

# TAR HEEL JUNIOR HISTORIAN

The State History Journal For Inquiring Students



WORKING THE LAND

# We All Need to Eat

by James A. "Jim" Graham\*

North Carolina history and agriculture are so entwined that they are virtually one and the same. When colonists settled here 400 years ago, nearly 100 percent of them were farmers. Most Tar Heel residents continued this farming tradition during the 1800s and early 1900s, too. Today only 3 percent of the population owns farms. Still, each of these farmers can feed himself and eighty other people. American farmers are the most productive workers on earth.

Food, fiber, and tobacco production became the largest industries in the state. Cotton and tobacco crops grown in the state led manufacturers to build textile and tobacco factories here. It made sense for companies to locate near farms that produced the crops they needed. This helped them to reduce transportation costs. Following the Civil War, tobacco and cotton manufacturing experienced rapid expansion. Furniture factories also emerged. A lot of wood goes into furniture, and trees are farm products. Furniture also requires fabric and batting often made from cotton or feathers.

North Carolina's total farm cash receipts now reach \$4 billion. Our state leads the nation in the production of sweet potatoes, tobacco, and turkeys. It also ranks high in peanuts, broilers, eggs, and cucumbers. About

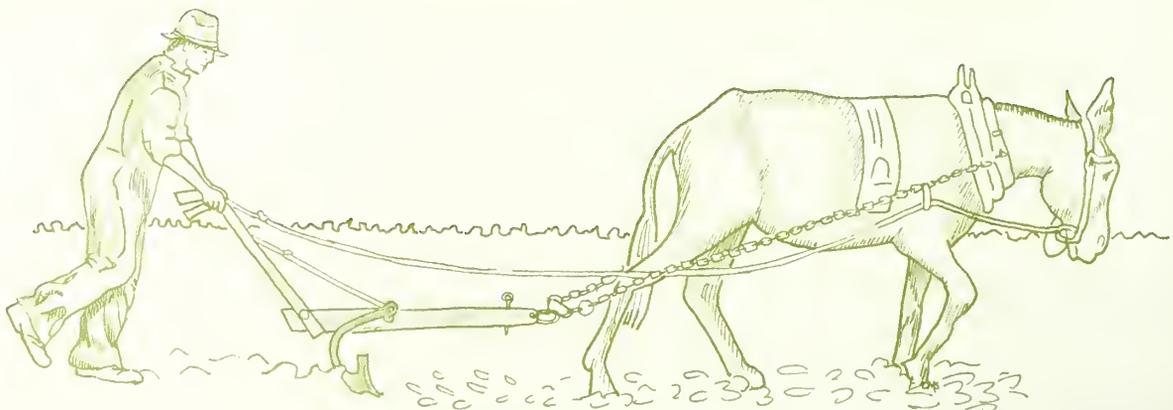
2.5 million hogs were processed last year. North Carolina is one of the most diversified farm states in the nation.

Other industries have come to North Carolina, but agriculture still remains king. Many of these new industries offer modern technology that complements farming. Tar Heel farmers are utilizing computers, agricultural weather reports, and satellite photos to improve their yields. But the folks making and selling all this equipment need to eat what hard-working farmers grow.

Agriculture holds great opportunity for young people. The actual plowing and planting of fields is the most important job. Nothing happens until a commodity is produced. You cannot eat or sell what you do not have. There are many other jobs in business, engineering, veterinary medicine, chemistry, mechanics, sales, welding, and elsewhere that agriculture utilizes. We need the technology and work of industries to help farmers feed the people.

North Carolina does have a rich agricultural history, as this issue of the *Tar Heel Junior Historian* tells so well. Agriculture is largely responsible for the high standard of living enjoyed by Tar Heels today. And if we are smart we will continue that heritage into the twenty-first century.

\*North Carolina Commissioner of Agriculture.





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With this issue we say goodbye and best wishes to our editor, Terrell Crow. She expertly directed the growth of our magazine. We'll miss you.

**EDITORIAL POLICY**—Compositions submitted should be typewritten or legibly handwritten in double-spaced form and should include the full name of the student and the school represented. When reference works (previously published material) are used, proper credit must be given to the original author. Include a bibliography listing each work used. List the author, title of work, facts about publication (place of publication, publisher, date, and edition), and pages used. If the exact words of the original author are used, quotation marks should be placed before and after the material used. When possible, black-and-white photographs to illustrate the article should accompany the written material. Space limitations and the need to adhere to the announced theme of each issue determine the final selection of articles. Topics are covered accurately but are not presented as exhaustive studies. All student compositions submitted for publication are required to meet highest literary standards and are subject to editing and revision by the editorial staff.

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The North Carolina coast when the English began colonization in the 1580s. This drawing is by Theodor de Bry.



## Algonquian Agriculture

by John Neville\*

English explorers first reached what are now North Carolina shores in the 1580s. They encountered a sophisticated Indian civilization based on agriculture. Many of the plants produced by farmers today were cultivated by Native Americans long before Europeans came to the New World.

The Algonquian Indians living along the coast enjoyed a variety of things to eat. The major source of food came from crops they raised in fields near their villages. They did not have domesticated animals like horses, oxen, cows, and pigs because none of these animals were native to America. Without horses or oxen to help them plow the fields and transport items for trade, Native Americans had to perform these duties themselves. The absence of cows and pigs also meant that Indians obtained meat for their meals by hunting deer, quail, and bear in the nearby forest and by fishing in the rivers and sounds.

The English carefully noted the plants raised by the Algonquians. They not only welcomed the food, but they also valued some crops as sources of income. Two plants in particular interested the English, *uppowoc* [tobacco] and *maize* [corn].

Tobacco played an important role in the religious life of Native Americans. They also used it as a medicine. Indians grew tobacco in small patches, dried the leaves, and then ground them into powder. Indians smoked tobacco in clay pipes and believed it would rid their bodies of disease. They also thought tobacco pleased their gods. Indians occasionally sacrificed tobacco powder on sacred fires. To protect themselves from storms while they fished, Indians cast tobacco either into the air or onto the water to pacify the gods.

Maize was the most important crop cultivated by Native Americans. The taste and potential value of maize impressed English explorers. Thomas Harriot, one of these explorers, described maize as

grain . . . about the bignesse of our ordinary English peaz, and not much different in forme and shape: but of divers colours: some white, some red, some yellow, and some blew. . . .

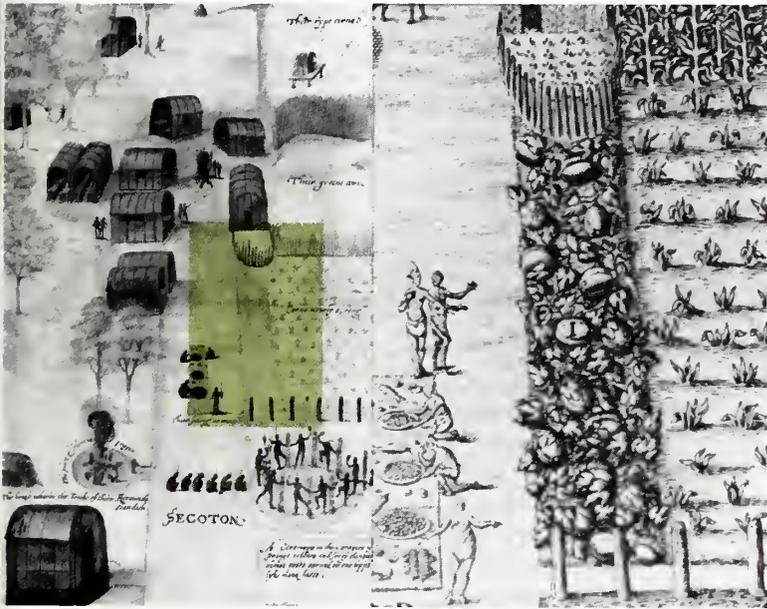
Harriot recorded the methods the Indians used to plant maize and other crops. Indians farmed their fields until the soil's fertility gave out. Then they cleared new fields. The Indians, however, did not move their villages when they changed fields. Eventually they could reuse old fields that had rested and regained their fertility. Later English settlers would copy these methods.

Harriot mistakenly claimed that the Indians "never fatten with muck, dung, or any other thing." In fact both the men and women worked hard to prepare the land. They cleared it by the "slash and burn" method. First they burned down the trees, but they left the roots to decay. The men used long, wooden instruments similar to hoes, and the women used short, wooden "peckers" or "parers" to remove weeds, grass, old cornstalks, and other obstacles. These materials dried in the sun until the Indians were ready to burn them. This provided some fertilizer to "fatten" the land.

Native Americans next planted seeds in rows. Four seeds were placed in a hole. Each group of seeds was about a yard from the next. The rows stood about a yard apart as well. Between the rows of maize the Indians planted beans, peas, melons, squash, or

gourds. These careful farmers did not waste space.

John White's drawings of the Algonquian Indians he met in 1585 reveal a great deal about Indian agriculture. His painting of Secotan shows an open village with three patches of maize growing nearby. One field contains ripe maize, another has green maize, and the third holds newly sprouted maize. Fields probably were planted in sequence to provide a regular supply of maize beginning in July. The drawing also shows patches of squash, pumpkins, gourds, tobacco, and sunflowers.



Colonist and artist John White painted the picture on the left of the Indian village Secotan. Note in the upper right cornfield the platform built for a human scarecrow to frighten away wild animals. The detail (right), drawn by Theodor de Bry in 1590, shows the pumpkin patch in the village. White's painting courtesy Trustees of the British Museum.

In this 1590 drawing by de Bry you can see the variety of food eaten by the Native Americans on the North Carolina coast.



Indians cooked and ate maize in a variety of ways—boiled, ground into meal, and as an additive to meat and vegetable stews. Since maize provided their primary source of food, the Indians took turns guarding it from birds and animals. They made noises to scare off scavengers. John White drew one of Secotan's human scarecrows sitting on a raised platform near the field.

Thomas Harriot believed that Indian farmers could produce 200 bushels of maize per acre. He assumed that a one-acre field could feed an entire village. He compared New World corn production to wheat farms in England that grew only fifty bushels per acre.

Harriot's estimates of the land's fertility were too high. Each year the Indians experienced a period when food supplies ran low. This occurred after the maize crop had been planted in the spring, but before it had grown and ripened. Indians rarely enjoyed any food surpluses. Late spring could be a time of hunger. This meant that the Indians did not have extra food to share with Englishmen. Nevertheless the Indians generously offered what food they had to early English visitors.

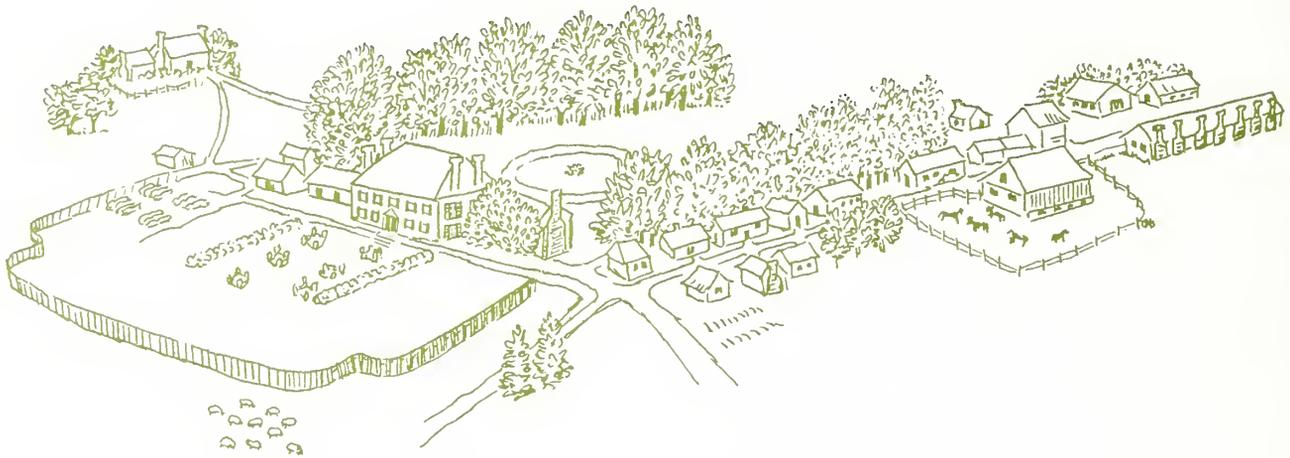
Indians supplemented their diet when food ran low with meat, wild birds, fish, and oysters. They also ate chestnuts, mulberries, crabapples, cranberries, and other wild nuts and berries. The Algonquians also consumed pumpkins and sunflowers. The sunflowers grew over six feet tall and had seeds that could be used for bread.

The Native Americans of eastern North Carolina developed a sophisticated, agricultural economy. They lived in small farming villages and traded among themselves and other tribes. The Algonquians supplemented their diets by fishing and hunting. English colonists who immigrated to North Carolina in the late 1600s would copy many of these farming and hunting techniques. Corn and tobacco, two crops developed by Indians, are still grown in the state. North Carolina's long history of farming began with Indian agriculture.

# Swine, Corn, and Timber

## Colonial North Carolina

by Wilson Angley\*



Farmers provided the backbone of colonial North Carolina. Well over 90 percent of the colony's inhabitants derived their livelihoods from the soil. One of the things that most attracted settlers to North Carolina was the large amount of inexpensive and fertile land available to them. Colonial farmers obtained land by purchasing land grants from agents of the government or Lord Granville, one of the colony's largest landowners. Once a farmer received a land grant, he could transfer it from one person to another through sale or inheritance.

Some settlers acquired extensive tracts of land, especially in the eastern portions of North Carolina. Their farms and plantations were so large that they acquired Indian and black slaves to do most of the work. The vast majority of North Carolinians, however, owned small farms. All of the work was done by the farmer and his family. These families engaged in subsistence farming. This meant that they needed nearly everything produced on the farm merely to survive. Anything left over could be sold or traded for necessities that the colonists could not grow or make for themselves. It was a rough life that left little time for formal education or polished manners.

Many of the colonists' crops, like corn, tobacco, peas, and beans, had been introduced to the earliest European settlers by the Indians. Corn, in fact, became the mainstay of the colonial North Carolinian's diet. Uses were found for nearly all parts of the corn plant.

Many products from the farms and forests of North Carolina were shipped out of the

colony to New England, Great Britain, and the West Indies. Wheat, tobacco, rice, meat, shingles, and lumber went to these destinations. But the most important exports from North Carolina were naval stores—tar, pitch, rosin, and turpentine derived from the vast pine forests of the coastal plain.

Hogs and cattle fed hungry colonial families as well. These animals roamed freely through the winter months, although the law required that they be branded by their owners. By today's standards these half-wild, skinny creatures were far from impressive. They offended some colonial visitors to North Carolina, too. Virginia's William Byrd criticized North Carolina farmers after traveling in the colony in 1728.

Both cattle and hogs ramble into the neighboring marshes and swamps, where they maintain themselves the whole winter long and are not fetched home till the spring. Thus these indolent wretches during one half of the year lose the advantage of the milk of their cattle, as well as their dung, and many of the poor creatures perish in the mire, into the bargain, by this ill management. . . .

The only business here is raising of hogs, which is managed with the least trouble and affords the diet they are most fond of. The truth of it is, the inhabitants of North Carolina devour so much swine's flesh that it fills them full of gross humors. . . . Surely there is no place in the world where the inhabitants live with less labor than in North Carolina. It approaches nearer to the description of Lubberland than any other, by the great felicity of the climate, the easiness of raising provisions, and the slothfulness of the people. . . .

Even so, North Carolina hogs provided meat for the farmer's table, and large herds were rounded up and driven to distant markets for sale.



Most North Carolina pioneers settled on small farms. They built their own houses from forest timber, raised livestock like cattle and hogs, and grew crops like corn and beans.

The colonial farmers faced many problems that are hard for us to appreciate today. First they had the extremely difficult task of clearing and plowing the land. This had to be done without any mechanized farm machinery. There were no chain saws, tractors, or combines. Axes felled the trees. Plows pulled by strong but slow-moving oxen broke the land. No matter how hard they worked, it took colonial North Carolinians weeks to do what modern farmers accomplish in a day.

There were serious problems with insects, plant diseases, and exhausted soils. Colonial farmers had no pesticides or fertilizers and did not understand the need for crop rotation. Colonists depended on the weather to provide the proper amounts of sunshine and rainfall, just as farmers do today. They were much less able to help themselves if the weather did not cooperate, however. These pioneer farmers had no means of irrigating parched fields except by canals and ditches. They lacked accurate weather forecasts to warn of approaching storms or freezing temperatures.

Colonial farmers also had to worry about wild animals or “vermin” as they were called. Wild turkeys, crows, and pigeons ravaged the fields. Weasels and foxes killed poultry. Bears, cougars, and wolves attacked livestock.

Agricultural methods and the lives of North Carolina farmers have changed profoundly since the colonial period. Today fewer farmers produce more food than colonial farmers could have imagined in their wildest dreams. Changes have also occurred in North Carolina itself, with the spread of industry and the increasing movement of its people into towns and cities. The foundation for this growth rests with North Carolina’s long tradition of farming that developed over 200 years ago.

A good wheat crop gave the pioneer family plenty of grain to make bread and to provide hay for the cows and horses. It might take several weeks of hard work with hand sickles to harvest the wheat.



# James and Nancy Bennitt

## Yeoman Farmers of the Old South

by Art Menius\*

Union General William Tecumseh Sherman spied a "nice farm" by the side of the Hillsborough to Raleigh road on the morning of April 17, 1865. He described the house as "scrupulously neat, the floors scrubbed to a milky whiteness, the bed in one room very neatly made up, and the articles of furniture in the room arranged with neatness and taste."

Sherman and Confederate General Joseph E. Johnston selected that farm to conduct negotiations that led to the largest surrender of the Civil War. If they had not chosen that particular farm, the names of its owners, James and Nancy Bennitt, would be as lost to history as those of other yeoman farmers in North Carolina.

The importance of the commanders' work at the Bennitt farm resulted in the twentieth-century restoration of the Bennitts' home as the Bennitt Place State Historic Site, located just west of Durham. It also led to the survival of James Bennitt's personal papers. These materials include bills, receipts, handmade valentine cards, militia records, and several small volumes in which Bennitt recorded his business dealings. The most important of these is his "Pocket Book," containing detailed entries from 1839 until 1849.

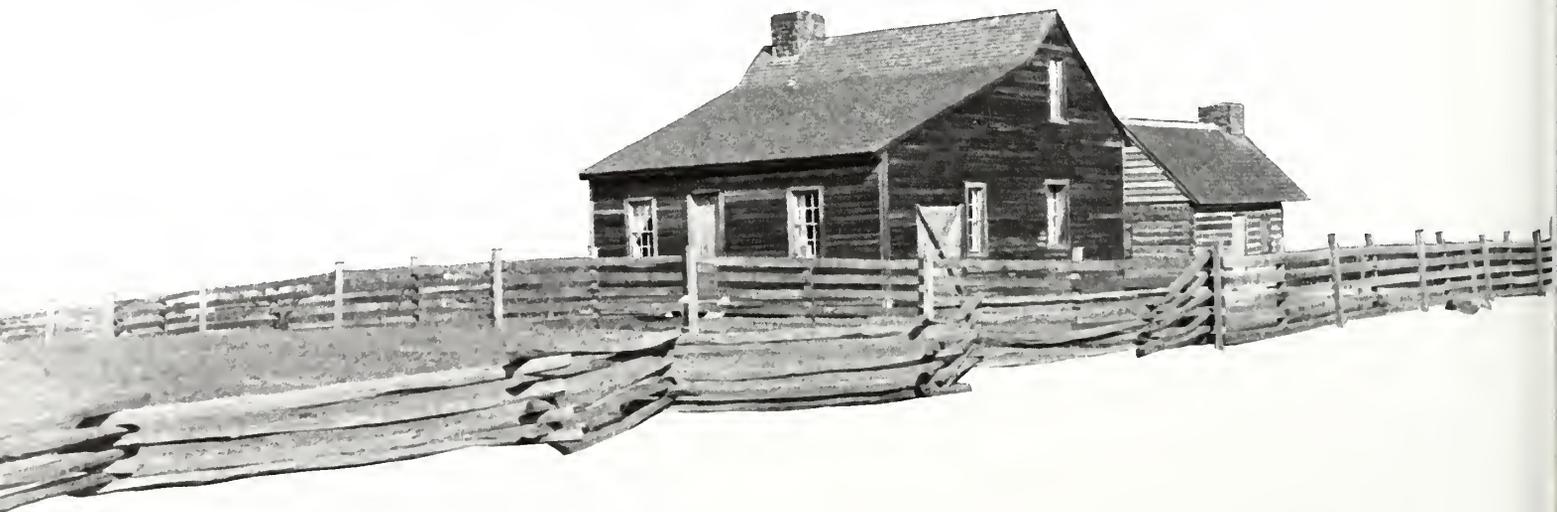
The Bennitt records illuminate the lives of yeoman farmers just before the Civil War. Yeoman farmers made up the largest white farming class in antebellum North Carolina. They owned small tracts of land and did not expect to acquire much more. Farming offered them their only opportunity to earn a living.

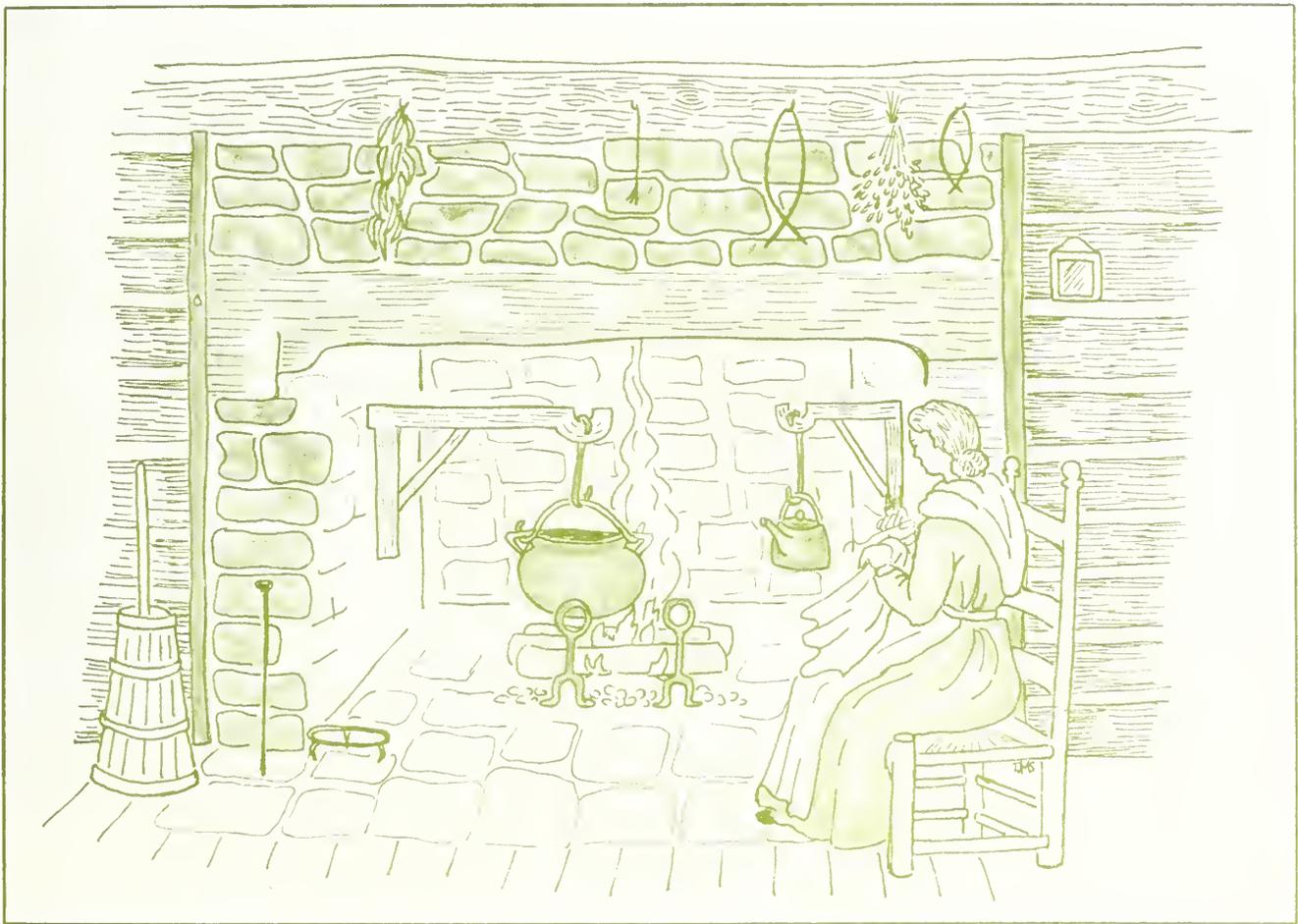
James and Nancy Bennitt and their children grew corn, oats, wheat, watermelons, peas, sweet and Irish potatoes, hops,

cucumbers, onions, squash, turnips, apples, and cherries. They also raised hogs, cattle, sheep, horses, and chickens. The Bennitts also made and sold clothing and shoes for extra income, but their entire profit for the decade of the 1840s amounted to only \$30.74. This was not much to show for ten years of hard work.

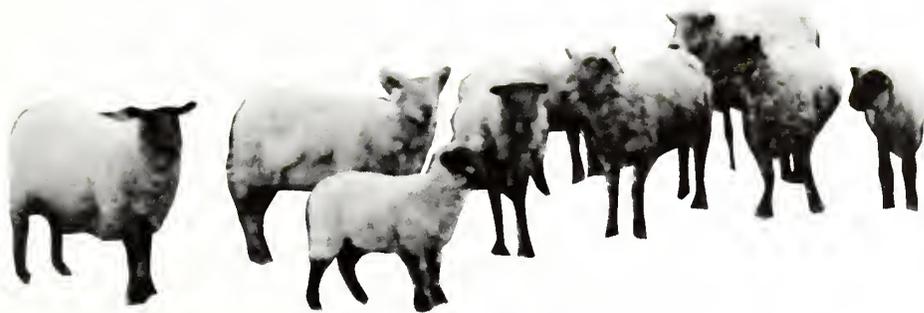
The Bennitts usually cultivated their land with hand tools. Receipts for repairs kept by James Bennitt indicate that his grub hoe received the most frequent employment. The grub hoe's primary purpose was to prepare hills for planting corn. Bennitt sharpened his grub hoe during March. He had his wooden hoes "steeled" at the same time to strengthen them for use in his rocky piedmont soil. Other hand tools on the Bennitt farm included an axe, shovel, one-half-inch auger, two pairs of tongs, an iron wedge, a mattock, a manure fork, claw hammers, scythes, and a wheelbarrow. The Bennitts also used cotton combs, a spinning wheel, and a loom. The small margin of profit available to the Bennitts made it essential that they produce enough cloth to make their own clothes. They had no money to purchase yard goods at stores.

Local blacksmiths produced and repaired most of the Bennitt tools. Sometimes they created new implements out of the remains of old ones to save money. Bennitt usually paid their small fees with produce from his farm. The highest fee he paid in 1846 was 35 cents for repairs to a plow, one of his two large, animal-drawn farming implements. He owned a crude sort of turning plow called a dagon. The dagon featured a wooden body and a wrought-iron plowshare that cut the furrows





Nancy Bennett spent many long hours sewing and cooking for the family while her husband, James, worked out on the farm.



in the ground. Bennett probably purchased his dagon plow from a dealer, rather than having it built by local artisans. Bennett persisted in using horses to draw his plow even though mules became much more popular after 1850.

James Bennett did turn to local craftsmen when he had saved enough money to build a wagon. For years he had rented wagons from neighbors, but in 1845 he spent \$42.97 for parts and labor in having his wagon constructed. During the next four years Bennett recovered more than half the cost by hauling people and supplies for fees. When his estate was appraised in 1879 the "old one Horse wagon" was still worth \$10.00.

Every tool on the Bennett farm increased productivity and made the operation more profitable. This was absolutely vital because yeoman farmers lived on the edge of financial ruin. With an average annual profit of only \$3.00, anything that provided a few pennies of extra income was highly prized. The unsophisticated farming technology available to James and Nancy Bennett kept their farming operation small. To supplement their income the Bennetts spent many years cobbling, tailoring, selling liquor, hauling supplies, and providing "southern hospitality" for a fee—all to keep and maintain their "nice farm."





Soil erosion destroyed many antebellum farms. This field in the North Carolina mountains probably washed away after only a year or two of use.

## Reforming Antebellum Agriculture

by James M. Clifton\*

North Carolina entered the antebellum period with its agriculture in a state of crisis. Land values and crop prices declined disastrously. The state's lack of roads, railroads, and harbors made things worse. Farmers found it expensive and often impossible to get their crops to market. Poverty and low morale drove thousands of North Carolinians from the state each year. They moved south and west, looking for a better future elsewhere.

Many people in the state recognized the problems and tried to solve them. They recommended better education for the state's residents, improved railroad lines, and other reforms. There were many North Carolinians who refused to worry about the state's loss of people and money, however.

Some of the state's wealthiest planters believed that agricultural reform would provide the most help for the state. Paul C. Cameron, the state's largest land- and slaveholder by 1860, shrewdly noted that reform could never be achieved until farmers themselves developed a greater determination to succeed. Cameron felt that farmers needed to trust "book farming," experiment with

fertilizers, and upgrade their livestock through careful breeding. Cameron knew what he was talking about. His Orange County plantation was a classic example of agricultural reform. He had the money and the labor necessary to conduct large-scale experiments in scientific farming.

The kinds of reform that Cameron and other planters achieved did not spread through North Carolina until about 1840. By that time popular support for change gained ground. Hundreds of miles of railroads and plank roads were built. The General Assembly finally established a statewide public school system. Farmers slowly accepted various improvements that were published in agricultural journals, books, and newspapers.

Edgecombe County led the state in agricultural reform among the planter class. This county also held the largest number of planters who owned 100 or more slaves. Cotton production in Edgecombe increased over 900 percent from 1840 to 1860, making it the leading cotton-producing county. John S. Dancy specialized in progressive planting techniques. Panola, his Edgecombe plantation,



Mules soon became the principal draft animals on North Carolina farms—they could stand hard work and long hours in the field. Courtesy University Archives, NCSU.

became famous across the state. Dancy served as the first president of the North Carolina Agricultural Society in 1852.

The principal concern of planters was to improve soil fertility. They experimented extensively with fertilizers containing ash, lime, cotton seed, marl, gypsum, and guano. Planters learned that compost and barnyard manures enriched the soil, as did cover crops like clover and cow peas.

Planters devoted time and care in preparing the soil for cultivation and in planting and harvesting crops. Horizontal or contour plowing evolved to stop soil erosion and conserve fertility. Better drainage and planting procedures also improved crops.

New or improved implements assisted

farmers—iron and steel plows, seed planters, cultivators, reapers, hay rakes, threshers, manure carts, and cotton gins and presses all became standard equipment.

Planters improved their cattle, sheep, swine, and horses by crossbreeding them with premium imported stock. Mules, introduced during this period, became the principal draft animals on plantations because they were hardier than horses.

The state's progress in agricultural reform did not extend to the treatment of slaves. Enslaved blacks made up a third of the state's population by 1860. Usually, inexpensive food was distributed to individual families once a week. Each adult received one peck of corn and enough pork or beef for two or three meals.

A cotton press (shown to the right of the building) could be found on many North Carolina plantations. Used to crush cotton into large bales, these machines are seen only rarely today. Have you see a cotton press in your community?



Children were given half this amount. A few slave families were allowed to supplement these weekly rations. They worked small vegetable gardens and raised a few chickens or pigs. Planters provided each slave with one summer and one winter outfit. Slave housing consisted of small, plain cabins for individual families. Sometimes double frame houses were built that sheltered two families. Slaves worked in the fields from dawn to dusk. Evening hours often included other types of work for whites—spinning, weaving, cooking, and feeding stock. In the remaining hours of the night slaves might have time to work their own gardens or get together with their families.

North Carolina's efforts to reform its agriculture achieved remarkable results by the end of the antebellum period. Between 1840 and 1860 cotton production increased by 350 percent; tobacco by 100 percent; rice by 375 percent; wheat by 250 percent; and corn by 30 percent. The cash value of farms increased more than 100 percent between 1850 and 1860. The agricultural picture in North Carolina seemed very promising indeed when the Civil War erupted in 1861. The war destroyed the plantation system and halted agricultural growth for many years. Knowledge gained during the antebellum period continued to benefit later farmers, however.



"Slave housing consisted of small, plain cabins for individual families." This old slave house is located near Averasboro in Harnett County, North Carolina.

"Enslaved blacks made up a third of the state's population by 1860." These women are busy spinning cotton into thread in the yard next to their house.



# The Cameron Planters of Orange County

by Kenneth M. McFarland\*



Small subsistence farms dominated agricultural life in antebellum North Carolina. These farms usually contained about 150 acres of cleared ground. Farm labor came primarily from the families that owned these farms.

Plantations also existed in North Carolina. These farming estates relied mainly on slave labor for crop cultivation. Over 4,000 North Carolinians owned twenty or more slaves and were classified as planters. Nearly one third of the state's population was enslaved. They produced crops of cotton, tobacco, and cereal grains that were sold at Virginia, North Carolina, and South Carolina markets.

The organization of plantation life and work varied greatly across the state. Planting tobacco in Person and Granville counties required different farming and marketing skills than those needed to grow cotton in Anson County or rice in New Hanover

County. The size of a plantation and its slave force also affected work life. Plantations ranging in size up to 1,000 acres with twenty to thirty slaves, for instance, allowed contact between the slaveowners and the slaves. In many cases the planter personally directed labor in the field. Sometimes he was helped by a slave foreman. Individual slaves executed a wide variety of duties including field work, fence building, and feeding livestock.

The state's larger plantations achieved the highest degree of efficiency, however. Large-scale production required the purchase of the best agricultural machinery. Skilled slaves were allowed to specialize in different areas. Some operated wheat-threshing machines and cotton gins. Others produced clothing, bricks, and farm implements used on the plantation. The state's largest landowners could not personally supervise all the operations on their estates. Instead they hired

\*Site Manager, The Stagville Center, Durham.

overseers to control daily work. Frequently the overseers paid more attention to productivity than to the well-being of the slaves.

The Cameron family controlled one of the largest estates in North Carolina. Paul C. Cameron was regarded as the wealthiest man in the state by 1860. The Camerons owned nearly 30,000 acres that spread over eastern Orange (now Durham) County and three other piedmont counties. Here 900 slaves tended crops covering miles of river bottoms while hundreds of hogs and sheep fed nearby.

It was impossible to manage so much land as a single unit. Instead the Camerons divided it into separate plantations that held several thousand acres each. One of these plantations, Stagville, is now a State Historic Site. A slave work force and an overseer occupied each plantation. Paul C. Cameron's house, solid and handsome, lacked the big columns and grandeur of many planter homes in the Deep South.

Like other farmers in the state, both big and small, Cameron faced the problem of poor soil. Much of the soil's fertility had been destroyed from constant use since the 1700s. Cameron handled the problem by using the latest scientific farming methods described in journals like *The Farmer's Register*. Cameron carefully rotated his crops and took steps to stop soil erosion. To restore his soil he used expensive fertilizers. A single order of fertilizer could cost much more than the yearly wage of a Cameron overseer.

Cameron grew a variety of crops, as well, to keep the land fertile. He planted large quantities of wheat, and he raised big crops of cotton. Tobacco, corn, and oats covered hundreds of acres. The Cameron plantations could stay profitable even if one crop failed.

Plantations were busy worlds of activity for black slaves. Family records do not indicate how the Camerons organized their slave labor. Some slaves probably worked under the "gang" system. These men and women remained hard at work in the fields from dawn to dusk, but they had no special goals to achieve. Others labored under the "task" system. Specific daily goals that had to be met were given to individuals or work crews. Their labor ended when those goals were reached. Both of these systems were used to control slave activities from January through December.

Most details about the daily lives of field slaves went unrecorded. More is known about skilled slaves owned by the Camerons. George and Cyrus acted as teamsters for the Camerons. They drove crops to market on large wagons pulled by six mules. The wagons were



Paul C. Cameron, wealthy North Carolina planter.

filled with bales of cotton or hogsheads of tobacco. Matthew, the Camerons' slave miller, ground tons of grain into flour. The flour then went into barrels made by Solomon, a slave cooper. Daniel sawed the boards used in plantation buildings. The boards then went to Dandrige, a slave carpenter, who constructed the buildings.

At times highly trained slaves proved vital to keeping plantation operations running smoothly. In 1850 Paul Cameron complained in a letter to his father that broken machinery had halted cotton-baling operations. It was "a very hard matter," he noted, to find someone who could make the needed repairs. Fortunately for Cameron a friend sent a slave "purchased at a high figure" who was "in the habit of executing such jobs." This shows that slaves not only worked the earth with plows and hoes, but they also became masters of plantation technology.

The enormous barn built at Stagville in the summer of 1860 symbolizes life on North Carolina's largest plantations. Dates on lumber orders made by the Camerons show that work on the barn depended on the farming cycle. When slaves could be spared from field work, large crews cut the trees, hewed the timbers, and erected the 135-foot-long framework. Skilled slaves supervised the labor. The barn was completed in September, 1860. Paul Cameron called it "the 'best stables' ever built in Orange" County.

Skillfully yet quickly constructed, the Stagville barn reveals the importance of accomplished slave crews to the plantation economy. It also is a dramatic landmark to the end of an era. The Civil War opened within months of its construction and Paul Cameron's world of plantations "all went down in the night."



Slaves had to work from dawn until dark to handpick large fields of cotton on the big plantations. Courtesy National Archives.

Barn at Paul Cameron's Stagville plantation, built by his slaves in 1860, only a few months before the Civil War. To appreciate the size of the barn note the man standing beside it on the left.



# The Farmers' Revolt

by James Hunt\*

One hundred years ago most North Carolinians—over 90 percent—lived and worked on farms. Even the state's largest cities reflected country life, with chickens and hogs roaming the unpaved streets. Life on these farms in the 1880s and 1890s had advantages and disadvantages. Some men and women enjoyed working outdoors on their small, independent farms. Yet farmers across America had been hurt by a major agricultural depression. This made it difficult to earn a living by farming. Tar Heel farmers needed help out of their financial troubles. Many

The storekeeper could be the farmer's best friend or worst enemy. A farmer could always get credit from the merchant, but could he pay his debt at the end of the year? This is the Yates and Thomas store in Chatham County, c. 1898, which is still standing. Courtesy N.C. Collection, UNC Library, Chapel Hill.



turned to the Farmers' Alliance for this help.

Richard Thompson was a Johnston County farmer during this time. He ran his farm well but problems occurred. He hoped that the Farmers' Alliance would succeed in solving his and his neighbors' troubles.

Richard lived with his wife and seven children on a small farm near Pine Level. Like most of his neighbors, Thompson grew corn, cotton, beans, and sweet potatoes. He also owned a few hogs, chickens, cows, and a horse. All the money the Thompson farm earned was spent taking care of the livestock and crops. Because Richard Thompson had so little cash, he never opened a bank account. In order to buy basic supplies the family needed,

Thompson made credit arrangements with the Pine Level store owner each spring. The merchant promised to provide Thompson with farm and home supplies until his crops came in. Thompson promised the merchant that he would pay him back with a portion of his fall crop.

During the 1880s Thompson and other North Carolina farmers began to realize the dangers associated with borrowing from local merchants. Merchants charged high interest rates on the loans they gave farmers. This especially angered farmers after crop prices began to decline. Farmers knew that the interest charges coupled with the low prices for cotton might put them out of business.

Many farmers lost their land when they failed to repay the merchant in the fall because of bad prices. Even if a farmer managed to keep his land and pay the merchant, he often had so little money left that he and his family became poor. If he borrowed from the merchant again, he repeated the risk of losing his farm.

A large number of farmers wanted to defeat the system of merchant credit. For this reason they welcomed the National Farmers' Alliance and Cooperative Union when it came to North Carolina in 1887. The Farmers' Alliance offered North Carolinians the chance to work for these changes.

Alliance meetings were held in schools, churches, and homes across the state. Membership grew rapidly. By 1891 over 100,000 North Carolinians belonged to the Alliance. Richard Thompson joined the Fork Creek Alliance of Johnston County, along with many of his neighbors. These people worked hard to solve farm problems, and they proposed many specific remedies. For example the Alliance established the Farmers' State Alliance Business Agency. The agency sold farm supplies directly to Alliance members. This allowed farmers to avoid the higher prices charged by local merchants.

Yet the merchant credit system and low crop prices proved difficult to overcome. Urban leaders in the state distrusted the Alliance. The Alliance never had the money to finance crops like the local merchant. Farmers still had to rely on storekeepers for credit. The

Alliance plan to improve farm credit with the help of the federal government also failed. The plan required the federal government to issue loans to farmers for crops stored in government warehouses. Neither Congress nor the president favored the idea, however.

Although Alliance members believed that the government had a duty to help farmers, they disagreed about the best way to achieve these reforms. Some preferred to work through the existing Democratic or Republican parties. Others joined the newly formed People's Party, a national organization that supported the Alliance. Party disagreements helped destroy the Alliance. It declined in membership after 1892.

The Alliance failed to obtain the kind of agricultural success that its members wanted. The defeat of the farmers was so convincing that the 1880s and 1890s became a turning point for all North Carolinians. The demise of the Farmers' Alliance signaled the fading power of North Carolina's agricultural society. Men like Richard Thompson, who had symbolized North Carolina life since colonial days, began to lose their importance. Instead the state's industrial leaders strengthened their authority in the economic and political life of the state. Ironically the urban leaders who had fought the Alliance before 1900 later agreed with the farmers that North Carolina needed a more powerful and active government to promote economic growth.



These men, members of the Farmers' Union in Harnett County, c. 1900, and thousands of other Tar Heel farmers wanted more money for their crops and lower interest rates charged by the local merchants. Courtesy N.C. Collection, UNC Library, Chapel Hill.

# Landless Farmers

## The Tenant Farm System

by Vernon Burton\*

Tenants farmed land owned by someone else. They rented the land and paid for it either in cash or in part of their crops. Tenantry did not spring up suddenly after the Civil War to replace slavery, as many people believe. Tenant farming in America had roots deep in the colonial period. Settlers moving to Virginia in the 1600s were permitted to occupy farms as tenants until they could afford to pay for the land.

Tenantry spread throughout the South by the early nineteenth century. A constant 40 percent of all white farmers in Durham and Orange counties in this state were tenants between 1850 and 1880. Free blacks living in antebellum North Carolina made very good tenants as well. White landowners legally had to pay taxes on any free black farmers renting their land. Despite this economic burden many white landowners utilized free black farmers because the arrangement benefited both. Free blacks achieved better economic security and earned increased respect for themselves. In a study of free blacks in antebellum Virginia, one historian concluded that tenantry helped free blacks obtain land of their own.

After the Civil War tenant farming expanded to replace slavery as the predominant farm labor system in the South. By 1890 three fourths of all laborers in the cotton fields were tenants. The percentage of tenants operating farms in the South increased from 36.2 in 1880 to 55.5 in 1930. By that year nearly half of all white and more than two thirds of all black farm operators were tenants. Almost one out of every four southerners lived in a tenant family.

Although tenant farming occurred outside the South, it was in this region that tenantry led to large-scale economic competition between blacks and whites. Racial tensions and anger flared. Just as former slaves were becoming tenants, many yeoman farmers were losing their lands and being forced into tenantry as well. The status of white tenants declined as the number of black tenants swelled. The tenant system after the Civil War involved stark levels of poverty. In some cases it amounted to enforced servitude because the tenants were permanently in debt to the landowners.

Southern life depended on agriculture. Successful agriculture depended on land and a steady supply of labor. White landowners knew it was critical that farm work continue without a break following the abolition of slavery. The big question facing them was how would the emancipated slaves be used to farm the land? Should former slaves be paid a wage for farm work? Should they be made to work in gangs as they had done under slavery? Would emancipated blacks be given land carved out of former plantations to farm as their own?

Freedmen [former slaves] hoped to become independent landowners. Plantation owners wanted, in effect, to reenslave black workers or find another way to guarantee a manageable black and white laboring force. They knew that wage labor would give them more control over farm workers than renting their land to independent farmers would provide. The scarcity of money and the refusal of former slaves to be worked as gang labor, however, forced them to turn to tenantry and sharecropping. White landowners did not have the money to pay wages. All they had was land. They divided their land and rented it out in small holdings to white and black farmers.

Contracts were signed between employer and employee. The usual arrangement involved an exchange of part of the crop at the end of the season. Sometimes it was the sharecropper who provided the landowner with part of the harvest. More often the landowner gave the sharecropper a portion of the crop as a wage. Other contract details involved whether the landowner or tenant provided the seed, fertilizer, work animals, and plows.

The key issue decided by contracts was control of labor. Who scheduled the worker's daily chores and activities, the tenant or the landowner? A renting tenant had more control over his time and activities than someone working for a wage. Sharecroppers, unlike renting tenants, had little control over what crops were planted or how they were sold.

Freedmen wanted family farms. They hoped tenancy would eventually enable them to acquire land. Tenant farming was a move

Courtesy Library of Congress.



It took the Civil War to free blacks from slavery. Though free, most remained on the old plantations as sharecroppers or tenant farmers and continued to work much as they did before the war. Courtesy N.C. Collection, UNC Library, Chapel Hill.

up the economic and social ladder for former slaves, and not every black family could obtain a tenant farm. After Reconstruction the blacks who did not receive tenant farms from landowners had few options. Many black laborers moved from farm to farm seeking employment. This proved especially hard on families. Tenantry, on the other hand, meant more independence. Tenant farms usually contained forty to sixty acres of land. This gave renters freedom of movement and isolation from constant supervision by the landowners. This isolation also brought problems. Tenants, white and black, were vulnerable to organized violence and the political power of the landowning class. They found it difficult to organize for protection.

A myth persists that sharecropping and tenantry harmed families, especially Afro-American families. Southern tenancy, however, helped strengthen the family. Farming was a family affair. Families on tenant farms worked together. Married men with families were more likely to operate farms because farmers needed wives and children to help. Single women and widows, black or white, found it difficult to run a farm without the help of a capable male. White landowners often were reluctant to rent to female-headed families because they doubted women could handle the work. Many women did manage

farms as tenants or sharecroppers, however, if it meant the survival of their families [see next article].

New Deal legislation in the 1930s marked the beginning of the end of the tenant system. The federal government began paying landowners money to plant fewer crops. This program encouraged landowners to evict southern tenant farmers from the land. Higher cotton prices by the mid 1930s also meant sharecropping cost landowners money. Good cotton yields between 1935 and 1939



allowed a landowner to improve his returns per acre by 91 percent if he replaced tenants with wage laborers. The growth in farm mechanization also made wage labor more efficient. During World War II tenants found

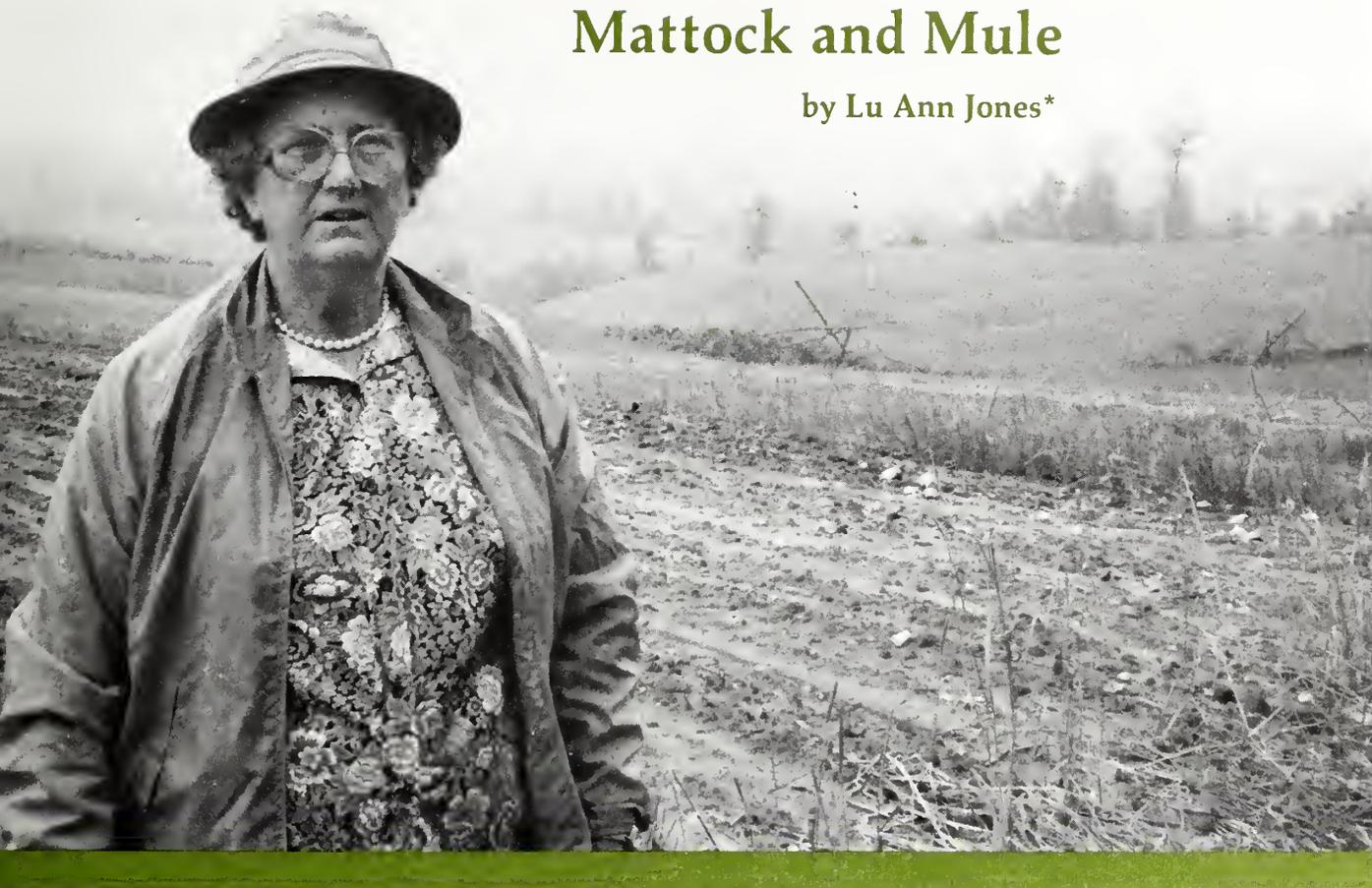
employment in the armed forces or in northern industries that desperately needed workers. The South's tenant system was broken, and full mechanization gradually replaced tobacco and cotton farm tenants.



Large landowners divided their land and rented it out to both white and black landless farmers. Above, a farm woman with her six children, each a potential laborer to help in the fields. Below, a tenant family in front of its home in eastern North Carolina, c. 1900. Top photo courtesy N.C. Collection, UNC Library, Chapel Hill.

# Mattock and Mule

by Lu Ann Jones\*



Courtesy National Museum of American History, Smithsonian Institution.

*Editor's Note:* The following excerpts from an interview with Virgie Redmond of Statesville are taken from "An Oral History of Southern Agriculture," sponsored by the National Museum of American History. Mrs. Redmond describes life as a sharecropper in Iredell County.

A "blackberry rain" that promised to make bushes bountiful was falling the May morning that Virgie Redmond and I climbed in a pickup truck for a tour of her family's Iredell County farms. Fog obscured views of nearby mountains, but the weather did not dampen memories of her mother's struggles as a sharecropper to bring up four children during the 1930s depression.

Mama just rented houses and lived on rented land and cleared new grounds and worked for people to raise us kids. It's a miracle. I don't see how she ever done it. Mama had to raise us with a mattock [a digging tool] and the mule, and we never had a home when I grewed up.

My daddy left us when my baby brother was a year old. Mama was never mad at him. She always loved him. What happened was, he come over here to rent a place, and the man had some whiskey. They had this liquor in the car, and they caught my daddy and this man. They put 'em on the road [convict road labor] for six months apiece. And a colored man jumped on the guard and beat him, and they all run away. My daddy knew if they caught him back that he'd have to serve double time, and he just left the country. Wasn't that

something? Left us little young'uns. Left mama with a year-old baby.

She was a little bitty woman. She never seen a job too hard for her in her life. Days like today, in the wintertime when it would be cloudy and drizzly, she'd take us out and clear these new grounds. She would take a big old tree, and she would start down at the ground. She'd follow that root out, and she'd take her mattock and dig that root out. Then she'd get underneath there and cut it off with an axe. She had to do that in order to get a place to live. She just had to work hard, haul rock and do anything [landlords] told her.

Mrs. Redmond idled the truck beside a field where she once hoed cotton.

We worked that cotton and this man would haul it off for us. The man we worked the cotton for, he'd take it to the gin for us. Well, he took the cotton to the gin and he wanted to get our money. So he had this old, poor horse, and he knew we liked this old horse. She was always kind of poor 'cause you couldn't fatten her. But she was a good horse to ride, and we loved to ride her.

So when he come back that night he'd evidently had him a drink. He come in there and he wanted to sell us this horse, and he wanted a whole lot of money for her. It was the funniest thing. He left and we thought he was gone! . . . He come back in there, and we got scared. You never heard such cussing in your life, 'cause he wanted to sell us that horse and get that money. People'd do mama like that. Mama just had to take it 'cause she had to have a place to live. But we didn't buy the horse 'cause mama knew she had to

\*Research assistant, National Museum of American History, Washington, D.C.

keep that money to get us a pair of shoes apiece to have to wear that winter.

My mama would work half of the night and go help neighbors string beans and anything. If people got sick, they'd come to get my mama to sit up with them because she was so good with sick people. She said if she got her a little nap just before day she'd be all right; if she slept a couple hours, she'd be all right. She'd get up and go work all day the next day.

And shuck corn for people. Had a great long corn pile one time. I can remember this as well as if it was yesterday. She'd cover us up with shucks, and she would heat her a rock in the fireplace and take it and put [it] underneath her feet and sit there and shuck corn till midnight. She had to do that 'cause she lived on these people's land and if she didn't, they'd just run her off in the wintertime. They didn't pay her a dime. She got part of the corn. That was all she got.

[Mama] always had a good garden. When we'd go to the house at dinner, she'd say, "Now kids, get them hoes. We're gonna hoe the sweet taters in the garden while we rest." That's how we rested. It's hard to believe, ain't it? But we done it. We done it.

When we growed up we didn't get to go to school because we lived on rented land. And it'd come pretty days, the man'd tell mama he had to keep us out to pick cotton. So we got behind, and I quit in the seventh grade. And I said, "Well, if I ever had any children I was gonna see that they got an education if I had to wrap up my feet." That's how much it meant to me.

When Virgie Redmond married fifty years ago, she and her husband Mott rented land until they had a chance to buy forty-two acres in the 1940s. Their first year as new land-owners was precarious.

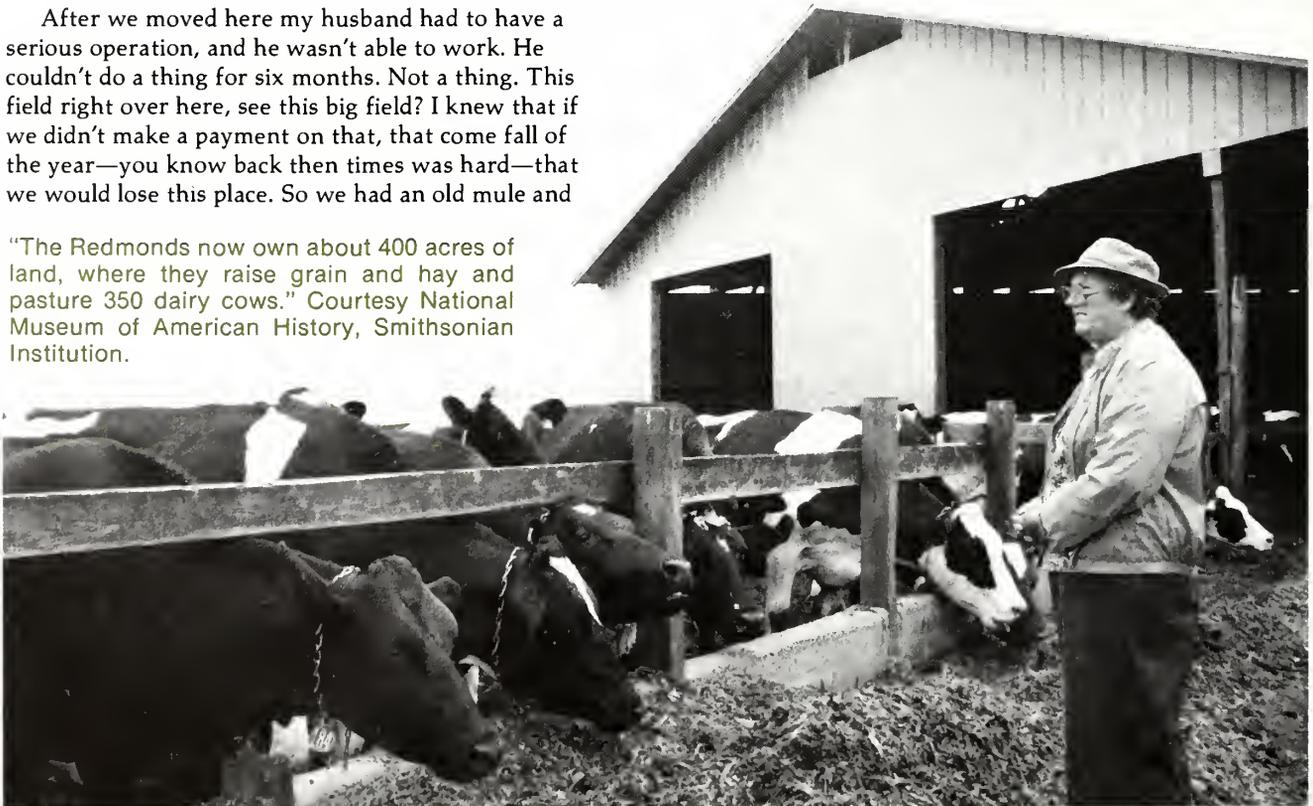
After we moved here my husband had to have a serious operation, and he wasn't able to work. He couldn't do a thing for six months. Not a thing. This field right over here, see this big field? I knew that if we didn't make a payment on that, that come fall of the year—you know back then times was hard—that we would lose this place. So we had an old mule and

"The Redmonds now own about 400 acres of land, where they raise grain and hay and pasture 350 dairy cows." Courtesy National Museum of American History, Smithsonian Institution.

Mott's daddy had an old mule. And I told him, "Now, I can get that mule from your daddy, and I can take my mule and I can turn this field out here with a two-horse plow." He said, "Virgie, you can't do that. It's too hard on you." I said, "I believe I can." And mama said she could drive the team if I'd do the plowing.

I turned that field and laid off the rows, planted that with the planter to keep this farm because I was so proud of having a home. Just so proud of it. My neighbor came and laid off about four rows and showed me how I could lay 'em off, and I laid 'em off. We planted half of that field in cotton and half of it in corn. We cut the tops. We pulled the fodder. We picked the cotton. We done real good out of it. Had about three bales of cotton, maybe four. And we had enough out of the cotton to buy the kids some clothes and pay our payment. The first thing we done was to pay our payment on the place. We had enough left out of it to buy us a cow. We give fifty dollars for her. We sold some milk that winter to get us some bread and stuff.

The Redmonds now own about 400 acres of land, where they raise grain and hay and pasture 350 dairy cows. Twenty-five years after his departure, Mrs. Redmond saw her daddy once again. A brother who was a truck driver located him in Ohio. Mrs. Redmond's mother lived with her for several years before she died at the age of eighty-six. "She was so happy because she never had a home, and when she come and lived with us we had a home." As Mrs. Redmond surveyed the land and took stock of her accomplishments, she saw her mother's spirit. "Mama learned us to work. That's what she done. She just worked."





"Competitions were held to see which corn club members could grow the most or the biggest ears of corn." In 1915 Gaston County had ninety-four members in its corn club. Courtesy University Archives, NCSU.

## The College for Rural Farm Families

by Edgar J. Boone\*

The twentieth century ushered in a new era for the education of North Carolina's rural and farm families. Educators and politicians demanded that these families receive special instruction outside of the regular school system to help them earn better livings.

The North Carolina Department of Agriculture and later State College vigorously supported these demands. Farmers' institutes, boys' corn clubs, girls' tomato and canning clubs, institutes for rural and farm women, farmers' cooperative demonstration work, and county agricultural fairs occurred at least ten years before the federal government adopted a similar plan.

Jane S. McKimmon and I. O. Schaub were two of the early leaders who spearheaded these programs. Farmers' institutes led the way in providing information to rural farm families. Extension agents taught eleven institutes in the late 1890s. By 1906 institute agents like McKimmon had increased that

number to 200. Schaub became the State Club Agent in 1909 and organized the first corn club. McKimmon joined him in club work in 1911. Club programs employed a group of traveling agriculturalists from North Carolina State College and the State Department of Agriculture. They visited every county in the state. Their travels provided plenty of adventure. Roads frequently disappeared in many of the areas they had to reach. Even when roads existed they often became impassable in bad weather.

The success of the North Carolina program provided the foundation for the passage of the 1914 Smith-Lever Act by the United States Congress. This legislation authorized and provided funds for the Cooperative Extension System that is still operating today. It ordered federal, state, and local governments to cooperate together in the extension program by sharing the expenses and management of the service.

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The early North Carolina Extension Service developed many plans to provide useful information on agriculture and home economics to the state's rural families. Extension agents believed that they could make average people understand the discoveries being made in agricultural research. They translated scientific data into everyday English to help farm families solve problems in their daily lives. What was the best way to plant corn, wheat, or soybeans? How could farm women best organize their time to be efficient farm workers and good mothers? How should they make good biscuits? What were the best ways of preserving and canning foods? What were the best feeds for poultry or cattle? All these questions and many more were handled by agricultural extension agents.

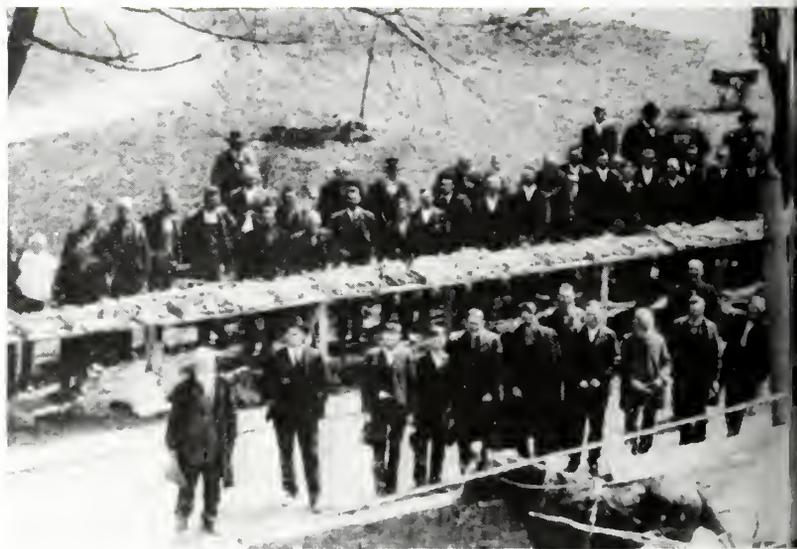
Acceptance of the institutes organized by the North Carolina Agricultural Extension Service (NCAES) grew slowly. Many farm men welcomed "scientific" farming technology, but others distrusted it. Even men who accepted institute training for themselves often kept their wives and daughters from attending sessions developed for them. Grown women were supposed to be at home, not in school. One farm woman disobeyed her husband's command not to attend a biscuit-baking demonstration because it would keep her from her farm chores. She got up extra early and milked the cows, fed the chickens, hoed the garden, cooked the breakfast, and scrubbed the floors in time to attend the early-morning biscuit school. She shyly told the woman extension agent that she would not have missed learning how to make good biscuits for the world, even if her husband was against the idea.

In addition to the farm and home institutes, McKimmon and Schaub organized boys' corn clubs and girls' tomato and canning clubs across the state. Competitions were held to see which corn club members could grow the most or the biggest ears of corn. Girls, dressed in sanitary white uniforms, learned how to make and serve balanced meals while they earned money from their canning projects. These early extension education programs led to the establishment of home demonstration clubs, 4-H clubs, demonstration farms, and organized community groups.

McKimmon and North Carolina State College were pioneers in building a model extension service for farm women. She recorded much of this story in her book *When We're Green We Grow*, published in 1945. Her work has remained a significant part of the NCAES.



The "college for farm women," the North Carolina Agricultural Extension Service, was founded by Leta A. McKimmon. Her goal was to bring useful information on agriculture and home economics to rural families. Courtesy University Archives, NCSU.



Farmers came from miles around to attend a Farm Demonstration Day on the courthouse square in Monroe, Union County, c. 1910.

These members of the Gaston County Farm Life School displayed their talents to the county fair in 1916, where they earned money for future projects. Courtesy N.C. Collection, Library, Chapel Hill.



Service, was started by Jane S. McKimmon to teach home economics to the state's farming women.



Girls dressed in sanitary white uniforms learned how to can food and prepare balanced meals. These two girls were giving a home demonstration in 1917. Courtesy University Archives, NCSU.



Today the NCAES has professional extensionists [county agents] in each of the state's 100 counties and the Cherokee Reservation. It maintains a staff of administrators and program specialists on the campuses of NCSU and North Carolina A&T State University and at the United States Department of Agriculture. The four major programs of the NCAES are agriculture and natural resources, home economics and family living, 4-H and youth development, and community and rural development. During 1986 more than three million North Carolinians participated in extension education programs across the state.

Early North Carolina leaders like Jane S. McKimmon laid a solid foundation for extension education in North Carolina. In recognition of her outstanding contributions in the field of extension education, North Carolina State University named its center for extension and continuing education the Jane S. McKimmon Center. It stands as a solid monument to one woman's ideas and dedicated career in the establishment of a "college for farm women."



# "We Have Got to Do Our Best"

## North Carolina 4-H in Action

by James W. Clark, Jr.\*

Durham, NC  
April 14, 1917

Dear State Club Agent:

*I am not fickle-minded, and I don't want to cause confusion in our club work. I am thinking of planting corn on my three acres and in the fall sow it in wheat. Our country is calling for bread, and I think it is the club members' duty to make all they can on their club acres. I will tell you the responsibility that is resting on my shoulders, and you will know how to advise me. My father is almost an invalid. I am the oldest of seven children, and I have got to make a living for them. The farm is ours, and I think the ones who own the land are the ones to try the hardest to make bread.*

*Please give me your ideas about it. This is something that has never come before, and we have got to do our best.*

*Yours truly,  
G. R. Brown*

In the spring of 1909 President D. H. Hill of North Carolina State College and G. H. Powell of the United States Department of Agriculture declared war. They agreed to attack rural poverty and ignorance by training boys and girls to be better farmers and homemakers than their parents.

To do this a group of extension agents, headed by I. O. Schaub, was given money and authority to enlist North Carolina's rural boys and girls in "club work" at country schools across the state. Schaub organized the state's first corn club in 1909 for about a dozen Hertford County farm boys. North Carolina was the first state to make youth club work an official program. Schaub initially had trouble getting parents to allow their daughters to attend club meetings, however, because they did not approve of male extension agents teaching girls. To overcome this problem Schaub hired Jane S. McKimmon in 1911 to form tomato clubs, also called canning clubs, for rural girls. Guilford County's members led the way. Schoolchildren grew to enjoy the different club work. America's entry into World War I in 1917 added patriotic appeal to club work as well.

Could you build a box strong enough to hold a hog? These Lincoln County pig club members in 1919 not only raised hogs, they also made the shipping crates to haul their pigs to market. Courtesy University Archives, NCSU.



Members of the 4-H are always encouraged to improve their efforts in agriculture. Every agricultural success benefits all North Carolina farmers, and possibly farmers around the world. Courtesy University Archives, NCSU.



The various pig, grain, sewing, poultry, canning, and calf clubs started in 1909 were organized into 4-H clubs on January 1, 1926, when Schaub became dean and director of State College's Agricultural Extension Service. He picked L. R. Harrill as the first director of the 4-H program. Harrill had been a club boy himself and had served as Buncombe County's club agent after he graduated from State College.

From an office at North Carolina A&T College in Greensboro, John D. Wray began forming similar clubs in 1915 for black girls and boys in piedmont and eastern counties. He wanted the children of rural black farmers to receive the excellent training provided to white club members. Eventually this job was taken over by R. E. Jones.

Schaub and McKimmon worked closely with the 4-H movement as it gradually spread into all 100 North Carolina counties between 1926 and 1939. Thousands of club members

learned new farm and home skills that they taught to their parents and neighbors.

The rural work that 4-H pioneered still continues, but 4-H clubs now flourish in cities and towns, too. The programs are not all work and no play either. Active summer camping programs have developed since the first club camp was held in Warren County in July, 1919. Annual statewide meetings add further excitement to 4-H activities. At first these meetings were called Short Courses. Now they are called the State 4-H Congress. Club members gather at this Raleigh meeting each July for recreation and recognition. Competitions are held. Health and leadership activities occur along with fashion or talent shows. Some project winners earn trips to regional or national events in Washington or Chicago each year. Education scholarships also go to the blue-ribbon winners.

At the 1986 National 4-H Congress held in Chicago, North Carolina's delegation won sixteen national honors. No other state delegation had achieved this distinction. Katherine Meadows of Davie County also won a coveted Presidential Award. Today's members still want to do their best, just like G. R. Brown did in 1917.

Changing times, excellent leadership, and generous donors have always mobilized this state's 4-H girls and boys. It happened in World War I. During the Great Depression 4-H work covered the entire state. They formed an Honor Club of lifetime members, added



Special contests are held by the 4-H and awards are given for outstanding accomplishments in agriculture. These two members were winners of a watermelon growing contest. Courtesy University Archives, NCSU.

better camps and new projects with awards, and placed special emphasis on conservation as well as effective marketing of club commodities. Special worship services and radio programs also date from that challenging club era.

World War II brought 4-H'ers to attention through "Feed a Fighter" campaigns. The young Tar Heel force earned the right to christen two battleships besides raising enough money to buy an army ambulance for war service. These same members turned in the best project records the 4-H offices in Raleigh and Greensboro had ever seen. It is not surprising that the 1950s saw this state's club enrollment leading the nation. Currently there are 104,000 4-H members in the state.

The 4-H program has gone through many changes, but some things remain the same. While club uniforms are gone, 4-H colors are still green and white. The four-leaf clover

adopted in 1912 as the club trademark of quality remains the 4-H symbol. "Learning by Doing" continues as the club slogan. Today's motto "To Make the Best Better" also challenged early members. Perhaps the biggest change is reflected in the new wording added to the end of the 4-H pledge in 1973:

I pledge:  
My Head to clearer thinking,  
My Heart to greater loyalty,  
My Hands to larger service, and  
My Health to better living.  
For my Club, my Community, my Country, and my  
World.

The three new words reflect contemporary 4-H'ers' increasing awareness of global society—not just their North Carolina farms, homes, and families.



The 4-H challenge, "Learning by doing to make the best better," prepares club members for productive lives in the future. They are taught to take advantage of every opportunity to improve themselves and their communities. Courtesy University Archives, NCSU.

# North Carolina State University and Tar Heel Agriculture

by Alice Reagan\*



There is a tradition of agricultural research at North Carolina State University. Courtesy University Archives, NCSU

North Carolina State University opened its doors in October, 1889. Ever since that date the university has aided Tar Heel farmers through teaching, research, and extension work. The fact that the institution opened at all was because some people believed American colleges should do more to train farmers and mechanics [working men].

Government reforms in the nineteenth century finally allowed all adult males to vote. Changes also occurred in technology that encouraged economic expansion. American businesses began to benefit from the Industrial Revolution. American farmers and mechanics, however, still received training through the old-fashioned apprentice system. They did not attend college. American colleges stressed a classical education that trained men to become lawyers, ministers, doctors, and politicians.

Many Americans questioned why the nation's colleges excluded so many people.

They urged colleges to expand their studies and offer scientific and technical training to farmers and mechanics.

The United States government solved the problem in 1862 with the Morrill Act. This act created the land-grant college system. It made college education available to many more Americans. The federal government provided each state with money raised from the sale of federal lands. This money was used either to establish new colleges to teach agriculture and the mechanic arts or to fund these studies at preexisting colleges. Students at land-grant colleges also were to receive liberal educations.

Northern states immediately benefited from the Morrill Act. North Carolina and the other southern states that joined the Confederacy had to wait until the end of the Civil War to receive any funds. In 1866 North Carolina received its allotment of the Morrill fund, called land scrip.

\* Author, *North Carolina State University: A Narrative History*, 1987.



Above, priming tobacco the old way, using a mule-drawn slide and working for hours bent over in the hot sun. The mechanical tobacco harvester (right), invented in 1954 by agricultural engineers at NCSU, has eliminated the need for mules and most field workers. Courtesy National Archives and Smithsonian Institution.



Right, stringing tobacco by hand is now a thing of the past for most farmers. Below, metal bulk barns have replaced the old log barns for curing tobacco, reducing the number of workers needed and saving tobacco farmers many hours of labor. Bottom photo courtesy University Archives, NCSU.



The North Carolina legislature decided to give the land scrip to the University of North Carolina at Chapel Hill, founded in 1793. University authorities did little to provide agricultural or technical education with the money because they believed that technical training had no place in the university.

Meanwhile the North Carolina Farmers' Alliance, led by Colonel Leonidas L. Polk, fought for a "People's College." Alliance membership was composed of reform-minded farmers who wanted to improve their economic and educational opportunities. The Alliance worked with another group of Raleigh-based reformers who backed industrial education. This group called itself the Watauga Club. The members were educators, businessmen, and public-spirited individuals. Together these two groups convinced the 1887 General Assembly to establish the North Carolina College of Agriculture and Mechanic Arts, today's North Carolina State University.

Since its establishment NCSU has successfully promoted agricultural progress in North Carolina. At first the college concentrated on long hours of field work. By the early twentieth century students instead took more scientific and technical subjects. After 100 years of evolution, NCSU now graduates not only scientific farmers but also agricultural scientists and veterinarians. At the same time the North Carolina Agricultural Extension Service, established in 1914, has spread the latest in scientific and technical information to many Tar Heel farmers throughout the state.

North Carolina founded a second land-grant college in 1891. North Carolina Agricultural and Technical State University [A&T], located in Greensboro, was established to provide agricultural and technical education to black North Carolinians. Federal legislation passed in 1890 ordered all states to provide blacks with technical educations. If the states did not do this they would not receive any more federal money. A&T was created to meet this requirement because only white students were allowed to attend NCSU. A&T remained the only land-grant college open to blacks in the state until 1953, when NCSU desegregated. A&T has also desegregated.

One of NCSU's greatest contributions to the Tar Heel state has been its achievements in agricultural research. Federal and state funds have allowed NCSU scientists to stride forward in agricultural improvements. Developments in pest management, genetics, disease control, and agricultural engineering have helped North Carolina become a leading producer of chickens, turkeys, cucumbers, swine, sweet potatoes, tobacco, and soybeans.

Agricultural engineers at NCSU perfected the mechanical tobacco harvester in 1954. This invention and bulk-curing techniques introduced during the early 1960s have enabled tobacco farmers to save many hours of labor formerly spent in tobacco harvesting. During the 1950s NCSU researchers perfected bulk-curing techniques for peanuts. Peanut-harvesting methods introduced during the mid 1960s helped reduce labor needs as much as 80 percent. Harvest aids for sweet potatoes, tomatoes, cabbages, and peppers also appeared during this period. In 1974 NCSU scientists developed a better brining process for pickles. This invention and the mechanical cucumber harvester introduced in 1980 helped make North Carolina a leading pickle producer. Mechanical tree planters marketed during the early 1980s aided the state's booming Christmas tree industry. Biotechnology, one of the university's most recent research programs, uses high-tech, microscopic equipment to manipulate genes for better breeds in plants and animals. University personnel have also played key roles in rural electrification and the introduction of the computer in farm management.

Colonel Polk's "People's College" is now the largest campus in the University of North Carolina system. Its scientists, employing the latest techniques in science and technology, continue their quest to improve Tar Heel agriculture.



In 1980 NCSU engineers invented this mechanical cucumber harvester. With this invention North Carolina could become the nation's leading pickle producer. Courtesy University Archives, NCSU.

# The Burden of Mechanization

by Pete Daniel\*

The American South usually conjures up images of cotton, sharecroppers, and other rural workers chained to debt and hard work. Southern agriculture offered much more diversity than this. In the prairies of Louisiana, Texas, and Arkansas, for example, rice emerged as a highly mechanized and dominant crop. In the southern part of Georgia, the wiregrass area, herders raised cattle, hogs, and later naval stores, cotton, and tobacco. Farmers in the southern mountains had small farms and raised hogs, chickens, apples, and other products for the market. Cotton cultivation was only one aspect of rural life in the South.

A century ago the popularity of the cigarette, encouraged by the Dukes of Durham, offered Tar Heel farmers an enticing new crop. Of course tobacco had been grown since the settlement of Jamestown, but cigarettes called for a special leaf. The cultivation of bright [flue-cured] tobacco traveled rapidly from the North Carolina-Virginia border as residents moved south and spread the secrets of cultivation. By the 1920s the flue-cured empire stretched to Florida and Alabama. The booming cigarette business consumed all that growers could raise.

Until the last twenty-five years it took very little in the way of implements and stock to raise tobacco—several mules and plows, tobacco slides, wood, barns, stringing horses, sticks, a pack house, and a grading bench. The work, however, was exhausting. It involved the whole family and often the neighborhood.

Farmers cut wood [for curing fires] in the winter, set out plant beds in January, plowed the fields in March and April, and transplanted the young seedlings in May. There was more plowing and chopping, then topping, suckering, and picking off hornworms. Women and children joined the men in these tasks.

When the lower tobacco leaves ripened, a six-week cycle of “barning” began. Men primed off the ripe leaves. Young boys drove the mules. Women, children, and old folks handed and strung the tobacco, and it had to be tended at all times or it could be ruined. Once cured, it was packed away. During the autumn, when the cotton crop allowed, grading began and lasted till Christmas. Each leaf was appraised. As many as six grades were separated and tied into “hands.” Finally farmers hauled the tobacco to a warehouse, where it was auctioned off to a tobacco manufacturing company. It took 370 hours of



Selecting tobacco seedlings was a family outing for these Wilson, North Carolina, farmers in 1940. Courtesy National Archives.



Transplanting tobacco seedlings by hand. Courtesy N.C. Collection, UNC Library, Chapel Hill.



Priming tobacco. Notice the mule with its sled standing with the workers. Courtesy N.C. Collection, UNC Library, Chapel Hill.



People fondly remember the sense of community and goodwill that surrounded barning days. Courtesy University Archives, NCSU.



Preparing tobacco for curing was a major task, so families often joined together to help each other. This photo was made in Nash County, North Carolina, in 1926.



At the tobacco auction a family farmer finds out just how much all his hard work is worth. Will he earn enough money to pay his bills so he can farm again next year? Courtesy Library of Congress.



Expensive machinery has replaced most farm workers today. Can you find the man working this machine to top tobacco? Courtesy University Archives, NCSU.

work to raise one acre of tobacco. Today, using a tobacco harvester and bulk curer, it takes only 58 hours per acre to market the crop.

Obviously mechanization has eased the burden of barning tobacco. Yet when people discuss the new ways there is often a feeling of ambivalence or uncertainty in their voices. People who worked in the old tobacco culture fondly remember their friends, large dinners, mules' names, and the sense of community

and goodwill that surrounded barning days. Now there are fewer farmers. Fewer farmers has accelerated the decline of farm communities with their churches, schools, and stores. Mechanization is seen as a mixed blessing.

Government programs have also shaped agriculture. Acreage control, leasing allotments, ungraded bulk sales, and government support programs have altered farming. Some farmers adjust to the new ways. Yet many go

out of business. They cannot compete in the new and expensive world of modern agriculture.

Statistics dramatize how much the farm population has decreased. In 1929, before there were government programs or mechanization, 117,000 tobacco farmers lived in the Tar Heel state. By 1945 there were 150,000. As the United States Department of Agriculture drastically cut acreage in the early 1950s, farmers were forced out of production. By the 1960s mechanization displaced even more. Today only 45,000 tobacco farmers remain. Cotton farmers suffered the same fate. In 1929 there were 152,000 cotton farmers. By 1985 only about 3,000 were left. What was true for tobacco and cotton was true for other crops. In 1945 the Tar Heel state had 187,000 farms. This year the count is 72,000 and falling. Today farmers make up only 3 percent of the country's population.

In many ways the skills and knowledge required to be a good farmer have been replaced by expensive machines and chemicals. Huge tractors till the land, chemicals do the weeding and kill the insects, and combines harvest the crops. Whether a farmer raises tobacco, cotton, corn, soybeans, or peanuts, the machines and chemicals dominate production. Farmers have become businessmen. Many are more interested in fighting nature than in moving in harmony with natural cycles. The next wave of technology, called genetic engineering, poses tough questions for farmers. It promises to increase productivity, but there is already a surplus of most commodities. It will also raise the cost of farming. This will lead to another reduction in the number of farmers, because many will be unable to pay the price.

The most important issue raised by mechanization is the cost to humans. Many of the thousands of farmers who left rural North Carolina moved because they had no choice. Machines replaced them. Many of these farm people lacked the skills to compete for industrial jobs. It was assumed that they would find work, and many did. But there was little effort to retrain farm families for urban life. Some became victims of mechanization.

Was it inevitable that machines and chemicals would come to dominate farming? Were there other choices that would have allowed farmers to remain on the land? Why have black farmers practically disappeared from rural America? Is it imperative to use machines and chemicals to prosper? Some farmers have refused to buy expensive equipment. They rely instead on smaller machines carefully selected and maintained.

Other farmers refuse to use chemicals and allow the balance of nature to control insects and grass. Usually these organic farmers have been called eccentric. Yet more and more farmers are listening to their advice. Using nature rather than chemicals makes the cost of production much less.

Perhaps the Amish are the most visible "backward" farmers. Most Americans are familiar with the Pennsylvania Amish, the plain people who were religious refugees from Europe. Amish farmers use some machines, like gasoline-powered hay balers pulled by horses or mules, but they carefully evaluate implements. When younger Amish farmers insisted on using tractors, the elders agreed to a demonstration. Their judgment? "They don't make manure." Tractors were not part of the natural cycle.

The United States Department of Agriculture insists that farmers cannot succeed without machines and chemicals. But many farmers have failed with them. Farmers need to look closely at both the benefits and dangers of mechanized farming. It has allowed farmers to expand acreage, ease the workload, and increase production, but it also has increased the danger that farmers can be financially ruined by these expensive items.

The family farm is endangered. The farmers who remain desperately want to hold on to their land. They recognize that with larger corporate farms, rural America will have fewer farmers, communities, and towns. Like many items that are advertised as progress, farm machines, chemicals, and genetic engineering have both the power to help and to harm. Mechanization first put sharecroppers out of work. Next small-farm owners failed. Today farmers who own millions of dollars worth of machinery are going bankrupt. Where will it stop? Who will survive? These are the most important questions facing Tar Heel farmers today.



# “When You’re a Farmer You Just Have to Work”

by Carolyn H. Carter\*



George Carter today, a farmer all of his life. Courtesy author.

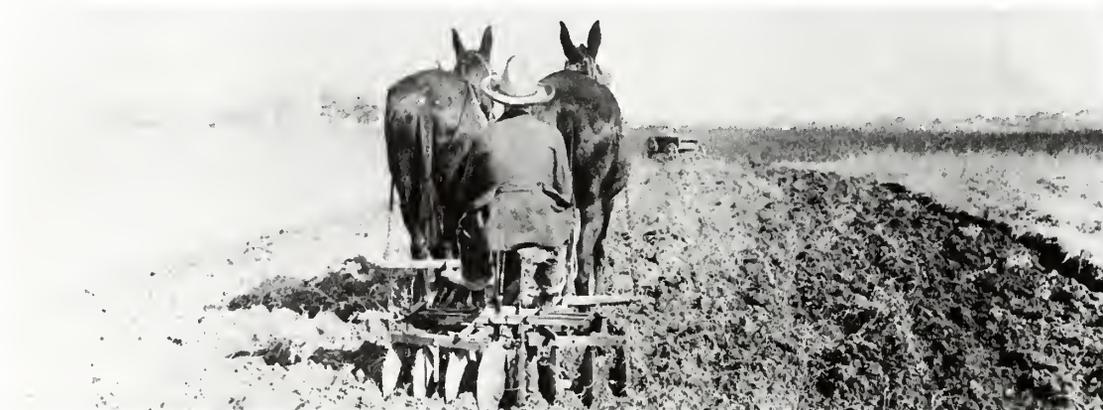
*Editor's Note:* George Rosser Carter grew up on a Caswell County farm that has been in his family for several generations. His daughter, Carolyn Howard Carter, interviewed him to learn how farming operations have changed during his lifetime.

**This is Sunday, September 6, 1987, in Gatewood, North Carolina. Daddy, would you identify yourself?**

George R. Carter, Providence, North Carolina, Caswell County. I've lived in this place for all my life. The farm starts within about 200 feet of the Virginia state line and is part of the original estate of my great-grandmother. My great-grandfather was Stewart Carter, and his wife was Pencelli Voss Carter. Stewart died in Alabama of yellow fever. But Pencelli Voss Carter came back here and raised her family on this farm. It has been farmed by my grandfather, my father, and myself and used for general farming over a period of years. Tobacco, grain, wheat, pasture, and so forth, and it's been kept in real good culture condition over all these years. The farm now, as it concerns me, is about 150 to 200 acres. At one time it was, before any was cut off for heirs, around 700 acres. I took over the farm operations when I was about twenty-one.

**When were you born?**

Born 1910, September 7. My father was Edward Willis Carter, son of Iverson Brooks Carter. My mother was Fannie Miller Rosser Carter, the daughter of George Gilbert Rosser and Elizabeth Deborah Miller Rosser from Virginia.



There were no tractors when George Carter first began farming; plowing and cultivating a field had to be done by mule or horse power. Courtesy University Archives, NCSU.

**Tell me about your earliest memories about how the farm worked when you were a little fellow.**

Well I tell you, when I begun to notice anything and run around on the farm and help work on the farm, we used all mule- and horse-power. No tractors anywhere then. Most of the work was done by hand instead of having machinery to do it. And it was quite a hard job to tend to a big crop: tobacco, corn, wheat, and stuff. We used to cut wheat with a cradle.

**Describe that.**

It was like a mowing blade. A cradle you just swing it through the grain and it cuts it off and you have to do it all by hand. Then they'd tie it in bundles, stack it, and thresh it. You had a big threshing machine that came around and made a circuit in the county, and [it] went to every farm that had grain on it and threshed the grain from the straw.



"We used to cut wheat with a cradle. It was like a mowing blade. . . . [Y]ou just swing it through the grain and it cuts it off and you have to do it all by hand." Courtesy University Archives, NCSU.

**Tell a little about planting tobacco and take it all the way through the crop.**

Well we usually started sometime in the early part of January. You got up a plant bed and worked it up real good and sowed the seeds. You'd have to put the seeds in the bed because they were so small they couldn't be planted in a furrow at first. They were grown in a bed as seedlings before transplanting. And then you grew the plants up, carried them to the field in a basket, and planted them by hand. They were big. They were eight inches long and soft on one end and hard on the other. You stayed bent over one end of the row to the other.

You worked it by hand with a hoe, and you went in there with your hands and cut the old stalks down—split the stalk open, and cut it off. Hung it on a stick and carried it off and cured it in a log barn with wood and a flue. It would take about five to six days to cure out a barn of tobacco.

**Tell me about spending the night at the barn.**

Well you did when you cured with wood. You got up every hour or so and put in new wood, so you'd have an even heat, keep an even heat up. When you want to start the heat up you've got to keep it going because if you don't the sap will run back and streak the leaves.

**What did you do, sleep on a cot underneath the shelter of the barn?**

Under shelter of the barn. If we didn't have any shelter we'd sleep over by the side of the barn. After I got older where I was running the farm by myself, I'd have bird dogs. Usually one would get on one side of the cot and one on the other.



It took about a week to cure a barn of tobacco. During this time a wood fire had to be kept going in the flues night and day to maintain a constant temperature to dry the tobacco leaves. Courtesy N.C. Collection, UNC Library, Chapel Hill.

### **Then what would you do once it was cured?**

Take it out and put it in what we called a pack barn, and we'd pack many cures to that. The weather got bad after you got up your corn and sowed your wheat. You needed to go to the tobacco barn and start stripping your tobacco and tying it in bundles. And when you got a cure finished you hauled it to market.

### **How did you get it to market?**

With a horse and a mule and a wagon. Then later with trucks. I remember one time particularly when I went. I was in the warehouse and like a country boy looked around and watched everything. And I saw a man walk off and I thought it was my daddy and I followed him about a block up the street before I realized it wasn't. I made haste to get back to that warehouse where I figured he would be. It was quite an event to be able to go to market when tobacco was sold.

### **Tell us how raising a crop of tobacco has changed over your lifetime.**

Well, it's changed an awful lot and there are some new things being done now that will probably change the agriculture procedures. Some people are seeding them in hothouses in small cups. Those things are put into machines and then planted in the ground, and you don't have to pull it up, mess up the roots like you did in the old days. We cultivate all of it with tractors and it's cured different. We don't use wood now, we use natural gas, or bottled gas, or kerosene, or whatever. Some use bulk barns. One bulk barn holds as much tobacco as three wood-fired barns. It's much easier now. We used to have to stay at the barn at night and keep the fire stoked up to where it would keep curing. Now we use bulk barns and you can set your heat with a thermostat anywhere you want it to go and *when* you want and cure.

### **Was just about everything you needed on the farm grown there?**

Very much so. We raised a big garden and more than what we needed. At times we had people come gather it and take it to market. We raised cows and got our milk and butter all raised here on the farm. We raised hogs and killed them for pork, ham, middlins, bacon, sausage, and everything a hog produces. We kept chickens on the place. We raised enough chickens to furnish the eggs and chickens to eat, but then we'd always try to have some to sell.

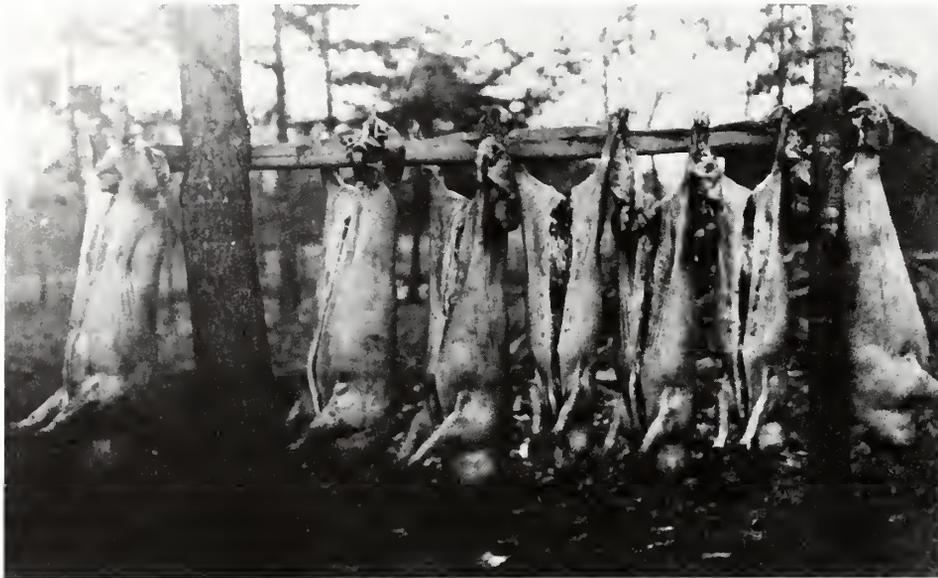


Above, cured tobacco was hauled to market by wagon in the early days. Sometimes the entire family went along to see its crop auctioned off at the tobacco warehouse. In the last fifty years tractors have replaced draft animals on most farms. In the photograph below, c. 1930, the grain cultivator, once used only with horses or mules, is pulled by the new invention, a tractor.



**I want you to tell me about killing hogs. Was that a big thing?**

We put hogs in a pen and fatten them, get them good and fat up around 400 pounds. A good cold morning we'd tell the men on the place be there early. We would start a fire early in the morning before light, and by light we'd be ready to start butchering. And it would take maybe to lunchtime to butcher ten, twelve hogs. Then they were cut out. Sausage cut out and cut up. Take the ham and middlins and shoulders and salt it down. It would stay salted down about sixty to ninety days, and then you hung it up in the smokehouse. It had holes in it just like a curing barn. And you'd put a hickory-fire smoke under it. And it would smoke it and that's why you have hickory-smoked hams. And sometimes you'd put sausage in there and smoke that and have smoked sausage. Middlins are all cured like that. And you have real good bacon.



In North Carolina, when the weather got cold it was hog-killing time. Most farm families would start butchering hogs about dawn, a chore that took the entire day. The meat was salted down and smoked with a hickory fire to cure and preserve it.

### **Was it the same way with beef?**

We didn't butcher much beef. Several times we butchered some but the weather was much colder. Do it around Thanksgiving. And the weather would be cold enough that you could leave it hanging out and just go round and cut off what you want.

### **I would think one of the hardest things about farming as a way of life is you never know if you're making any money. How do you deal with that through the years?**

Try not to spend all your money and be able to put a little back sometimes to have something.

### **Does it work like that?**

Well, 1932 didn't work that way. Didn't make enough to live on. We just had to do without a lot of things. But we always, my father and myself both, came along and tried to give our children a good education so they'd be able to make a good living. When you're a farmer you just have to work and use good judgment and not spend everything that you make.

### **What are the most important lessons that you learned from your father growing up?**

I guess it was to live a good Christian life, provide for your family, and meet your responsibilities as they came up. And you couldn't live it if you threw away everything that you made and spent it for stuff that you didn't need. Sometimes you were called tight for not spending it, but you don't let that bother you.

### **Do you love farming?**

Yes, I love it. I still have some cattle and right much hay and some tobacco, but not much.

### **What kinds of things would you want to tell schoolchildren about farming?**

I'd say any opportunity they have to visit a farm and see what goes on there would be well worth the while. They may think that everything comes easy, just grows out of the ground with no effort. But it doesn't work that way. It just doesn't. The farmer has sort of a tight time, but it's just like any other business. You've got to run it on a business basis and be able to meet a dry year. You can't live one day at a time. You've got to plan for whatever you do.

### **Any other thoughts?**

I think about the only thing that I could say is I'd like for them to realize that a farmer doesn't have anything just happen to him. It's got to be done.



# North Carolina Agriculture

1950 to the Year 2000

by Barbara Parramore\*

In the year 2000 will you dine on strawberries as big as apples or peaches? See a cow as big as an elephant? Eat bread made from a cereal grain named "triticale"? Write on paper made from "kenaf"? Will you eat lettuce grown in a plastic medium in a plastic greenhouse where all weather conditions are controlled? These possibilities in agricultural production already exist. Others are in the development stage.

In recent decades of change spectacular gains have occurred. Yet there are fewer farmers and fewer acres of land in crops. In 1960 there were 212,000 farms in North Carolina. Twenty years later, in 1980, only 93,000 farms remained. By 1986 the number had dropped to 73,000. One reason is because some farms have increased in size. A few super-farms were created in the east. Another reason is because technology has made many of the state's small farms obsolete. Fewer farms are needed to grow crops and raise livestock. In 1950, 50 percent of the state's population was classified as farm population engaged in farming. In 1980 farm people accounted for only 3.2 percent of the state's population.

Despite these problems farm production increases have been spectacular in North Carolina. In 1984 no state exceeded North Carolina in the production of flue-cured tobacco, sweet potatoes, turkeys, or forest products. The state ranked second in cucumbers for pickles and third in production of peanuts, burley tobacco, poultry, and poultry products.

The dramatic increase in farm productivity from 1950 to 1980 developed because of three factors. One was an increased use of mechanical power. A second factor was the use of better fertilizers and higher quality feed and seeds. The third factor was new technology in management, production, and marketing, including the use of computers. Scientific knowledge and the application of technology have transformed farming into a business.

What's ahead for North Carolina agriculture? The technology already exists for a 15 to 20 percent increase in average yields with little added cost. Another 5 to 15 percent increase may occur as new technologies are developed and applied. The future increases in food production are likely to come from improved output per unit rather than from more acres in



Not all agricultural inventions have been adopted by farmers. This cotton picking machine, c. 1920, was invented by one North Carolinian in an attempt to help farmers save time and labor.



At North Carolina State University research is conducted in greenhouses. In the future will all of our crop food come from greenhouse farms? Courtesy Visual Communications, NCSU.

crops or more livestock or poultry. The best crop yields of the 1960s became only average yields in the 1980s.

*Biotechnology* research promises to provide information to help increase crop production. New crops may be developed or old crops greatly improved. "Triticale" [TREE-teh-CAL-e], a nutritious new cereal grain, is a synthetic hybrid of wheat and rye. It is a more hardy and adaptable plant than wheat and has greater yields. Dark color may delay its acceptance. Strawberries as large as plums are now grown in eastern North Carolina. Scientists at North Carolina State University are developing cold-resistant citrus trees. There could be orange groves in southeastern North Carolina counties in the future.

*Tissue culture* is a convenient and rapid method of crop propagation. It allows experimental crossing of plant lines and genetically superior selections for commercial production.

*Conservation tillages* offer other ways to increase crop production. American Indians knew about planting beans next to cornstalks. Little or no plowing allows the ground to remain covered. This conserves energy, labor, water, soil, and fertilizer.

*Allelopathy* is chemical warfare between plants. When managed well it may reduce or eliminate the need for chemical herbicides.



New crops may be developed or old crops improved by biotechnology research in North Carolina schools. This lab research is at North Carolina State University. Courtesy Visual Communications, NCSU.

Some crops and their residues having allelopathic characteristics include cucumber, pea, potato, tomato, barley, corn, apple, and peach.

*Alternative crops* may be grown in North Carolina. Sunflowers are a possibility. Others include small-acre crops such as herbs, vegetables, and specialty crops. An example is "kenaf." It is a fiber crop grown to make fine-quality paper and has been produced successfully in the tidewater region. The demand for herbs and roots growing wild in fields and forest is expected to increase. One pharmaceutical company buys over forty plant species. It may be profitable at some time in the future for farmers to learn how to grow some of these commercially. Catnip, now grown in the state, is sold for cats and tea. On

a per-acre basis it brings in as much money as tobacco.

*Aquaculture* may become one of the food growth industries in the future for both fresh- and saltwater fish. It takes less time for a fish to grow than for larger food creatures that eat costly feed. And with fish there is almost a one-to-one feed ratio, or one pound of feed producing one pound of fish.

Science and technology will help in finding solutions to farm problems of tomorrow just as they have for those of the past. Agriculture in North Carolina's future will focus on higher quality in foods and fiber. Farming will continue on a high-tech track to the benefit of consumers.



Is raising catfish for food the future for North Carolina farmers? At this farm in Columbus County, "aquaculture" has replaced traditional farming. Courtesy Visual Communications, NCSU.



## NORTH CAROLINA FARMING: THEN AND NOW

N.C.	1890	1980
Number of FARMERS	998,000	188,000
Number of FARMS	178,000	93,000
Average FARM SIZE (acres*)	127	126

\*The average declined (to 74 acres per farm in 1920, for example) and has risen back.

Sources: U.S. Department of Commerce, Bureau of the Census, *Historical Statistics of the U.S.*, 1975, pp. 458-459, 461; U.S. Department of Commerce, Bureau of the Census, *Statistical Abstracts of the U.S.*, 1987, p. 621; *North Carolina State Government Statistical Abstracts*, 1984, p. 19.

- To put in words what the chart shows, circle the correct choice in each set of words.

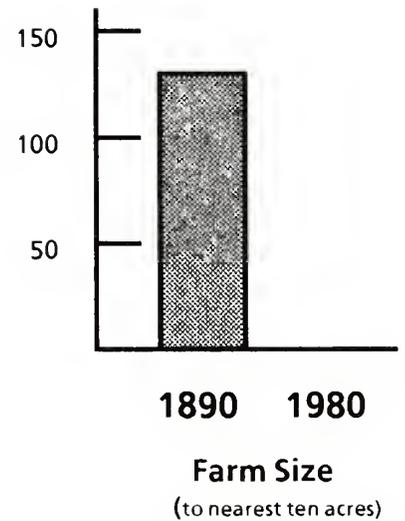
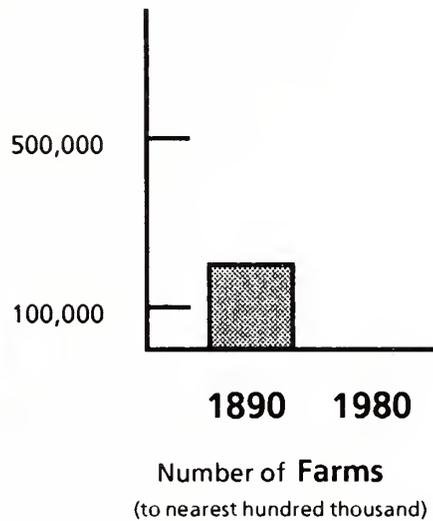
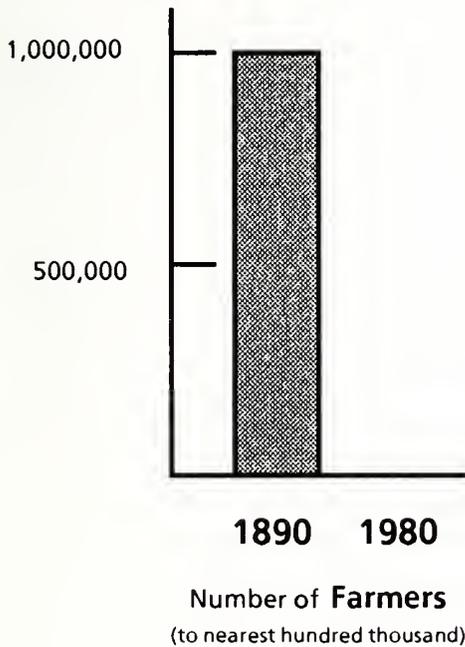
The **number of farmers** has increased / decreased by about 1/5 / 4/5 .

The **number of farms** has increased / decreased by about 1/2 / 1/4 .

The **average farm size** has increased / decreased / is the same .

In other words, more / fewer farmers are working on more / fewer farms in North Carolina, and the farms are larger / smaller / the same size as in 1890.

- To see what the chart shows, put the 1980 bars on these graphs.



Now combine information from the bar graphs. Choose two statements—one from ABC and one from DEF—that can be made from the bar graphs. **Compared to 1890...**

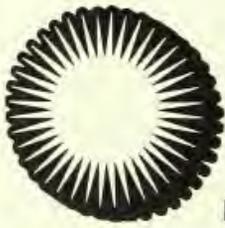
- \_\_\_\_\_ A. the state's population is decreasing,  
 \_\_\_\_\_ B. the state's total farm acreage is decreasing, (Pick one.)  
 \_\_\_\_\_ C. the state's farm production is decreasing,  
 and  
 \_\_\_\_\_ D. it takes fewer people to farm the land.  
 \_\_\_\_\_ E. it takes more land to produce crops. (Pick one.)  
 \_\_\_\_\_ F. it takes more machinery to keep farms operating.

Write a sentence combining the two statements you picked (for example, "B" and "E").

(The correct answers are in the teacher's supplement. Some of your choices may be true but are not shown by the facts in these bar graphs.)

When the class has agreed on the correct sentence, find facts and statistics in the articles on mechanization, NCSU and A&T, and the future of agriculture that illustrate this statement.

North Carolina has fewer farms and fewer farmers and yet is still one of the major agricultural states in America. How is this so? And what are the advantages and disadvantages for North Carolinians?



# SPOTLIGHT

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## Many Changes in a Few Years

by Rosemary Bowen

Charles and Marie Mounce have lived on farms since birth. Charles is now sixty-eight years old and Marie is sixty-four. Tremendous changes have occurred on the farm that Charles inherited from his father.

When Charles was born in 1919, horses and mules pulled everything. During spring planting Charles's father followed along behind his mule-drawn "lay-off" plow and dug furrows to plant corn or grain. The whole family then joined in the work. One would place the seeds in the rows, and then another would drop fertilizer onto the seeds. Then they used hoes to cover the seeds.

Planting tobacco proved equally hard. Before a plant bed could be prepared, trees had to be removed with a crosscut saw. A mule then pulled the timber and tree roots away. Finally the ground had to be raked extremely smooth until all the rocks were removed.

Once the plant bed was ready, Charles's father spread the tobacco seeds. He protected them with straw or sawdust and a plant-bed cloth until they were about nine inches tall. After that he transplanted them to the field. The family had to hoe tobacco until mid June. Then topping and suckering started. Tobacco plants developed many small, pink blooms by the middle of summer. Farmers removed or topped the blooms. They also removed the suckers that grew on each plant. Charles's father mixed oil, detergent, and water to put on the plants to hinder sucker growth. It had to be applied often because it was not permanent.

After the tobacco leaves had ripened, they were pulled off and cured. First the Mounces strung the leaves on a stick. The stringer worked down the stick, putting about ten bundles [of leaves] on each side. Nearly 580 sticks could be hung in the curing barn. There was no way to control the temperature of the fire, so the Mounces stayed at the barn for a week or more until the tobacco was cured. The family then carried the cured leaves to the pack house to let them soften up. They separated the good leaves from the bad and bundled about seven leaves together. They hung these bundles in the wagon to be pulled to market.

To harvest grains like wheat, the Mounce family used a cradle. The cradle looked somewhat like a big rake. As Charles's father swung it the fingers caught the grain. The Mounce children came along behind and bundled the grain into shocks. Later they took the wheat to the barn and stored it for winter feed.

By the early 1930s a lot of things changed. Reapers, pulled by horses, harvested grain. Corn production used a horse-drawn corn planter. New transplanters were used in tobacco cultivation. The 1930s and 1940s witnessed a tremendous growth in the use of tractors. Mounce found that by the 1960s tobacco farming was not the slow, painstaking process it had been for his father. He used the tractor to pull the transplanter.

Marie and her sister sat on seats behind the tractor with boxes of plants in front of them. A revolving wheel placed the plants in the ground, watered them from a barrel on the tractor, and packed them with two more wheels. All Marie and her sister had to do was place the plants in the catch on the wheel.

Recent technology has allowed Charles to mechanize even more of his farm work. Mechanical corn pickers pick all the corn for him. Combines mow the grain and separate it from the straw. Bulk barns hold more tobacco and are quicker than regular curing barns because they do not require stringing. One particularly significant development is land sprays to control insects and weeds.

Farming has become big business. You seldom see small farms anymore. There are some farmers who continue the old farming traditions, but these traditions are dying.



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## A Roxboro Family Farm

by Alisha Alston

*Author's Note:* The following interview occurred on September 27, 1987, with Zanny Mae Alston of Roxboro, North Carolina.

### What do you grow on your farm?

Corn, wheat, watermelons, all kinds of greens, and tobacco.

### What is it like living on a farm?

Well, it's lots of hard work and long hours.

### Small farms are having money problems. Are you?

Yes. At times you wonder where the next dollar is coming from.

### How did the weather affect the crops this year?

The dry spell we had nearly ruined us this year.

### What crops suffered the most from the drought?

All my crops suffered, but the tobacco was the worst.

### What kinds of animals do you have on your farm?

Chickens, pigs, cows, horses, goats, dogs.

### How do you benefit from having animals on your farm?

The cows give me milk and beef. The pigs give pork and eat all the slop. The goat also gives milk and keeps the grass chewed down.



Men with threshing machines traveled from farm to farm. As shown in this 1912 photograph, wheat or rye was fed into the machines, which separated the grain from the straw.



## A Threshing Machine in Madison County My Story

by Monica Massey and Debra Whitley

I am a threshing machine once used to harvest grain crops. I could thresh between 350 and 400 bushels of grain a day with the help of only five hands.

Factory workers made me in Nashville, Tennessee, in 1898. Soon afterwards Robert Myers purchased me. I threshed grain for him for forty-nine consecutive years. I now belong to Wade Allen of Long Branch community in Madison County. He is ninety years old. He threshed wheat with me for thirty consecutive years.

My farm machinery performs four different operations. These are threshing, separating, cleaning, and stacking. I can handle grains, beans, and any other seed crop.

A rotating cylinder threshes the grain. When the slow-moving grain hits the fast-moving cylinder, some of the grain is freed from the straw. Further threshing occurs when the grain passes through a small space next to the cylinder and is combed by metal teeth.

The grain and the straw next enter the separator. A large screen allows only the grain to pass through to the cleaning shoe. There a blast of air separates the chaff and the grain, and the grain falls through a series of sieves. The clean grain drops into an elevator that leads to the weighing device on my side. The straw is carried on a belt to the stackers, where it is blown out.

Threshing operators were competitive businessmen. The fastest, most efficient threshers had good reputations and made contracts easily. If influential farmers in the community hired a thresher, the smaller farmers soon followed their lead.

In the early days I traveled from farm to farm at harvest time, pulled by a team of four horses. My owner hired a five-man crew. He paid them 10 cents an hour or a bushel of wheat a day in the 1920s and 1930s. My owner received 15 cents per bushel or one-fourteenth of the harvest as payment. He always brought a wagon along, too, to haul any wheat he received as payment when farmers did not pay in cash.

Wheat harvesting began in mid June. Neighbors helped each other cut the wheat with wheat cradles. These tools had long, wooden handles attached to curved blades. Each blade had five wooden fingers. One bladeful of wheat, if correctly cut, made a bundle. As one person cut, another tied the bundles together and stacked them in the field to dry. Ten upright bundles formed a stack. Two bundles were placed over the top to make a cap. This allowed the stack to shed rain. After the wheat had cured, it was hauled to the "yard" where it would be threshed.

The threshing season began in late July or early August and continued until all the crops were threshed. This usually required six weeks of steady threshing.

Each of the hired hands did a specific job. Two of them cut the binds and fed the wheat into the cylinder. Two others measured the grain as it was threshed, and one of them kept the shaft greased and in running order. Running the threshing machine smoothly was very important to the hands. If they did not process at least 300 bushels of wheat a day, they did not get paid.

Threshing encouraged fellowship along with the hard work. Women spent the day in the kitchen fixing heaping bowls of fried chicken, salt-cured pork, gravy, beans, corn, okra, squash, corn bread, biscuits, apple pies, and berry cobblers. There was plenty of sweet milk and buttermilk to drink.

As "store bought" staples grew in popularity and people left the farms for factories, my usefulness decreased sharply after World War II. I still threshed wheat here on the farm until 1979. For eight years now I have sat idle. Although unused, I have been kept in top running condition. My owner's eyes sparkle when he recalls that he is leaving me to his grandchildren to help them appreciate their future by understanding their past. I symbolize an almost forgotten era when a man earned his daily bread by the sweat of his brow.



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