Shank #						
None	4	40.0	1	25.0	6	31.6
Ridomil	5	50.0	3	75.0	13	68.4
Other	1	10.0	0	0	0	0
Total	10	100.0	4	100.0	19	100.0

only producers who responded yes to black shank were included

pounds of nitrogen per acre. Approximately 53 percent (18) of the producers who had five or more total Extension contacts, compared to 14.8 percent (4) who had one to four Extension contacts and 17.4 percent (4) of the producers who had no Extension contacts, applied 301 and more pounds of nitrogen per acre.

Tons of Lime Applied Per Acre

Approximately 71 percent (17) of the producers who had five or more total Extension contacts, compared to 46.7 percent (7) who had one to four contacts and 60.0 percent (3) who had no contacts with Extension, applied two tons of lime per acre.

Weed Control Method

A little more than 79 percent (27) of the tobacco producers who had five or more total Extension contacts, compared to 51.9 percent (14) who had one to four contacts and 34.8 percent (8) who had no contacts with Extension, used both cultivation and chemical methods for weed control.

Stage Tobacco Topped

Among the producers who reported having five or more total Extension contacts, 41.2 percent (14) topped their tobacco in the button to early flower stage, compared to 22.2 percent (6) who had one to four contacts and 17.4 percent (4) who had no Extension contacts.

Number of Days Between Topping and Cutting

Approximately 65 percent (22) of the producers who had five or more total Extension contacts waited 28 days and more between topping and cutting of their tobacco, compared to 37.0 percent (10) who had one to four contacts and 8.7 percent (2)

who had no Extension contacts.

Black Shank

Black shank was reported as a disease problem by 55.9 percent (19) of the producers who had five or more total Extension contacts, compared to 14.8 percent (4) of the producers who had one to four total Extension contacts, and 43.5 percent (10) of the producers who had no total Extension contacts.

Chemical Control Used for Black Shank

Among the tobacco producers who had five or more total Extension contacts and reported having black shank as a problem, 68.4 percent (13) used Ridomil for black shank control, compared to 75.0 percent (3) who had one to four contacts and 50.0 percent (5) who had no contacts.

II. RELATIONSHIPS BETWEEN SELECTED PERSONAL AND FARM OPERATION CHARACTERISTICS OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS AND THEIR TOTAL NUMBER OF CONTACTS WITH THE AGRICULTURAL EXTENSION SERVICE

This section (Table 3) presents data regarding the relationships between selected personal and farm operation characteristics of White County, Tennessee burley tobacco producers and the number of total contacts producers had with the Agricultural Extension Service during the previous 12 months. Total Extension contacts were divided into two groups, producers who had no Extension contacts and producers who had one or more

TABLE 3. Relationships Between Selected Personal and Farm Operation Characteristics of White County, Tennessee Burley Tobacco Producers and Their Total Number of Contacts With the Agricultural Extension Service

Selected Personal and Farm Operation Characteristics	Total Extension Contacts					
	None		One or More		Total	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers	Number	Percent
FARM OPERATION CHARACTERISTICS						
Quota Pounds Owned						
3,200 pounds and less	6	20.7	23	79.3	29	100.0
3,201 pounds and more	6	20.7	23	79.3	29	100.0
Quota Pounds Leased In						
5,000 pounds and less	10	37.0	17	63.0	27	100.0
5,001 pounds and more	5	18.5	22	81.5	27	100.0
PERSONAL CHARACTERISTICS						
Farmer's age						
40 years and less	6	21.4	22	78.6	28	100.0
41 to 59 years	12	36.4	21	64.6	33	100.0
60 years and more	5	20.8	19	79.2	24	100.0
Farmer's education						
Less than high school	6	30.0	14	70.0	20	100.0
High school graduate	12	25.0	36	75.0	48	100.0
Some college or graduate	5	29.4	12	70.6	17	100.0
Farmer's employment						
Full-time farmer	6	18.8	26	81.2	32	100.0
Part-time farmer	17	32.1	36	67.9	53	100.0

Extension contacts. Selected personal and farm operation characteristics of the producers are presented regarding five characteristics.

Quota Pounds Owned

Approximately 79 percent (23) of the burley tobacco producers who had one or more total Extension contacts owned burley tobacco quota of 3,200 pounds and less, compared to 79.3 percent (23) who owned burley tobacco quota of 3,201 pounds and more.

Quota Pounds Leased In

Sixty-three percent (17) of the burley tobacco producers who had one or more total Extension contacts leased in burley tobacco quota of 5,000 pounds and less, compared to 81.5 percent (22) who leased in burley tobacco quota of 5,001 pounds and more.

Farmer's Age

Approximately 78.6 percent (22) of the producers who were age 40 years and less, compared to 64.6 percent (21) who were age 41 to 59 years and 79.2 percent (19) who were age 60 years and more, had one or more total contacts with the Agricultural Extension Service.

Farmer's Education

Seventy percent (14) of the producers who had less than a high school education, compared to 75.0 percent (36) who were a high school graduate and 70.6 percent (12) who had some college or were a college graduate, had one or more total Extension contacts.

Farmer's Employment

A little more than 81 percent (26) of the producers who listed full-time farmer as their employment status, compared with 67.9 percent (36) who were part-time farmers had one or more total contacts with the Agricultural Extension Service.

III. RELATIONSHIPS BETWEEN SELECTED BURLEY TOBACCO PRODUCTION PRACTICES AND THE AGE OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS

This section (Table 4) presents data regarding relationships between eight burley tobacco production practices and the age of White County, Tennessee burley tobacco producers. Farmer's age was divided into three groups, farmers who were age 40 years and less, farmers who were age 41 to 59 years, and farmers who were age 60 years and more. The producers' use of selected tobacco production practices are presented regarding eight field practices.

Soil Sample Frequency

Approximately 36 percent (10) of the producers who were age 40 years and less, compared to 37.5 percent (12) who were age 41 to 59 years and 25.0 percent (6) who were 60 years of age or more, soil sampled every two years and less.

Pounds Nitrogen Applied Per Acre

Approximately 21 percent (6) of the tobacco producers who were 40 years of age and less, compared to 59.4 percent (19) who were age 41 to 59 years and 54.2 percent (13) who were 60 years of age or more, applied 201 to 300 pounds of nitrogen per acre. Fifty percent (14) of the producers who were 40 years of age and less, compared to 18.7

TABLE 4. Relationships Between Selected Burley Tobacco Production Practices and the Age of White County, Tennessee Burley Tobacco Producers

Selected Tobacco Production Practices	Farmer's Age					
	40 years & less		41 to 59 years		60 years & more	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
FIELD PRACTICES						
Soil Sample Frequency						
2 years and less	10	35.7	12	37.5	6	25.0
3 years and more	16	57.2	17	53.1	10	41.7
Never	2	7.1	3	9.4	8	33.3
Total	28	100.0	32	100.0	24	100.0
Pounds Nitrogen Applied Per Acre						
200 pounds and less	8	28.6	7	21.9	5	20.8
201 to 300 pounds	6	21.4	19	59.4	13	54.2
301 pounds and more	14	50.0	6	18.7	6	25.0
Total	28	100.0	32	100.0	24	100.0
Tons of Lime Applied Per Acre						
1 ton	1	8.3	5	26.3	2	15.4
2 tons	8	66.7	10	52.6	9	69.2
3 tons and more	3	25.0	4	21.1	2	15.4
Total	12	100.0	19	100.0	13	100.0
Weed Control Method						
Cultivation only	12	42.9	14	43.8	9	37.5
Cultivation and chemical	16	57.1	18	56.2	15	62.5
Total	28	100.0	32	100.0	24	100.0
Stage Tobacco Topped						
Button to early flower	8	28.6	12	37.5	4	16.7
Early flower to mid flower	15	53.6	12	37.5	14	58.3
Mid flower to full bloom	5	17.8	8	25.0	6	25.0
Total	28	100.0	32	100.0	24	100.0
Number of Days Between Topping and Cutting						
27 days and less	15	53.6	20	62.5	15	62.5
28 days and more	13	46.4	12	37.5	9	37.5
Total	28	100.0	32	100.0	24	100.0

TABLE 4. (Continued)

Selected Tobacco Production Practices	Farmer's Age					
	40 years & less		41 to 59 years		60 years & more	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
Black Shank						
No	15	53.6	20	62.5	16	66.7
Yes	13	46.4	12	37.5	8	33.3
Total	28	100.0	32	100.0	24	100.0
Chemical Control Used for Black Shank #						
None	5	38.5	5	41.7	1	12.5
Ridomil	8	61.5	7	58.3	6	75.0
Other	0	0	0	0	1	12.5
Total	13	100.0	12	100.0	8	100.0

only producers who responded yes to black shank were included

percent (6) who were age 41 to 59 years and 25.0 percent (6) who were 60 years of age or more, applied 301 pounds and more nitrogen per acre.

Tons of Lime Applied Per Acre

Approximately 67 percent (8) of the producers who were 40 years of age and less, compared to 52.6 percent (10) who were age 41 to 59 years and 69.2 percent (9) who were 60 years of age or more, applied two tons of lime per acre.

Weed Control Method

A little more than 57 percent (16) of the burley tobacco producers who were 40 years of age and less, compared to 56.2 percent (18) who were age 41 to 59 years and 62.5 percent (15) who were 60 years of age or more, used both cultivation and chemical control for weeds.

Stage Tobacco Topped

Among the producers who were age 40 years and less, 28.6 percent (8) topped their tobacco in the button to early flower stage, compared to 37.5 percent (12) of the producers who were age 41 to 59 years and 16.7 percent (4) who were 60 years of age or more.

Number of Days Between Topping and Cutting

Approximately 46 percent (13) of the producers who were age 40 years and less, compared to 37.5 percent (12) who were age 41 to 59 years and 37.5 percent (9) who were 60 years of age or more, waited 28 days and more between topping and cutting their tobacco.

Black Shank

Black shank was reported as a disease problem by 46.4 percent (13) of the producers who were age 40 years and less, compared to 37.5 percent (12) of the producers who were age 41 to 59 years and 33.3 percent (8) of the producers who were age 60 years and more.

Chemical Control Used for Black Shank

Among the tobacco producers who reported having black shank as a problem, 61.5 percent (8) who were 40 years of age and less, compared to 58.3 percent (7) who were age 41 to 59 years and 75 percent (6) who were age 60 years and more, used Ridomil for black shank control.

IV. RELATIONSHIPS BETWEEN SELECTED BURLEY TOBACCO PRODUCTION PRACTICES AND THE EDUCATIONAL LEVEL OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS

This section (Table 5) presents data regarding the relationships between eight burley tobacco production practices and the educational level of White County, Tennessee burley tobacco producers. Farmer's education was divided into three groups, farmers who had less than a high school education, farmers who were high school graduates, and farmers who had some college or were a college graduate. The producers' use of selected tobacco production practices are presented regarding eight field practices.

Soil Sample Frequency

Thirty percent (6) of the producers who had less than a high school education, compared to 29.2 percent (14) who had a high school education and 50.0 percent (8) who

TABLE 5. Relationships Between Selected Burley Tobacco Production Practices and the Educational Level of White County, Tennessee Burley Tobacco Producers

Selected Tobacco Production Practices	Farmer's Education					
	Less Than High School		High School Graduate		Some College or College Graduate	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
FIELD PRACTICES						
Soil Sample Frequency						
2 years and less	6	30.0	14	29.2	8	50.0
3 years and more	9	45.0	27	56.2	7	43.8
Never	5	25.0	7	14.6	1	6.2
Total	20	100.0	48	100.0	16	100.0
Pounds Nitrogen Applied Per Acre						
200 pounds and less	3	15.0	13	27.1	4	25.0
201 to 300 pounds	12	60.0	21	43.7	5	31.2
301 pounds and more	5	25.0	14	29.2	7	43.8
Total	20	100.0	48	100.0	16	100.0
Tons of Lime Applied Per Acre						
1 ton	3	33.3	3	11.1	2	25.0
2 tons	5	55.6	18	66.7	4	50.0
3 tons and more	1	11.1	6	22.2	2	25.0
Total	9	100.0	27	100.0	8	100.0
Weed Control Method						
Cultivation only	9	45.0	20	41.7	6	37.5
Cultivation and chemical	11	55.0	28	58.3	10	62.5
Total	20	100.0	48	100.0	16	100.0
Stage Tobacco Topped						
Button to early flower	4	20.0	13	27.1	7	43.8
Early flower to mid flower	12	60.0	23	47.9	6	37.5
Mid flower to full bloom	4	20.0	12	25.0	3	18.7
Total	20	100.0	48	100.0	16	100.0
Number of Days Between Topping and Cutting						
27 days and less	13	65.0	28	58.3	9	56.3
28 days and more	7	35.0	20	41.7	7	43.7
Total	20	100.0	48	100.0	16	100.0

TABLE 5. (Continued)

Selected Tobacco Production Practices	Farmer's Education					
	Less Than High School		High School Graduate		Some College or College Graduate	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
Black Shank						
No	16	80.0	25	52.1	10	62.5
Yes	4	20.0	23	47.9	6	37.5
Total	20	100.0	48	100.0	16	100.0
Chemical Control Used for Black Shank #						
None	1	25.0	10	43.5	0	0
Ridomil	2	50.0	13	56.5	6	100.0
Other	1	25.0	0	0	0	0
Total	4	100.0	23	100.0	6	100.0

only producers who responded yes to black shank were included

had some college or were a college graduate, had a soil sample frequency of two years and less.

Pounds Nitrogen Applied Per Acre

Sixty percent (12) of the producers who had less than a high school education, compared to 43.7 percent (21) who had a high school education and 31.2 percent (5) who had some college or were a college graduate, applied 201 to 300 pounds of nitrogen per acre. Twenty-five percent (5) of the producers who had less than a high school education, compared to 29.2 percent (14) who had a high school education and 43.8 percent (7) who had some college or were a college graduate, applied 301 pounds and more nitrogen per acre.

Tons of Lime Applied Per Acre

Approximately 56 percent (5) of the producers who had less than a high school education, compared to 66.7 percent (18) who had a high school education and 50.0 percent (4) who had some college or were a college graduate, applied two tons of lime per acre.

Weed Control Method

Fifty-five percent (11) of the producers who had less than a high school education, compared to 58.3 percent (28) who had a high school education and 62.5 percent (10) who had some college or were a college graduate, used both cultivation and chemical control for weeds.

Stage Tobacco Topped

Twenty percent (4) of the producers who had less than a high school education,

compared to 27.1 percent (13) who had a high school education and 43.8 percent (7) who had some college or were a college graduate, topped their tobacco in the button to early flower stage.

Number of Days Between Topping and Cutting

Thirty-five percent (7) of the producers who had less than a high school education, compared to 41.7 percent (20) who had a high school education and 43.7 percent (7) who had some college or were a college graduate, waited 28 days and more between topping and cutting their tobacco.

Black Shank

Black shank was reported as a disease problem by 20 percent (4) of the producers who had an education of less than high school, compared to 47.9 percent (23) of the producers who had a high school education, and 37.5 percent (6) of the producers who had some college or were a college graduate.

Chemical Control Used for Black Shank

Among the producers who had less than a high school education and reported having black shank as a problem, 50.0 percent (2) used Ridomil for chemical black shank control, compared to 56.5 percent (13) of the producers who had a high school education and 100.0 percent (6) of the producers who had some college or were a college graduate.

V. RELATIONSHIPS BETWEEN SELECTED BURLEY TOBACCO PRODUCTION PRACTICES AND THE EMPLOYMENT STATUS OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS

This section (Table 6) presents data regarding the relationships between eight burley tobacco production practices and the employment status of White County, Tennessee burley tobacco producers. Farmer's employment was divided into two groups, full-time farmer and part-time farmer. The producers' use of selected tobacco production practices are presented regarding eight field practices.

Soil Sample Frequency

Approximately 41 percent (13) of the producers who were full-time farmers had a soil sample frequency of two years and less, compared to 28.8 percent (15) who were part-time farmers.

Pounds Nitrogen Applied Per Acre

Fifty percent (16) of the tobacco producers who were full-time farmers, compared to 42.4 percent (22) who were part-time farmers, applied 201 to 300 pounds of nitrogen per acre. A little more than 34 percent (11) of the full-time farmers, compared to 28.8 percent (15) who were part-time farmers, applied 301 pounds and more nitrogen per acre.

Tons of Lime Applied Per Acre

Approximately 65 percent (15) of the producers who were full-time farmers, compared to 57.2 percent (12) of the producers who were part-time farmers, applied two tons of lime per acre.

TABLE 6. Relationships Between Selected Burley Tobacco Production Practices and the Employment Status of White County, Tennessee Burley Tobacco Producers

Selected Tobacco Production Practices	Farmer's Employment			
	Full-Time Farmer		Part-Time Farmer	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
FIELD PRACTICES				
Soil Sample Frequency				
2 years and less	13	40.6	15	28.8
3 years and more	15	46.9	28	53.9
Never	4	12.5	9	17.3
Total	32	100.0	52	100.0
Pounds Nitrogen Applied Per Acre				
200 pounds and less	5	15.6	15	28.8
201 to 300 pounds	16	50.0	22	42.4
301 pounds and more	11	34.4	15	28.8
Total	32	100.0	52	100.0
Tons of Lime Applied Per Acre				
1 ton	4	17.4	4	19.0
2 tons	15	65.2	12	57.2
3 tons and more	4	17.4	5	23.8
Total	23	100.0	21	100.0
Weed Control Method				
Cultivation only	9	28.1	26	50.0
Cultivation and chemical	23	71.9	26	50.0
Total	32	100.0	52	100.0
Stage Tobacco Topped				
Button to early flower	8	25.0	16	30.8
Early flower to mid flower	19	59.4	22	42.3
Mid flower to full bloom	5	15.6	14	26.9
Total	32	100.0	52	100.0
Number of Days Between Topping and Cutting				
27 days and less	15	46.9	35	67.3
28 days and more	17	53.1	17	32.7
Total	32	100.0	52	100.0

TABLE 6. (Continued)

Selected Tobacco Production Practices	Farmer's Employment			
	Full-Time Farmer		Part-Time Farmer	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
Black Shank				
No	15	46.9	36	69.2
Yes	17	53.1	16	30.8
Total	32	100.0	52	100.0
Chemical Control Used for Black Shank #				
None	5	29.4	6	37.5
Ridomil	11	64.7	10	62.5
Other	1	5.9	0	0
Total	17	100.0	16	100.0

only producers who responded yes to black shank were included

Weed Control Method

Approximately 72 percent (23) of the producers who were full-time farmers, compared to 50.0 percent (26) of the producers who were part-time farmers, used both cultivation and chemical control for weeds.

Stage Tobacco Topped

Among the producers who were full-time farmers, 25 percent (8) topped their tobacco in the button to early flower stage, compared to 30.8 percent (16) of the producers who were part-time farmers.

Number of Days Between Topping and Cutting

Approximately 53 percent (17) of the full-time farmers waited 28 days and more between topping and cutting their tobacco, compared to 32.7 percent (17) of the producers who were part-time farmers.

Black Shank

Black shank was reported as a disease problem by 53.1 percent (17) of the full-time farmers, compared to 30.8 percent (16) of the part-time farmers.

Chemical Control Used for Black Shank

Among the producers who reported having black shank as a problem and were full-time farmers, 64.7 percent (11) used Ridomil for black shank control, compared to 62.5 percent (10) of the producers who were part-time farmers.

VI. RELATIONSHIPS BETWEEN SELECTED BURLEY TOBACCO PRODUCTION PRACTICES AND OPERATION SIZE OF WHITE COUNTY, TENNESSEE BURLEY TOBACCO PRODUCERS

This section (Table 7) presents data regarding the relationships between eight burley tobacco production practices and the operation size of White County, Tennessee burley tobacco producers. Operation size was divided into two groups, three acres or less and 3.1 acres and more. The producers' use of selected tobacco production practices are presented regarding eight field practices.

Soil Sample Frequency

Approximately 24 percent (11) of the producers who grew three acres of tobacco or less, compared to 44.7 percent (17) of the producers who grew 3.1 acres and more, had a soil sample frequency of two years and less.

Pounds Nitrogen Applied Per Acre

Approximately 46 percent (21) of the tobacco producers who grew three acres or less, compared to 44.7 percent (17) of the tobacco producers who grew 3.1 acres and more, applied 201 to 300 pounds of nitrogen per acre. Approximately 22 percent (10) of the producers who grew three acres or less, compared to 42.1 percent (16) of the producers who grew 3.1 acres and more, applied 301 pounds and more nitrogen per acre.

Tons of Lime Applied Per Acre

Approximately 43 percent (6) of the tobacco producers who grew three acres or less, compared to 70.0 percent (21) of the tobacco producers who grew 3.1 acres and more, applied two tons of lime per acre.

TABLE 7. Relationships Between Selected Burley Tobacco Production Practices and Operation Size of White County, Tennessee Burley Tobacco Producers

Selected Tobacco Production Practices	Acres Grown			
	3 Acres or Less		3.1 Acres or More	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
FIELD PRACTICES				
Soil Sample Frequency				
2 years and less	11	23.9	17	44.7
3 years and more	28	60.9	15	39.5
Never	7	15.2	6	15.8
Total	46	100.0	38	100.0
Pounds Nitrogen Applied				
Per Acre				
200 pounds and less	15	32.6	5	13.2
201 to 300 pounds	21	45.7	17	44.7
301 pounds and more	10	21.7	16	42.1
Total	46	100.0	38	100.0
Tons of Lime Applied				
Per Acre				
1 ton	3	21.4	5	16.7
2 tons	6	42.9	21	70.0
3 tons and more	5	35.7	4	13.3
Total	14	100.0	30	100.0
Weed Control Method				
Cultivation only	25	54.3	10	26.3
Cultivation and chemical	21	45.7	28	73.7
Total	46	100.0	38	100.0
Stage Tobacco Topped				
Button to early flower	12	26.1	12	31.6
Early flower to mid flower	21	45.6	20	52.6
Mid flower to full bloom	13	28.3	6	15.8
Total	46	100.0	38	100.0
Number of Days Between				
Topping and Cutting				
27 days and less	31	67.4	19	50.0
28 days and more	15	32.6	19	50.0
Total	46	100.0	38	100.0

TABLE 7. (Continued)

Selected Tobacco Production Practices	Acres Grown			
	3 Acres or Less		3.1 Acres or More	
	Number of Producers	Percent of Producers	Number of Producers	Percent of Producers
Black Shank				
No	34	73.9	17	44.7
Yes	12	26.1	21	55.3
Total	46	100.0	38	100.0
Chemical Control Used for Black Shank #				
None	5	41.7	6	28.6
Ridomil	6	50.0	15	71.4
Other	1	8.3	0	0
Total	12	100.0	21	100.0

only producers who responded yes to black shank were included

Weed Control Method

Approximately 46 percent (21) of the tobacco producers who grew three acres or less, compared to 73.7 percent (28) of the tobacco producers who grew 3.1 acres and more, used both cultivation and chemical control for weeds.

Stage Tobacco Topped

Among the producers who grew three acres or less, 26.1 percent (12) topped their tobacco in the button to early flower stage, compared to 31.6 percent (12) of the producers who grew 3.1 acres and more.

Number of Days Between Topping and Cutting

Approximately 33 percent (15) of the producers who grew three acres or less, compared to 50.0 percent (19) of the producers who grew 3.1 acres and more, waited 28 days and more between topping and cutting their tobacco.

Black Shank

Black shank was reported as a disease problem by 26.1 percent (12) of the producers who grew three acres or less, compared to 55.3 percent (21) of the producers who grew 3.1 acres and more.

Chemical Control Used for Black Shank

Among the producers who reported having black shank as a problem and grew three acres or less, 50.0 percent (6) used Ridomil for black shank control, compared to 71.4 percent (15) of the producers who were grew 3.1 acres and more.

VII. CHAPTER SUMMARY

This chapter presents findings regarding the differences between selected personal characteristics, farm operation characteristics, and selected tobacco production practices and the number of total contacts White County, Tennessee burley tobacco producers had with the Agricultural Extension Service during the previous 12 months. Because of the low number of burley tobacco producers surveyed in White County, actual numbers and percentages are reported and no statistical significance tests are reported. The data were summarized in six tables with each table constituting a section.

Several important relationships were revealed in Chapter IV. Some of the more important findings from Chapter IV, as perceived by the author, are discussed in the summary.

A little more than 47 percent (16) of the producers who had five or more total Extension contacts, compared to 25.9 percent (7) who had one to four contacts and 21.7 percent (5) who had no contact with Extension, sampled their soil every two years and less. A little more than 79 percent (27) of the tobacco producers who had five or more total Extension contacts, compared to 51.9 percent (14) who had one to four contacts and 34.8 percent (8) who had no contacts with Extension, used both cultivation and chemical methods for weed control. Approximately 65 percent (22) of the producers who had five or more total Extension contacts waited 28 days and more between topping and cutting of their tobacco, compared to 37.0 percent (10) who had one to four contacts and 8.7 percent (2) who had no Extension contacts.

Thirty percent (6) of the producers who had less than a high school education,

compared to 29.2 percent (14) who had a high school education and 50.0 percent (8) who had some college or were a college graduate, had a soil sample frequency of two years and less. Twenty percent (4) of the producers who had less than a high school education, compared to 27.1 percent (13) who had a high school education and 43.8 percent (7) who had some college or were a college graduate, topped their tobacco in the button to early flower stage.

Approximately 53 percent (17) of the full-time farmers waited 28 days and more between topping and cutting their tobacco, compared to 32.7 percent (17) of the producers who were part-time farmers.

CHAPTER V

SUMMARY OF MAJOR FINDINGS

This chapter presents a summary of the major findings of the study. The chapter was divided into sections relating to the purposes and objectives, methods of investigation, major findings, implications and recommendations, and recommendations for further study.

I. PURPOSE AND OBJECTIVES

Purpose

The purpose of the study was to characterize White County, Tennessee burley tobacco producers, their personal and farm operation characteristics, number and types of contacts producers had with the Agricultural Extension Service, and their use of selected tobacco production practices.

Specific Objectives

1. To characterize White County, Tennessee burley tobacco producers by age, education, employment status, acres grown, the number and types of contacts producers had with the Agricultural Extension Service, and their use of selected production practices.
2. To determine relationships between the number and type of contacts producers had with the Agricultural Extension Service and the use of selected tobacco production practices of White County, Tennessee burley tobacco producers.
3. To determine relationships between selected personal and farm operation

characteristics of White County, Tennessee burley tobacco producers and the number and type of contacts producers had with the Agricultural Extension Service.

4. To determine relationships between selected personal and farm operation characteristics and the use of selected tobacco production practices of White County, Tennessee burley tobacco producers.

II. METHODS AND PROCEDURES

Population and Sample Studied

The population for the study included all White County, Tennessee burley tobacco producers in 1997. The Nth number random sample technique was used to randomly select 85 burley tobacco producers to be included in the sample.

Survey Instrument

The survey instrument used in the study was developed by the researcher with the assistance of Agricultural Extension Service specialists from The University of Tennessee, Knoxville. The instrument consisted of five main parts, including: (1) general information; (2) transplant production; (3) field practices; (4) information about the farmer; and (5) the number and types of contacts producers had with the Agricultural Extension Service.

Interview Technique

Personal interviews were scheduled between White County Extension Agents and White County burley tobacco producers in order to complete the 1997 White County, Tennessee Burley Tobacco Survey. The interviews were completed in the Fall of 1997 and returned to the Agricultural and Extension Education Department at the University of

Tennessee, Knoxville for analysis in Fall 1997.

Method of Analysis

Following the completion of survey interviews, the survey instruments were returned to the Agricultural and Extension Education Department at the University of Tennessee at Knoxville for analysis. Descriptive statistics were used to summarize the survey data. These include frequencies, means, medians, and modes. Because of the low number of tobacco producers surveyed, actual numbers and percentages were reported and no statistical tests were run to determine relationships between selected dependent and independent variables.

III. MAJOR FINDINGS

Major findings of the data presented in the study are organized under headings related to the study objectives and the tables presented in earlier chapters.

Characteristics of White County, Tennessee Burley Tobacco Producers

Findings in this section are divided into three subsections including: (1) farm operation characteristics, (2) personal characteristics, and (3) Agricultural Extension Service contacts.

Farm Operation Characteristics. Fifty-eight producers surveyed owned burley tobacco quota pounds, which average 9527 pounds per producer. Fifty-four producers surveyed leased in burley tobacco quota pounds, and the average amount leased in was 9419 pounds per producer. The average tobacco acres grown in 1997 was 5.4 acres. A little over twenty-two percent of White County producers surveyed grew TN 86, which had a mean of 3.1 acres per producer. Approximately thirty-seven percent grew TN 90, which

had a mean of 3.7 acres per producer.

Personal Characteristics. The average age of White County burley tobacco producers surveyed was 48.5 years. Approximately 76 percent of the tobacco producers surveyed had a high school education or above, and 37.6 percent reported full-time farmer as their employment status.

Agricultural Extension Service Contacts. Approximately 29 percent of the White County burley tobacco producers surveyed attended one or more tobacco meetings.

Approximately 34 percent of the tobacco producers surveyed attended one or more other Extension meetings. A little more than 48 percent of the producers made one or more visits to the Extension office. Approximately 53 percent of the tobacco producers surveyed made one or more telephone calls to the Extension office. Approximately 48 percent of the tobacco producers received one or more farm visits from County Extension Agents. Approximately 41 percent of the White County burley tobacco producers surveyed indicated they received five or more total Agricultural Extension Service contacts during the previous 12 month period, and approximately 32 percent of the tobacco producers reported one to four total Extension contacts.

Tobacco Production Characteristics of White County, Tennessee Burley Producers

Findings in this section are divided into two subsections including: (1) transplant production and (2) field practices.

Transplant Production. Among the White County tobacco producers who produced transplants in 1997, the direct seeded outdoor float bed method was used by 8.1 percent of the producers who grew an average of 5.2 acres of transplants. The plug and transfer

float system was used by 14.5 percent of the producers surveyed who averaged 2.7 acres of transplants. The conventional bed method was used by 71 percent of the producers surveyed and accounted for a mean of 4 acres of transplants per producer. Producers may have used more than one type of transplant production method.

Among the White County producers who produced transplants on the farm, approximately 34 percent sold an average of 3 acres of burley tobacco transplants. Approximately 94 percent of the producers who produced transplants on the farm planted an average of 3.6 acres of the transplants they produced. Among the transplants purchased by White County burley tobacco producers in 1997, 85.7 percent of the producers purchased float system transplants, which averaged 7.6 acres of transplants per producer. The remaining 14.3 percent of White County producers purchased conventional bed plants, which accounted for an average of 2.3 acres of transplants. Approximately 57 percent of the transplants that were purchased by White County producers were grown in White County, and the average acreage of transplants was 1.9 acres. Twenty percent of producers purchased transplants grown in another Tennessee county, and these transplants accounted for a mean of 2.3 acres. Kentucky transplants were purchased by 22.9 percent of the White County burley tobacco producers who purchased transplants and accounted for a mean of 23.4 acres.

Field Practices. A soil sample frequency of two years and less was reported by 33.3 percent of the producers surveyed. The mean soil sample frequency among all producers was 3.1 years. The University of Tennessee Agricultural Extension Service recommends that soils which are to be used for high-value cash crops, such as tobacco and vegetables,

should be analyzed annually for lime and fertilizer recommendations. However, the frequency of soil testing can vary depending upon cropping intensities, soil types, fertilization rates, tillage methods, weather conditions, and new research findings (6).

Approximately 45 percent of the producers used 201 to 300 pounds of nitrogen per acre, while 31 percent used 301 pounds and more nitrogen per acre. The average number of pounds of nitrogen applied per acre was 272.6 pounds. The University of Tennessee Agricultural Extension Service recommends applying 150-200 pounds of nitrogen fertilizer annually for tobacco (7). However, the pounds of nitrogen applied per acre in 1997 may have been increased due to the weather conditions in White County in late Spring and early Summer. Excess moisture and unworkable field conditions for several weeks caused many producers who pre-applied nitrogen fertilizer early to reapply nitrogen before the crop was planted.

The average number of tons of lime applied per acre was 2.3 tons. A little more than 58 percent of the producers reported that both cultivation and chemicals were used for weed control. Among those producers who used chemicals for weed control, 57 percent used Devrinol, and Prowl was used by 80 percent of the producers. Thirty-nine percent of the producers reported having blue mold in their tobacco. Thirty-nine percent of the producers surveyed indicated they had a black shank problem. Approximately 64 percent of tobacco producers who reported having black shank used Ridomil for chemical black shank control. A little more than 20 percent of the producers indicated having tomato spotted wilt virus in their tobacco in 1997. Fourteen percent of the White County producers reported manganese toxicity in their tobacco in 1997. Twenty-nine percent of

the tobacco producers indicated they topped their tobacco in the button to early flower stage. Forty-one percent of tobacco producers allowed 28 days or more between topping and cutting their tobacco. On the average White County burley tobacco producers waited 25 days between topping and cutting their tobacco. The University of Tennessee Agricultural Extension Service recommends topping burley when approximately one-third to one-half of the plants are in the elongated button to early flower stage to obtain highest yields. It is also recommended to harvest burley when it is ripe (middle leaves show distinct yellow tinge), and this generally occurs no earlier than 4 to 5 weeks after topping. This improves yield and quality (8).

Relationships Between the Number of Total Contacts White County, Tennessee Burley Tobacco Producers Had With the Agricultural Extension Service and Their Use of Selected Burley Tobacco Production Practices

A little more than 47 percent (16) of the producers who had five or more total Extension contacts, compared to 25.9 percent (7) who had one to four contacts and 21.7 percent (5) who had no contact with Extension, sampled their soil every two years and less. Approximately 32 percent (11) of the burley tobacco producers who had five or more total Extension contacts, compared to 59.3 percent (16) who had one to four contacts and 47.8 percent (11) who had no contact with Extension, applied 201 to 300 pounds of nitrogen per acre. Approximately 71 percent (17) of the producers who had five or more total Extension contacts, compared to 46.7 percent (7) who had one to four contacts and 60.0 percent (3) who had no contacts with Extension, applied two tons of lime per acre. A little more than 79 percent (27) of the tobacco producers who had five or

more total Extension contacts, compared to 51.9 percent (14) who had one to four contacts and 34.8 percent (8) who had no contacts with Extension, used both cultivation and chemical methods for weed control. Among the producers who reported having five or more total Extension contacts, 41.2 percent (14) topped their tobacco in the button to early flower stage, compared to 22.2 percent (6) who had one to four contacts and 17.4 percent (4) who had no Extension contacts. Approximately 65 percent (22) of the producers who had five or more total Extension contacts waited 28 days and more between topping and cutting of their tobacco, compared to 37.0 percent (10) who had one to four contacts and 8.7 percent (2) who had no Extension contacts.

Relationships Between Selected Personal and Farm Operation Characteristics of
White County, Tennessee Burley Tobacco Producers and Their Total Number
of Contacts With the Agricultural Extension Service

Approximately 78.6 percent (22) of the producers who were age 40 years and less, compared to 64.6 percent (21) who were age 41 to 59 years and 79.2 percent (19) who were age 60 years and more, had one or more total contacts with the Agricultural Extension Service. Seventy percent (14) of the producers who had less than a high school education, compared to 75.0 percent (36) who were a high school graduate and 70.6 percent (12) who had some college or were a college graduate, had one or more total Extension contacts. A little more than 81 percent (26) of the producers who listed full-time farmer as their employment status, compared with 67.9 percent (36) who were part-time farmers had one or more total contacts with the Agricultural Extension Service.

Relationships Between Selected Burley Tobacco Production Practices and the Age of
White County, Tennessee Burley Tobacco Producers

Approximately 21 percent (6) of the tobacco producers who were 40 years of age and less, compared to 59.4 percent (19) who were age 41 to 59 years and 54.2 percent (13) who were 60 years of age or more, applied 201 to 300 pounds of nitrogen per acre. Among the producers who were age 40 years and less, 28.6 percent (8) topped their tobacco in the button to early flower stage, compared to 37.5 percent (12) of the producers who were age 41 to 59 years and 16.7 percent (4) who were 60 years of age or more. Approximately 46 percent (13) of the producers who were age 40 years and less, compared to 37.5 percent (12) who were age 41 to 59 years and 37.5 percent (9) who were 60 years of age or more, waited 28 days and more between topping and cutting their tobacco.

Relationships Between Selected Burley Tobacco Production Practices and The
Educational Level of White County, Tennessee Burley Tobacco Producers

Thirty percent (6) of the producers who had less than a high school education, compared to 29.3 percent (14) who had a high school education and 50.0 percent (8) who had some college or were a college graduate, had a soil sample frequency of two years and less. Sixty percent (12) of the producers who had less than a high school education, compared to 43.7 percent (21) who had a high school education and 31.2 percent (5) who had some college or were a college graduate, applied 201 to 300 pounds of nitrogen per acre. Twenty percent (4) of the producers who had less than a high school education, compared to 27.1 percent (13) who had a high school education and 43.8 percent (7) who

had some college or were a college graduate, topped their tobacco in the button to early flower stage. Among the producers who had less than a high school education and reported having black shank as a problem, 50.0 percent (2) used Ridomil for chemical black shank control, compared to 56.5 percent (13) of the producers who had a high school education and 100.0 percent (6) of the producers who had some college or were a college graduate.

Relationships Between Selected Burley Tobacco Production Practices and the
Employment Status of White County, Tennessee Burley Tobacco Producers

Approximately 41 percent (13) of the producers who were full-time farmers had a soil sample frequency of two years and less, compared to 28.8 percent (15) who were part-time farmers. Approximately 72 percent (23) of the producers who were full-time farmers, compared to 50.0 percent (26) of the producers who were part-time farmers, used both cultivation and chemical control for weeds. Approximately 53 percent (17) of the full-time farmers waited 28 days and more between topping and cutting their tobacco, compared to 32.7 percent (17) of the producers who were part-time farmers.

Relationships Between Selected Burley Tobacco Production Practices and Operation
Size of White County, Tennessee Burley Tobacco Producers

Approximately 24 percent (11) of the producers who grew three acres of tobacco or less, compared to 44.7 percent (17) of the producers who grew 3.1 acres and more, had a soil sample frequency of two years and less. Approximately 43 percent (6) of the tobacco producers who grew three acres or less, compared to 70.0 percent (21) of the tobacco producers who grew 3.1 acres and more, applied two tons of lime per acre.

Approximately 46 percent (21) of the tobacco producers who grew three acres or less, compared to 73.7 percent (28) of the tobacco producers who grew 3.1 acres and more, used both cultivation and chemical control for weeds.

IV. IMPLICATIONS AND RECOMMENDATIONS

Based upon the findings of the study, the following implications and recommendations are drawn.

1. The majority (73 percent) of the White County Burley Tobacco producers surveyed reported one or more contacts with the Agricultural Extension Service. Forty-eight percent of the producers received one or more visits from a County Extension Agent, and forty-one percent of the White County tobacco producers reported five or more total Agricultural Extension Service contacts. These findings indicate that White County Extension Agents are doing an acceptable job of contacting the tobacco producers. Therefore, County Extension Agents should continue supporting producers through meetings and other types of personal contacts.
2. Approximately 33 percent of all producers are having a soil sample tested every two years and less, fifty-one percent have a soil sample frequency of three years and more, and the remaining 15.5 percent reported never having a soil sample tested. Forty-seven percent of the producers who had five or more total Extension contacts reported a soil sample frequency of two years and less. Therefore, County Extension Agents should continue to encourage producers to have a soil sample frequency or two years and less.
3. Among the thirty-three (39.3 percent) White County burley tobacco producers who reported blank shank as a disease problem in their tobacco in 1997, 63.6 percent (21)

used Ridomil as chemical control for black shank. Sixty-eight percent (13) of the producers who had five or more total Extension contacts reported using Ridomil for black shank control. Since Ridomil has been proven as an effective control of black shank, County Extension Agents should continue stressing its importance through educational meetings and personal contacts with producers.

4. Approximately sixty percent (50) of the producers waited 27 days and less between topping and cutting their tobacco, compared with the remaining 40.5 percent (34) who waited 28 days and more. Among the producers who had five or more total Extension contacts, 64.7 percent (22) waited 28 days and more between topping and cutting their tobacco. Because the length of time between topping and cutting tobacco is a management practice that influences yield and quality of tobacco harvested, County Extension Agents should continue their educational programs and contacts emphasizing this practice.

5. Approximately 41 percent of White County burley tobacco producers purchased transplants in 1997. Among the transplants purchased, 57 percent were produced in White County, 20 percent were produced in another Tennessee county, and 23 percent were produced in Kentucky. With such a large percentage of producers purchasing transplants and many of those transplants produced in other counties and Kentucky, then County Extension Agents should provide programs on transplant production and marketing as alternative sources of income for county farmers to encourage a locally grown supply of quality transplants.

6. A little more than 14 percent of the producers reported having manganese

toxicity in their tobacco. Nineteen percent of the producers surveyed responded to having a problem with tomato spotted wilt virus. A little more than 39 percent reported blue mold in their tobacco in 1997, and approximately 39 percent reported black shank in their tobacco in 1997. White County Extension Agents experienced (through farm visits, personal contacts, etc.) many cases of manganese toxicity, tomato spotted wilt virus, blue mold, and black shank in White County tobacco in 1997. The findings from the study contrast the agents' opinion of these problems. Therefore, County Extension Agents should provide educational programs dealing with scouting, diagnosis, and treatment of tobacco disease problems, such as manganese toxicity, tomato spotted wilt virus, blue mold, and black shank.

V. RECOMMENDATIONS FOR FURTHER STUDY

As long as burley tobacco production remains an important part of Tennessee agriculture, similar studies should be conducted periodically to identify characteristics of burley tobacco producers, their contacts with the Agricultural Extension Service, and their use of selected production practices. Information obtained from county, district, and / or state tobacco surveys is necessary for County Extension Agents and Specialists to plan, implement, and evaluate educational programs that meet the need of their clientele.

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APPENDIX



1997 WHITE COUNTY,

TENNESSEE

BURLEY TOBACCO SURVEY

A. GENERAL INFORMATION

1. 1997 Quota?
_____ pounds owned
_____ pounds leased in
_____ pounds leased out
2. _____ Number of acres grown on farm?
3. Number of acres of each tobacco variety grown?
_____ TN 86
_____ TN 90
_____ Clay 403
_____ Clay 501
_____ Coop 543
_____ R 610
_____ KY 17
_____ KY 14xL8
_____ KY 907
_____ other _____

B. TRANSPLANT PRODUCTION

1. Acreage from transplants produced on farm by the following methods:
_____ direct seeded greenhouse
_____ direct seeded outdoor float beds
_____ plug and transfer float system
_____ purchased ready for floating (in trays)
_____ conventional bed
_____ other
2. _____ Acres of transplants sold?
_____ Acres of transplants planted?
3. Acreage from transplants purchased off farm, how produced?
_____ float systems
_____ conventional bed plants

4. Acreage from transplants purchased off farm, where grown?
- ☐ in county
 - ☐ out of county; in Tennessee
 - ☐ Kentucky
 - ☐ other state
5. Float system transplant production
(if all transplants purchased or conventional bed plants, please move to section C)
- a. Method of disinfection of styrofoam trays?
- ☐ bleach / water mixture
 - ☐ commercial disinfectant (Prevent, Green Shield, etc.)
 - ☐ methyl bromide fumigant
 - ☐ combination of methods
 - ☐ none
- b. Size of styrofoam trays (number of cells per tray)?
- ☐ 200 cells
 - ☐ 242 cells
 - ☐ 253 cells
 - ☐ 288 cells
 - ☐ 338 cells
 - ☐ 392 cells
- c. Soluble salts a problem?
- ☐ no
 - ☐ yes
- d. Weather damage?
- ☐ none
 - ☐ cold
 - ☐ heat
- e. Disease problems with float plants?
- ☐ none
 - ☐ damping off
 - ☐ blue mold
 - ☐ nutrient deficiency
 - ☐ pythium root rot
 - ☐ target spot
 - ☐ other
- f. Was heat supplied (water heater, gas, electric, etc.)?
- ☐ no
 - ☐ yes

g. Was ventilation supplied (intake, exhaust fans, etc.)?

_____ no
_____ yes

C. FIELD PRACTICES

1. Frequency of soil samples tested?

_____ every year
_____ every other year
_____ every three to four years
_____ occasionally
_____ never

2. _____ Pounds of nitrogen applied per acre?

3. _____ Tons of lime applied per acre?

4. Weed Control

a. Major weed problem?

_____ grass
_____ broadleaf weeds

b. Control method used?

_____ cultivation
_____ chemicals
_____ both

c. Chemical used?

_____ Devrinol
_____ Prowl
_____ Tillam
_____ Spartan
_____ Command 3ME
_____ Other

5. Diseases

a. Blue mold?

_____ no
 _____ yes

If yes, type of chemical control used

_____ None
 _____ Ridomil
 _____ Dithane DF
 _____ Acrobat MZ
 _____ Other

b. Black shank?

_____ no
 _____ yes

If yes, type of chemical control used

_____ None
 _____ Ridomil
 _____ Other

c. Tomato spotted wilt virus?

_____ no
 _____ yes

d. Manganese toxicity?

_____ no
 _____ yes

6. Stage tobacco topped?

_____ button - early flower
 _____ early flower - mid flower
 _____ mid flower - full bloom

7. _____ Number of days between topping and cutting?

D. INFORMATION ABOUT THE FARMER

1. _____ Farmer's age?

2. Farmer's education?

_____ less than high school
 _____ high school graduate
 _____ some college
 _____ college graduate

3. Farmer's employment?

_____ full-time farm

_____ part-time farm

E. EXTENSION CONTACTS (during the past 12 months)

1. _____ Tobacco meetings attended?

2. _____ Other Extension meetings attended?

3. _____ Visits to Extension office?

4. _____ Telephone calls made to Extension office?

5. _____ Farm visits received from Extension agent?

VITA

Michael Edward Barry was born July 20, 1972 in Nashville, Tennessee. He grew up in White House, Tennessee, and graduated from White House High School in 1990. He entered Middle Tennessee State University, Murfreesboro, Tennessee in August, 1990. In May 1994, he completed the requirement for the Bachelor of Science Degree in Agribusiness with an emphasis in Agricultural Education with teaching certification in agricultural education. While at Middle Tennessee State University, he was a member of Delta Tau Alpha Agriculture Honor Society and Alpha Gamma Rho Agriculture Fraternity.

He was employed by the University of Tennessee Agricultural Extension Service as an Assistant Extension Agent responsible for 4-H and youth agriculture programs in White County, Tennessee on September 1, 1994. He transferred to Warren County, Tennessee on November 17, 1997.

He is a member of the Tennessee Association of Extension 4-H Workers and the National Association of Extension 4-H Agents. He received the 1996 TAE4-HW Communicator of the Year Award, the 1997 George S. Foster Outstanding 4-H Agent Award, and the 1997 District IV Outstanding New Agent Award.

He is the youngest son of Charles and Kay Barry of White House, Tennessee. He is married to the former Gena Francine Billings of McMinnville, Tennessee. Their first son, Austin Keith was born December 12, 1997.

