

THE ROLE OF FLUE-CURED TOBACCO IN THE RURAL
GEOGRAPHY OF PITT COUNTY,
NORTH CAROLINA

A Thesis

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Master of Arts in Geography

by
Dennis Allen Dudley

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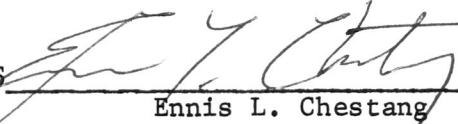
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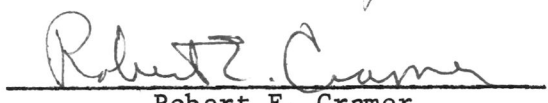
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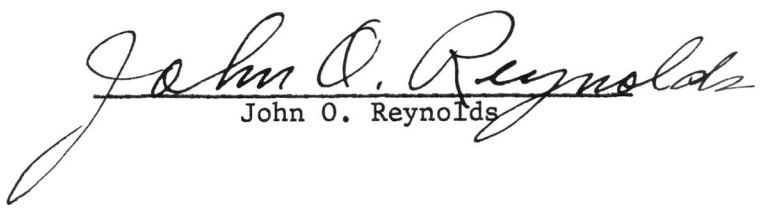
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PREFACE

This thesis deals with the role of flue-cured tobacco on the rural landscape of a county. While there are numerous studies dealing with the techniques of flue-cured tobacco production, few of them are geographic; therefore, the main body of information for this thesis was obtained in the field.

After completing such a study, one feels strongly indebted to many individuals for personal interviews and other assistance. The writer gratefully acknowledges the help of many farmers, farm workers, agricultural agents, and others concerned with agriculture in Pitt County, North Carolina. A particular statement of appreciation is due Mr. Roy Baker, Mr. Davis Sutton, and Mr. J. W. Smith whose farms are represented in the text. Mr. Walter Smith was also very helpful and supplied valuable information about farming practices.

The writer would also like to thank Dr. Robert E. Cramer, Chairman of the Department of Geography, East Carolina University, and Mr. Philip Shea, Professor in the same Department, who were readers for the study, and Miss Palmyra Monteiro for advice on preparation of the maps. Dr. Ennis L. Chestang, Assistant Dean of the Graduate School, East Carolina University, supervised this thesis. Completion would not have been possible without his help.

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INTRODUCTION

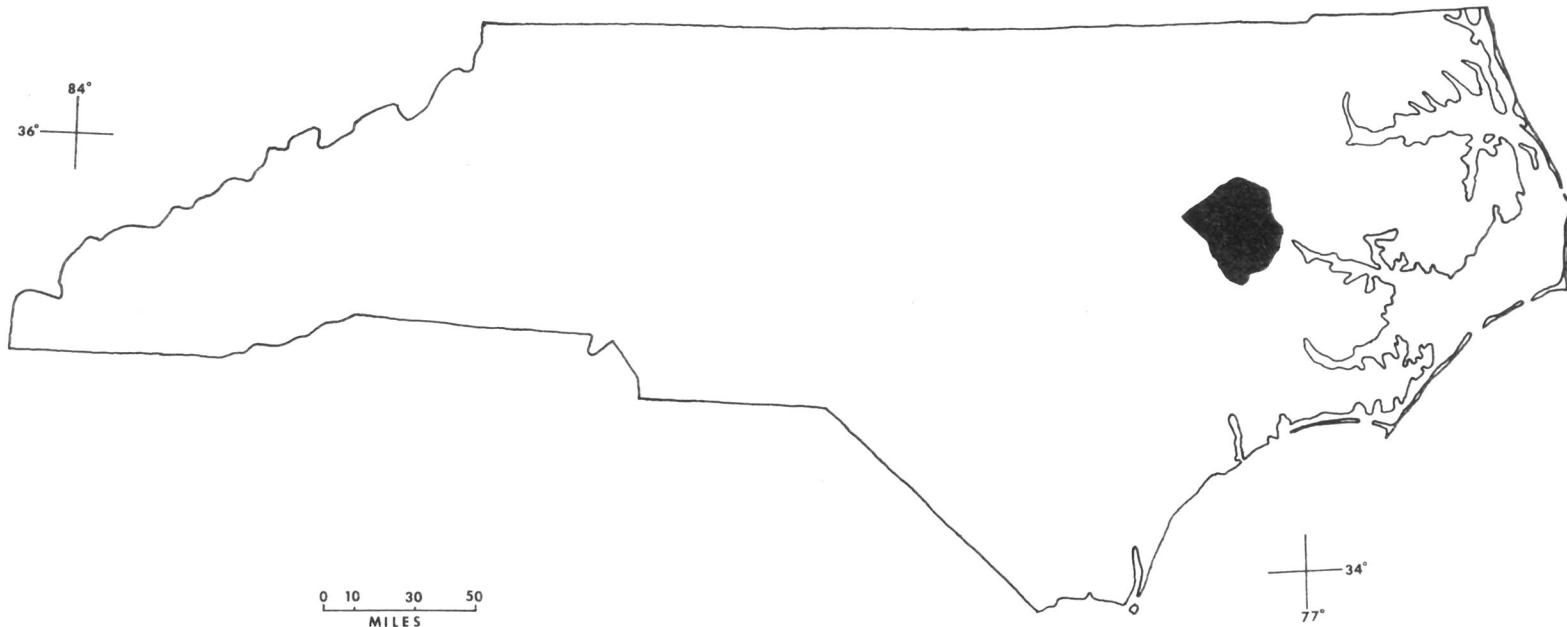
Pitt County, North Carolina (Map 1) is an area where flue-cured tobacco is the primary cash crop in a diversified agricultural economy.¹ Tobacco, which is grown on only 18 percent of the harvested cropland, is by far the most important crop in value and effort expended and is the crop around which most agricultural activities in the County revolve.

Most farms in Pitt County specialize in flue-cured tobacco as the primary cash crop but, as stated, less than one-fifth of the harvested cropland is in tobacco. Federal and state restrictions, i.e. allotments, create a situation in which a fairly constant amount of land is devoted to tobacco production.² Low tobacco acreage frees 80 percent or more of the land for other crops. Therefore, Pitt County, like most areas of flue-cured tobacco production, is an area of diversified

¹Flue-cured tobacco or Bright Leaf Flue-Cured Tobacco varies from other types of tobacco in texture, major use, and the way it is cured. Flue-cured is a light textured tobacco that is used primarily in cigarettes. From 50 to 95 percent of the tobacco in a cigarette, depending on the brand, is flue-cured and the rest is burley, turkish, or a mixture of other tobaccos. Flue-cured leaf is cured in a well-insulated barn by using artificial heat conducted into or through the building via flues. Flue-cured is not subjected directly to open flames or smoke.

²Tobacco is raised under stringent acreage and poundage restrictions but with guaranteed market and support price. The acreage-poundage program was started in 1965. Each tobacco farmer is allotted a specific number of acres on which he can grow the crop and a specific poundage per acre. The poundage can be exceeded by 10 percent without penalty but his poundage is reduced by the same amount the following year.

PITT COUNTY IN NORTH CAROLINA



Map 1

agriculture. In Pitt County, the primary crops other than flue-cured tobacco are corn, soybeans, and peanuts. A wide variety of minor crops, such as vegetables and hay crops, is also grown and there is some live-stock.³ Recent trends toward mechanization and a consequent increase in the size per unit of tobacco production appear to be prompting greater crop diversity and an increase in livestock in the County.

Pitt County ranked either first or second among North Carolina counties in agricultural income from principal crops during the years of 1957-1964, except for one year, 1962, when it ranked third.⁴

(Appendix I) Flue-cured tobacco accounted for three-fourths or more of the total income for each of those years.⁵ (Table 1)

Large marketing and processing centers are located in Pitt County at Greenville and Farmville. In 1966, Greenville ranked as the fourth largest flue-cured tobacco market in the United States in both sales by producers and gross sales while Farmville ranked fifteenth. Combined sales for Greenville and Farmville exceeded sales for Wilson, which is advertised as the world's largest flue-cured tobacco market.⁶ Pitt

³Minor crops in Pitt County in order of acres cultivated are cotton, wheat, oats, other small grains, sorghums, barley, lespedeza, vegetable gardens, other vegetables, soybeans for hay, sweet potatoes, small grains for hay, coastal bermuda, and Irish potatoes.

⁴Principal crops as defined by the North Carolina Department of Agriculture include tobacco, cotton, peanuts, Irish potatoes, sweet potatoes, corn, wheat, oats, soybeans for beans, lespedeza seed, and all hay.

⁵N. C., Department of Agriculture, North Carolina Agricultural Statistics (Raleigh, N. C.: Crop Reporting Service), Issues for 1960-1965.

⁶Sales by producers for Wilson were 61,071,135 pounds and the combined total for Farmville and Greenville was 66,531,845 pounds. Gross

County is first in combined sales of any county in the New Bright Belt (Map 2) and has the largest number of warehouses and sets of buyers within its boundaries of any county in the Belt.⁷

TABLE 1
COMPARATIVE VALUE OF FLUE-CURED TOBACCO TO
TOTAL VALUE OF ELEVEN PRINCIPAL CROPS
FOR PITT COUNTY 1957-1964*

<u>Year</u>	<u>Value of Tobacco</u>	<u>Total Crop Value</u>	<u>Percentage Tobacco Of Total</u>
1957	\$21,927,000	\$27,873,700	78.7
1958	27,541,000	36,008,790	76.5
1959	22,292,000	29,415,820	75.8
1960	30,623,000	37,976,640	80.6
1961	32,527,000	39,688,630	82.0
1962	25,634,000	33,654,980	76.2
1963	32,037,000	41,801,650	76.6
1964	31,354,000	40,390,730	77.6

*Value figures for 1965 and 1966 have been deleted because they were not published in North Carolina Agricultural Statistics, 1967 Issue and are not available from the North Carolina Department of Agriculture.

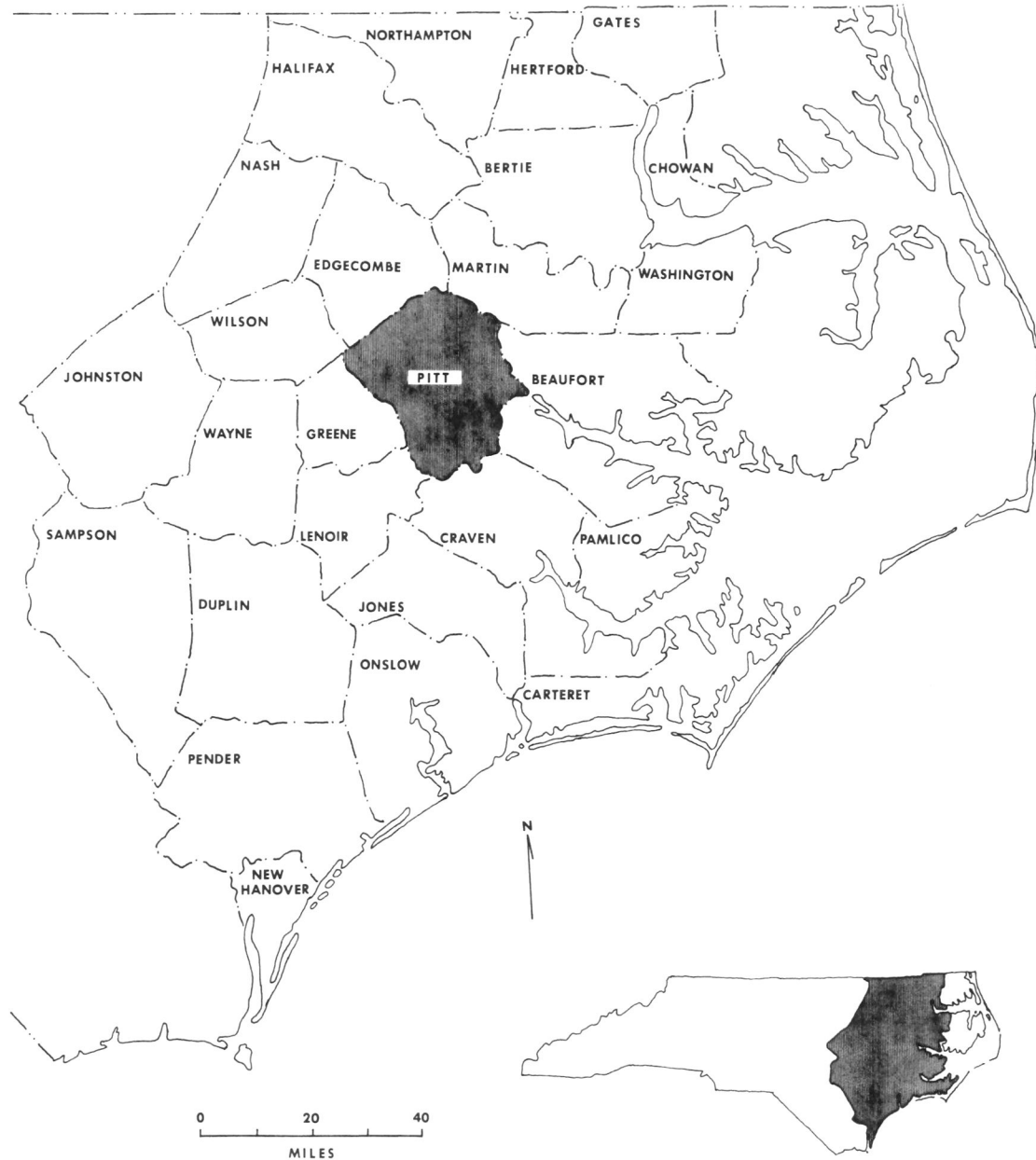
Source: N. C., Department of Agriculture, North Carolina Agricultural Statistics, Issues for 1960-1965.

sales for Wilson were 65,116,374 pounds and the combined total for Farmville and Greenville was 69,936,459 pounds.

R. C. Rankin, ed., "Bright Leaf Crops From 1933 thru 1966," Bright Leaf Tobacco, 34th ed. (Wilmington, N. C.: Carolina Printing and Stamping Co., 1966), p. 38.

⁷The New Bright Belt or Type 12 Tobacco Belt is the largest flue-cured tobacco belt in the United States in production and area covered. The belt, entirely within Eastern North Carolina, occupies most of the Coastal Plain. According to the N. C. Crop Reporting Service, seven counties in addition to the twenty-six counties shown in Map 2 are included within the Belt. Camden, Currituck, Dare, Hyde, Pasquotank, Perquimans, and Tyrrell have been deleted for none of these had more than three acres of tobacco in 1966.

COUNTIES IN THE NEW BRIGHT BELT



SOURCE: N.C. DEPARTMENT OF AGRICULTURE

Map 2

The County lies in a region classified by Bogue and Beale as "North Carolina Area 8," which is "the most productive part of a very productive subregion."⁸ Area 8 (Map 3) encompasses Edgecombe, Greene, Lenoir, Nash, Pitt, Wayne, and Wilson counties and is described by Bogue and Beale as heavily agricultural with roughly 85 percent of all farms being commercial farms specializing in tobacco as the primary cash crop. According to Bogue and Beale, soil, climate, and labor supply combine to make the area ideally suited to intensive cultivation of flue-cured tobacco. Tobacco yields are usually high and in recent years have run on the average of 200 to 300 pounds per acre higher than in other counties in the New Bright Belt and other flue-cured tobacco-producing regions. Most farms in Area 8 are small with less than fifty acres of land, one-half of which is usually in woods.⁹ The average size farm in North Carolina is slightly over 100 acres of which 53 percent is woodland. Tobacco is most important because of its high value but corn is the leading acreage crop, partly due to the large number of draft animals to be fed. Mules, now declining in importance, are used to supplement small tractors in the cultivation and harvesting of tobacco. Cotton, which was earlier the major crop in the area, is on the way out with continuously declining production while soybeans are becoming increasingly more popular. Bogue and Beale's Area 8 is described as "the most densely settled

⁸Donald J. Bogue and Calvin L. Beale, Economic Areas of the United States (New York: The Free Press of Glencoe, Inc., 1961), p. 894.

⁹Ibid., pp. 290, 894.

"NORTH CAROLINA AREA 8"



AFTER BOGUE AND BEALE

Map 3

farming area in the nation" with an average of fifty-seven people per square mile of farmland.¹⁰

Pitt County has led the New Bright Belt of North Carolina in the number of acres of flue-cured tobacco harvested during the past fifty years.¹¹ (Map 4) In 1966, more than forty-six million pounds of tobacco were produced in the County, which exceeded the production of all other New Bright Belt counties by five million pounds. During the same year, Pitt County produced over one-tenth of the total tobacco crop of the New Bright Belt or roughly 4 percent of United States flue-cured tobacco production. The New Bright Belt, encompassing twenty-six Eastern North Carolina counties, accounts for one-third of United States flue-cured production.¹²

In 1966, 22,923 acres or 18 percent of the 126,482 acres of cropland harvested in Pitt County were in tobacco. (Map 5) In the New Bright Belt, that 18 percent was exceeded only by Nash County with roughly 20 percent of the total harvested cropland in tobacco. The heaviest concentration of tobacco acreage is centered on a cluster of counties including Pitt. The percentage of tobacco acreage decreases away from the center toward the north, east, and south which is probably due to less favorable conditions for cultivation.

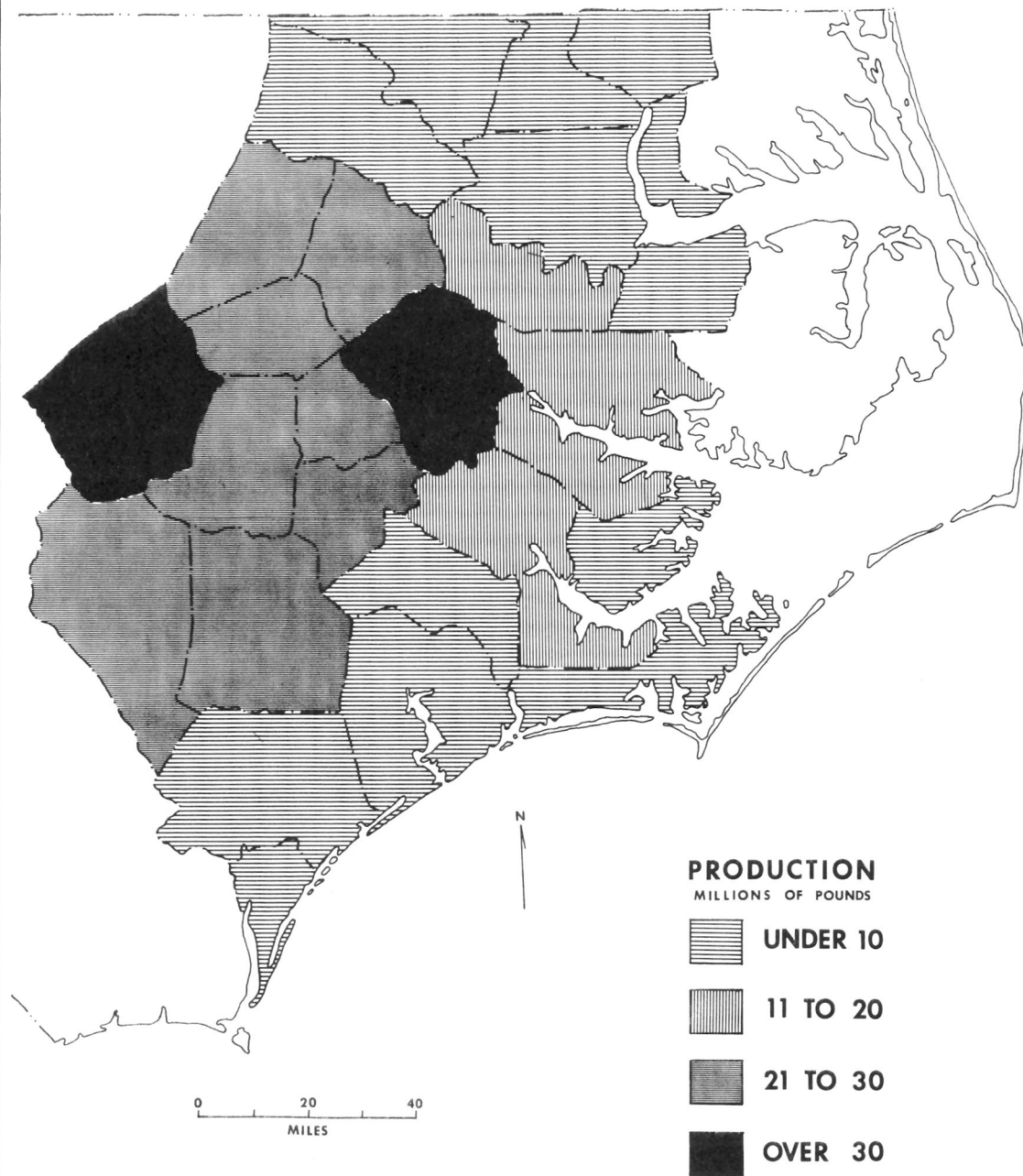
¹⁰Ibid., p. 287.

¹¹N. C., Department of Agriculture, North Carolina Agricultural Statistics, Issues for 1960-1967.

¹²U. S., Department of Agriculture, Consumer and Marketing Service, Annual Report on Tobacco Statistics, 1965, Statistical Bulletin No. 372 (Washington, D. C.: U. S. Government Printing Office), pp. 18, 68.

NEW BRIGHT BELT TOBACCO PRODUCTION

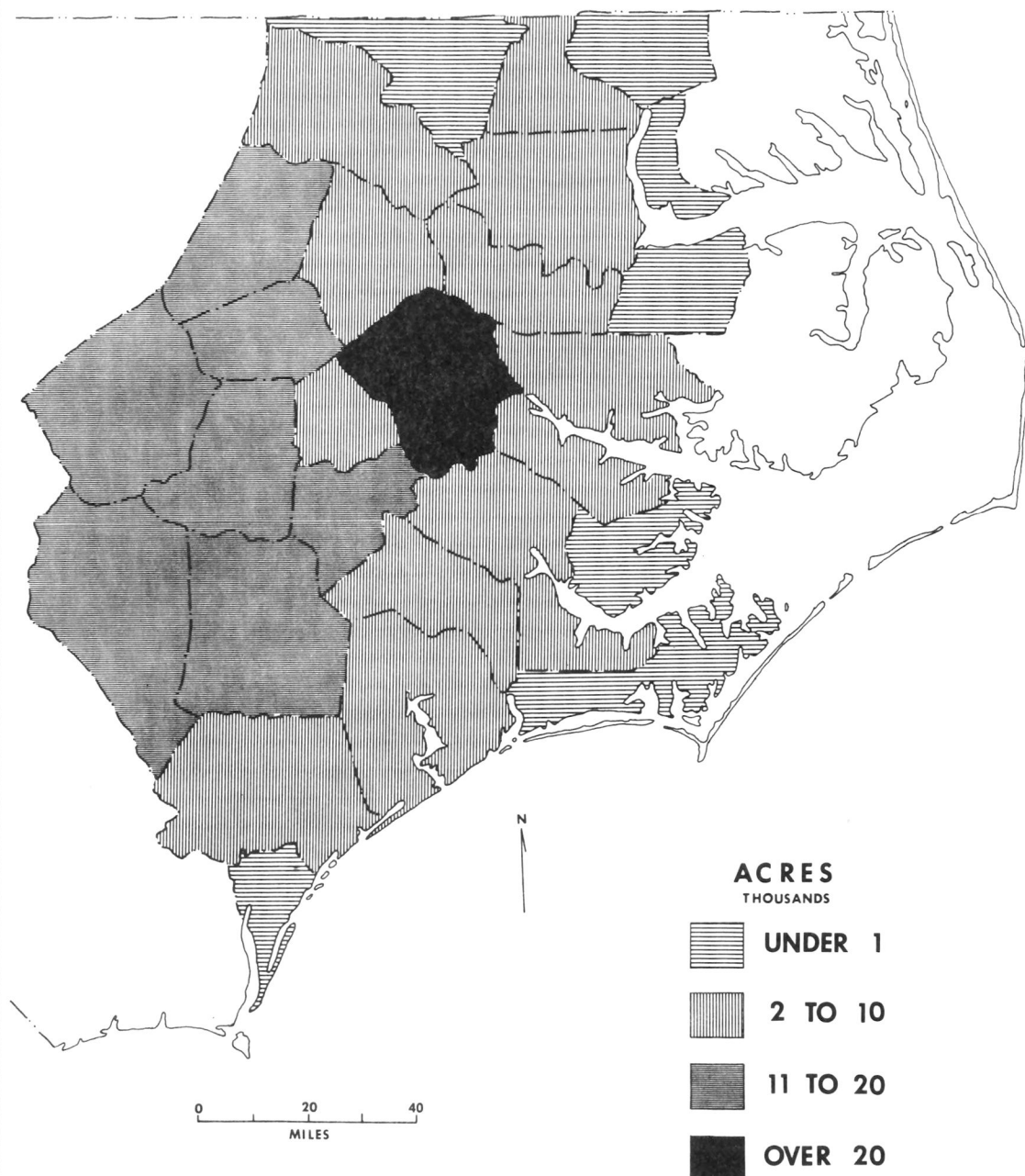
1966



SOURCE: N.C. DEPARTMENT OF AGRICULTURE

Map 4

NEW BRIGHT BELT TOBACCO ACRE ALLOTMENT 1967



SOURCE: N.C. DEPARTMENT OF AGRICULTURE

Map 5

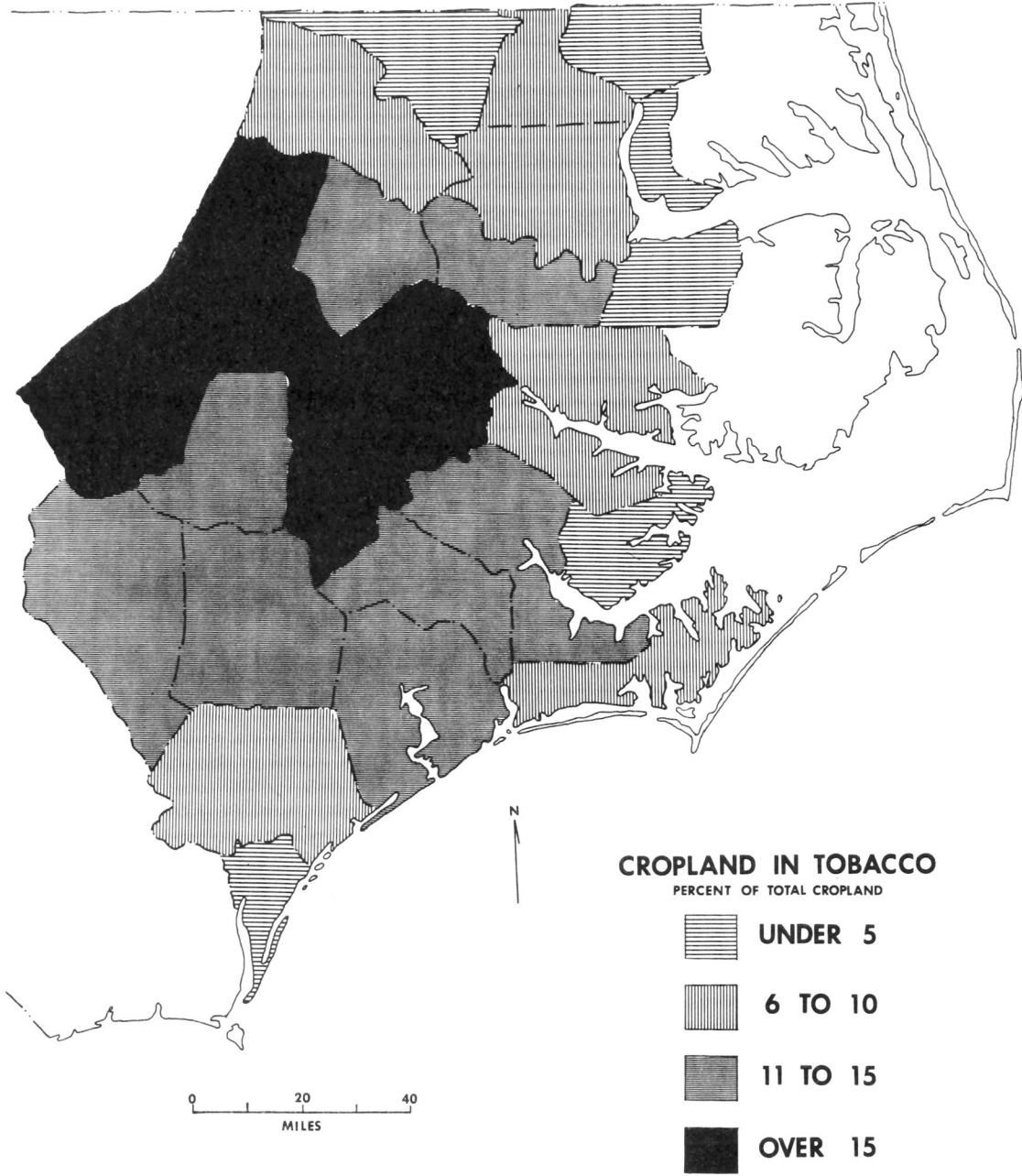
Flue-cured tobacco allotments for the New Bright Belt in 1967 ranged from a high of 21,363.17 acres and 41,331,933 pounds in Pitt County to a low of .06 acres and 67 pounds in Dare.¹³ Pitt had the largest acreage and poundage allotments of any county in the New Bright Belt and was the only county in the Belt to have in excess of 20,000 acres. (Map 6)

The level to gently rolling terrain of Pitt County consists of flat, sandy interfluves intervening slightly lower, poorly drained swamps. Most cropland is located on the sandy and sandy loam soils of the interfluves and almost all tobacco is grown there. The moderate to well-drained soils with low organic content produce highest yields and the best quality leaf.

An almost completely open rural landscape consisting of vast tracts of cleared and wooded land is crisscrossed by a network of transportation routes. (Figure 1) Farmsteads are scattered about the countryside with easy access to roads and fields. The typical farmstead consists of a dwelling, assorted outbuildings, looping shelters, curing barns, and packhouses. (Figure 2) The ever present combination of looping shelters, which serve as tying areas, barns, where tobacco is cured with flue-conducted heat, and packhouses, where tobacco is stored and graded, are scattered across the countryside and give striking character to the rural landscape.

¹³Camden, Currituck, Dare, Hyde, Pasquotank, Perquimans, and Tyrrell counties have been deleted from the production, allotments, and harvested cropland maps because none had more than three acres of harvested cropland devoted to flue-cured tobacco production.

NEW BRIGHT BELT **PERCENT OF CROPLAND IN TOBACCO** 1966



SOURCE: N.C. DEPARTMENT OF AGRICULTURE

Map 6



Figure 1.--Transportation routes crisscross enormous tracts of cleared farmland.



Figure 2.—The farmstead consists of a dwelling, assorted outbuildings, looping shelters, curing barns, and packhouses.

Pitt County, therefore, has the largest tobacco production, most acres of tobacco harvested, largest tobacco allotments, and one of the highest percentages of harvested cropland in tobacco of any county in the New Bright Belt of North Carolina. No greater concentration of tobacco production, associated processes and related structures, can be found in any part of the New Bright Belt than in Pitt County.

The object of this thesis is to determine the impact of tobacco on the rural landscape of Pitt County, to determine what relationships exist between flue-cured tobacco production and other agricultural activities on the farms of the County, and to determine the degree to which other crops and land use practices are oriented toward tobacco.

In order to assess the role of flue-cured tobacco in the rural geography of Pitt County, it will be necessary to evaluate crop combinations and patterns, techniques of flue-cured tobacco production, tobacco production and structures on the rural landscape, and farm patterns.

CHAPTER I

CROP COMBINATIONS AND PATTERNS

The combination of crops and planting patterns in Pitt County revolve around the requirements for production and preparation of flue-cured tobacco. Although the tobacco crop occupies only 18 percent of the harvested cropland, over one-half of agricultural income in the County can be attributed to tobacco. Due to the high value of the crop, much time and effort is exerted toward its production and other crops are essentially filler crops that occupy the remaining land but require little cultivation time and divert little attention from tobacco. The emphasis is, therefore, placed on tobacco.

Crops and not livestock are the mainstay of agriculture in Pitt County. Although there are various types of livestock and their numbers are currently on the increase, a combination of tobacco, corn, soybeans, and peanuts occupies 93 percent of the harvested cropland and accounts for 90 percent of agricultural income from major crops.¹⁴

Pitt County has the most acres allotted to flue-cured tobacco cultivation of any county in the New Bright Belt or of North Carolina. Although Pitt has had the largest tobacco acreage for the past fifty years, only 18 percent of the total harvested cropland was planted in tobacco in 1966. Forty-six percent of harvested cropland was in corn

¹⁴Major crops include tobacco, corn, soybeans, peanuts, cotton, Irish potatoes, sweet potatoes, wheat, oats, lespedeza, and all hay. N. C., Department of Agriculture, North Carolina Agricultural Statistics, Issues for 1960-1965.

for grain, 23 percent in soybeans, 6 percent in peanuts, and the remainder in cotton, wheat, oats, and other crops.¹⁵ (Table 2) Livestock raising is minor in relation to crop production in the County but 80,000 to 85,000 sows and feeder pigs per year and a small number of cattle are raised. (Table 3) Vegetable crops, such as Irish potatoes, sweet potatoes, and cucumbers, and a variety of hay crops are also grown. (Table 4)

TABLE 2

PITT COUNTY - MAJOR CROPS AND PERCENTAGE OF
HARVESTED CROPLAND (1966)

<u>Crop</u> (In Order of Acres Harvested)	<u>Percent of</u> <u>Harvested Cropland</u>
Corn, harvested for grain	46
Soybeans, for beans	23
Tobacco	18
Peanuts, all purposes	6
Cotton.	2
Wheat, for grain.	} 5
Oats, for grain	
Corn, cut green for silage.	
Other small grains for grain.	
Sorghums, for grain	
Barley, for grain	
Lespedeza, for seed	
Other crops cut green for silage.	

Source: N. C. and U. S. Departments of Agriculture, "Preliminary 1967 County Commissioners Farm Census Summary - Pitt County."

Eighty-three percent of the 419,840 acres in Pitt County is occupied by farms. Of the land in farms, 45 percent is devoted to the

¹⁵N. C. and U. S., Departments of Agriculture, "Preliminary 1967 County Commissioners Farm Census Summary - Pitt County."

production of crops, 49 percent is timber and woodland, and the remaining 6 percent is in pasture, waste, and farmsteads.¹⁶

TABLE 3

PITT COUNTY - LIVESTOCK RAISED AND NUMBER IN
COUNTY AS OF JANUARY 1, 1967

<u>Livestock</u>	<u>Number</u>
Sows and Gilts, kept for breeding	5,104
Cows and Heifers, 2 years old and over	
Kept mainly for milk	1,106
Kept mainly for beef	4,939
All Hens and Pullets, of laying age	148,233

Source: N. C. and U. S. Departments of Agriculture, "Preliminary 1967 County Commissioners Farm Census Summary - Pitt County."

TABLE 4

PITT COUNTY - MINOR CROPS AND ACRES HARVESTED
(1966)

Vegetable Crops	
<u>Crop</u>	<u>Acres Harvested</u>
Irish potatoes, grown for sale	26
Sweet potatoes, grown for sale	135
Other vegetables, grown for sale (cucumbers, etc.)	1,020
Vegetable gardens, for home use.	2,150
Hay Crops Harvested	
Coastal Bermuda.	45
Soybeans or Cowpeas.	226
Small grains, cut for hay.	134
All other hays	591

Source: N. C. and U. S. Departments of Agriculture, "Preliminary 1967 County Commissioners Farm Census Summary - Pitt County."

¹⁶Ibid.

Most cleared land is on the low flat interfluves. Woodlands occupy the slightly lower natural drainage swamps that have developed on the gently sloping coastal plain in dendritic patterns. (Map 7) The arrangement of cleared and wooded land imparts to the landscape a non-symmetrical pattern with an open farming appearance. (Figure 3) Roads intersect at peculiar angles, curve to follow the terrain, and confuse the shapes of fields even more. Fields are often interrupted by irrigation pits or family graveyards. (Figure 4) Crops are planted as close to any obstacle as possible, leaving the graveyard or irrigation pit like a blemish on an otherwise productive tract of land. Roads and drainage ditches subdivide the cleared land into a disarrayed jigsaw puzzle of fields and farmsteads. A combination of tobacco, corn, and soybeans occupies 87 percent of the harvested cropland and is the "trademark" of Pitt County agriculture.



Figure 3.--Non-symmetrical landscape with an open farming appearance

WOODED AND CLEARED LAND IN PITT COUNTY



SOURCE: U.S.G.S. TOPO.- ROCKY MOUNT, N.C.

Map 7



Figure 4.--Fields are interrupted by irrigation pits and graveyards.

Flue-Cured Tobacco

Flue-cured tobacco is by far the most important crop grown in Pitt County and has the highest value of any crop in the tobacco-corn-soybean combination. Tobacco also requires a great deal of attention and effort expended in production. This means that the greatest amount of cultivation time is given to tobacco while corn and soybeans function as fillers which require little cultivation time but absorb most of the remaining arable land.

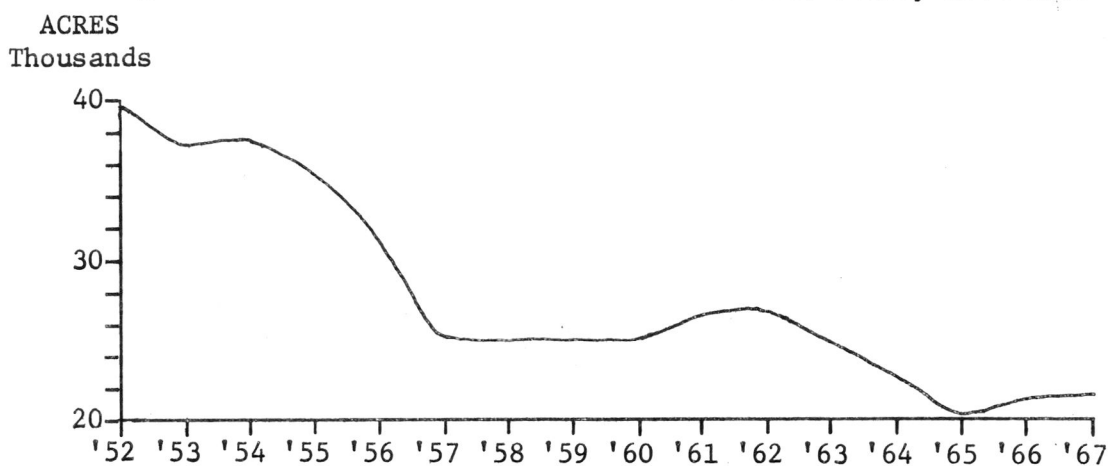
Tobacco Allotments

The amount of land that can be devoted to tobacco production is limited by a federally imposed allotment system. Acreage-poundage allotments also determine the number of pounds that can be sold. According to that program, the amount of tobacco produced in a county is

determined by allotments placed on the individual farms within the county. In return for adhering to allotment quotas, the farmer is guaranteed a support price for his tobacco at market time.¹⁷

The number of acres allotted to flue-cured tobacco in Pitt County has decreased from 39,866 acres in 1952 to 21,363 acres in 1967. With each reduction in the amount of cropland in tobacco, farmers have increased the production of other crops.¹⁸ (Figure 5)

Figure 5.--Acres Allotted to Tobacco in Pitt County 1952-1967



Source: N. C. Department of Agriculture, North Carolina Tobacco Report (Raleigh, N. C.: The Graphic Press, Inc.), Issues for 1951-1967.

¹⁷The acreage-poundage program for flue-cured tobacco was placed in operation in 1965. The program in effect prior to this date was based on control by acreage allotments alone. With the acreage program, yields per acre rose steadily and often at the expense of quality. The new program of acreage-poundage allotments was designed to bring flue-cured tobacco supply in line with demand and improve quality.

Under the new program, a tobacco grower has a quota for both acreage and poundage. The poundage quota for an individual farm is based on the production for the best three years for the 1959-63 period. A farmer is allowed to exceed his poundage quota by 10 percent without penalty but his quota is reduced by that amount the following year.

Noel Yancey, "Acreage-Poundage Plan Said 'Working'," Daily Reflector (Greenville, N. C.), Jan. 5, 1968, p. 9.

¹⁸N. C., Department of Agriculture, North Carolina Tobacco Report, 1951-1952, No. 126, p. 19; 1966-1967, No. 187, p. 23.

Appearance of the Tobacco Crop

The various stages of tobacco production present striking features on the rural landscape to the unaccustomed observer. Seed beds covered with white cloth or plastic sheets are abundantly scattered across the County during the early part of each year. They are a part of the tobacco process and serve to give character to the tobacco landscape.

When planted, tobacco fields are another striking feature of the landscape, especially from the air, because of the skip-row method of planting. This method is one in which the crop is planted in four consecutive rows, skipping one row, and repeating the plant-four-skip-one pattern throughout the field. (Figure 6) This method is used because access to each plant is necessary for cultivating and harvesting during the period of mature plant growth when accessibility between rows is difficult without damaging the plants. The vacant row serves as a corridor for men and equipment used in conjunction with tobacco production. When using the plant-four-skip-one pattern, five acres are used to produce four acres of tobacco. Allotments are based on the land occupied by tobacco and do not include land in skip rows.

Although the plant-four-skip-one pattern is the most common, various other tobacco planting patterns are used. All patterns are variants of the plant-four-skip-one and differ only in the number of consecutive rows planted before skipping the corridor row. The plant-six-skip-one pattern and the plant-eight-skip-one pattern are used but are less common than the plant-four-skip-one in Pitt County. (Figures 7 and 8)

Various skip-row patterns result with tobacco planted in consecutive rows in multiples of two. Tobacco transplanting is moving mature

seed plants from seed beds to fields where the plants mature. At one time, transplanting was done by hand or with a one-row, hand-operated planter drawn by a mule. Most transplanting operations are now done with tractor-drawn, manual, two-row planters which plant two consecutive rows of tobacco in a single trip through the field.



Figure 6.--Plant-four-skip-one tobacco pattern



Figure 7.--Plant-six-skip-one tobacco pattern



Figure 8.--Plant-eight-skip-one tobacco pattern

A few tobacco fields have no skip-row pattern but are planted like corn or soybeans with all rows being used. (Figure 9) Fields with no skip row are usually grown for seed rather than leaf. The seeds are harvested, dried, and stored for later use.



Figure 9.--Tobacco field with no skip row

Location of Tobacco

Tobacco has the most exacting requirements for soil type, drainage, and accessibility of any crop grown in Pitt County and is generally located on the best land. Sandy, well-drained soils are preferred because they produce high quality tobacco and high yields. Corn, soybeans, and other crops are planted on poorer soils adjacent to the best tobacco land.¹⁹ (Map 8)

Due to the susceptibility of tobacco to plant diseases, rotation is an essential part of production. A two-year rotation pattern, where tobacco alternates with lespedeza, corn, soybeans, or other crops, is generally used.

Investment in Tobacco

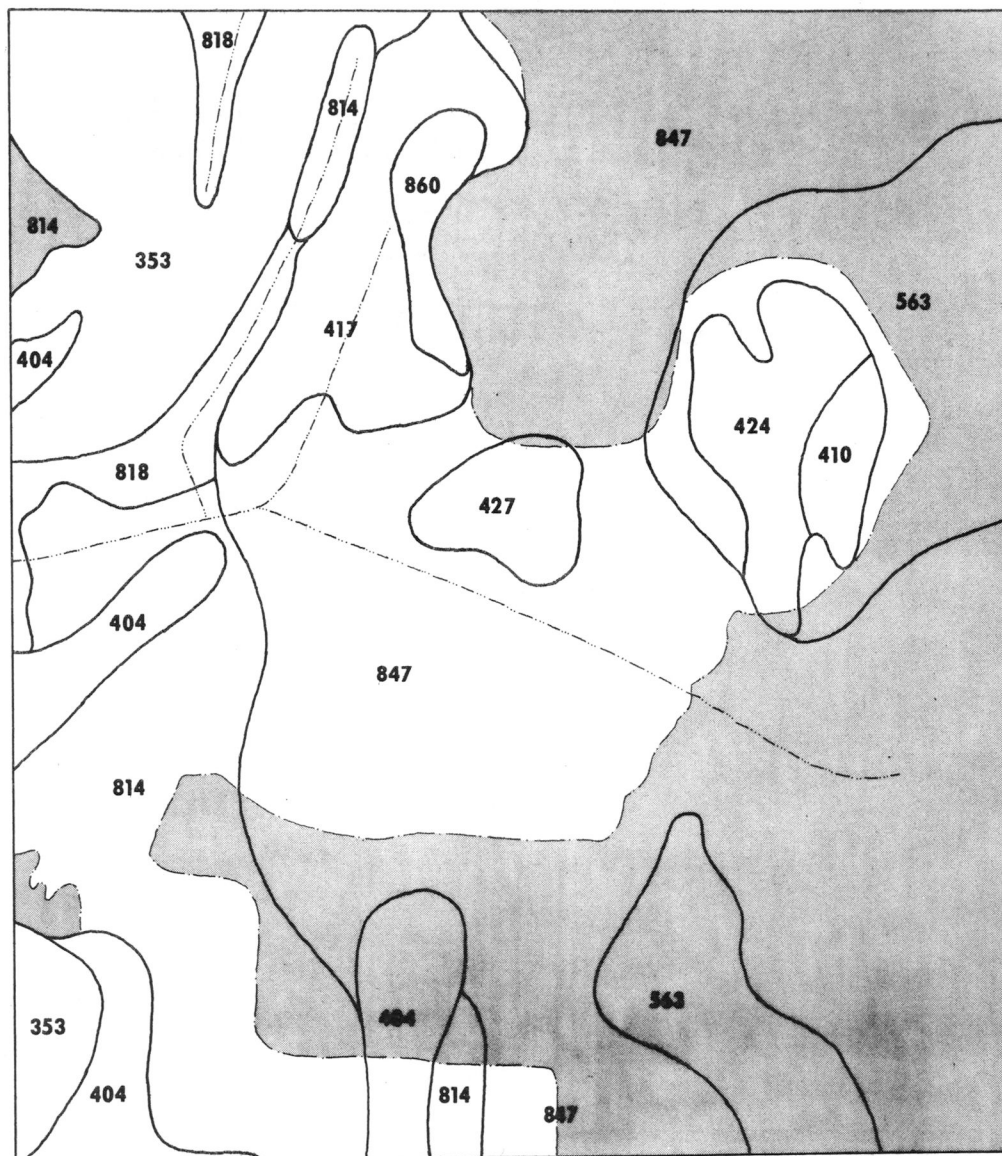
The intensity of tobacco cultivation is evidenced by the facilities on the landscape which attest to high capital investment made in gearing the area to flue-cured tobacco production, since tobacco is the major element in Pitt County agriculture.

The value of farmland in Pitt County includes both an assessment of productive capacity of the land and tobacco allotments. According to Bogue and Beale, land values are generally \$200 to \$300 per acre more than in surrounding areas because the land is highly productive and well

¹⁹Map 8 is a segment of the partially completed Pitt County Soil Survey. The area covered is in the northwestern part of the County and covers most of one farm. Soil groups, designated by numbers, are described according to drainage classification and the crops listed are those suggested to be planted on the soil by the Soil Conservation Service.

Base materials were supplied by the Coastal Plain Soil Conservation Service.

CROP LOCATION ACCORDING TO SOIL



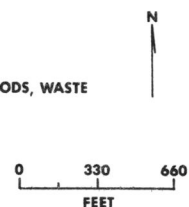
353 - WELL DRAINED LOAMY SAND : TOBACCO

410, 424 - MODERATELY WELL DRAINED SANDY LOAM : SOYBEANS, CORN

404, 417, 427 - SOMEWHAT POORLY DRAINED SAND, LOAM : CORN

563, 814, 847, 860 - POORLY DRAINED LOAM : MARGINAL CROPLAND, WOODS, WASTE

353 SOIL TYPE
WOODLAND
MAIN DITCHES



SOURCE : COASTAL PLAIN SOIL CONSERVATION SERVICE

Map 8

suited to the production of tobacco.²⁰ As a consequence of tobacco allotments being added to the productive capacity of the land, the original investment in farmland is high.

Looping shelters, curing barns, and packhouses represent investment in tobacco production and are monuments to area orientation to tobacco. Tobacco carts, mules, burners in barns, tractors, and harvesters also add to the capital outlay for tobacco.

Corn

Most of the corn produced in Pitt County is harvested for grain. From 40 to 50 percent of the four and one-half million bushels produced is used for livestock feed in the County.²¹ The remaining 50 to 60 percent is sold to grain dealers who market the crop outside of the County. One major grain elevator on the north side of Greenville handles the bulk of grain shipped.

Corn can be planted on any land that is not being used for tobacco. Corn grows on essentially any type of soil and serves as a filler to occupy available land. Income from corn is sufficient to warrant production and additional value is realized from use for feed.

Little cultivation time is required to produce corn. After planting, the crop is usually cultivated two or three times. Most farmers have the corn picked and carried to market or stored for use as feed.

²⁰Bogue and Beale, Economic Areas, p. 894.

²¹The 5,104 hogs in Table 3 are sows and gilts, each which produce approximately sixteen feeder pigs per year. The resultant 80,000 to 85,000 hogs and feeder pigs are the principal corn consumers.

S. C. Winchester, Pitt County Agricultural Agent, personal interview on March 15, 1968.

There are only 400 corn pickers in Pitt County and corn is grown on most of the 5,600 farms.²² Investment in corn machinery is insignificant in comparison to tobacco. Even though corn occupies 46 percent of the cropland, little cultivation time and investment serve to emphasize the pre-eminence of tobacco.

Soybeans

Soybeans occupy 23 percent of the cropland. Even though most of the crop is marketed outside of the County, some is used for feed. Soybean hay is either baled and stored for local use or left in the field.

Cultivation time required for soybean production is more than for corn, but the crop does not require enough time to interfere with the tobacco process. The tobacco-corn-soybean association combines to allow emphasis in production and time to be placed on tobacco cultivation and yet provides a broad enough range of crops to utilize most arable land in the County.

Peanuts

Peanuts occupy only 6 percent of the harvested cropland in the County. In 1964, 6,800 acres of peanuts netted 85 percent of the total value from 25,850 acres of soybeans.²³ Peanuts, as a cash crop, are of little importance in Pitt County because their production requires more time than can be afforded in an area of concentrated flue-cured tobacco production.

²²N. C., Department of Agriculture, North Carolina Agricultural Statistics, 1967 Issue, p. 49.

²³N. C., Department of Agriculture, North Carolina Agricultural Statistics, 1965 Issue, pp. 17, 19, 54, 55.

Other Crops

All other crops grown in the County occupy only 7 percent of the cropland. Cucumbers and cotton are cash crops but are of little importance due to the small quantity of land devoted to them. During the 1967 growing season, more cucumbers were grown than ever before. Approximately 3,000 acres or 2.4 percent of the harvested cropland was occupied by cucumbers in 1967.²⁴ Cucumber buying stations were established at several places throughout the County and much of the crop was processed into pickle products by Lutz & Schramm, Inc. of Ayden, North Carolina.

Livestock

Although livestock raising is relatively unimportant in comparison to crops, the number of livestock in the County is currently on the increase. Hogs net the most income of any livestock sold. Mules require a lot of feed and are not sold but are used in conjunction with tobacco production as draft animals. Cattle are only a small source of income and are fed pasture and hay which require little investment. In all, hogs are the most important but all livestock net little income and are ranked with minor crops as a small segment of the agricultural picture of Pitt County.

Tobacco and Diversity

The crop combinations and agricultural diversity in Pitt County apparently exist because of numerous factors associated with flue-cured tobacco production. Tobacco cultivation requires a great deal of time

S. J. Weeks, Pitt County Agricultural Agent, personal interview on April 17, 1968.

and effort. Corn and soybeans are timely compatible with tobacco and allow most production effort to be expended toward tobacco.

The amount of tobacco produced and land used is regulated by government controls; therefore, most of the arable land is free to be devoted to the production of other crops.

Sandy, well-drained soils provide the best cropland for tobacco cultivation. Corn and soybeans can grow well on the moderately or poorly drained soils that remain after tobacco land is occupied.

Tobacco is the backbone of the agricultural economy of Pitt County and consideration of techniques involved in its production is necessary to understand the significance of structures on the rural landscape and the patterns of farm organization in the County.

CHAPTER II

TECHNIQUES OF FLUE-CURED TOBACCO PRODUCTION

Tobacco production involves a complicated process that requires more time and work through its various stages than any other crop grown in Pitt County. Flue-cured tobacco is well established as the major cash crop and is the backbone of the local agricultural economy.

The impact of tobacco production on the landscape and the role tobacco plays in relation to other agricultural activities can be better illustrated in no other part of the United States. Techniques of tobacco production are heavily concentrated in the County and present a peculiar scene of agricultural activities and facilities unique to an area of tobacco production.

From preparing seed beds to marketing requires roughly eleven months of each producing year extending from early January to late November, when markets close. A tobacco farmer must produce his tobacco plants from seeds, cure and prepare tobacco leaf, and carry the tobacco to markets to be sold at auction. In addition to land with a tobacco allotment, each tobacco farm includes structures designed specifically for meeting the needs of current tobacco techniques.

An understanding of techniques involved in flue-cured tobacco production is important in the presentation of the role of flue-cured tobacco in Pitt County. Various techniques discussed will be those currently being used and not necessarily what has been done in the past or what will be done in the future.

Tobacco Seed Beds

Flue-cured tobacco production begins between late December and early February, depending largely on the weather, with the preparation of seed beds. In these beds, tobacco plants grow from tiny seeds. One ounce of seeds plants roughly 600 square yards of seed bed or enough plants for from six to ten acres in the field. These beds are generally located in areas where protection from direct exposure to winter winds is provided by woods, buildings, hedgerows, or other barriers and seed beds are therefore often obscured from the view of the passerby. (Figure 10) Most barriers are on the north, northeast, and northwest sides of beds, serving to block cold winds and to guarantee shade during some part of the day and consequently help to maintain a relatively high level of soil moisture.



Figure 10.--Seed beds are located near woods or other barriers that serve to block winter winds.

Seed beds are generally located in areas where utmost care has been taken for proper soil management. The tobacco plant is highly susceptible to many types of diseases and caution is imperative for good quality and high yields of mature tobacco leaf. After tilling, fertilizing, and treating the soil with brozone for nematode control, tobacco seeds are scattered by hand and the beds are covered with white loosely woven cloth or perforated plastic sheets which provide protection against cold weather.²⁵ (Figure 11)



Figure 11.--Seed beds are covered to retain moisture and protect young plants from cold weather.

²⁵During preparation and immediately before the seeds are planted, the beds are fumigated. This is a process which is used to kill nematodes, insects which can damage or destroy roots and stems of the tobacco plant. Brozone, in the gaseous form, is injected into the soil under pressure via a mechanical device which attaches to a tractor or the gas is released under an air-tight plastic cover from pressurized cans and allowed to penetrate the soil. Approximately forty-eight hours after the brozone has been applied, the bed is uncovered and aired before tobacco seeds are planted.

Tobacco seed beds are usually 200 to 300 feet long and 8 to 12 feet wide, although the dimensions vary greatly and are a matter of individual preference. Some beds are rectangular, some bend to follow the line of a hedgerow or other barrier, some are oddly shaped and appear to conform to no particular pattern. Individual seed beds or groups of from two to eight beds in close proximity are scattered across the rural landscape and represent the preliminary step in the seasonal production of flue-cured tobacco.

Field Preparation

Tobacco fields are carefully chosen on the basis of soil quality and drainage prior to transplanting from seed beds. Soil is an important factor in tobacco production for it bears heavily on the type and quality of leaf produced. A light, sandy, slightly acidic soil with low organic content produces a thin leaf of light quality which cures evenly to the desired golden yellow color. On the other hand, a dark or heavily organic soil produces a thick heavy leaf which lacks the lightness of texture desired in flue-cured tobacco. Tobacco plants cannot endure excessive moisture, so tobacco fields are located on moderately drained to well-drained soils, thus eliminating much land which is swampy or poorly drained. The tobacco fields, chosen on the basis of these factors, are tilled and fertilized prior to transplanting in much the same manner as for most other crops.

Transplanting

Approximately three months after planting, seed plants are mature and are ready to be transplanted. The mature plants, which are from six

to ten inches tall, are carefully removed from the beds by hand, so the roots will not be damaged, and vertically stacked in bushel baskets for the short trip to the field. (Figure 12)



Figure 12.--Mature seed plants are pulled from seed beds by hand.

In early years of tobacco production, tobacco was transplanted by hand. Transplanting is now expediated by the use of tractors and tractor-drawn planters but the operation still requires much manual labor and many man-hours. For one transplanting operation, observed by this writer, it took nine men five hours to plant five acres of tobacco using a tractor-drawn, two-row planter.

When using the two-row planter, two rows of tobacco can be planted during a single trip through the field. Water is applied to the plants from tanks on the tractor or planter and the seed plants are set in position by hand. Most planters are designed so that two men work a single row and alternate setting plants. (Figures 13 and 14)



Figure 13.--Seed plants are transported to fields and loaded on a planter.

A skip-row pattern is generally used for tobacco fields in Pitt County. The most common pattern in the County is the plant-four-skip-one where four consecutive rows are planted and the fifth is left vacant. The same pattern of plant-four-skip-one is repeated throughout the field.

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Other patterns found in the County are the plant-six-skip-one, plant-eight-skip-one or no skip row at all. Every fifth, seventh, or ninth row, depending on which pattern is used, left vacant is later used as a corridor for men and equipment to cultivate and harvest the tobacco crop.



Figure 14.--Two-row tobacco planter in operation

"Topping" Flue-Cured Tobacco

Eight to ten weeks after transplanting, tobacco is "topped." (Figure 15) This process involves removing the flowers from the plants, at the top, to divert energy to the leaves. The primary function of the tobacco plant is reproduction as effectuated through the flower and much of the nutritional energy manufactured by the plant is channeled to this cause. By removing the flower, nutritional value is diverted to the rest of the plant and increases leaf growth.



Figure 15.--Eight to ten weeks after planting, the tobacco plants are "topped."

Irrigation of Tobacco

Although Pitt County has an average annual precipitation of forty to fifty inches, many farms in the County have established systems for irrigating tobacco. Tobacco fields are located on sandy, well-drained soils where rainfall quickly runs off and the amount of available moisture is limited. Tobacco is easily ruined by too much water where wilting and scorching could completely destroy the crop. Not enough water can be just as hazardous. During long hot dry spells in the summer, plants become pale and almost completely stop growing. Results

of this lack of water are obvious at harvest time when yields per acre are low and the quality is poor.

Artificial irrigation pits (Figure 16) have been dug on many farms and are scattered throughout the County. The pits, averaging ten to fourteen feet in depth, are filled with water from the shallow water table.²⁶ Natural streams, the Tar River, and other sources of irrigation water are also utilized during times of need.



Figure 16.--Irrigation pits are usually close to tobacco fields and are used during dry summer spells.

²⁶Even though the water table varies in depth, it averages from three to four feet below the surface where most pits are dug.

Coastal Plain Soil Conservation Service personnel, personal interview on April 16, 1968.

Most pits and other sources of water are located near tobacco fields. Gasoline pumps are used to draw the water from the source and force it through portable sections of pipe lying on top of the ground to the tobacco fields where an intricate system of rotating overhead sprinklers distributes the water to the plants. (Figures 17 and 18) The sections of pipe and sprinklers usually remain disassembled and stored under shelters or in open piles until need for irrigation arises.



Figure 17.--Gasoline pumps draw water from irrigation pits.

During the ten to twelve months this writer has been working with his thesis problem, very few instances of irrigation have been observed. The greatest use of irrigation is for seed beds which are frequently equipped with a semi-permanent irrigation system. This is logical and

desirable for the season's tobacco crop is dependent upon an adequate supply of good plants.



Figure 18.--Overhead sprinklers distribute water from irrigation pits to tobacco seed beds.

Priming and Tying

Tobacco leaves that have matured in the field and are ready for curing are broken or "primed" from the main stalk. (Figure 19) Leaves at different heights on a plant mature at different times which necessitates priming a field on an average of seven or eight times to harvest a single crop. The primed leaves are carried from the field in narrow,

mule-drawn carts to looping shelters (Figure 20) where the leaves are bunched in hands of three or four leaves, looping together at the base of the primary stem with cotton twine, and strung on sticks. (Figure 21) These sticks of tobacco, then ready for curing, are placed on racks in the looping shelter for several hours until enough tobacco has been tied to fill a curing barn. (Figure 22)



Figure 19.--Tobacco leaves are "primed" when mature.

Curing Tobacco

After tobacco has been harvested and looped on sticks, it is carried to barns for curing. Curing is the process of removing water, oxygen, and carbon dioxide from the leaf. Slow chemical changes and biological processes are initiated with artificial heat and result in a cured leaf of golden color, brown gold.²⁷

²⁷"Tobacco Curing - Brief Description" (Washington, D. C.: The Tobacco Institute).



Figure 20.--Tobacco is carried to looping shelters in narrow, mule-drawn carts.



Figure 21.--Bunches of tobacco leaves are looped with string and tied on sticks.



Figure 22.--Sticks of tobacco are temporarily stored on racks until carried to barns for curing.

Sticks of tobacco are placed in barns on tiers of poles. Once in place, the heat is turned on and the first of three steps of curing tobacco is started. The temperature is raised to between 80° and 115° F and is kept there for 24 to 36 hours until the color of the tobacco has changed from green to yellow. Temperatures are then raised to between 130° and 140° F and are maintained until the tobacco has completely dried. Finally, temperatures are slowly raised to 170° or 175° F to dry the stems. When tobacco leaves and stems are completely dry, the heat is turned off and the barn is opened so that cured tobacco can absorb enough moisture to keep it from breaking while being handled. The lapsed time between tobacco going into the barn and removal of cured tobacco is usually five to six days.

Tobacco Storage and Grading

After the tobacco has been cured and regains enough moisture to be handled, it is taken to another separate structure, a packhouse, where it is piled and left to sweat. This process serves to improve the quality and color of the leaf. Rearrangement of the piles every six to ten days places tobacco alternately on the inside and outside of the piles and gives all the leaves an opportunity to improve. After sweating, the tobacco is sorted and graded with tobacco of the same quality being grouped to take advantage of better prices at market. In preparation for market, tobacco is tied in hands, i.e. groups of five or six leaves of the same quality bunched and bound together with a leaf of tobacco at the base of the primary stem. Those hands are then stored in the packhouse until the tobacco is marketed.

Looping, curing, and storage of flue-cured tobacco require certain facilities that are found only on the tobacco landscape. Each structure is designed to serve a certain purpose involved with tobacco production; therefore, specific associations of rural structures go hand in hand with tobacco production. The characteristics and patterns of arrangement of such structures must be considered in any assessment of the role of flue-cured tobacco in rural geography.

CHAPTER III

TOBACCO PRODUCTION AND STRUCTURES ON THE RURAL LANDSCAPE

The structures on the rural landscape of Pitt County are distinctively different in appearance from rural structures in those areas where flue-cured tobacco is not produced. According to Hart and Mather, ". . .the character of tobacco barns may provide a good clue to the regional agricultural economy. Each . . . tobacco-producing area has its own characteristic and more or less distinctive kind of barn for curing tobacco."²⁸ The structures in rural Pitt County, other than domestic dwellings, smokehouses, tool sheds, outhouses, and generally required farm buildings, are most often those required for the production and preparation of flue-cured tobacco. (Figure 23)

The Importance of Structures

As stated by Kohn, ". . .the facilities men build in the process of occupying an area . . . are designed and grouped to serve specific purposes, and so carry functional meanings."²⁹ The structures built on the

²⁸John Fraser Hart and Eugene Cotton Mather, "The Character of Tobacco Barns and Their Role in the Tobacco Economy of the United States," Annals of the Association of American Geographers, Vol. 51, No. 3 (Lawrence, Kansas: Allen Press, Sept., 1961), pp. 278-279.

²⁹Preston E. James and Clarence F. Jones, gen. eds., American Geography, Inventory & Prospect, Chapter Five: Settlement Geography, by Clyde F. Kohn, Association of American Geographers (New York: Syracuse University Press, 1954), p. 125.



Figure 23.--Looping shelters, barns, and packhouses dominate the agriculturally oriented structures on the rural landscape.

rural landscape of Pitt County are largely designed and grouped to serve the demands of flue-cured tobacco production. Having been built to serve this purpose, these structures, when found as numerous as they are in Pitt County, impart to the landscape a rather unique distinctiveness. Functional meaning is inherent to these structures by virtue of their design and use in flue-cured tobacco production. Each structure has functional value and each is required by present technology. Tobacco is made ready for curing under looping shelters, cured in barns, and stored, graded, and prepared for market in packhouses.

Looping Shelters

Looping shelters function as work areas for tying tobacco, shade so that "primed" leaves will not be scorched by the sun, and a temporary shaded storage area. Heat from the sun removes moisture from the leaf causing it to turn brown. Essentially, the same thing is done while curing, but moisture is removed evenly where sun scorching is irregular and spotty. Scorched leaves cure unevenly and turn out to be an extremely poor grade of tobacco.

Looping shelters are simple structures designed to serve an essential part of flue-cured tobacco production. A basic function of the structure is a shaded area for protection of tobacco after it has been harvested. Roofs consist of sophisticated materials like galvanized sheet steel or basic materials like tree branches matted together to form a mostly continuous opaque surface. (Figures 24 and 25) The roof structure is supported by vertical columns or poles sunken in the earthen floor.



Figure 24.--Looping shelter with sheet metal roof



Figure 25.--Looping shelter with branch roof to shade sticks of tobacco

Looping tobacco on sticks, after harvesting and before curing, is an essential part of tobacco production under present technology. Those structures will be found where tobacco is grown and are therefore numerous in Pitt County. One shelter can serve only one curing barn or as many as three or four. The site of shelters is usually chosen in order to provide easy access to barns where tobacco is cured. A shelter can be either attached to one side of a barn (Figure 26) or between two barns, attached to both. (Figure 27) Some looping shelters are independent structures. (Figure 28)



Figure 26.--Looping shelter attached to one barn

Recent trends in tobacco production are leading toward the eventual elimination of looping shelters as a part of the process and a part of the traditional tobacco landscape. Mechanical harvesters, which are

self-contained units for priming tobacco either by hand or mechanically, are being introduced into the area. After the tobacco is primed, leaves are conveyed to a shaded platform on the second stage of the harvester where they are bunched, tied on sticks, and stacked in piles. Priming and looping are done while the harvester moves through the field. After harvesting, the unit is driven to a curing barn where the sticks are unloaded directly into the barn. With harvesters like the one described, the need for shelters is eliminated.



Figure 27.--Shelter extending between two barns

Tobacco Barns

Tobacco curing barns are probably the most unusual and predominant agriculturally oriented structure on the rural landscape of Pitt County. The barns are designed for a process unique to flue-cured tobacco production and are used exclusively for that purpose. The barns serve

as a functionally designed enclosure in which tobacco can be cured with flue-conducted heat.



Figure 28.--Shelter racks separated from other structures

Tobacco barns are small and simply built. They are generally square or slightly rectangular with inside dimensions usually of either sixteen feet square or sixteen by twenty feet. Any variation from those sizes is in lengths of four feet because the interior is sectioned off into what are called rooms, horizontally placed rafters or tiers, which are four feet apart vertically. The sticks of tobacco are placed between the tiers, which support each end of the stick. Six or seven vertically stacked layers of tiers, approximately twenty-six inches apart, extend from five or six feet above ground level to the top of the barn. Therefore, a barn has six or seven horizontal layers of tobacco when completely filled. Barns are usually sixteen to twenty feet from

the ground to the eaves with an additional three to five feet to the pitch of the gable.

Materials used on the exterior vary considerably and seem to follow no particular pattern. Many barns in Pitt County are covered with tarpaper and upright strips of wood are nailed over it at intervals of from three to five feet. Most of the older barns were built with rough-hewn logs or boards comprising both interior and exterior materials.³⁰ Some few barns are constructed of cement block or clay tile. (Figure 29)

Heat for curing is supplied by a series of six to eight small burners placed on the earthen floor. Heating oil and bottle gas are used as fuel and temperatures are thermostatically controlled. Most barns are well insulated and have some type of ventilation system so that the amount of heat and moisture can be carefully regulated.

Wood, formerly the primary source of fuel, was displaced by coal when it became plentiful and cheap. To handle these fuels, furnaces were built in one or both ends of a barn and heat was conducted into the barn through a series of short stovepipes. The heat ascended through the tobacco in the barn and escaped through ventilators at the top. Much time was consumed in keeping the furnace going and fuel oil quickly displaced wood and coal when it was introduced as an alternate fuel. Bottle gas is a fairly recent addition to potential fuels and, even though it spread rapidly at first, higher cost has kept it from

³⁰Hart and Mather suggest that "the dominance of frame barns" in the New Bright Belt that are covered with tarpaper is due "to the lack of suitable logs in the area." Log barns are considered "superior from the standpoint of expense and performance."

Hart and Mather, "Tobacco Barns in the United States," p. 292.

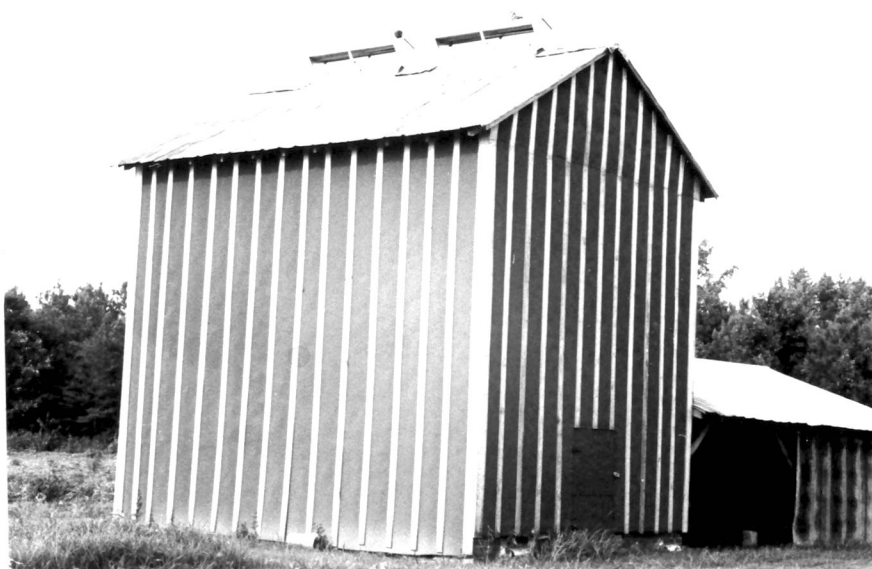
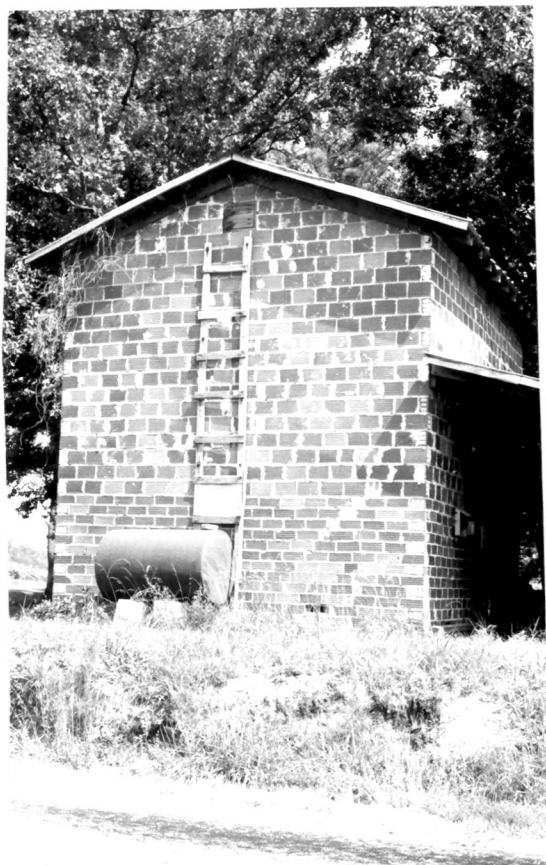


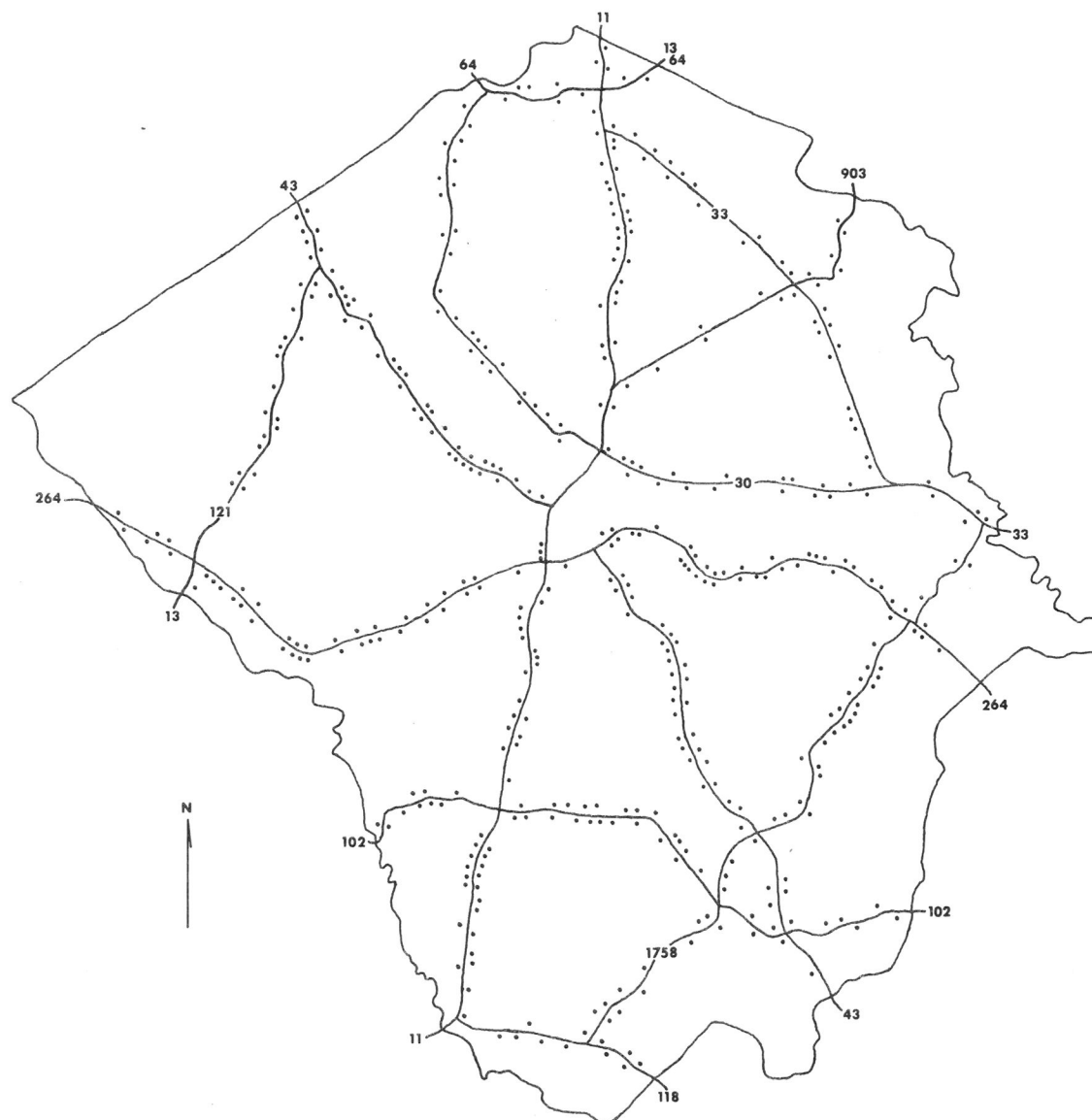
Figure 29.--Tobacco barns vary in construction from tarpaper to tile to wood or rough-hewn logs.

entirely displacing fuel oil. Fuel is now stored in tanks which supply a steady source of fuel to burners inside the barns. The level of heat is controlled by thermostats and much of the manpower formerly needed has now been eliminated.

A barn, having four rooms and measuring sixteen feet square, can hold 650 sticks of tobacco with 75 to 125 leaves per stick. This amount of tobacco comes from roughly three acres with one priming. If the field has to be primed five times, this would be equivalent to five barn loads of tobacco and twenty-five to thirty days curing time. Since tobacco is generally primed between mid-July and late August and marketing starts in September, it could be assumed that one barn is needed for every three acres of tobacco. If this held true throughout Pitt County in which 126,482 acres of tobacco was harvested in 1966, it would mean that there was roughly 43,160 barns in the County.

Although the actual number of barns in the County is not known, they are extremely numerous and thickly scattered about the landscape. (Map 9) Single barns or groups of eight or twelve barns are located on tobacco farms. They are usually close enough to the farmhouse to offer the appearance of a cluster of buildings which represent all structures involved with agriculture in Pitt County. Barns are most numerous where well-drained cropland is most abundant and essentially absent in swampy areas where there is little or no tobacco farming activity. Barns are also placed in positions of easy access to fields and transportation routes for such structures would be of little value in locations where tobacco could not be easily transported to and from the barns. If barns are used as an indication of tobacco location, the

TOBACCO BARNS ALONG SELECTED ROADS IN PITT COUNTY



1 DOT = 5 BARNs
NUMBERS - ROADS

Map 9

central and southern portions of the County appear to be the areas of heaviest concentration.

Packhouses

The size and shape of packhouses vary tremendously and are not held to any dictums of type of structure by any particular need in the flue-cured tobacco process other than storage. Those structures vary from specially constructed buildings that serve totally as packhouses, to multipurpose structures that are combined packhouse, equipment shelter, and tool shed, to old houses and stores that have been boarded up at the windows and doors to seal out excessive moisture. (Figure 30) Although the basic function of packhouses is storage, some have grading rooms where lighting conditions are good for separating various qualities of tobacco.

Essentially all tobacco farms have one packhouse. Some have as many as three or four, depending on the size of the allotment and the size of the packhouse.

Diversified agricultural activities, tobacco cultivation, and tobacco related structures combine on the farms of Pitt County to form organized units of production.

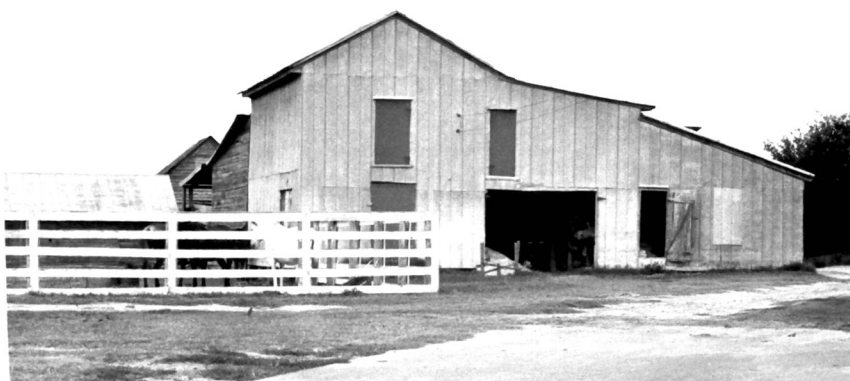


Figure 30.--Packhouses are usually odd-shaped barns or other buildings converted for the purpose of storage.

CHAPTER IV

FARM PATTERNS

Flue-cured tobacco production is the basis for agricultural organization in Pitt County. Tobacco requires more time and effort in production and has the greater value than any other crop. However, other crops and livestock combine with tobacco to complete the organization of land use practices and activities on farms within the County.

Individual farms have been chosen to illustrate how land use practices and orientation of activities appear as independent units. The impact of tobacco on the rural landscape has been discussed but not applied to actual farms. Relationships between tobacco production and other agricultural activities is best shown through analysis of farms where there is varied agricultural production and functional organization of space.

The farms used are not intended to be typical farms or models, but to show the variety in Pitt County agriculture.

The Roy Baker Farm

The Roy Baker Farm is a typical example of older tobacco farms in Pitt County. Mr. Baker has been growing tobacco for almost forty years. During that time, his tobacco allotments have varied from a high of twenty-two acres to a low of eleven acres. This variation is reflective of fluctuation in the overall amount of tobacco allotments not only in

Pitt County, North Carolina, but for all flue-cured tobacco-producing regions in the United States.

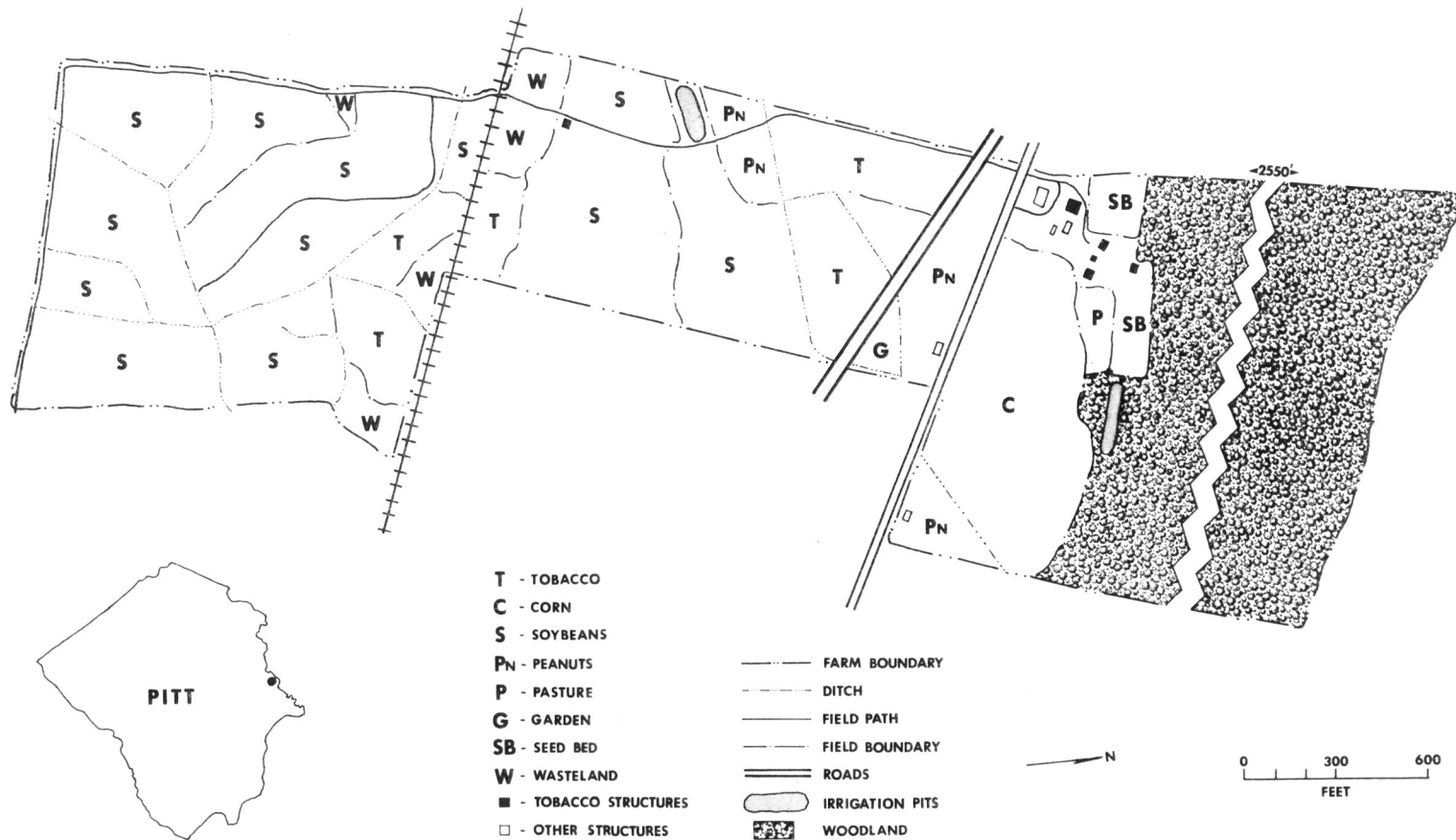
The farm occupies 215 acres of cleared and wooded land and is located in the northeastern part of the County. (Map 10) The narrow elongated strip of land slopes upward from Tranters Creek toward a well-drained, sandy interfluvium to the south which forms the hard core productive part of the farm.

The entire northern portion of the farm is a 125-acre tract of uncleared woodland. Cleared farmland stretches southward from the wooded area and is broken into numerous irregularly shaped fields by a network of crisscrossing roads, drainage ditches, paths, and a railroad track.

Tobacco, which has the most exacting requirements for soil type and soil drainage conditions, is located on the "best" land on the farm. Approximately eleven acres of tobacco were planted in 1967. The crop was planted in five fields which were scattered about the cleared land where the best soil and drainage conditions could be found.

Mr. Baker, in most previous years, produced his own tobacco crop but rented his 1967 crop on shares. The scarcity of labor was a factor in renting tobacco on shares during the 1967 season and the labor picture surely is getting no better as time goes on. Mr. Baker plans to raise his own tobacco in 1968, but he pointed out explicitly that he would not even consider it if he did not have young men, on summer vacation from school, already lined up to work the crop. He figures that this labor supply working in conjunction with a harvester can function adequately to eliminate labor problems.

THE ROY BAKER FARM



Map 10

When Mr. Baker rented, he supplied the land with an allotment on it, the fertilizer, one-half of the fuel used for curing, and the looping shelters, barns, and packhouse. His investment was roughly \$125 per acre. The tenant supplied all the labor required to produce the crop, half the fuel used for curing, and he absorbed the cost of transporting the crop to market. The required labor was supplied by two loopers, seven helpers for looping and grading tobacco, one person to drive the harvester, and one man to hang the sticks of tobacco in the barn. When the crop was sold, two loads were carried to markets in Georgia and the rest was marketed at Greenville. Under a tenant system, the profit received by the owner is less than if he had produced the tobacco himself, but by renting on shares, landowners do not have the problem of growing the crop and hiring laborers.

In the particular case of the Baker farm, soybeans, not corn, occupied the greatest amount of land. They were grown on approximately forty-nine acres. Soybeans were grown in twelve fields scattered from one end of the cleared land to the other in a pattern that gave the appearance of a filler crop, planted wherever there was a vacant plot of land. In 1967, soybeans on the Baker farm almost completely replaced corn because they are easier to tend. After the ground was broken and the beans were planted, they were plowed twice during the growing season and harvested by a contract harvester. Yields of thirty-five bushels per acre were about average but could have been increased had the best quality land been used for soybeans instead of tobacco.

Corn, in third place behind soybeans and tobacco, occupied roughly eleven and one-half acres. It was planted in one large field. The corn

crop was also plowed twice during the growing season and harvested by a contract picker. Yields were 120 bushels per acre or 1,380 bushels. Of that, 250 bushels were kept for livestock feed and the rest sold to a grain dealer in the County.

Peanuts occupied seven acres in three separate fields. The crop is high in value but requires considerable effort to produce. Weed killer must be applied and at least three plowings are necessary. Peanut production was roughly one ton per acre or a total of seven tons which were sold at Washington, North Carolina.

Roughly seven-tenths of an acre is occupied by a family garden while the farmstead and buildings occupy about two acres. Five acres of cleared land in small areas that are low, poorly drained reed marshes and corners too small to cultivate are wasteland.

Two irrigation pits are located so that every field can be reached, though tobacco is the only crop if any which would be irrigated.

Livestock is of almost no importance since there were only three hogs, no cattle, and no chickens on the farm in 1967.

Two looping shelters, four curing barns, and a large packhouse serve as functional structures in the production of flue-cured tobacco. Other than the family dwelling, an old house and an unused henhouse, now devoted to storage, and two unoccupied shacks, those structures used in tobacco processing are the only structures on the farm. The tobacco facilities are grouped near the dwelling, except for one curing barn near the south end of the farm, for easy movement of tobacco from one structure to another during processing. (Figure 31)



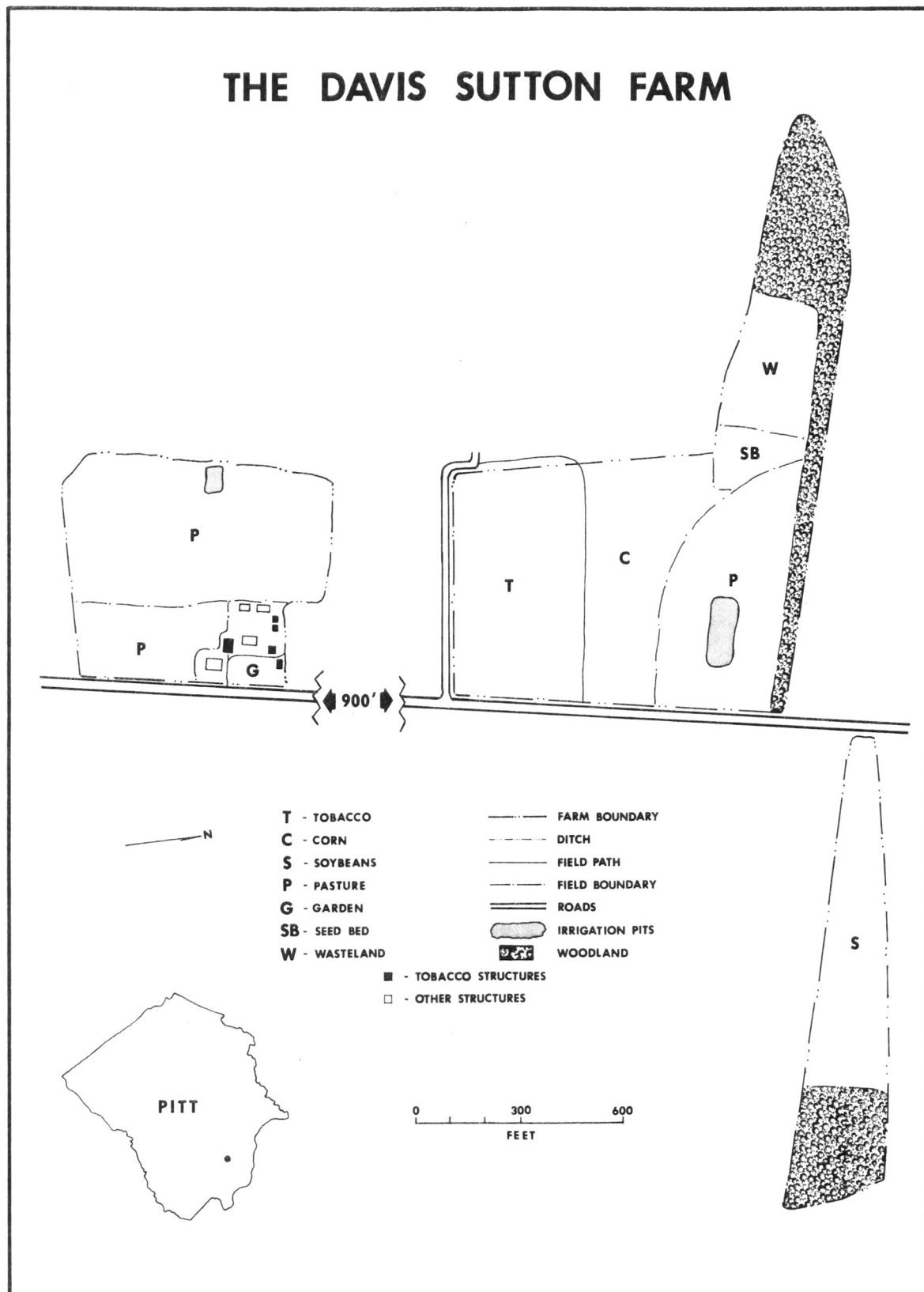
Figure 31.--Farmstead of the Baker farm

The Davis Sutton Farm

The Davis Sutton Farm occupies ninety-two acres of land on four separated plots in the southeastern part of Pitt County. (Map 11) Roughly fifty-four acres of the farm is wooded, while thirty-eight acres are cleared and are devoted to the production of crops and to pasture for livestock. The character of this farm is representative of changes taking place on small farms in the County. Tobacco has a stronghold in agricultural production but diversification is becoming apparent through the injection of changing patterns of crop and livestock production. (Figure 32)

A combination of tobacco and livestock requires most of the productive land on the farm and is the major source of income. Tobacco was grown on 47 percent of harvested cropland on the farm in comparison to the County average of 18 percent. The crop occupied seven and one-half acres of the best land on the farm. Tobacco required the most time and

THE DAVIS SUTTON FARM



Map 11

effort and the greatest expense of any other crop grown but had the highest value per unit of production.



Figure 32.--Farmstead of the Sutton farm

Tobacco plants were produced in seed beds located on the farm, but were prepared and sown in a group effort involving several farmers in the area who pooled their labor to plant seed beds on each other's farm. Transplanting required four hired workers. Cultivation, until "topping" time, was handled by Mr. Sutton and a part-time helper. Priming and looping tobacco was done by eight people and took roughly two days a week for six to eight weeks. Grading took two people, besides Mr. Sutton and his wife, about one month to complete before the crop was ready for market. The tobacco crop was sold at Greenville markets for a profit of \$400 to \$500 per acre above the cost of production. Mr. Sutton stated that the profit was below average for his tobacco, but the increasing

cost of labor and equipment seemed to be responsible for most of the change.

Corn was grown on five acres of cropland in 1967. Yields of approximately 130 bushels per acre or a total of 650 bushels were used entirely for livestock feed.

One-third or thirteen acres of the cleared land serves as pasture for approximately twenty-five beef cattle. Mr. Sutton has been raising cattle for about ten years. Soybean hay and corn raised on the farm are used to supplement pasture grass and are the main source of winter feed.

Although cattle are raised on this farm, Mr. Sutton stated that he was on his way out of the cattle business because he cannot make any money on them. On a small farm, there is not sufficient land to support a large enough number of cattle to make production economically feasible. With such a small number of animals, small losses could nullify all gains from cattle sales for any given year.

Future plans are to sell most of the cows and convert pasture land to productive cropland. Soybeans, which last year occupied only four acres, will be increased to utilize most of the converted land. In 1967, Mr. Sutton's production averaged thirty-five bushels of soybeans per acre which were sold to dealers in the County. Other than ground breaking and planting, the beans were plowed twice during the growing season and diverted little cultivation time from the tobacco crop. An increase in soybean production at the expense of decreasing livestock is expected to bring much better returns while utilizing the same amount of land.

The Sutton farm is a small farm with an unusually large amount of tobacco. A trend away from livestock and back to crops is a somewhat

reverse diversification but shows the limitations of a small farmer who is dependent upon a single cash crop. When labor is no longer available, mechanization would probably be too expensive for such a small tobacco allotment, and a shift to other high value crops may replace tobacco.

The J. W. Smith Farm

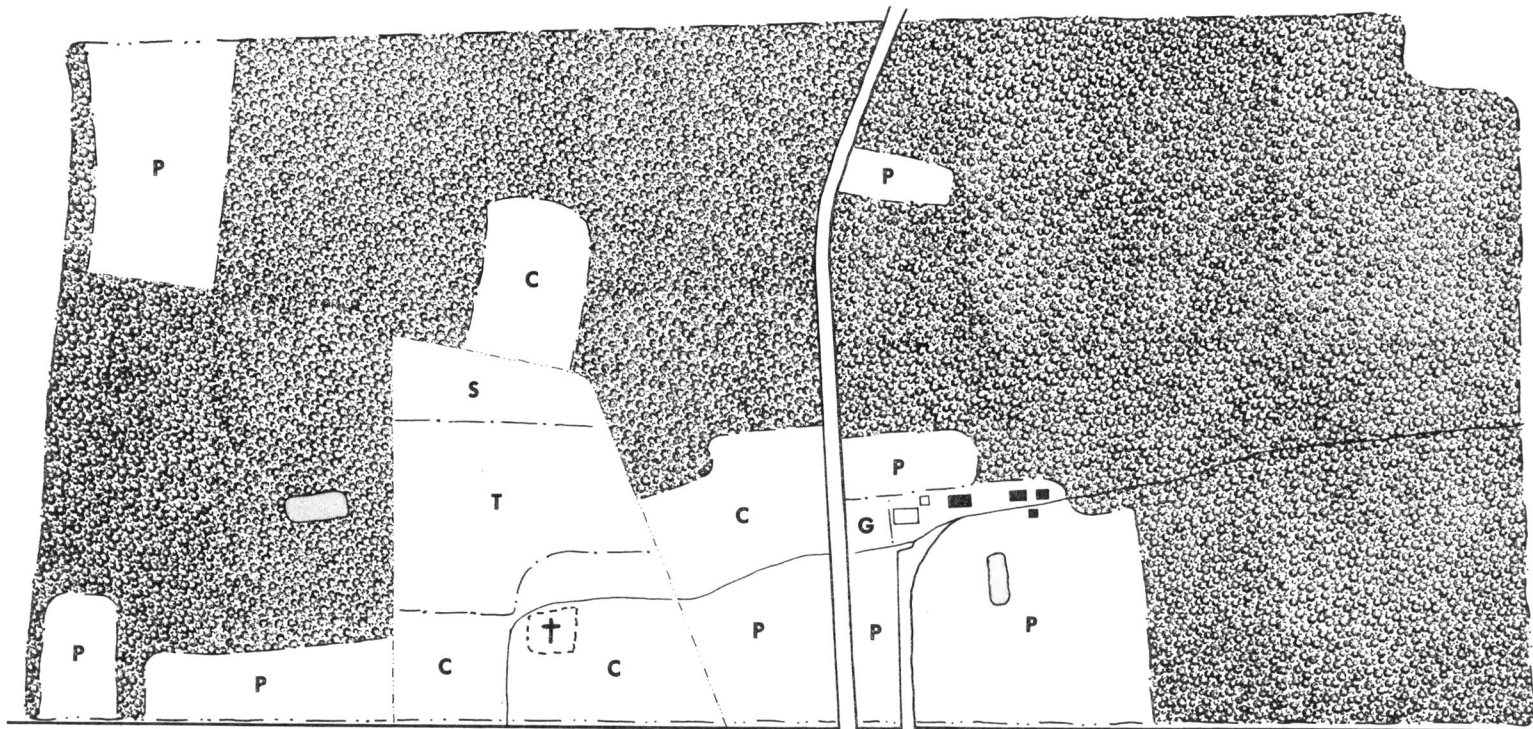
The J. W. Smith Farm represents the very small farm in the County that has abandoned tobacco production. Small farms across the country are slowly being squeezed out by larger farms that can afford to operate on volume. The small tobacco farmer cannot afford the investment in structures and equipment necessary to serve as many as nine or ten acres of tobacco.

The Smith farm occupies 125 acres in the southeastern part of the County.³¹ (Map 12) Ninety-three acres of the farm is woodland and thirty-two acres are cleared. Only thirteen acres are devoted to crop production while the remaining cleared land is used for pasture and a small garden.

Mr. Smith, who had grown tobacco on this farm all his life, quit tobacco three years ago. At that time, he decided the additional investment tobacco required was not commensurate with the profit he would make and started leasing his allotment for around \$350 per acre per year. The allotment was taken off the farm to be grown on the lessee's land, leaving three and one-half acres of cropland free for other crops.

³¹Tobacco field is shown on sketch to indicate where the crop was located when it was produced on the farm.

THE J. W. SMITH FARM



T - TOBACCO

C - CORN

S - SOYBEANS

P - PASTURE

G - GARDEN

■ - TOBACCO STRUCTURES

□ - OTHER STRUCTURES

— FARM BOUNDARY

- - - DITCH

— FIELD PATH

— FIELD BOUNDARY

== ROADS

○ IRRIGATION PITS

■ WOODLAND



Map 12

When raising tobacco, Mr. Smith had four or five cows and one brood sow. Now he has twenty-five cows, five brood sows, and roughly eighty feeder pigs per year. The cows are fed pasture and hay. Roughly 85 percent of the corn raised on the farm is used to feed hogs.

Eleven acres of corn and two acres of soybeans comprise all crops grown on the farm except for a small garden maintained for home use. Seventeen acres of cleared land are devoted to pasture for livestock. Soybean hay, left after harvesting, and most corn produced on the farm are used for feed. Irrigation pits assume a new role, to water the livestock.

Even though tobacco is no longer produced, related structures remain as monuments to earlier tobacco production. Other than the dwelling and smokehouse, there is a looping shelter, two curing barns, and a packhouse, which is now used for storage. All buildings are close together and indicate a former unit of structures designed for tobacco production. (Figure 33)

Although the farms of Pitt County vary in size and in the specific combinations of crops grown on them, most farms are strongly oriented toward tobacco production. In fact, 92 percent of all farms in the County have a tobacco allotment. While there is some variation from farm to farm, tobacco is dominant and the tobacco-corn-soybean combination is the core of Pitt County agriculture and the basis for farm organization.



Figure 33.--Farmstead of the Smith farm

CHAPTER V

CONCLUSIONS AND PROSPECTS

Agricultural activities in Pitt County revolve around tobacco production. The character of the rural landscape is strikingly related to tobacco. In fact, the rural structures required by tobacco are monuments to investment in and area orientation toward tobacco production. The only profusion of agriculturally oriented structures in the County is associated with tobacco. If production were to collapse, the look of the rural landscape of Pitt County would change drastically for looping shelters, barns, and packhouses would have little value in any other kind of agricultural production.

Due to the high value of the tobacco crop, much time and effort are expended in production and other crops are essentially filler crops that occupy the remaining land but require comparatively little cultivation time and do not interfere with the schedule in the tobacco process.

No other crop grown in the County requires more man-hours than flue-cured tobacco. In fact, the number of man-hours required by tobacco production exceeds that required for all other crops combined.

The arrangement of crops on cleared farmland is based on selection of soil and drainage conditions conducive to flue-cured tobacco production which imparts a uniqueness of field organization to the rural landscape of Pitt County. The best land is almost always allocated to tobacco while surrounding fields are often used for other crops.

Tobacco is the foundation for crop patterns on every farm that grows tobacco, i.e. 92 percent of the farms in Pitt County.

The concentration of tobacco in the County is evidenced by the facilities on the landscape. Those same facilities also attest to high capital investment, gearing the area to flue-cured tobacco production. The cost of farmland is high because the land is highly productive, well suited to tobacco cultivation, and includes tobacco allotments. Tobacco structures, machinery, and equipment represent added capital outlay which ties large investment to tobacco production in Pitt County agriculture.

Recent trends toward a labor scarcity and consequent mechanization have placed the small tobacco farmer at a disadvantage and may eventually be a major factor in modifying the appearance of the traditional rural tobacco landscape in the County. The small farmer is slowly being forced out of tobacco production because a small tobacco allotment cannot support the purchase and use of high cost machinery. On the other hand, the farmer with a large tobacco allotment is, and may even more in the future, be leasing allotments from various small farmers and combining production into a unit large enough to profitably support mechanization.

Traditional tobacco structures and techniques of production now found on the rural landscape may change with mechanization. Tobacco has been slow to mechanize because a vast supply of cheap local labor had been available to work the crop. Recent labor scarcity and increasing wages have created a demand for machines that could replace hand labor and increase efficiency.

Many harvesters have a second stage or floor where primed tobacco leaves are bunched and tied on sticks or stacked in loose leaf piles, eliminating the need for looping shelters. Portable bulk curing barns, which resemble closed-in house trailers, are being introduced. If barns of this type prove to be more suitable for future tobacco production than the conventional barns, traditional tobacco barns may vanish and result in even more modification of the landscape.

In 1967, price supports were in effect on untied tobacco for the first ninety-five hours of sales on most tobacco markets. Prices received for untied tobacco were slightly lower than for tied but savings in labor costs and the trouble of tying probably more than made up the difference. Price supports on untied tobacco will be extended for the entire 1968 marketing season. That may be the beginning of the end for the traditional technique of tying tobacco for market.

Tobacco is the primary cash crop in the highly diversified agricultural economy of Pitt County. Although the crop occupies only 18 percent of the harvested cropland, tobacco is by far the most important crop in value and effort expended. Any changes which may take place in the techniques of tobacco production or in the demands for tobacco will have a striking effect on rural Pitt County.

APPENDIX I

COUNTY RANK IN VALUE OF AGRICULTURAL INCOME FROM ELEVEN PRINCIPAL CROPS FOR NORTH CAROLINA 1957-1964*

County	Rank							
	1957	1958	1959	1960	1961	1962	1963	1964
Alamance	38	37	38	37	37	37	39	37
Alexander	79	79	80	78	76	74	80	78
Alleghany	85	84	87	87	86	82	84	86
Anson	61	67	63	67	67	68	68	69
Ashe	59	61	64	64	63	63	66	67
Avery	90	90	93	90	89	89	90	89
Beaufort	19	17	16	16	23	27	17	17
Bertie	17	18	18	19	20	21	18	22
Bladen	25	27	24	25	26	25	25	27
Brunswick	46	45	49	46	48	41	43	47
Buncombe	51	51	62	59	59	57	61	64
Burke	88	88	88	89	88	90	89	88
Cabarrus	78	76	79	80	79	80	79	79
Caldwell	83	85	86	85	87	85	86	87
Camden	72	64	59	61	62	59	57	58
Carteret	81	81	77	70	70	71	67	63
Caswell	29	29	29	29	28	26	29	28
Catawba	63	66	67	71	72	76	73	72
Chatham	50	55	56	58	53	55	55	55
Cherokee	92	92	90	92	92	94	91	93
Chowan	56	58	60	52	56	52	50	50
Clay	94	94	95	95	95	96	97	97
Cleveland	35	41	37	53	46	61	53	52
Columbus	4	4	4	5	9	4	6	6
Craven	28	25	28	24	31	33	23	26
Cumberland	30	33	33	33	30	32	30	33
Currituck	69	62	55	60	61	58	58	60
Dare	100	100	100	100	99	100	100	100
Davidson	41	46	46	47	43	48	47	44
Davie	71	73	72	74	75	73	74	70
Duplin	9	9	7	9	12	14	9	10
Durham	55	59	58	50	50	49	56	51
Edgecombe	11	10	10	11	11	11	11	13
Forsyth	45	39	42	42	42	40	40	39
Franklin	22	23	19	20	17	17	22	19

APPENDIX I--Continued

County	Rank							
	1957	1958	1959	1960	1961	1962	1963	1964
Gaston	82	82	84	84	84	87	85	83
Gates	53	52	54	56	57	54	54	56
Graham	93	93	92	93	91	91	94	92
Granville	23	19	20	18	19	16	19	18
Greene	15	14	15	15	13	15	15	15
Guilford	26	28	27	28	27	29	28	29
Halifax	13	15	14	14	15	13	14	14
Harnet	14	13	13	13	10	10	13	12
Haywood	65	65	75	73	74	69	71	76
Henderson	80	80	82	83	83	86	87	84
Hertford	32	31	31	31	33	30	32	32
Hoke	48	42	40	40	40	39	38	40
Hyde	73	69	69	69	65	62	59	62
Iredell	44	47	43	54	51	56	60	57
Jackson	91	91	91	91	93	93	92	94
Johnston	3	2	3	2	1	2	3	3
Jones	34	34	36	34	35	38	33	35
Lee	49	49	48	41	39	42	45	42
Lenoir	10	11	12	12	14	12	10	11
Lincoln	75	72	70	75	71	77	76	71
McDowell	96	95	96	96	96	97	95	95
Macon	89	89	89	88	90	88	88	90
Madison	40	40	44	44	44	46	44	54
Martin	16	16	17	17	16	19	16	16
Mecklenburg	76	75	76	77	78	81	77	77
Mitchell	84	86	85	86	85	84	83	85
Montgomery	86	87	83	82	81	78	78	75
Moore	47	43	39	38	38	36	37	38
Nash	8	8	6	4	4	5	8	4
New Hanover	99	98	98	98	97	95	96	98
Northampton	20	20	23	23	22	20	20	20
Onslow	36	35	34	35	34	35	35	34
Orange	52	50	51	45	47	45	51	46
Pamlico	68	68	65	62	68	67	63	61
Pasquotank	57	57	41	48	54	50	46	45
Pender	43	44	50	39	45	43	41	41
Perquimans	58	54	52	49	55	53	49	49
Person	27	26	26	26	25	23	27	25
PITT	2	1	2	1	2	3	1	2
Polk	97	97	97	97	98	98	98	96
Randolph	39	38	45	43	41	44	42	43
Richmond	66	70	66	65	64	64	65	65

APPENDIX I--Continued

County	Rank							
	1957	1958	1959	1960	1961	1962	1963	1964
Robeson	1	3	1	3	3	1	2	1
Rockingham	18	21	22	21	18	18	21	21
Rowan	60	60	61	63	60	70	64	68
Rutherford	74	78	78	79	80	83	75	81
Sampson	5	5	5	6	5	6	4	5
Scotland	54	56	53	57	49	47	48	48
Stanley	77	77	74	76	77	75	82	82
Stokes	21	24	25	27	24	24	26	24
Surry	24	22	21	22	21	22	24	23
Swain	98	99	99	99	100	99	99	99
Transylvania	95	96	94	94	94	92	93	91
Tyrrell	87	83	81	81	82	79	81	80
Union	42	48	47	55	52	60	62	59
Vance	33	32	32	30	32	28	31	31
Wake	12	12	11	10	8	8	12	7
Warren	37	36	35	36	35	34	36	36
Washington	64	53	57	51	59	51	52	53
Watauga	67	74	73	72	73	72	72	73
Wayne	6	6	8	7	7	9	5	9
Wilkes	62	63	68	66	66	65	69	66
Wilson	7	7	9	8	6	7	7	8
Yadkin	31	30	30	32	29	31	34	30
Yancey	70	71	71	68	69	66	70	74

*Principal crops as defined by the North Carolina Department of Agriculture include tobacco, cotton, peanuts, Irish potatoes, sweet potatoes, corn, wheat, oats, soybeans for beans, lespedeza seed, and all hay.

Rank has been deleted for the years 1965 and 1966 because the figures were not published in North Carolina Agricultural Statistics, 1967 Issue, and are not available from the North Carolina Department of Agriculture.

Source: N. C., Department of Agriculture, North Carolina Agricultural Statistics, Issues for 1960-1965.

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Pitt County, North Carolina, is an area where flue-cured tobacco is the primary cash crop in a diversified agricultural economy. More tobacco is produced in the County than anywhere else in the New Bright Belt of North Carolina. The crop accounts for over one-half of agricultural income in the County and is responsible for Pitt's ranking as first or second among North Carolina counties in income from principal crops.¹

Tobacco is foremost among the crops grown. A variety of other crops supplement tobacco and are related to it in the overall scheme of production. A tobacco-corn-soybean combination occupies roughly 87 percent of the harvested cropland. Corn and soybeans occupy four times as much land as tobacco but they are subordinate crops. They function as filler crops which utilize the remaining arable land on the farms of the County, but they do not interfere with tobacco production.

Techniques of tobacco production include precise steps from preparing seed beds, to harvesting and curing, to carrying the crop to market. Some stage of tobacco production requires time and effort during essentially every month of the year. Production of tobacco requires the use of specially designed structures. Tobacco is tied

¹N. C., Department of Agriculture, North Carolina Agricultural Statistics (Raleigh, N. C.: Crop Reporting Service), Issues for 1960-1965.

on sticks and prepared for curing under looping shelters, cured in distinctive barns, and stored, graded, and tied again in packhouses. Other than dwellings and general outbuildings, tobacco related structures are the most numerous and predominant structures on the rural landscape of Pitt County.

Distinctive crop combinations and groups of farm buildings are consequences of most agricultural activities in the County revolving around tobacco. Both the organization and appearance of the rural landscape can be understood only by relating them to flue-cured tobacco production.