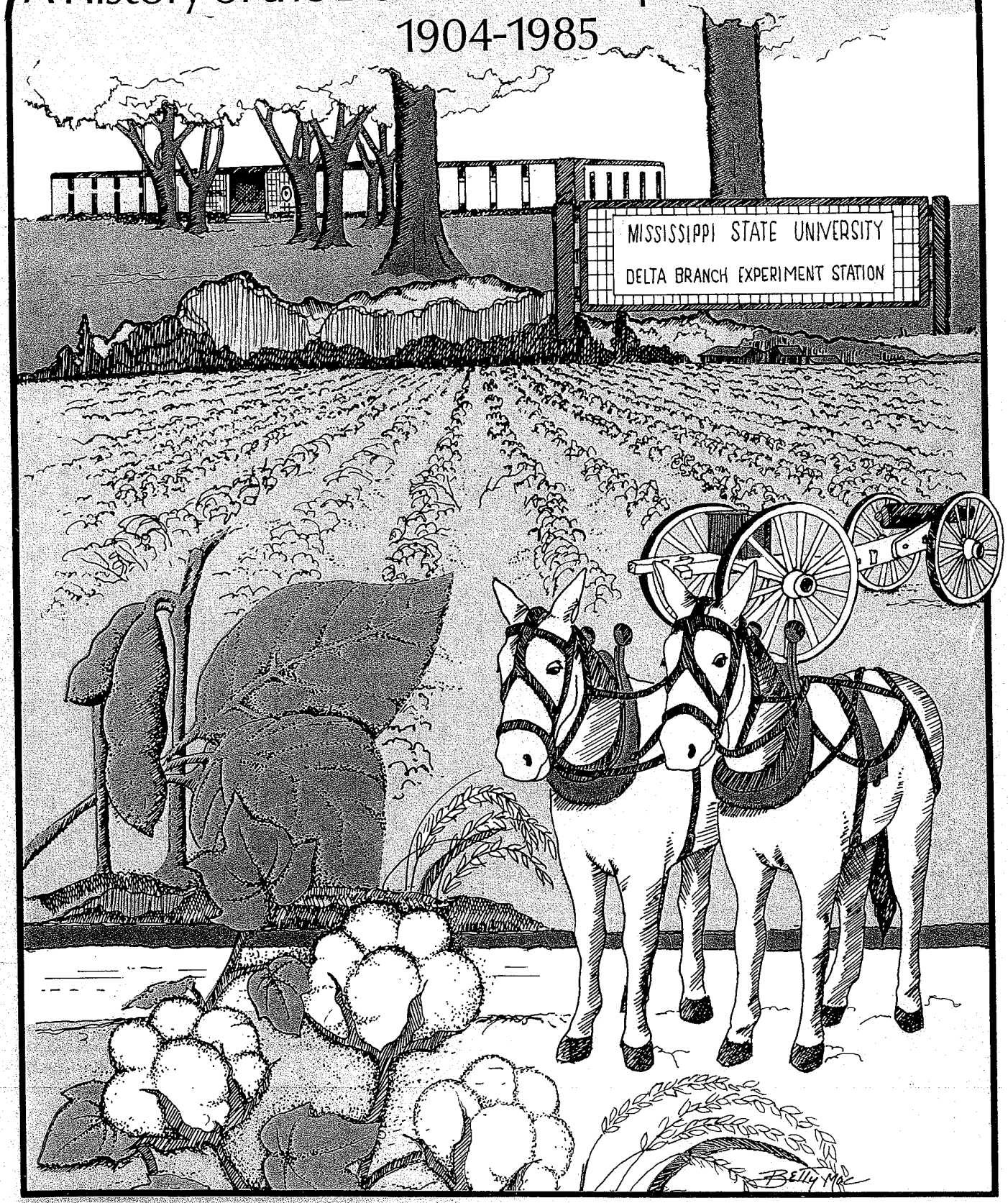
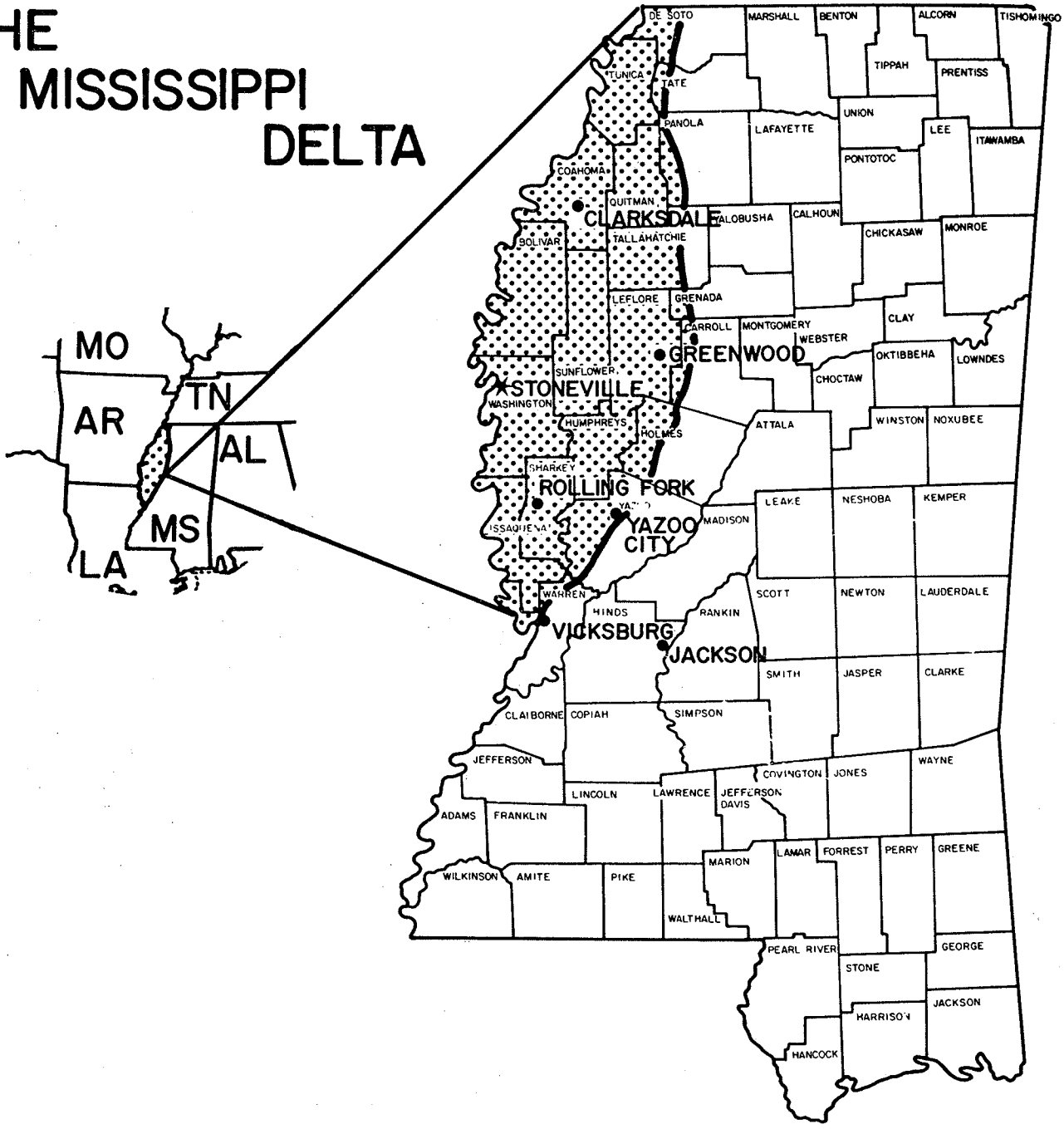
Special Bulletin 86-2 (Reprinted July 1993) August 1986

A History of the Delta Branch Experiment Station 1904-1985



MAFES
MISSISSIPPI AGRICULTURAL & FORESTRY EXPERIMENT STATION R. Rodney Foil, Vice President and Director
Donald W. Zacharias, President Mississippi State University, Mississippi State, MS 39762

THE MISSISSIPPI DELTA



A History of the Delta Branch Experiment Station

1904 - 1985

Donald H. Bowman
Agronomist, retired

Donald H. Bowman

About the Author

Donald H. Bowman joined the staff of the Delta Branch Experiment Station in August 1948, to serve as project leader for corn and small grains research at Stoneville. Don attended high school at Manhattan, Kansas, and obtained his B.S. degree in agronomy and M.S. degree in plant pathology and plant breeding from Kansas State University. He received his Ph.D. degree in plant pathology and agronomy from the University of Wisconsin. During his graduate training, he gained valuable plant breeding experience with oats, wheat, and sorghum. Prior to coming to Mississippi, he served as Assistant Plant Pathologist, USDA, Wooster, Ohio, and as Plant Pathologist, Texas A & M University, College Station, Texas.

Dr. Bowman had a long and distinguished career as a scientist at the Delta Station. His research programs at Stoneville were well organized, very productive, and provided valuable information with far-reaching benefits to producers and fellow scientists. For the last 15 years of his career, Don was responsible for the rice production research conducted in Mississippi. This included programs in chemical weed control, variety testing, water management, soil fertility, entomology, and pathology. In 1976, Dr. Bowman was awarded the Distinguished Service Award at the Sixteenth Biannual Meeting of the Rice Technical Working Group in recognition and appreciation for his devotion to duty and loyal service to the American rice industry. He is a member of Sigma Xi scientific society and Alpha Gamma Rho agricultural fraternity.

Upon his appointment as a scientist on the Delta Station staff, Dr. Bowman was described as "a pleasant, cooperative, and capable" individual. This description held true throughout his years of service to agricultural research. As a scientist he demonstrated these admirable traits and always maintained a high level of flexibility. He was always willing to accept new challenges and these generally produced significant accomplishments. It was with this same enthusiasm and dedication that he accepted the responsibility of writing this history of the Delta Station. Our sincere appreciation is given to Don and his lovely wife, Kathryn, for another task so well completed. This, too, will be enjoyed by many for years to come.

C. G. Shepherd, Superintendent
Delta Branch Experiment Station

Contents

Preface

This narrative traces the growth and development of the Delta Branch Experiment Station from 1904 to 1985. Information presented herein was obtained from annual reports, newspapers, magazine articles, letters, old files, and conversations. Information from different sources was not always in agreement. In a few instances where definite verification could not be made, the author has presented that which seemed to be most plausible.

The history is presented according to the tenure of each superintendent. Along with the development of the physical and research history of the Station, certain highlights and interesting trivia are presented. Without doubt, some contributions and events have been overlooked. For this, the author apologizes.

The author wishes to acknowledge the help and assistance of the many people who have contributed to and helped with the preparation of this history.

Stoneville, USA

Stoneville is located in Washington County, Mississippi. Washington County was created on January 29, 1827, from the "New Purchase" acquired from the Choctaw Tribe by the Treaty of Doaks Stand in 1820. At that time it comprised a much larger land area than it does today.

In the rush to open new lands in the West, the fertile flood plain of the lower Mississippi River was largely bypassed. Broad rivers, mosquito-infested forests of giant trees, and frequent floods were formidable barriers to the wagons of the early settlers. Settlements were generally limited to higher sites along the Mississippi River and its tributaries. The Delta was practically uninhabited until the latter part of the Nineteenth Century. The early Delta pioneers were, for the most part, cotton men seeking new cotton land.

Steamboats came up Deer Creek during the 1830's as far as where "the village of Stoneville now stands." During the early years of the War between the States, the "Battle of Stoneville" was fought between Confederate troops under the command of General Ferguson and Federal troops which were located in Greenville. The Confederate calvary was routed but the infantry held and then fell back to the bend of the creek east of Stoneville.

Stoneville was founded in the mid-1800's. It was named for David Lamme Stone, the father of General David L. Stone, United States Army, who was born at the present site of the Stoneville cemetery. A United States Post Office was established on August 18, 1876. Mail was received by mail coach and by horse riders from the East and from the steamboats calling at Greenville. In 1878, a narrow gauge railroad was completed from Greenville to Stoneville. Mail from the East continued to come by coach and riders. Stoneville was the only town between Greenville and Indianola.

In the 1880's, Stoneville was a thriving town with several dry good stores and 17 saloons. Activities centered around livestock production and timbering. With the coming of the railroad, more and more land was cleared and the area began to produce cotton. The community prospered and in 1910 there were three general stores, three railroad lines, two full-time depot agents, two full-time express agents, one telegraph operator, one post office, and numerous saloons. There were more than 20 trains per day which could carry passengers. Land agents brought many prospective buyers to the area.

In 1916, the post office and community name was changed to Weilenman. One reason given was to avoid confusion with Stonewall, Mississippi. As reported by *The Leland Enterprise* in April 1917, Weilenman was a flourishing town of some 200 population and an important junction point of the Y & MV and the Southern Railway with no less than 16 passenger trains daily. The name was changed back to Stoneville in 1922. The village has never been incorporated.

But continuing growth and development were not in the future for Stoneville. Today, it consists of a post office, one small restaurant, the offices of the Stoneville Pedigreed Seed Company, a few homes, and a cemetery. One railroad, the Columbus & Greenville, carries freight through Stoneville on an irregular schedule but does not stop. It is also the home of the Delta Branch of the Mississippi Agricultural and Forestry Experiment Station. While the name Stoneville may not appear on many maps, it has become synonymous with cotton production and other agricultural research around the globe.

In the Beginning

An act of the United States Congress on July 2, 1862, made federal grants of public land available to states which provided colleges for the benefit of agriculture and mechanical arts. Mississippi State University (then Mississippi A & M College) was established in 1878 as a result of this act. The act specified that such "land grant" colleges were to have three functions: research, resident teaching, and extension.

In March 1887, Congress passed the Hatch Act which made federal funds available for the establishment of agricultural experiment stations in connection with colleges established under the 1862 act. The Mississippi Legislature approved an act in January 1888, which established the Mississippi Agricultural Experiment Station at Mississippi Agricultural and Mechanical College.

The Mississippi Legislature approved Senate Bill No. 22 on February 20, 1904, authorizing Mississippi A & M College to establish a branch agricultural experiment station "at some point in the state in what is known as the Yazoo and Mississippi Delta, or in some county adjoining said Delta at a point where experiments with the soil of the hills as well as the Delta can be made." The Board of Trustees was authorized to accept donations of "lands, lumber, agricultural implements, money, notes, or other obligations, or any property that may be of use in establishing and operating said experiment station." They further specified that a tract of land of not less than 200 acres be donated and conveyed to the trustees for such purposes. If lands in excess of 200 acres were donated, the Trustees were authorized to sell the excess and apply the proceeds to the improvement of the land retained and used for the experiment station.

In the summer of 1904, a committee of the Board of Trustees examined several tracts of land in the Delta, but at no place were the people able to offer suitable land free of cost as provided for in the bill.

Later in the summer, a group of Delta planters discussing agricultural problems, concluded that there was much to be learned about crop production. They decided it was time an experiment station was established to find facts about crops, soils, and animal production in the Delta. Under the able leadership of Alfred H. Stone, a man of varied talents, nephew of David Lamme Stone, and at one time chairman of the State Tax Commission, a group of progressive Washington County landowners took an option on 200 acres approximately one mile northeast of Leland near the village of Stoneville where the Southern and Y & MV railroads crossed and guaranteed payment of $15,000. This land was considered at the time to be a "worn out" plantation.

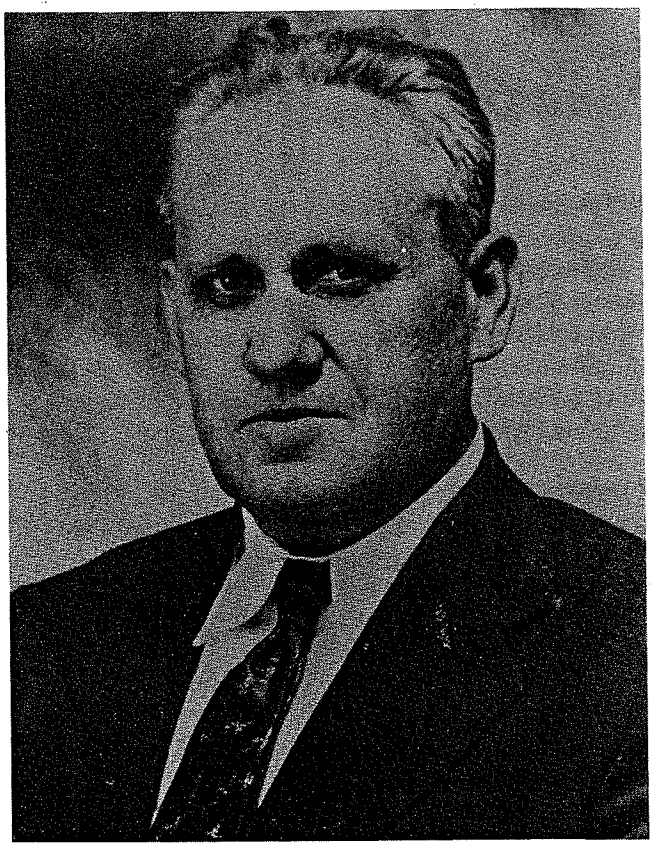
In December of 1904, "certain persons in Washington County, Mississippi, for and on behalf of the Board of Supervisors of said County" paid to Bettie J. Skinner and Joshua Skinner $15,000 in cash. The land was accepted by the Trustees the same month. The State Legislature appropriated $3,000 for operations and another $3,000 for 1905. The first sales fund in 1905 amounted to $10.42.

Thus was born the Delta Branch Experiment Station, which in the early years, was officially named the Yazoo-Mississippi Delta Experiment Station; a Station which was destined to become one of the leading cotton research institutions in the world. Originally the Station was an entirely state-owned and state-operated institution. But as the years passed, a number of branches of the U.S. Department of Agriculture and the U.S. Department of Commerce engaged in cooperative work.

The Station has a long and enviable record of accomplishments in agricultural research. Excellent facilities for research, outstanding technical workers, and the loyalty and interest of the Delta people have contributed to the success of the Delta Branch Experiment Station.

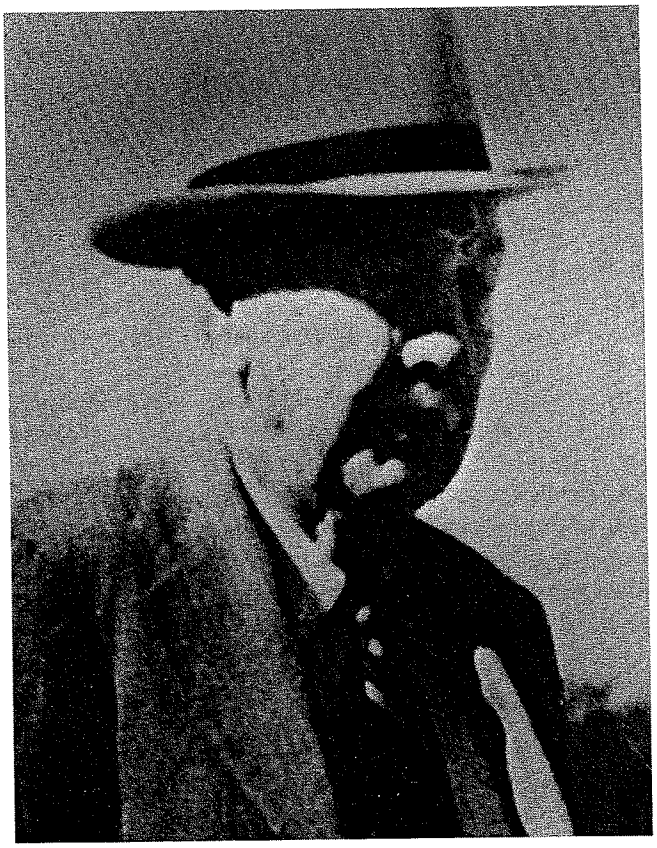
H. E. Savely
1904 - 1906

H. E. Savely became the first Superintendent in December 1904. He was a graduate of Mississippi A & M College, class of 1903. He immediately began work to improve the drainage and to prepare for planting. A cotton variety test and some alfalfa plantings were made in 1905, but most of the first year was spent improving the drainage and preparing the fields. Mr. Savely resigned in early 1906 to become a field man with American Cyanamid Company. Thus, Mr. Savely became the first of many scientists who, over the intervening years, left the Experiment Station to enter commercial or private enterprises.



H. E. Savely

J. W. Fox
1906 - 1910



J. W. Fox

In 1906, Prof. J. W. Fox of the Department of Rural Engineering, Mississippi A & M College, was transferred to Stoneville and made Assistant Director in charge of the Delta Station. Prof. Fox lived in Greenville, as there were no buildings on the place except for a few dilapidated cabins. Only the most preliminary work had been done in preparing the land for an experiment station. It was poorly drained, 30 acres not having been worked for many years. Stumps had to be removed from several fields. About two-thirds of the land area consisted of sandy soil and the remainder was a stiff clay known locally as "buckshot."

The first addition to the land area of the Station occurred in 1906. Senate Bill No. 148, approved April 6, 1906, appropriated up to but not to exceed $4,000 "for the purchase of a tract of land containing 50 acres, more or less, adjoining lands owned by the State and used as an Experiment Station in Washington County and lying between the Experiment Station and the town of Stoneville." Following enactment of this bill, 51 acres of land were purchased in May from N. C. Skinner et al., for $4,000 cash.

A five-room manager's cottage, five cabins, and a barn to house livestock, forage, and implements were built. The fields were surface drained by means of broad shallow ditches constructed with a two-horse road machine or drag road scraper. The ditches were used as turn rows. Sixty acres were tile drained. The entire acreage was fenced. Two hundred and ten acres were in cultivation in 1906.

Prof. Fox conducted experiments with cotton, corn, small grains, alfalfa and other legumes, cattle, and hogs. Extensive experiments on cultural methods for cotton were conducted. He believed that the Delta planters would soon become victims of the boll weevil and began to teach them how they could diversify crops so they would be prepared.

The first printed publication of the Delta Branch Experiment Station is Prof. Fox's *Report of Work at the Delta Station for 1906*, Miss. Agric. Exp. Sta. Bull. 106, January 1907. The report noted the importance of inoculating alfalfa, the adaptation of red clover as a forage crop, and the advantage of shallow cultivation for cotton. The highest yields of cotton were obtained from spacing the plants 2 feet apart in the drill on rows 4 feet apart and led to the statement that "my observation leads to the conclusion that the yield in the Delta is lessened by too close spacing." Two other statements were of special interest: (1) results during the 1906 season indicated that nitrogen was the only fertilizer element needed on the Station soils, and (2) it has been heard that the Delta is not a good corn section. "This erroneous idea originated from the fact that cotton in the Delta is a jealous mistress and permits little attention from the planter to corn, hay, or any other crop."

In a second bulletin, *Pork Production at the Delta Station*, Miss. Agric. Exp. Sta. Bull. 107, February 1909, Prof. Fox reported on successful methods for producing pork. He was of the opinion that the Delta planter could not only produce his own meat, but could raise hogs for a good profit.

State appropriated funds for the Station in 1908 and 1909 were $3,675 per year. In addition, the Station was permitted to spend $4,124 from sales funds each year. The yearly appropriation for 1910 and 1911 was increased to $10,500. Sales funds for the 2 years were $8,442.35.

Prof. Fox left the Station in May 1910, to become Director of the Central Station.

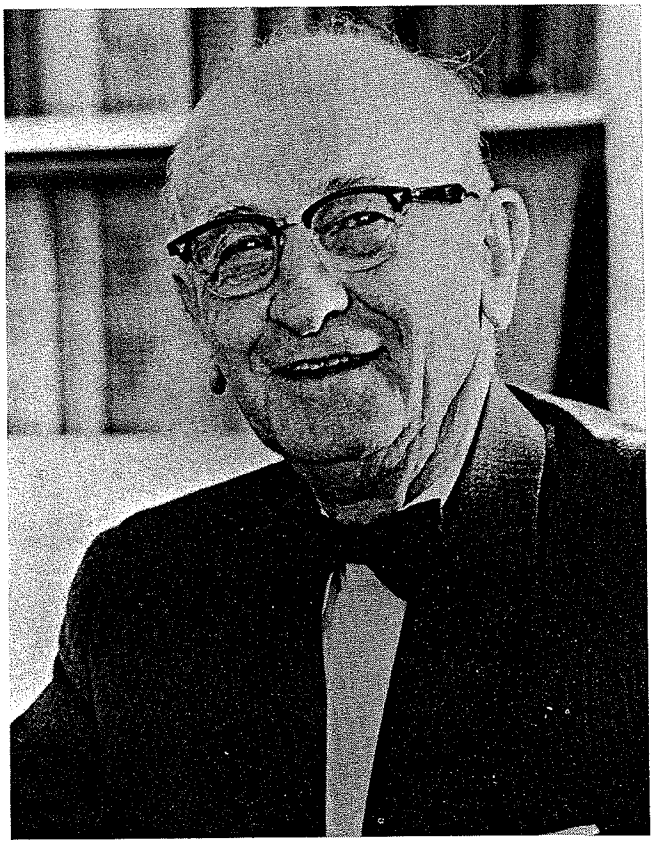
Archibald Smith
1910

Archibald Smith succeeded J. W. Fox in May 1910. He moved to Greenville from Mississippi State College (formerly Mississippi A & M) where he was Professor of Animal Husbandry. He resigned June 30, 1910, and moved to Louisiana to manage a plantation where he was shot and killed.

At this time, much of the land in this part of the Delta had not long been cleared. There were still many timbered and brushy areas. On an early May morning, two small girls went out to gather berries near the Station grounds. They surprised a husky black bear which had beaten them to the berry patch. They ran screaming to the plantation manager. It is recorded that "he, remembered as Johnson, got gun and hounds and on edge of tangled woods caught sight of bear and fired." Thus was recorded the last known killing of a black bear in the mid-Delta.

The "Old Hanging Tree" was located on the bank of Deer Creek in front of the present greenhouse complex. This tree survived until the 1950's when it was blown over during a storm. There was also a small cemetery near the tree. It is not known if the cemetery was for the victims of the "Hanging Tree."

George B. Walker
1910 - 1922



George B. Walker

The Delta Station was without a superintendent from July 1 until September 1, 1910, when George B. Walker arrived from the North Carolina Agricultural Experiment Station. Mr. Walker was a native Mississippian and a graduate of Mississippi A & M College in 1907. That fall, he built a two-room combination office and living quarters. Mr. Walker was married in April 1911, and for some time the Walkers took their meals with the farm foreman and his wife. Later, a piano box was used as a pantry and a tent as a kitchen. Two more rooms were added to the house in 1912. Later, this house was moved to a location on the creek bank and served as an office. Still later, it was moved back a short distance from the creek bank and used as a residence.

Prior to 1911, work at the Station was largely demonstrational. The staff consisted of the superintendent (then called assistant director) and the farm foreman. All but 30 acres was under cultivation. There were cotton and corn variety tests, alfalfa demonstrations, a small herd of Hereford cattle, a few milk cows, and some hogs. Work was hampered by floods, unsettled labor conditions, and the lack of funds. In the spring of 1912, the Mississippi River levee broke at Beulah Bend and the entire Station grounds were flooded. Water stayed on until late May. Cotton and corn planted by hand in the mud were the only crops grown that year.

Noteworthy events that occurred during Mr. Walker's superintendency included: plant spacing studies with cotton; the first cotton breeding work; the first tractor (it had rear wheels 9 feet high); oat binder investigations; and the first U. S. Department of Agriculture cooperative work.

The first cotton breeding work on the Station was started in 1911 by Mr. Walker and Early C. Ewing. Mr. Ewing was on the staff at Mississippi State, but he did most of his work at the Delta Station. He resigned in 1915 to join the staff of Delta and Pine Land Company. He was succeeded by Dr. H. B. Brown.

The cotton varieties grown in the early 1900's were extremely late maturing. The objectives of the breeding program were to develop (1) earlier maturity, (2) high yields, (3) high lint percent, and (4) leaves that would permit light penetration. Little consideration was given to fiber length and strength. Mr. Ewing introduced the Foster and Express varieties from Texas. Work improving the Foster variety continued and increases of pure seed were produced. In 1921, seed of Foster was sold to planters for $2 per bushel with a limit of 7 bushels per person.

At this time (1911), the recommended spacing for cotton was either 4 feet x 4 feet or 5 feet x 5 feet. Extensive cotton spacing studies were started. This work proved that the cotton planter left not more than half enough plants and as a result cost growers many millions of dollars in losses each year. In 1921, experiments showed that cotton planted in 8-inch hills produced 56 percent more cotton than when planted in 29-inch hills. The thicker spacing and earlier maturing varieties made cotton production possible despite the boll weevil.

Fertilizer tests with cotton were initiated in 1911 using nitrate of soda, cottonseed meal, phosphorus, and potash. Later, summer and winter legumes were added to the tests. These tests showed that there was no response to phosphorus and potash on the sandy

soils. The only yield increase resulted from the use of nitrogen. The best and cheapest source of nitrogen proved to be winter legumes.

In 1913, soybeans were planted as a soil-building crop and for hog pasture. One of the objectives was to compare soybeans with cowpeas as feed and soil building crops.

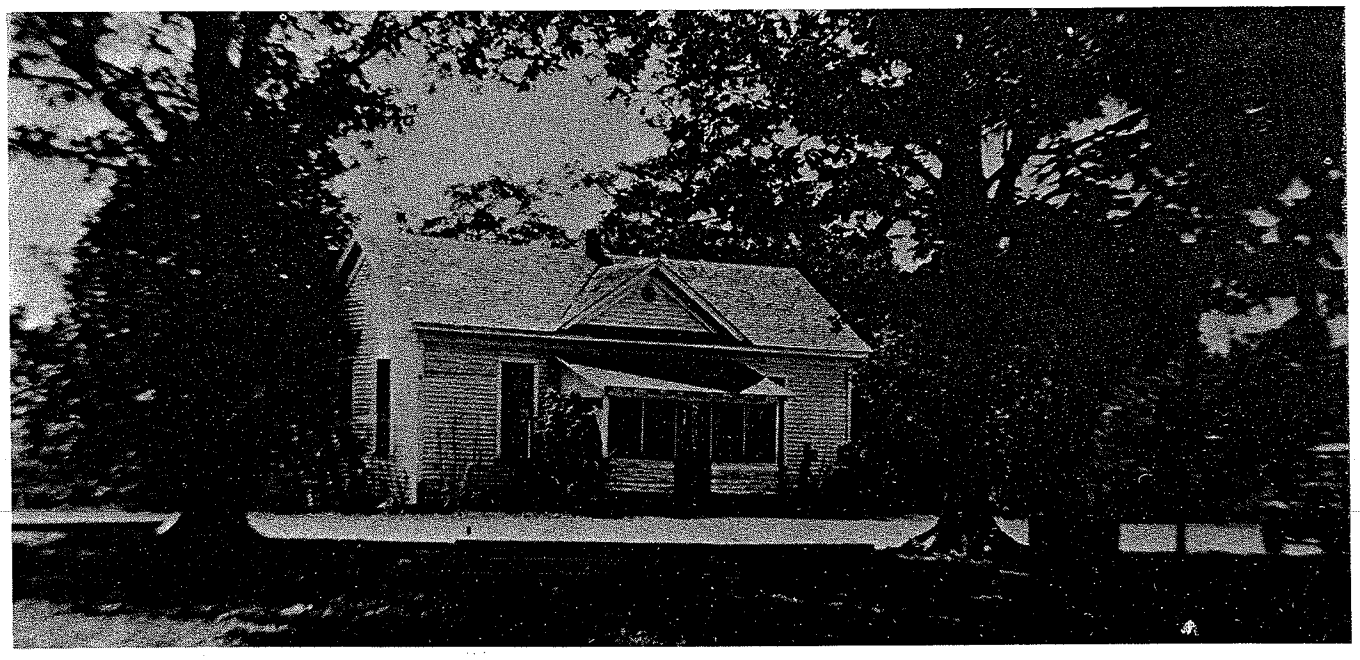
Also in 1913, extensive feeding and breeding work was started with hogs. Berkshire and Duroc hogs were crossed. The first carload of hogs from the South to top the St. Louis market was from the Delta Station. Swine investigations were discontinued in 1920.

Tractor demonstrations were held in 1914. These were the first public meetings of any size and they attracted thousands of visitors.

About the year 1915, a legislative committee was appointed by Gov. Bilbo to investigate the possibility of disposing of branch stations established at McNeill, Holly Springs, and Stoneville. The committee visited the Delta Station in early summer and was very favorably impressed with the fine oat crop and the operation of the grain binder. The binder was followed for round after round. The committee was deeply impressed with the progressive farming methods they observed at the Delta Station and submitted a very favorable report on the Station work to the Governor and the Legislature. Although the report apparently did not impress the Governor, it did many of the Legislators in the 1916 legislative session. Thus, the grain binder played a part in the development of the Mississippi Agricultural Experiment Station. Dr. W. L. Giles, former Superintendent of the Station and President Emeritus of Mississippi State University, has written that "it might be said that a piece of binder twine held together an institution which has meant millions of dollars to Mississippi and the world."

Perilous times were ahead for the Delta Station. In 1916, Governor Theo G. Bilbo approved a portion of Senate Bill No. 112 appropriating $10,500 for support and maintenance of the Station in 1916. He vetoed that portion of the bill providing $1,500 for a mule barn and $10,000 for support and maintenance in 1917. In his veto message he wrote: "I am firmly of the opinion that the time has come for the final abolishment of the Branch Experimental Stations now located at Holly Springs, Stoneville, and McNeill, which Stations have been maintained by the State for the last ten or twelve years at a cost of three or four hundred thousand dollars.... the amount of good derived is not commensurate with amount of money expended by the State. These stations have signally failed to reach and benefit the great mass of the people throughout the eighty counties in Mississippi.... Mississippi today is spending about sixty thousand dollars for each biennial period for these three experimental stations which reach only a small percentage of our people....

"...If the judgment of this Legislature is different from mine and you gentlemen desire to continue these stations, it will be necessary for you to override my veto as to the items of the appropriation contained in this bill and the other experimental station bills which I have not approved. I am only pursuing this



This cottage served as headquarters for the Delta Branch Experiment Station in 1910.

"Slicking in" cotton after 1912 overflow.

course to put the matter squarely up to the good sense and judgment of the Legislature as to the wisdom of the extraordinary expense that the State has been and is still undergoing to maintain these stations."

Gov. Bilbo recommended the immediate establishment of twenty-five or thirty agricultural high schools in addition to the forty-one which the state was supporting at that time at a cost of $200,000. He felt that these schools would carry "scientific agriculture together with lessons in domestic science into nearly all the homes." He recommended that the stations be sold and the property be disposed of at the end of the current crop year.

On March 22, 1916, Representative Alf Stone moved that Senate Bill No. 112 be reconsidered and that portion vetoed by the Governor be passed. The bill passed on a vote of 64 to 27 with 27 absent and not voting.

An editorial in *The Delta Democrat-Times* gave much credit for passing the bill over the Governor's veto to Alf Stone and Oscar Johnston. The editorial closed with the comment that "Bilbo was not then and is not now a friend of the Delta. His allegiance lies elsewhere, and he will take every advantage to benefit other sections of the state at the expense of the Delta."

On November 30, 1917, a request was made to the Washington County Board of Supervisors for "the privilege of placing posts 200 feet apart along the edge of the public highway right-of-way between Leland, Mississippi, and Stoneville, Mississippi, for the purpose of supporting electric wires to be strung between the above named points." This work was completed in September of 1918 with the purchase of one 5-amp meter.

The first cooperative work with the U.S. Department of Agriculture was initiated in the late teens with the Bureau of Agricultural Engineering. It was an investigation to determine the feasibility of tile drainage. The results of the study showed that tile drainage was not satisfactory in the Delta.

During World War I, there was a great cry throughout the country to raise food. Many speakers urged greater production of wheat and corn and overlooked the important part of cotton in the war effort. In the summer of 1917, Mr. Walker outlined the recommendations for raising wheat, which at that time had a guaranteed government minimum price of $2.20 a bushel. It is interesting to note that many of the recommendations are similar to those of today, with principal differences being varieties and fertilizer recommendations. Only 16 pounds of nitrogen

per acre were recommended. The 5-year average yield was 23 bushels. The principal problem, then as now, was plant disease.

Lack of sufficient funds, inadequate facilities, and a scarcity of labor greatly hampered the work during this period. Most experimental work, other than with cotton, was abandoned in 1920 because of lack of funds and the low price of cotton. All funds from the sale of products produced on the Station were returned to the state treasury and were not reallocated to the Station. Appropriations were made biennially by the calendar year and funds were usually not available until May. Mr. Walker frequently borrowed money on his personal note to keep the Station operating until the state funds became available.

In his report for the 1919 crop year, Mr. Walker wrote "never before has it been my duty to report results of a year's work done at this Station that has been fraught with so many difficulties and disappointments." Inadequate funds, acute shortage of labor, and the most unfavorable season on record made the experimental results at the Delta Station very unsatisfactory. In most cases the information obtained was "very untrustworthy."

Only the sales fund was successful, generating several thousand dollars more than the Station expenditures. However, the Station was not permitted to keep these funds. Interest among Delta planters in the Station work was only fair, prompting the observation that "when the Delta planter is prosperous he seeks little information." However, interest was to pick up considerably in 1921 following the financial crash in 1920. The number of visitors increased greatly as did requests for information. There were from 12 to 100 visitors per day during July and August.

In this same report, Mr. Walker mentioned the urgent need for increased pay to Station workers so that salaries would be in line with those paid by business organizations.

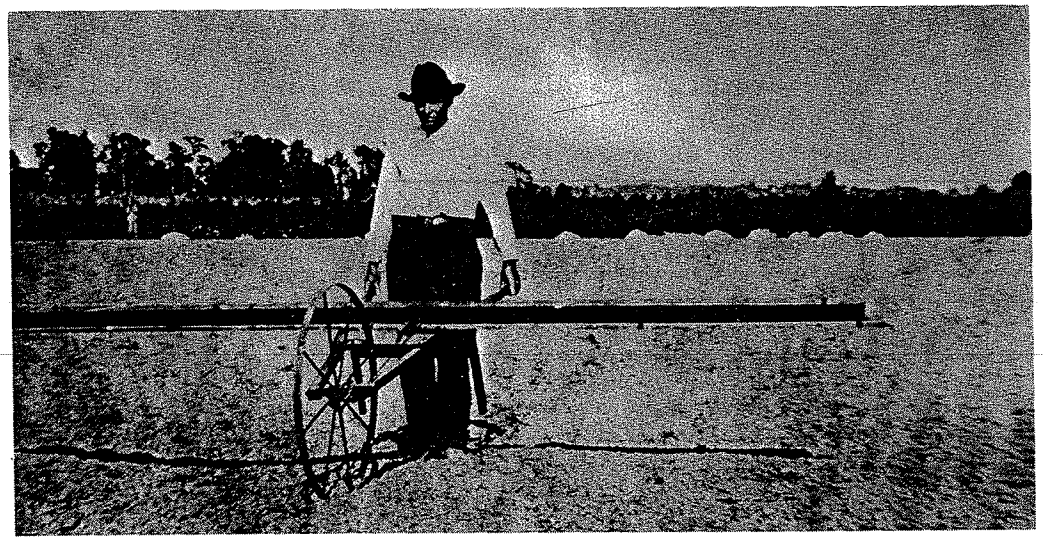
In order to avoid the situation where the Station was without funds for about 4 months every 2 years, the suggestion was made to change the fiscal year from the calendar year to July 1 to June 30. The biennial appropriation of Station funds would then be available on July 1 and would greatly facilitate the Station work.

The 1920 State Legislature authorized the Station management to retain $20,000 in 1920 and $10,000 in 1921 from the sales fund to make permanent improvements. State support was also increased from $11,000 to $17,000 per year for 1920-21 biennium. Work was immediately started on improving the grounds and rearranging old buildings to make the Station more attractive and to provide more comfortable quarters for the employees.

Sewer, water, and lighting systems were enlarged. A modern new residence for the Director "that is in keeping with the best plantation houses" was started. It was completed in the spring of 1922. Plans were made to build three new cabins and repair old cabins for the laborers, add concrete walks, and increase fencing.

The increased appropriation permitted the hiring of a plant breeder, W. E. Ayres, on March 1, 1920. He was charged with conducting breeding programs in cotton, corn, and oats. With the addition of Mr. Ayres as a full time plant breeder, the Station work was expanded considerably. The professional staff at this time consisted of Mr. Walker, Mr. Ayres, and the farm foreman, I. P. Trotter.

Cotton continued to receive the greater part of the research effort. Spacing, fertilizer, and breeding



Seeding alfalfa at the Delta Station in 1914.

received the major emphasis. Two new cotton varieties were proving very worthwhile. Foster No. 6102 was a 1 3/16-inch cotton with many desirable qualities. It produced 807 pounds of lint per acre without fertilizer in 1920, a year considered to be a bad crop year. The Express X Sunflower cross was a 1 3/8-inch cotton with earliness and desirable fruiting habits.

Because the boll weevil was becoming a serious threat to cotton production, Mr. Walker continued to urge farmers to plant other crops in addition to cotton so that they would not be entirely dependent on the cotton crop.

A corn breeding program, together with studies on corn fertilization and spacing, were initiated in March 1920. Improved strains of the Mosby variety were recommended for both early and late planting. Crossing of open-pollinated varieties by detasseling the seed row was begun. The recommended plant population was 6,000 plants per acre.

Oat work was expanded to include fertilizer studies and variety improvement in addition to variety testing. A plant selection program was started including the varieties Fulghum, Red Rustproof, and Dwarf Culberson. Wheat variety tests were discontinued.

Forage crop work during this period consisted of largely demonstrational plantings of alfalfa, red clover, burr clover, and vetch. Cowpeas and soybeans were grown for hay and soil-building crops. An effort was made to find a strain of burr clover resistant to anthracnose disease. The alfalfa stand was lost in 1920. In 1921, the USDA allotted funds to initiate a cooperative alfalfa research project at the Station.

By 1921, the hog feeding and breeding experiments had been discontinued and only a few hogs and sheep were kept for demonstrational purposes.

Horticultural work consisted of demonstration plantings of peaches, plums, and grapes. Variety and culture tests with garden crops were started in 1921.

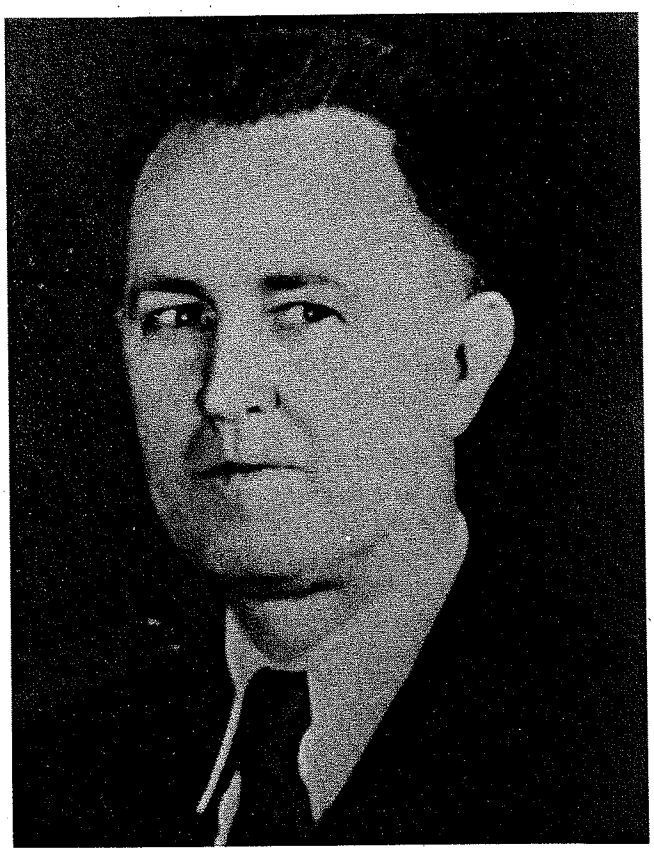
During the 1920-1921 fiscal year, the Station spent $22,083.26, of which $14,000.57 was spent for salaries and labor. Although a request for $39,000 was made for the 1922-1923 biennium, the appropriation remained the same at $34,000. An increase in salaries was considered a must in order to keep qualified men. A very urgent need of the Station at this time was for a small but modern gin system, equipped with adequate facilities for storing seed cotton and cottonseed. The cotton breeding program was seriously handicapped by the lack of ginning and good storage facilities. For the 3 years, 1920-22, the Station had to rely on public gins to get its cotton ginned. And once ginned, there was not sufficient space to store the separate varieties and strains.

In the 1921 report, Mr. Walker recommended that the time was right for the branch stations to undertake cooperative work with the agricultural high schools and on county test farms. He recognized that it was highly probable that varieties and fertilizer practices which gave the best results at the branch stations might not give the best results even in adjoining counties. He estimated that it would require the addition of only a few hundred dollars in expense and would be of inestimable value to the schools and planters in each county.

Mr. Walker resigned in August 1922, to organize and develop the Stoneville Pedigreed Seed Company.

Cutting 135 bushels per acre of oats with grain binder. Delta Station, 1915.

W. E. Ayres
1922 - 1937



W. E. Ayres

W. E. Ayres became Superintendent in September 1922, and headed the work of the Delta Station for the next 15 years. Mr. Ayres has been described as a man of very strong will; a meticulous planner with unusual foresight. He was an exacting leader, deeply devoted to and ambitious for the Delta Station. During his administration, the scope of the research work was considerably broadened. Research personnel were added and many new research projects were undertaken. However, as in former years, there were never enough funds to satisfy the demands. The Station was almost closed for lack of funds early in the depression years of the 1930's. Money was so short that for a time the backs of letters were used for carbon copies of the replies. Only the injection of federal funds and the vigorous support of a group of Delta planters kept it going.

When Mr. Ayres became Superintendent, I. P. Trotter was promoted to Assistant Superintendent and K. C. Livingston was hired as Farm Foreman. Expenses for salaries and labor in 1922 came to $11,152.83. Heat, light, water, and power cost $14.68.

More than 5,000 visitors came as groups or individuals during the summer of 1922, indicating the widespread recognition of the work being done at the Delta Station. Several machinery companies began the practice of placing equipment and materials on loan at the Station. One company alone had more than $2,000 worth of equipment on loan during 1922. Mr. Ayres initiated the first Delta Day in 1921, and it became an annual event until 1939. Although designed for the farmers of the Delta, many also came from outside the Delta to see and hear about the latest progress in agriculture. Speakers of national importance appeared on the program.

What was probably the first Experiment Station Workers' Meeting was held in January 1922 at Mississippi State College under the direction of Director J. R. Ricks. The group met to discuss fertilizers, fruits, vegetables, the control of boll weevils and plant lice (aphids), and to plan for the coming year.

In 1922, eight farmer-cooperative cotton variety tests were planted, four of them producing valuable results in the fall. Farmer-cooperative fertilizer tests indicated that the cotton grower should spend his fertilizer money on nitrogen. These tests were the first cooperative work undertaken by the Station.

By 1922, the boll weevil had migrated across the southern states. Infestation was extremely heavy in the Delta in 1922, and it has been estimated that about 80 percent of the cotton crop was destroyed by the weevil. The destructiveness of the boll weevil increased the interest of farmers in other crops so that their income would not be based entirely on the cotton crop. The Delta Station responded by increasing its research work with other crops as much as possible with available funds and personnel.

During the winter of 1922-23, much time was spent improving the drainage, making essential repairs, improving the lawn, and planting trees and shrubs. Most of the large pecan trees on the Station were planted during this period. No funds were available for other improvements.

H. A. York was hired in 1923 to succeed Mr. Trotter, who resigned. J. B. Turner also joined the staff. Many old experiments were expanded and new experiments were started. New research included check row and depth of cultivation for cotton, depth of cultivation for corn, rate of seeding oats, fall and

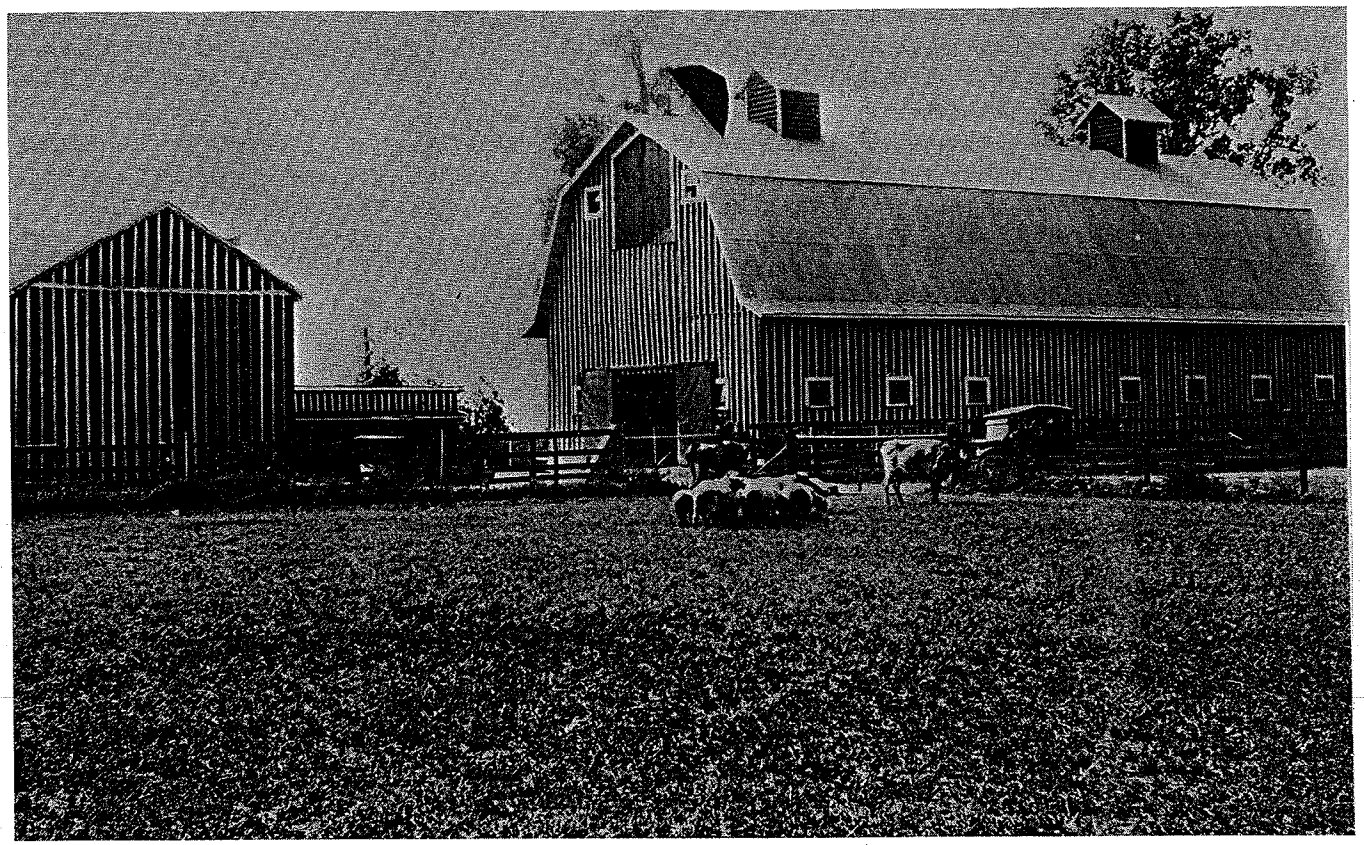
spring seeding of legumes in oats for summer hay, miscellaneous legume and cover crop nurseries, and the residual effect of nitrogen fertilizer on oats following fertilized corn.

A sizable effort continued to be expended on the production of seed for sale. All experiments other than variety tests were planted to increase seed of recommended varieties for sale to Delta farmers. During the 1922-23 biennium, these seed sales amounted to 600 bushels of cotton seed, 625 bushels of corn, 360 bushels of oats, and 20 bushels of Laredo soybeans. More seed could have been sold but for the fact that some had to be fed to livestock as there were no funds available to buy feed.

The supply of pure cottonseed of adapted varieties was limited. In an effort to correct this situation, the State Legislature approved House Bill No. 176 in March 1924. This bill directed that not less than 250 acres at the state farm at Parchman be planted to the variety which experiments at the Experiment Station at Stoneville had shown to be the most profitable for the Delta and that 100 acres be planted to the variety which experiments at the Holly Springs Station had shown to be most profitable to the hill farmers. The Superintendents at both Stations were directed to recommend the varieties to be grown and to give their advice on production practices. The two Experiment Stations would be allowed credit in their budget for the commercial price of all seed furnished to the Parchman farm. The bill also provided for the disposal of the seed produced in order to prevent any speculation.

The supply of pure seed of adapted varieties was still a problem in the early 1930's. House Bill 664 of the Mississippi Legislature in 1932 provided "That the State Experiment Stations shall so far as practical and possible, utilize their efforts in the breeding and improving superior strains of farm seeds most suitable and desirable for the various sections of the State of Mississippi." The act further provided that of such seeds so produced, a reasonable portion would be distributed to the Trustees of the State Penitentiary at Parchman. Seed produced from this seed and not needed on the Parchman farm would be distributed upon application to the farmers of Mississippi.

Two new strains of Delfos cotton, Delfos 911 and Delfos 910, were increased in 1923. These were selections from Delfos 6102 and Delfos 631, respectively, which had been developed by Dr. H. B. Brown. In his report for 1922-23, Mr. Ayres stated that "Cotton bred at the Delta Station is today worth more to the state



Barn and storage, Delta Station, 1923. The buildings were destroyed by fire February 20, 1939.

annually than all the Mississippi experiment stations have cost since they were established." Farmers were urged to leave a thicker stand of cotton plants. In a letter to George McFall of Sumner, Mississippi, Mr. Ayres wrote, "There is no such thing as too many plants on the ground under practical conditions." The fertilizer recommendation called for 150 to 200 pounds of nitrate of soda (24 to 32 pounds of nitrogen) per acre. Six cultivations were recommended for cotton. The first model of a cotton picker tested at the Station was the Berry-Gamble cotton picker, invented by H. N. Berry. It was tested in 1923, but did not prove successful.

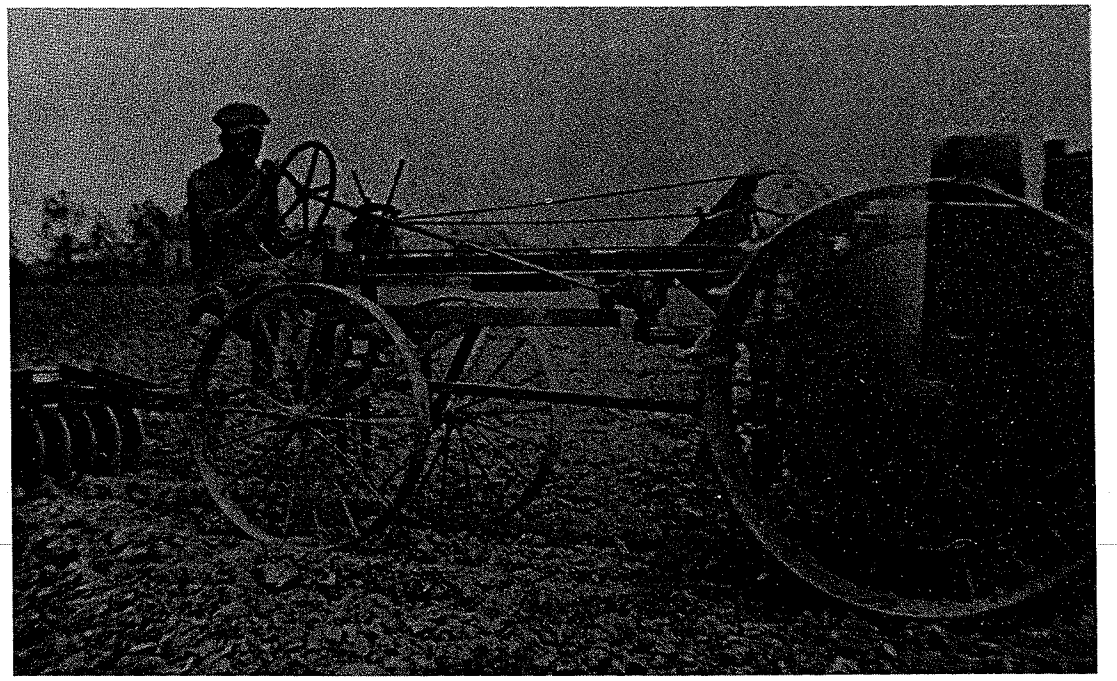
For corn, the recommendation was 5,500 plants per acre, spaced 24 inches apart in 4-foot rows or 27 inches apart in 3½-foot rows. It was recommended that cowpeas or soybeans should be interplanted with the corn as emphasized by the following statement: "No corn should ever be planted in the Delta without having soybeans in it. It is a hard thing to say, but soil fertility has now become the big problem of the Delta and the soybean is the best and most practical soil builder in sight."

One of the early supporters of the Delta Station was Charles W. Clark of Clarksdale. He had little faith in obtaining needed funds from the State Legislature and, in 1923, proposed that the Delta counties tax themselves at the rate of ¼ mill. He wrote and spoke extensively on this subject and gained the support of Governor Brewer. However, Mr. Ayres and Director Ricks were not in favor of the proposal. They were of the opinion that it would be better for the

Preparing land for oats. Delta Station, 1923.

Legislature to place a tax on all the Delta so that one county might not feel it was entitled to more assistance because it had subscribed more money. They raised the question of placing a tax per bale on cotton for support. These were suggestions whose time had not yet come.

In January 1924, 25 influential Delta planters formed themselves into a "Committee for the Promotion of Delta Agriculture." A. H. Stone of Dunleith was chairman and B. B. Payne of Winterville was secretary. They were very interested in the finances of the Delta Experiment Station. On February 6,



Disking plowed ground with a Moline tractor. Delta Station, 1923.

1924, they appeared before the State Legislature on behalf of the Station. Their influence had much to do with a 47.3 percent increase in maintenance appropriations and an appropriation of $7,500 for a gin.

Work continued on the experiments begun in 1923. It is interesting to note that in the spring of 1924, the Station owned 18 mules and one blind mare. Three of the mules were unfit for hard service.

The 1924 State Legislature started the system of appropriating funds for the entire Experiment Station system in one lump sum instead of making separate appropriations for each branch station. The Delta Station budget for the 1924-25 biennium amounted to $25,025: $10,050 for salaries for the Superintendent and four employees, $8,400 for labor, and $6,575 for operating expenses.

The year 1925 marked the introduction of the famous Missdel No. 4 cotton variety, a milestone in staple cotton development. At this time, approximately 75 percent of the Station's work was devoted to the various phases of cotton production. Coco (nutsedge) was regarded as "the biggest single problem confronting this section" in cotton production. A thicker stand of cotton, from two to seven plants in hills 12 to 14 inches apart, was recommended as a control measure. The seriousness of the nutsedge problem led Mr. Ayres to write: "If some practical means of eradication or control is not found, in 10 years, there will be thousands of acres of Delta lands abandoned because of coco infestation."

A sorghum plant with a "saccharine" stalk and a head similar to kaffir was observed in a field in Coahoma County in 1922. This was probably a result of natural crossing. Selected heads were planted in 1923 and 1924. In 1925, this selection was named Sagrain sorghum. It was regarded as a more dependable feed crop than corn.

During the summer of 1925, the area suitable for experimental work was increased by approximately 190 acres. Practically all the land on the Station was now available for experimental work. The gin and seed storage building was completed and machinery installed by fall. This building was expected to be of very great value to the cotton program.

A new residence was built for the foreman and D. W. Grimes joined the staff with the responsibility for horticultural crops and plant pest work.

Field preparation was practically completed and some planting done when the Mississippi River levee broke at Stopps Landing near Scott and the Station was flooded in April 1927. Much of the Station shrubbery was killed by the flood. The young orchard was severely damaged despite efforts to save it. As soon as possible after the flood, post holes were dug 3 feet deep on each side of the young trees. Water that drained into these holes was dipped out twice daily. Cotton was "muddied in" between May 25 and June 12 and some as late as July 8. Yields were surprisingly good, averaging 752 pounds of lint per acre. Seed of Missdel No. 1 and of a variety test was sent out of the flooded area via motorboat and planted near Shaw on May 1.

At this time, the Station was selling seed of Missdel No. 1 (Delfos 2458), Missdel No. 2 (Delfos 1341), Delfos 2103, Cocke Prolific corn, Sagrain sorghum, and Tanloxi and Loxitan soybeans.

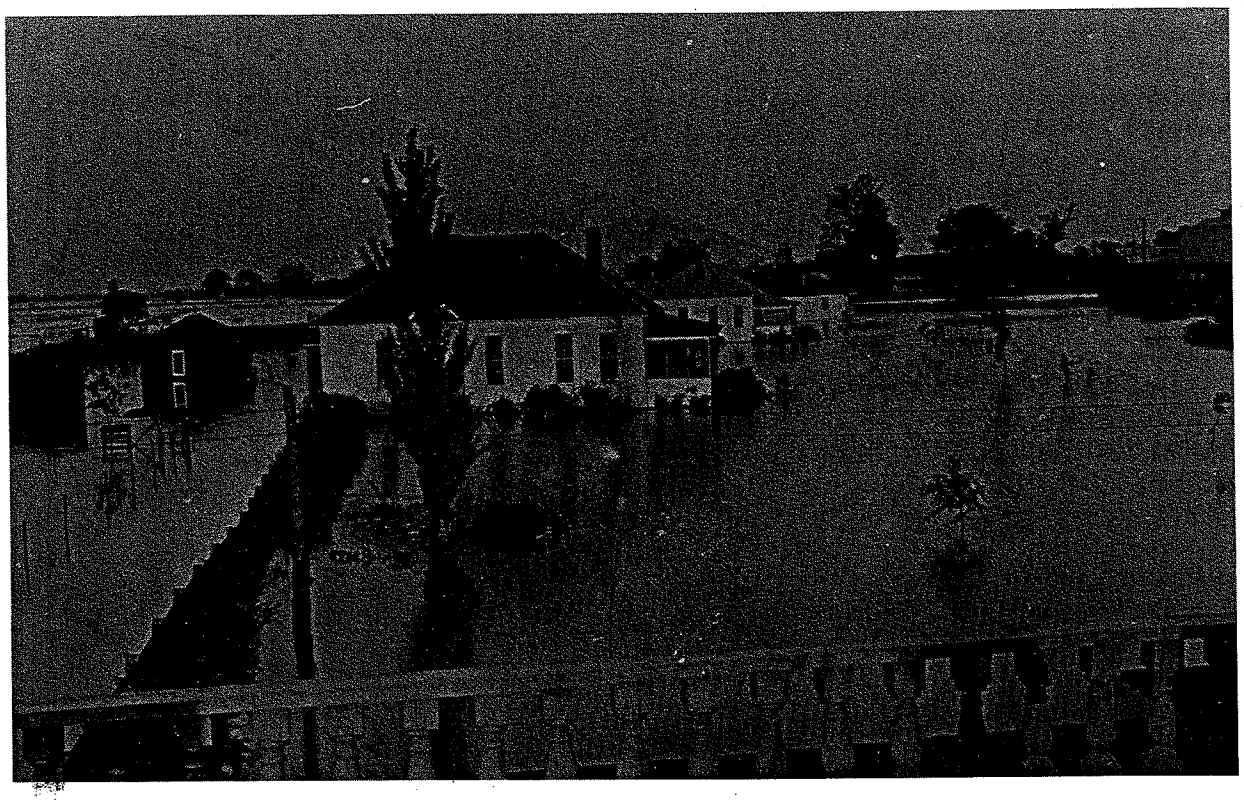
For the first time, the Station started sending data to county agents and a select list of Delta planters in the form of service sheets in order to get the research information out as rapidly as possible. Recommendations called for 25 to 30 pounds of nitrogen per acre applied before planting cotton and applied to corn when it was 1 to 2 feet tall. Nitrate of soda was considered to be the best source of nitrogen.

During this time Mr. Grimes, Mr. Turner, and Mr. Livingston resigned. E. A. Curry, Roy Kuykendall, C. L. Parnell, and W. C. McGee were added to the staff.

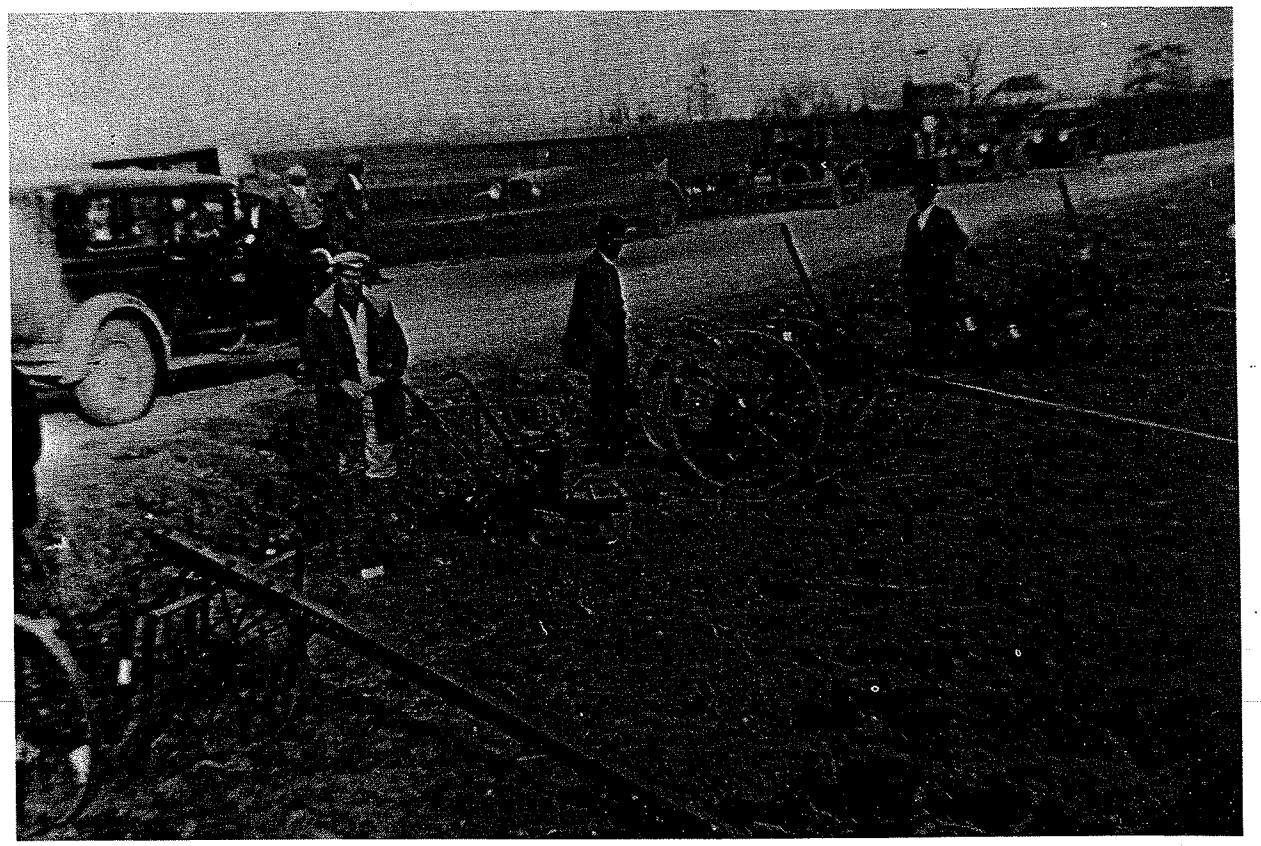
The Committee for the Promotion of Delta Agriculture held five meetings during 1927-28, and made definite plans to expand the Station. In early 1928, 154 Delta planters and businessmen went to Jackson and appeared before the Finance and Appropriation Committees on behalf of the expansion bill for the Station. As a result of the work of these and other interested men, the State Legislature, by House Bill No. 187, appropriated $53,000 for the purchase and improvement of additional land and $25,000 for improvements on both the new and old land over the next biennium. Three hundred acres of good sandy loam land which was in cultivation were purchased from T. L. Dobson in May 1928, for $45,000. This acreage was adjacent to the present Station and had a 2,600-foot frontage on both sides of the Leland-Greenville highway. A church and cemetery were on one parcel of this land.

Mr. Dobson had purchased this land in 1919 from the DuBose estate. It was part of a 420-acre tract known as the Sherwood Plantation, and had originally been purchased by Joshua B. Butler and others from the U.S. Government in 1834. It is interesting to note that between 1880 and 1884, rights-of-way across this land were deeded to the Greenville, Columbus and Birmingham Railroad, Georgia Pacific Railway Company, Memphis and Vicksburg Railroad Company, and the Memphis and New Orleans Levee Railroad and Levee Company.

In order to straighten property lines, an additional 9 acres were purchased in 1928 and 1929 from 10 owners for a cost of $7,311.34. These lots comprised what was known as McKinley Park and were located



Flooded Station lawn looking east from Superintendent's home on May 5, 1927.



Oliver equipment display. Delta Station, March 1928.

"Breaking" land with 12 mules and three 14-inch plows cutting 9 inches deep. Delta Station, 1929.

along the Stoneville-Elizabeth highway. The lots were originally sold by Joshua Skinner for a housing development. In addition to the purchase price, Supt. Ayres agreed to build houses for two of the owners on land deeded to them by W. E. Weilenman. Plans of the houses were included in the purchase contracts.

The additional land gave the Station a total of 559 acres. Among the improvements made were a 114-foot extension to the mule barn for seed storage, an 84-foot extension to the cotton house, and a new water system for fire protection costing $3,000. The water was obtained from Deer Creek. Seven new houses were built for tenants. A bridge was built across Deer Creek connecting the new purchase with the original Station.

The Committee did not disband with their successful effort, but continued to be active in planning for the future.

House Bill 187 also appropriated $38,500 for general support and maintenance of the Station in 1928 and a like amount in 1929. The bill specified how the funds were to be handled and expended. The Director was authorized to retain $7,500, should there be that much, out of the gross proceeds from the sale of products to be used exclusively for construction of new tenant houses and repairs to dwellings and other improvements. Quarterly balances over $7,500 from the sale of products were to be returned to the state treasury. Proceeds from the sale of products from the new land could be retained to pay labor and other expenses involved in operating that land. Except for salaries, which were paid monthly, appropriated funds could be drawn quarterly. Sales funds received in the last quarter of each biennium could be retained and used until the succeeding appropriation was available, at which time the amount of the sales fund was deducted from the appropriation.

In later years, probably in the early 1940's, the Station was permitted to retain all funds derived from the sale of farm products. These funds were not charged against the state appropriation.

Money to expand and operate the branch experiment stations continued to be a problem. As a possible aid in providing funds, House Bill 1224 was approved on April 26, 1928. This act authorized the Boards of Supervisors of the various counties in the state to appropriate money out of the general fund of said county for the purpose of buying lands, personal property, erecting buildings, and equipping or contributing toward the equipping of experiment stations, or to make contributions for the support of experiment stations within or without the county. No record could be found of any money being contributed to the Delta Station as a result of this act.

Interest in the work of the Delta Station was high during the summer of 1928. Nearly 1,000 visitors were present at Delta Day. A 2-day farm machinery demonstration drew 1,500 visitors. Much interest was evidenced in the production of cover crops.

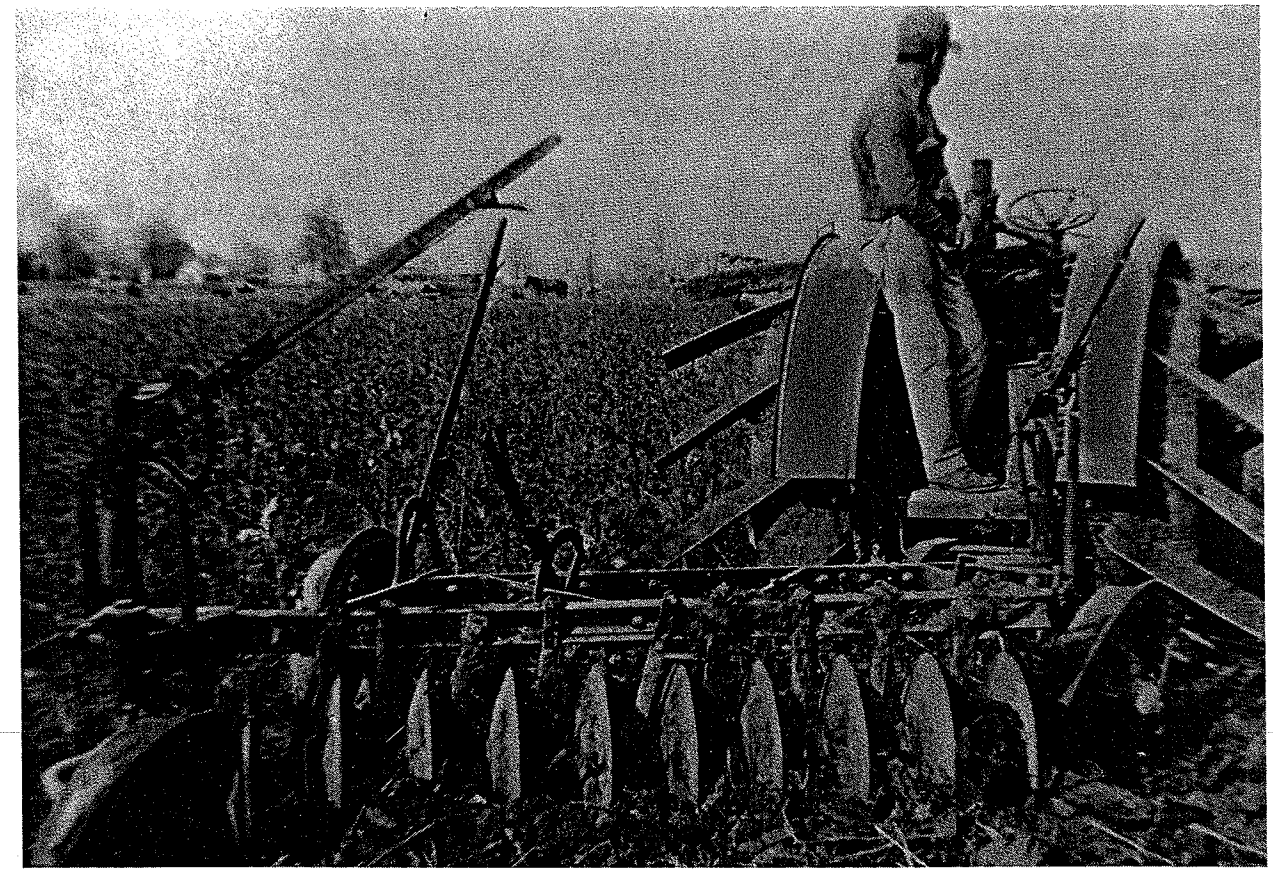
The Bureau of Plant Industry, USDA, in early 1929, appropriated $10,000 for cooperative alfalfa investigations to be located at the Delta Station. All phases of alfalfa culture were to be investigated.

During this period, plans were made to irrigate 30 to 40 acres to determine if irrigation was practical on Delta soils. At this time, the Station owned 28 mules and purchased one Farmall tractor. The flock of sheep was sold.

J. O. Smith was employed as an Agricultural Engineer, R. B. Carr as a Plant Breeder, and J. J. Church as Assistant Farm Foreman to replace C. L. Parnell.

The development of the Station and the scope of the

Preparing land with a Case tractor. Delta Station, March 1928.



"Breaking" a 6-foot strip of land 6 inches deep at 3 miles per hour. Delta Station, 1929.

work not only created widespread interest and support, but also considerable local pride. Director J. R. Ricks was led to remark, "The Delta Branch Station is probably the largest branch station in the country. There are eight men on the salary roll, six of whom are college graduates and trained research men." Interest in the work was so great that most of the time of one man was spent with visitors between June 15 and September 15, 1929. To handle the large crowds, four mules were used to pull wagons to take the visitors around. Interest in farm machinery was increasing. At the machinery demonstration, 40 tractors with equipment were shown. Three manufacturers demonstrated four-row planting and cultivating equipment.

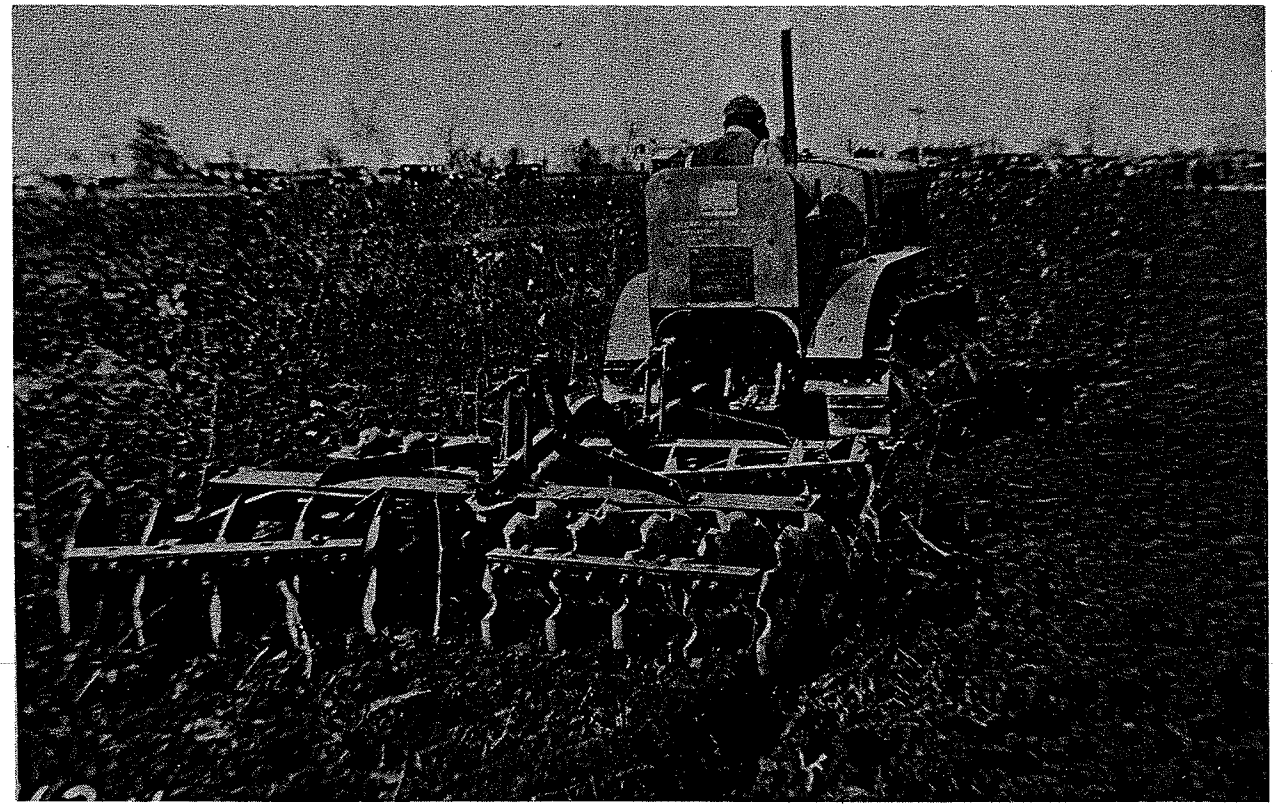
Interest in legumes also continued. The Station developed a legume planter which was both easy and economical to operate. It was manufactured by one of the implement companies.

During 1929-30, the old cabins on the new property were torn down and a 12-room house built for cotton choppers and pickers. A six-room brick residence was built near the Leland-Greenville highway (across the bridge from the present U.S. Post Office).

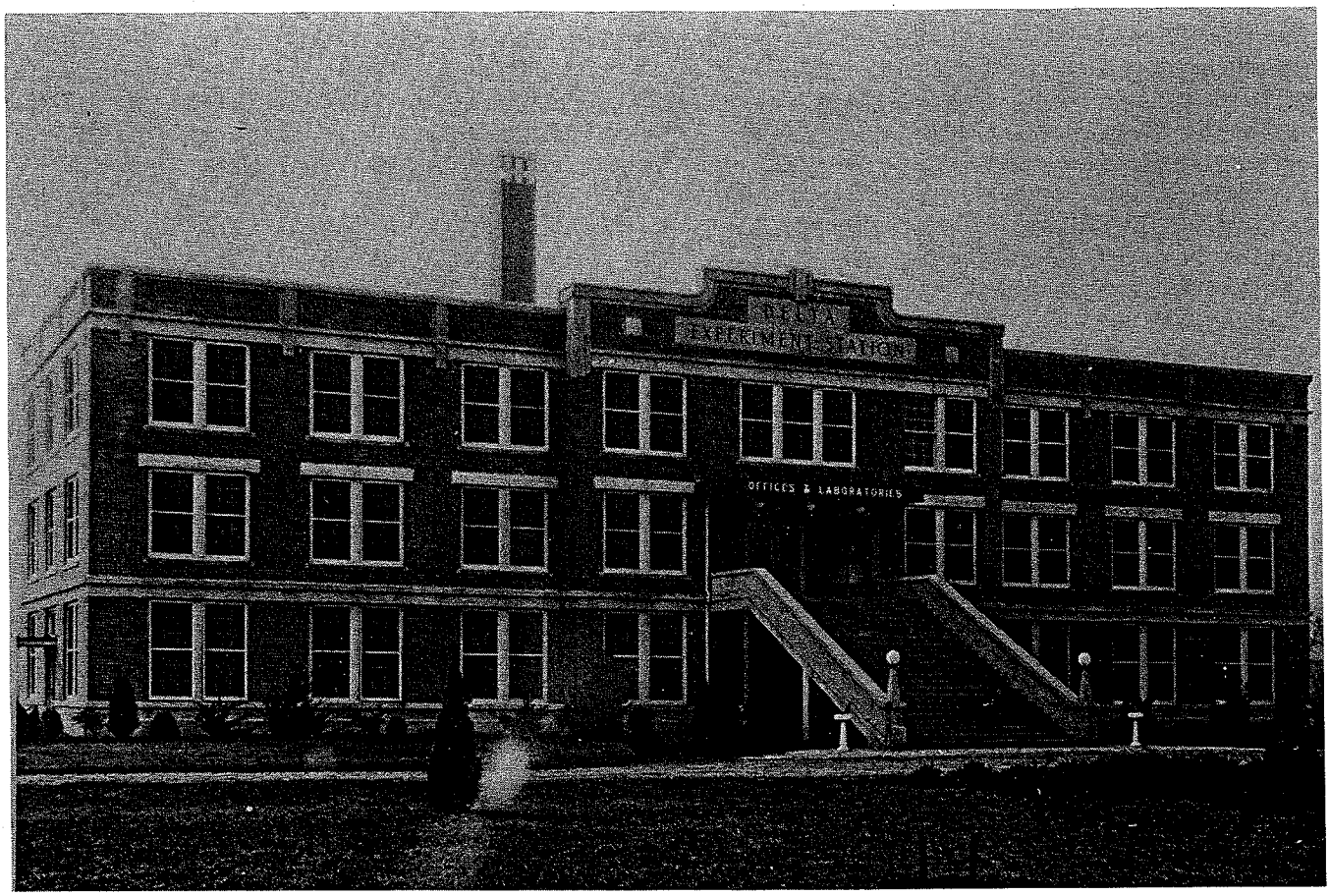
The Station continued to do a thriving seed business. For the 1930 planting season, seed was sold of Missdel No. 1, No. 2, and No. 3 cotton, Mosby corn, Sagrain sorghum, and small amounts of Maredo, Delsta, and Delnoshot soybeans.

The Committee for the Promotion of Delta Agriculture was still active and played an important role in getting the 1930 State Legislature to appropriate $37,500 for an office and laboratory building. The appropriation was made contingent upon the Federal Government locating a cotton research laboratory at the Station. On April 19, 1930, President Hoover signed a bill appropriating $100,000 for an experimental ginning and fiber laboratory to be located at Stoneville. Research was to be conducted to determine the causes of and remedy for gin damage to cotton. Construction of the U.S. Ginning and Fiber Laboratories was completed in 1934 on 4.95 acres of land deeded to the U.S. Government by the State of Mississippi. At the time of construction, the site was considered to be at the back of the Station and hence would not detract from the new office building. The new laboratories were staffed by Charles A. Bennett, Engineer in Charge, and 10 staff members.

The state office building was completed in 1931 at a cost of approximately $30,000. It was a three-story structure, 43 by 120 feet, of concrete, brick, and tile, making it as nearly fireproof as possible.



Demonstration of 20-30 Caterpillar pulling a disk. Delta Station, March 1929.



These offices and laboratories were completed in 1931. The building faces north.

The building contained offices, a meeting room, a library, laboratories, two fireproof vaults, and two fireproof safes. One-half of the ground floor was not finished until a few years later. Also a few years later, one section of the second floor was converted into sleeping quarters for visiting scientists. The main entrance to the building faced the Greenville-Columbus railroad tracks to the north. Entrance was by concrete steps to the second floor. At the time construction was started, Mr. Ayres had reason to believe that a new highway from Leland to Greenville would parallel the railroad. Hence the office building was built to face the proposed highway.

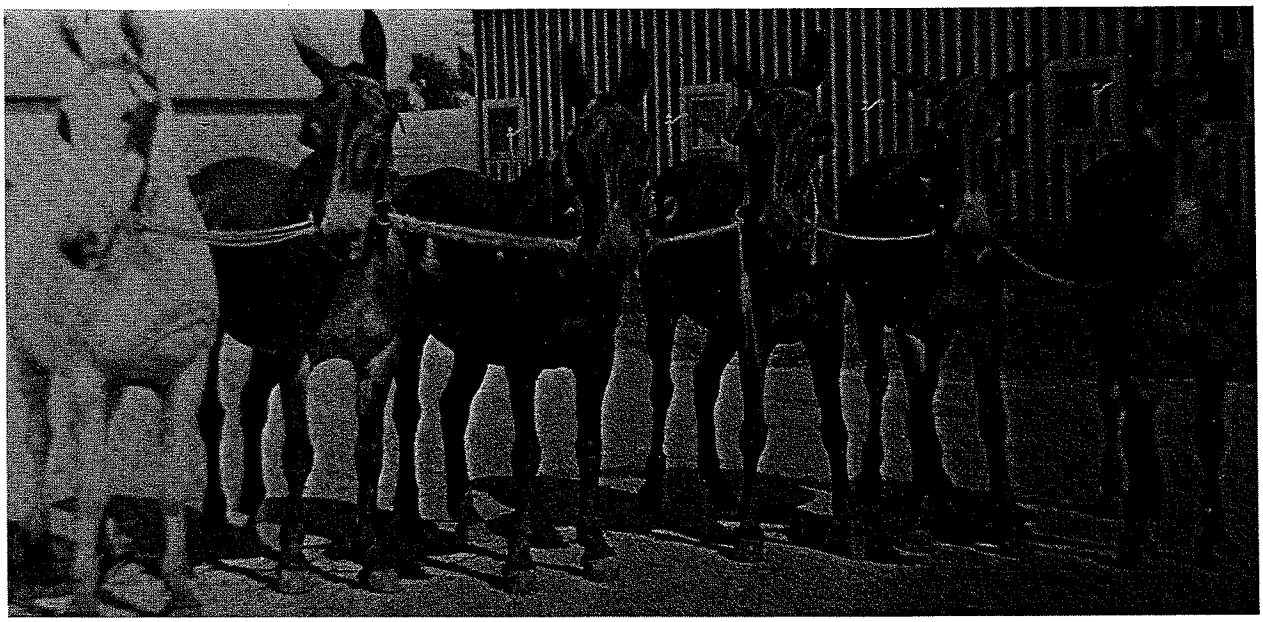
Construction did not stop with the office building. A four-room house was built for P. R. Henson, USDA Alfalfa Specialist, at a cost of $3,093. An eight-room, fireproof, brick, tile, and concrete storage building, a 20 x 90-foot tractor shed, and a six-room tenant house were also built.

In August 1930, Mr. Ayres signed a release to the Mississippi Gas and Electric Company for a right-of-way for the construction and maintenance of a gas pipeline across the Station property for which the Station received $375. By means of a verbal agreement (no formal contract was ever found) gas would be furnished to the Station at the industrial rate of 30 cents per 1,000 cubic feet. The Station owned and operated its own distribution system. The company was paid for the gas metered into this system. In later years, as the Station increased in size, the gas company regretted this arrangement and attempted to change it with each change of Station superintendents. This "contract" existed until the 1973 oil embargo. When this international energy crisis occurred, the Station was given priority for an uninterrupted gas supply because of vital agricultural research. However, with the continual escalation of gas prices, all agreements for wholesale purchases were terminated by the gas company.

In the fall of 1931, the Division of Farm Management and Costs of the Bureau of Agricultural Economics, USDA, in cooperation with the Delta Experiment Station, began a study of the organization, management, income, and production costs on cotton plantations in the Delta area. The study was to run through 1936. The purpose of the study was (1) to ascertain the most profitable systems of plantation organization; (2) to ascertain the changes that have

International Harvester equipment display. Delta Station, March 1931.

Delta Day, August 9, 1932.



Delta Station prize mules, 1932.

been made and are being made in cotton production methods and practices and the effect of these changes on efficiency of production and profits; (3) to determine the physical and financial requirements of cotton and other crops and the factors affecting the variations in these requirements; and (4) to determine the use of cropland and crop yields on this land.

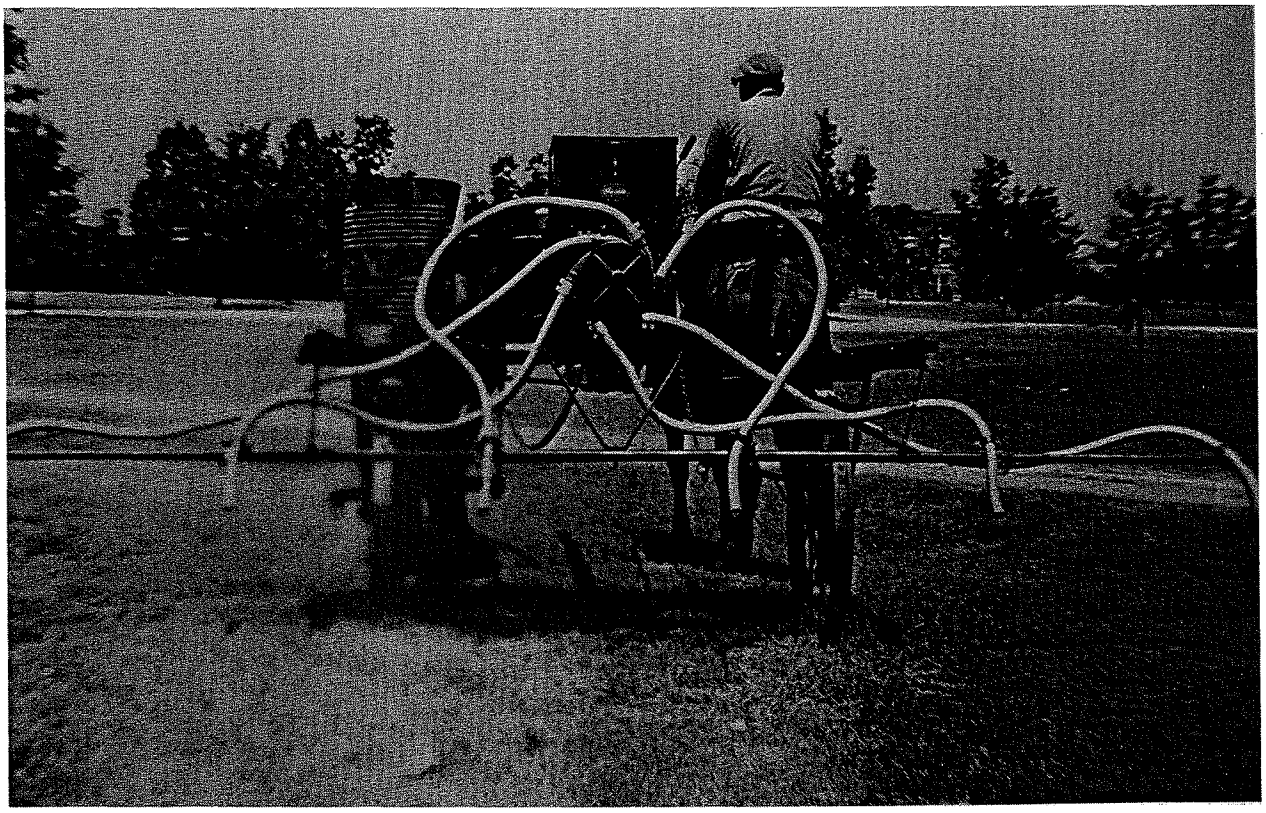
Funds were quite short in 1931 and as the time for Delta Day approached, there was apprehension that the Station would not be able to buy furniture for the newly completed office building. To forestall the catastrophe, a group of 25 local men signed a note at the Commercial National Bank of Greenville for $750 at 8 percent interest so that rooms in the new office might be equipped for Delta Day. However, the money was not needed and the note was voided. A successful Delta Day was held with a crowd estimated to be in excess of 5,000.

By the close of the 1931 season, the price of cotton had dropped to 5 cents per pound. The Station was short of funds and workers. Appropriated funds for salaries and operating expenses were cut by one-third in 1932. The allotment of funds by the Director of the Central Experiment Station led to controversy with Mr. Ayres over the equality of the allotment and the evaluation of needs. At one time, the closing of the Delta Station seemed imminent, but eventually enough federal funds were allotted to continue the permanent work. A special legislative appropriation was made to insure the future of the cotton experimental work.

The year 1931 also marked a disastrous Delta cotton crop. The mills found the cotton to be of such poor breaking strength that they turned to the Carolinas and other states for their raw cotton. As a consequence, experiments were begun in 1932 to determine the effect of water, chemical fertilizers, legumes, cultivation, spacing, and soil preparation on the length, fineness, breaking strength, and general spinning quality of cotton.

Eleven years of fertilizer tests showed an average increase of 583 pounds of seed cotton as a result of applying 250 pounds of nitrate of soda per acre (40 pounds of nitrogen). The same amount applied to corn gave an average increase of 18.6 bushels per acre. Dates of application made little difference in cotton, but the best response from corn followed application when the corn was 12 inches high. The experiments showed that cottonseed meal was not a profitable source of nitrogen. Cotton following corn interplanted to soybeans had an average increase of 550 pounds of seed cotton per acre.

The Committee for the Promotion of Delta Agriculture, under the able leadership of Charles W. Clark of Clarksdale, continued active in the depression years in its support of the Delta Station and its effort to prevent reductions in appropriations to the point that the usefulness of the Station would be greatly curtailed. Mr. Clark wrote and spoke extensively on the benefits to Delta agriculture derived from the Delta Station and the need to keep the research adequately funded. The 1932 State Legislature appropriated $50,000 per year for the next 2 years' operation of the Station. Mr. Clark



An early cotton duster. Delta Station, early 1930's.

stated that every dollar spent at the Station for the past 8 years had returned from $200 to $500 to the Delta alone. He pointed out that 93 percent of the Delta cotton crop was planted to seed of cotton developed at the Station (Delfos strains) which yielded from 20 to 51 percent more than other varieties. Many other phases of the work were returning large dividends to agriculture not only in the Delta but even out in the state. Mr. Clark was a keen observer of agriculture and a prophet of the future. In a letter to Mr. Ayres in July 1933, he wrote "I am strongly inclined to believe that if we can get a practicable soybean harvester, our buckshot lands are going up in public estimation."

In a further effort to secure funds for the Delta Station, the Legislature passed House Bill 962 in 1932, authorizing the Boards of Supervisors of the Delta and part-Delta counties to levy a tax not to exceed one-fourth of one mill on the dollar on assessed valuation of all property located in the county. Funds from this tax would be remitted by the tax collector to the "Assistant Director in charge of the Delta Experiment Station." This tax was authorized for the years 1932 and 1933 only. No record could be found of any funds accruing to the Station as a result of this bill.

The boll weevil continued to be a major hazard to cotton production. Farmers were fighting back with calcium arsenate, which continued to be the only effective poison until the hydrocarbon insecticides were introduced in 1947. It was applied as a dust at night or very early in the morning. At first it was applied from mule drawn wagons. But by the mid-1930's, the application of calcium arsenate with airplanes had become a thriving business.

The Chief of the Bureau of Entomology and Plant Quarantine, USDA, set up a committee of state-employed entomologists from North Carolina, Georgia, Tennessee, and Louisiana to conduct a survey and study of federal activities dealing with cotton insect control. It was felt that representatives from these states would give a fair cross section of the Cotton Belt. It was also felt that the group of state employees would insure an unbiased report and prevent unnecessary duplication of effort. Following the report of this committee, a project, "Insect Resistance in Cotton Varieties," was set up in 1934 by informal agreement with the Delta Experiment Station and later with the Bureau of Plant Industry. The investigations were to be conducted in close cooperation with the cotton breeders. All plant characters were to be thoroughly investigated and those which proved of value could be used by cotton

breeders to produce types which would be more resistant to insects.

In 1934, the Bureau of Plant Industry, USDA, secured 202.5 acres from Lucy Armstrong et al. by means of a Petition of Condemnation. The Declaration of Taking was filed August 6, 1934, and awarded $15,187.50 compensation. Rights to all crops expired on December 1. Rights to the water line across the property from the City of Leland were maintained by Lucy Armstrong and her successors. The land adjoined the Station property on the east and was secured for the purpose of establishing a U.S. Cotton Field Station. To support this work, a three-story fireproof laboratory and storage building was constructed by the Bureau of Plant Industry on 0.25 acre deeded by the Station and located on the Stoneville-Elizabeth road near the other Station buildings. The building was equipped with $6,000 worth of laboratory equipment and a greenhouse annex. Field work started in 1935 with one professional, Dr. J. W. Neely, Cotton Geneticist, and two sub-professional workers. Under the cooperative agreement, the Delta Station provided the common labor used in planting, cultivating, and harvesting the experimental plots. Most of the work that first year consisted of installing equipment and establishing field drainage, roadways, and water lines. Lines of investigation were to include regional variety tests, strains study, skip-correction study, uniformity trials, regional ginning studies, and genetic studies. During 1936-37, the project spent $11,400, of which $3,152 was for the salary of the professional staff member.

In 1934, the Station deeded two parcels of land totaling 9.11 acres to the United States Government, Bureau of Plant Industry, with 3.45 acres set aside for the U.S. Forest Service and 5.66 acres to be used for home sites, including a 10-bedroom dormitory and boarding house for federal employees. The increased federal research efforts at the Station resulted in an influx of many young men. There was no place for them to stay except in the Leland Hotel, hence the construction of the 2-story dormitory and boarding house.

Mr. and Mrs. J. J. Church were employed to operate the facility and continued to do so as long as it was in existence. The need for the dormitory lessened over the years and it was razed in 1961 to make room for the new forestry research center.

Also in 1934, the Station deeded another 5.10 acres to the Bureau of Plant Industry along the railroad in the present shop area. This parcel of land was deeded back to the Station in 1949.

The confidence of farmers and a return to prosperity was evident by 1935. A trainload of 160 International Harvester tractors arrived in Leland in January of that year. This represented the first shipment south since 1929. The expected sale of fertilizers was up considerably over the low point reached in

Demonstration of the Rust Cotton Picker. Delta Station, 1936.

1930. Several thousand farmers and businessmen attended the 16th Annual Delta Day.

In December 1935, the Delta Station hosted a Delta-wide soybean conference. All phases of soybean production were discussed. Delta farmers were searching for alternative crops to grow on acres taken out of production as a result of the Agriculture Adjustment Act (AAA).

In 1935, the Washington County Supervisors approved plans for the construction of a bridge over Deer Creek at the end of Deer Creek Drive which would connect Leland with the Delta Station.

On November 25, 1936, the Station suffered a disastrous fire which destroyed the gin and cotton and cottonseed storage building. The State Legislature appropriated $75,000 for a new gin and cottonseed building. Work began on the building in June 1937; and when completed, it gave the Delta Station one of the most modern pure seed and storage units in the country at that time. Advances in ginning technology made the gin considerably outdated by the late 1950's. It was removed in the early 1960's and the gin and storage buildings converted to laboratories as the need arose.

In 1936, the Mississippi State Legislature, by means of House Bill No. 31, donated and dedicated to Mississippi State College for the use of the Delta Branch Experiment Station, a tract of land which had matured to the State of Mississippi for non-payment of taxes. The Delta Branch Experiment Station was to have complete control of such land for the purpose of carrying on reforestation projects. Such projects could be in conjunction with any Federal agency established for that purpose. This land was just north of, but not adjacent to, the Experiment Station and consisted of 2,580 acres. The deed to the land was not obtained until April 1938, following a payment of $1,160 to James G. Bailey to clear the title and an attorney's fee of $400. In May 1952, an additional 40 acres were purchased from C. K. and Frances Fuller. A correction in the boundaries following a new survey in 1960 added an additional 40 acres. The entire forest now amounted to 2,660 acres. In 1955, the American Louisiana Pipeline Company threatened legal action to secure a right-of-way through the forest for a pipeline. However, a U.S attorney ruled that a private party could not lawfully condemn property of the United States nor could it sue the state without the consent of the state. Thus, the right-of-way was not secured.

A 1936 inventory listed the following state property: one fireproof office and laboratory building, nine residences for scientific personnel, 32 residences for skilled and unskilled labor, one large barn, a cotton gin and cotton storage building, a granary, shops, tool sheds, garages, poultry houses, meat curing and cold storage building, gas and water distribution systems, and a fire protection system consisting of one 75 h.p. motor, pump, fire lines, hydrants, and hose. The value of the inventory was placed at $194,799. About 150 people lived and worked on the Station. The Station also owned 37 mules at this time. In addition, federal property included the U.S. Cotton Ginning Laboratory, the new Cotton Field Station building, and six residences for federal employees.

Many lines of research were under investigation at this time, although major emphasis was placed on cotton. Cotton research included breeding, genetics, variety and strain testing, cultivation, land preparation, hill and row spacing, time of picking, fertilization, effect of weather on seed cotton and fiber, and entomological studies.

Small grain research on oats, wheat, barley, and rye included breeding, variety testing, dates and rates of seeding, fertilization, and cold resistance.

Soybean research was underway on both grain and hay types. Work included breeding, testing, rates of seeding, broadcast versus row planting, and use as a soil-building legume.

Research on corn included breeding, testing, fertilization, dates and rates of seeding, and use in rotations.

Sagrain (a variety of sorghum) was studied as a grain crop, interplanted with soybeans for pasture, and for its residual effect on a following crop of oats. Studies showed that it was equal to corn, pound for pound, as a feed for mules and was a more dependable crop than corn.

The horticultural project included studies with various types of fruits and vegetables. Peaches and apples were sold to the general public on 2 days a week between 9 a.m. and 7 p.m.

Livestock research emphasized work with various plant mixtures for pasture and feeding trials for mules and pigs.

In January 1937, the State College Board, upon the recommendation of the subcommittee on agriculture, failed to renew the appointment of Mr. Ayres beyond June 30, 1937. The only public reason given for their action was an "accumulation of complaints." The action taken by the Board was "bitterly protested" by Delta planters who charged "politics." The Committee for Promotion of Delta Agriculture became very active in seeking a reconsideration of the State Board's action. Several meetings were held with the State College Board, the Governor and other groups, but to no avail.

After Mr. Ayres left the Station, he established The Ayres Company in Leland. Despite great difficulties, the Delta Branch Experiment Station developed tremendously in size, facilities, and scope of work during Mr. Ayres' tenure.

H. C. McNamara
1937 - 1942

H. C. McNamara

Homer C. McNamara became Superintendent effective July 1, 1937. Mr. McNamara came from the U.S. Cotton Field Station at Greenville, Texas, with 18 years of experience in cotton research there. At this time, the title of the scientist in charge of the Delta Station was changed from Assistant Director to Superintendent.

Under his superintendency, systematic work toward the mechanization of Delta cotton was begun. The first mechanized cotton harvesting studies were begun. Although several cotton pickers had been tried since the first test with the Berry-Gamble picker in 1923, none proved successful. The Rust Brothers and International Harvester cotton pickers had been tested for several years. The greatest drawback to machine harvesting was green stain of cotton fibers and excessive trash in the harvested cotton, which resulted in a reduction of as much as three full grades. Under these circumstances, mechanical harvesting was not yet profitable.

To overcome some of the difficulties encountered with machine harvesting of cotton, two new research programs were started. A breeding program which placed increased emphasis on fiber strength had as an objective the development of cotton varieties better suited to mechanical harvesting. Reasoning that the removal of green leaves would greatly reduce green stain, researchers established a grant-in-aid with the American Cyanamid Company in the winter of 1941-42 to study cotton defoliation using dusting grade cyanamid. Cotton defoliation has since become a standard practice.

At the time Mr. McNamara came to Mississippi, Delta-grown cotton was preferred for its superior quality and staple. Cotton producers from other areas were attempting to capitalize on this market. To protect the Delta farmer, Mr. McNamara conceived the idea of the Delta bale tag identifying the origin of each bale, which he designed and trademarked in the U.S. Patent Office from his position as chairman of the Delta Council Bale Tag Committee. The Delta bale tag proved to be a very popular means of identifying Delta grown cotton and continues to be a common practice today.

Cultural studies with cotton continued. The yield of seed cotton following corn in rotation was significantly increased over cotton following cotton. Studies showed that one shallow cultivation per week was sufficient. Work with mechanical chopping of cotton was started in 1939 with the "Dixie Cotton Chopper."

Fertilizer work continued comparing nitrate of soda, ammonium sulfate, ammonium nitrate, cyanamid, cottonseed meal, and legumes as sources of nitrogen. Some of the sandy soils in the east part of the Delta showed a response to applications of phosphorus and potash. The results of 18 years of experiments clearly showed that a return of 14 pounds of seed cotton could be expected for each one pound of nitrogen applied to cotton on sandy soils and 9 pounds for each pound on clay soils. Generally, 30 to 40 pounds of nitrogen as nitrate of soda were recommended for cotton, although increased yields were obtained in experiments from rates as high as 50 pounds of nitrogen per acre. Although the use of commercial nitrogen was increasing, hairy vetch and Austrian winter peas were extensively planted as winter legumes preceding the cotton crop. In 1938, it was estimated that 442,000 acres of legumes were planted to be turned under. An

estimated 282,000 acres of beans and peas were interplanted with corn. A good winter legume crop was considered to be more profitable than the use of 30 pounds per acre of commercial nitrogen. A report in 1941 stated: "Results indicate that both commercial fertilizers and legumes are necessary for a successful farming program in the Yazoo-Mississippi Delta." However, in years with wet falls, it was difficult to get winter legumes properly seeded or, if seeded late in the fall, growth would be limited. The fall of 1937 was one such very wet fall. Many farmers throughout the Delta resorted to airplane seeding in an attempt to get the winter legumes seeded. In general, the results were not satisfactory, usually because of an uneven distribution of seed. Likewise, wet springs would delay turning the legumes under in the spring, often resulting in poorly prepared seedbeds.

Corn research was expanded during this period. Many of the northern corn hybrids were tested but they proved to be of inferior quality. Hybrids from Tennessee and Louisiana were better than the northern hybrids. However, the yield of the open-pollinated variety, College Mosby, was equal to that of the best hybrid. In 1939, an inbreeding program using southern open-pollinated varieties was started. Top crossing on the local white variety Mosby was also started. Thirty to forty pounds per acre of nitrogen were recommended for corn. Ammonium nitrate was found to be the best source. The practice of interplanting soybeans in corn was still rather common. The recommended spacing for corn was 16 to 22 inches for a plant population of approximately 7,000 to 9,500 plants per acre.

Variety testing and cultural work continued with small grains. A large acreage of oats was grown in the Delta, mainly for feed. Many farmers felt that oats were a safer feed crop than corn and required much less labor. Thirty pounds of nitrogen per acre as nitrate of soda were recommended for oats and wheat. Seeding rate studies with oats showed that there was no difference in yield from seeding 4 to 14 pecks per acre. The latest safe date for seeding oats was November 1. Recommended oat varieties were Fulgrain, Victorgrain, and Red Rustproof. Recommended wheat varieties were Hardired and Red Hart. There was some interest in barley as a feed crop but none of the varieties tested were adapted to the Delta environment.

Soybean cultural work continued. A report for 1938-39 states that the Delta Station had originated a "dozen or more" new strains for hay and beans. These "strains" were probably selections from existing varieties. Evaluation of a new soybean combine was started in 1938. Good results were obtained from planting soybeans after oats, provided that the oat straw was burned.

Livestock work consisted mainly of a continuation of mule and pig feeding experiments and pasture studies. The best pasture was found to be a mixture of dallisgrass and white dutch clover.

Horticultural work continued with variety testing and cultural studies on vegetables and fruits. A tomato breeding program was started.

The possibility of new crops for the Delta was always kept in mind. Hemp grew well and there was considerable interest in it. Crotalaria was studied as a soil building and "weed smothering" crop. Sunflowers were found to produce a large seed crop, but the seed rotted before it could be harvested. Castor beans, flax, and ramie (called China grass) were also tested.

During the mid-1930's, the Station was selling all the seed it produced on the basis of 6 bushels per individual with no other restrictions. The result was unequitable distribution with much of the seed going to irresponsible tenants. A survey by Extension workers showed that 35 percent of the seed lost its identity in the first year. In January 1937, Extension workers and a group of Delta farmers met at the Station for the purpose of formulating a more equitable distribution policy to Delta counties and a more efficient method of cooperatively increasing Delta Station seed. The new policy stated that henceforth all Station-produced seed would be distributed through the county agents on the basis of relative taxable values of each county. All purchasers of seed would have to agree to certain specified regulations which would insure the maintenance of high quality, pure seed.

In 1939, the Southern Forest Experiment Station initiated cooperative research at the Delta Station. The original assignment was to study management of bottomland hardwoods native to the Mississippi River Delta. The work would be based on the newly acquired forest just north of the Station. Thus began the first scientific research relative to bottomland hardwoods to be undertaken in Mississippi. The first scientists were housed on the second floor of the Station office building.

A disastrous fire on February 20, 1939, destroyed the mule barn, dairy barn, and implement shed with losses estimated at $50,000. Thirty tons of hay along with implements, harness, and miscellaneous equipment were lost in the fire. However, 30 head of cattle, 32 mules, and 7 horses were led to safety by Station employees.

Plans were completed in June to replace the loss under a WPA grant of $75,000. Three buildings were constructed: a horse and mule barn of 16,960 square feet with a 200-ton capacity hay loft; a dairy barn of 10,324 square feet with two silos, 30 milking stalls, separate milk cooling department, and space to hold

75 tons of feed; and an implement shed of 6,560 square feet. The implement shed contained a machine and blacksmith shop. The dairy barn complex was located on the south side of Deer Creek adjoining the horticulture field. The other buildings were located east of the office building.

The first Delta Field Day was held at the Station in 1939. It was organized by Assistant County Agent Charlie Burton as a means of recognizing the achievements of the small farmers of the Delta. The original Delta Day, which started in 1921, was no longer held. The Delta Field Day continues to the present day bringing the latest information to the farming community.

Mr. McNamara was quite interested in developing library facilities. Reference books and periodicals were added as funds permitted. A special effort was made to complete sets of periodicals, experiment station bulletins, and USDA publications.

The staff at this time consisted of 25 scientists engaged in 10 areas of investigation. This period was not without some of the usual problems caused largely by a limited budget. The lack of adequate on-Station transportation created a certain amount of dissatisfaction among staff members who objected to using their personal cars for field work.

Mr. McNamara suffered a heart attack and died on April 15, 1942.

J. E. Adams
1942 - 1946

J. E. Adams

J. E. Adams assumed the duties of Superintendent September 24, 1942. Dr. Adams had a background in soils research and was recognized for sound research methods. At the start of his tenure, the staff averaged 25 professional workers and 75 laborers. There were 18 state-owned homes, 5 federal homes, and a large federal dormitory for men. Forty tenant families were housed on Station property. In addition to the research work on the Station, there were approximately 100 acres of outlying field experiments.

Dr. Adams' tenure spanned the years of World War II. Both the quantity and quality of labor became a problem. During 1943 and 1944, the Station operated with approximately 50 percent of its normal labor force.

In the few preceding years, a small amount of work had been done with mechanization. This work was greatly expanded and consolidated in 1944 in a mechanization project to study the complete mechanization of cotton and the factors affecting lint quality. Studies included seedbed preparation, planting, hill versus drill, spacing, cultivation, flame cultivation, mechanical choppers, defoliation, and harvesting. Quality studies were conducted in cooperation with the U.S. Cotton Ginning and Fiber Testing Laboratory.

One of the first benefits to the farmer was the flame cultivator. A flame cultivator using a mixture of oil and air was first tested in 1943. By 1945, flame burners had been developed using propane or butane as a fuel source. Many large farmers used the flame cultivator successfully in the 1945 cotton crop. The use of the flame cultivator resulted in a big reduction in hoe labor, and with continuing improvements in mechanical details, it became an important factor in cotton and corn production until the advent of herbicides. In 1944, the Station successfully produced cotton with complete mechanization without a single hour of hand labor.

The first successful cotton harvest with a mechanical picker was in 1944 with a picker furnished by the International Harvester Company. A report in 1945 stated that the use of the cotton picker reduced the hand labor required for picking cotton from 85 to 5 hours per acre.

Cotton breeding continued. Approximately 2,400 varieties and strains were included in a collection of wild, aboriginal, commercial, and non-commercial cottons. The variety Delfos 651 was released in 1942. It was superior in yield to the Station's other Delfos varieties.

Fertilizer work was restricted mainly to cotton, corn, and oats. The experiments with cotton and corn were started in 1921 and with oats in 1928. The rates of nitrogen used were low by today's standards. In 1943, the upper rate on corn was increased to 80 pounds of nitrogen per acre using sodium nitrate applied as a sidedressing. However, there was no response to any of the rates, probably because of the dry summer. Depth of application studies on corn were started in 1942. Results showed that a placement 8 to 10 inches deep produced the highest yields. In 1944, anhydrous ammonia was tried as a source of nitrogen on corn with rates as high as 120 pounds per acre.

Corn and small grain breeding programs continued to expand during this period. Oats were a popular crop in the Delta at this time. Red rustproof types *(Avenae*

byzantina) were the most popular. Delta Red 88, a red rustproof type, was developed at the Delta Station and released in 1943. A report in 1945 stated that "Small grains and particularly oats are second only to cotton as a money value crop in the Delta." Wheat was not as widely grown since none of the available varieties were resistant to leaf rust; and when weather conditions favored the development of this disease, the yields were very low.

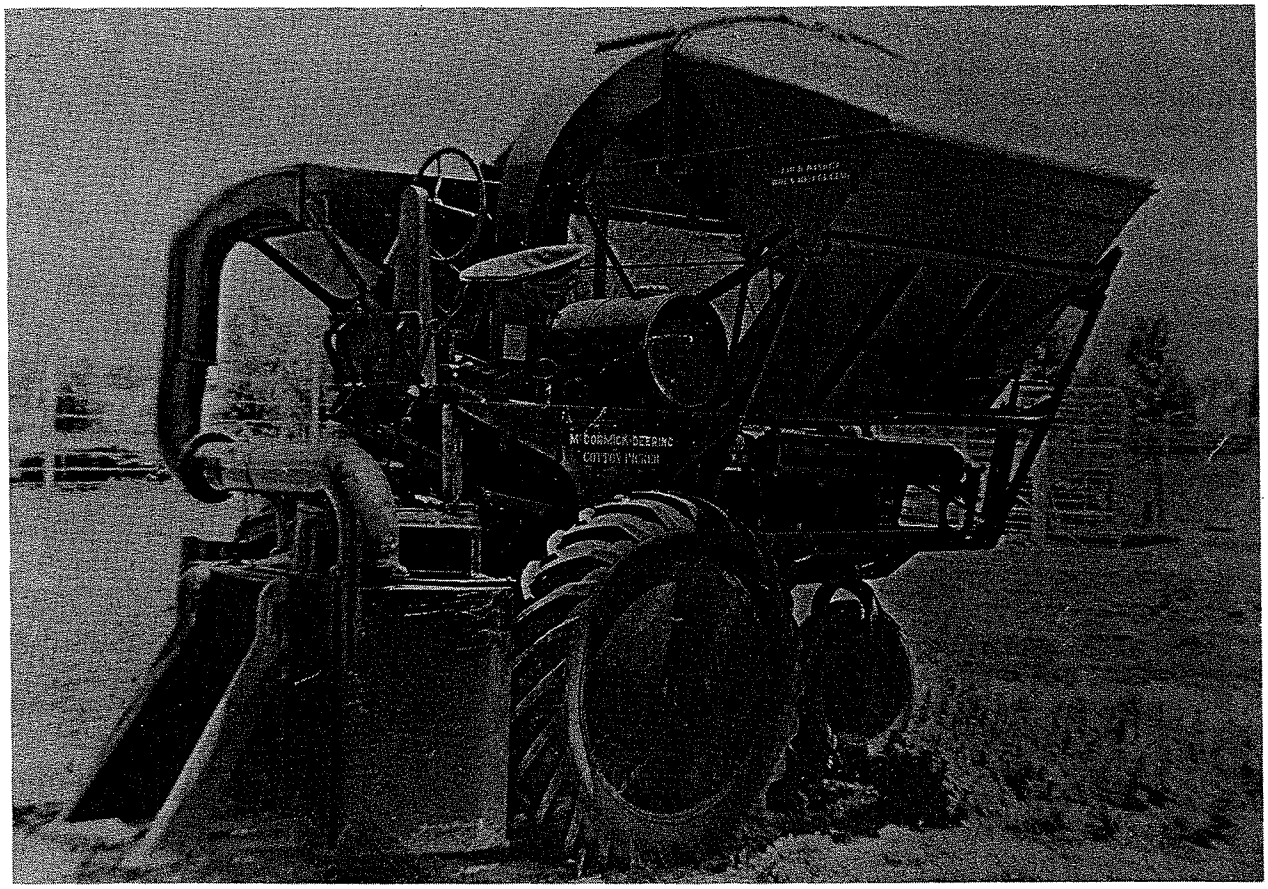
The corn breeding program was rapidly expanding. Enough work had been done to show that corn belt hybrids were not adapted to the southern environment and that any future hybrids would have to be developed from southern open-pollinated corn varieties. Impetus to the corn breeding program was given by a federal appropriation of $20,000 for research on corn hybrids to be done at Stoneville. Plant population studies showed the best results from three to four plants per hill on 40-inch centers. This would be similar to a plant every 10 to 13 inches of row compared to previous recommendations of a plant every 16 to 18 inches.

During the winter of 1942-43, a cooperative agreement was developed with the USDA, Bureau of Plant Industry, establishing a Southern Regional Soybean Project headquartered at the Delta Branch Experiment Station. Twelve southern states were included in the project. At this time, the recommended varieties for this area were S100, Odgen, Roanoke, and Volstate. Planting date studies at that time showed that soybeans could be planted from early April until early June with equally good results.

In 1942, the forestry project started large scale stand improvement studies. Research continued on cottonwood seedlings and cuttings. In 1944, the Farm Forestry Research Project was transferred to Mississippi State College and the Delta Branch of the U.S. Southern Forest Experiment Station was established at Stoneville. Increased appropriations led to an expanded staff and new and expanded research. The principal lines of work included stand improvement, cottonwood regeneration, reproduction, and tree poisoning.

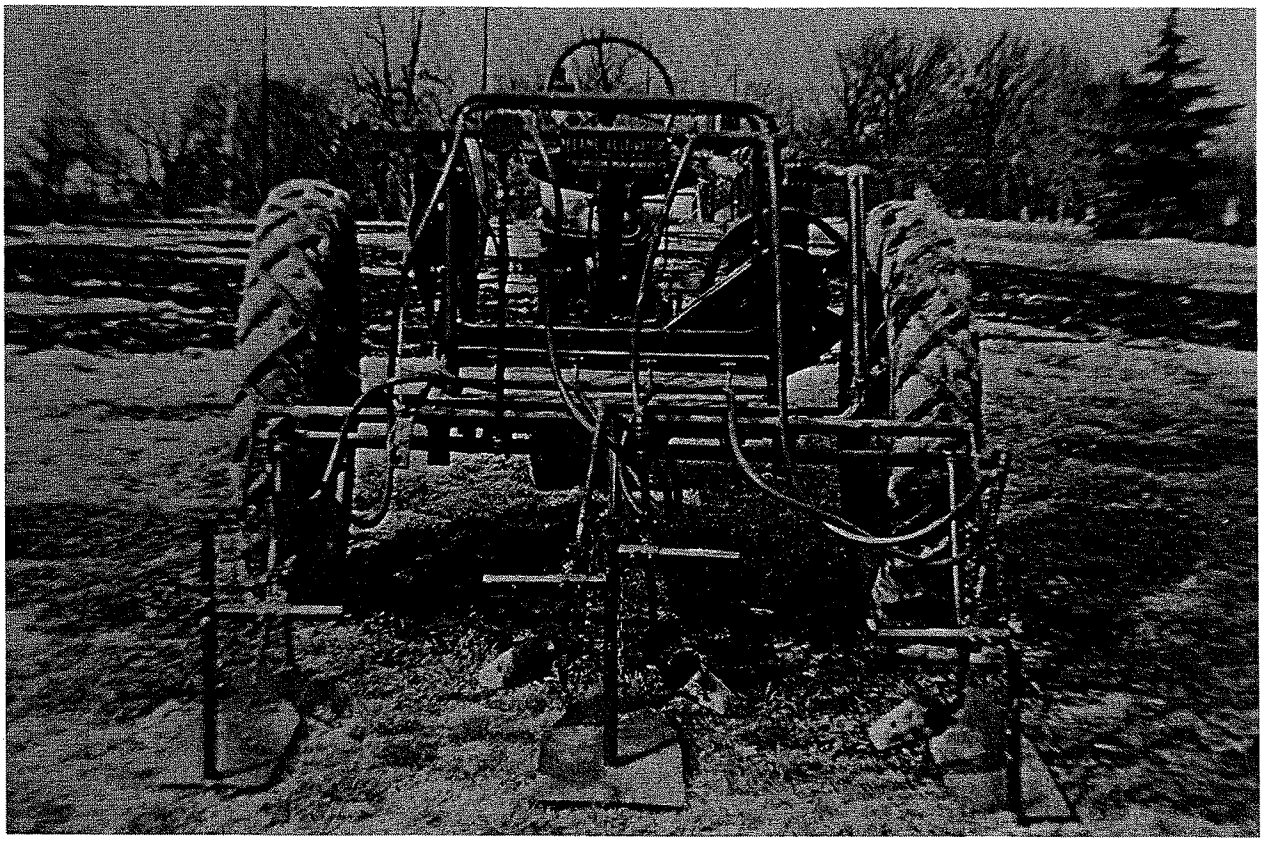
Horticultural work consisted of variety and culture studies with fruits and vegetables.

Dr. Adams resigned in October 1946, to become Head of the Department of Agronomy, Texas A & M University, College Station, Texas.



First production model of International Harvester cotton picker. Delta Station, 1944.

The "sizz chopper." Delta Station, 1944.



An early model flame cultivator. Delta Station, 1944.

Charles R. Sayre
1946 - 1948

Charles R. Sayre

Charles R. Sayre became Superintendent effective November 1, 1946. World War II had ended and the country could turn its full attention to developing a better life. Appropriations for the Station increased and more trained scientific personnel were available. New methods of farming were just over the horizon.

During this period, three new lines of research were initiated: cotton physiology, cotton cytogenetics, and chemical weed control.

The first state-owned glasshouse with attached headhouse was completed in December 1947. This was a significant addition to the Station facilities. Scientists could now carry on work under controlled environmental conditions. The growing season need not end with the first frost in the fall.

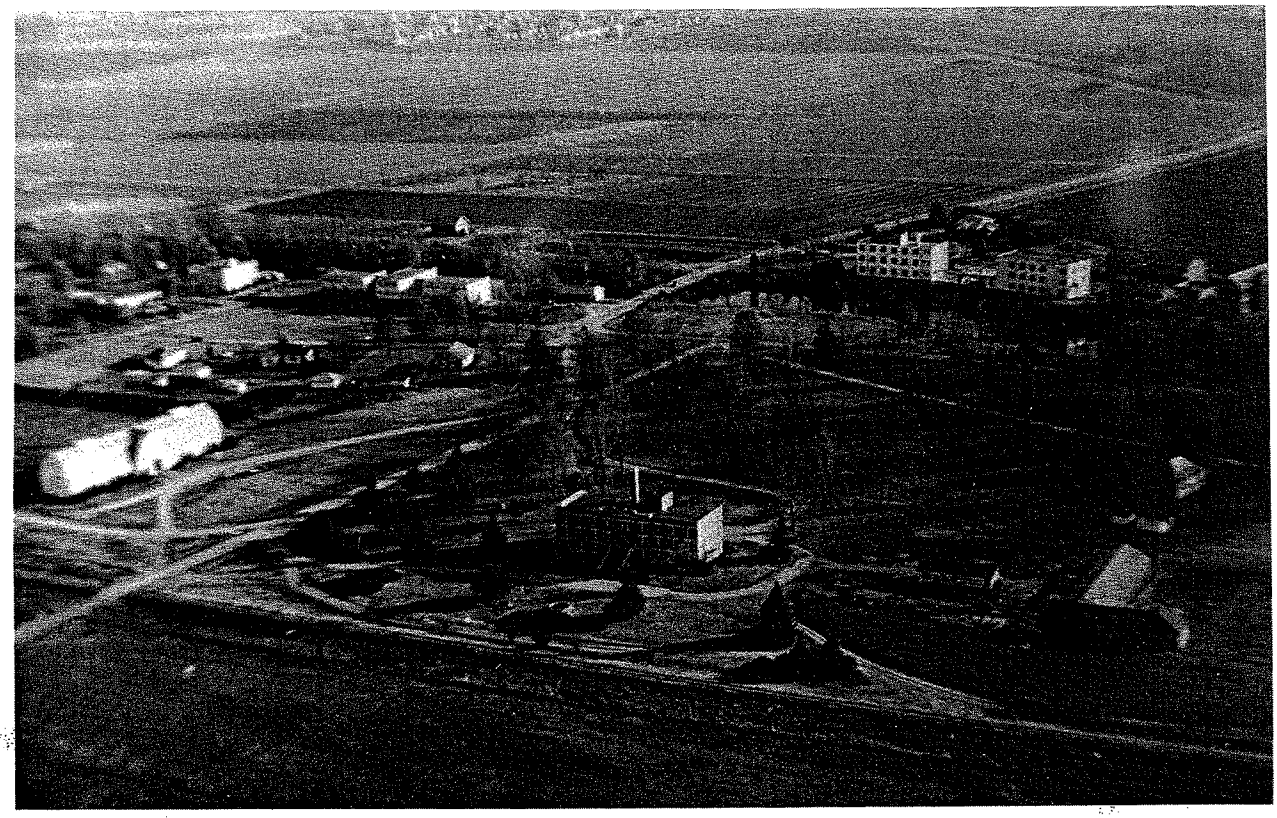
Mechanization research was expanded. The flame cultivator was improved. In 1947, the cost of using the flame cultivator was one dollar per acre per cultivation. Research had shown an advantage to flat, shallow cultivation. A method was developed whereby the cultivators were set on a line diagram drawn on the shop floor. This method reduced adjustment time in the field and also increased the accuracy of the settings. A report in 1947 summarized the work as follows: "The method for setting cultivator shovels received its second year's test and has been one of the outstanding developments of immediate benefit to farmers. When set flat, the sweeps wear down at the original angle, are self-sharpening and require little field adjustment. Depth of cultivation is determined by setting the cultivator gauge wheels." Mechanization research also developed fenders for tractor wheels for use in large cotton plants. The fenders prevented much of the plant damage that would occur without their use. Blueprints were made available to farmers. Research was also started on the development of methods to apply weed control chemicals both pre- and postemergence.

The cotton improvement program was expanded to include physiological and cytogenetics research. The genetics garden now contained 250 genetic stocks and new introductions. Work continued to determine the relationship between the degree of hairiness of the cotton leaf (glabrous condition) and the grade of machine-picked cotton. Members of the Bureau of Entomology had selected a glabrous cotton in 1944 for aphid resistance. It was further tested in cooperation with the Station cotton breeders and given the name Delta Smooth Leaf. Limited seed supplies were released to cotton breeders for parental material since it was not suitable in itself as a commercial cotton variety.

The pasture and forage research program was reactivated in the fall of 1946. Experiments were conducted on fertilization, renovation, grass varieties, grass-legume mixtures, beef cattle grazing, and management. Sudangrass and sorghum varieties were evaluated as forage crops. A breeding program was started with orchardgrass and tall fescue.

The newly initiated chemical weed control program included the part-time efforts of a number of research workers. Some of the first work included dock and vetch control in cereal fields and on drainage ditches with phenoxy compounds. Experiments with the use of preemergence herbicides with cotton, corn, and soybeans were initiated in the spring of 1947. Research was also conducted with the use of oils, fortified oils, and emulsions.

The rapid progress made in mechanization of cot-



Aerial view of headquarters, Delta Station, 1948. Shown in upper left is the genetics building and at its right the cotton gin and storage; upper right, U.S. Ginning Laboratory complex; lower left, mule and hay barn; center, office building; and lower right, the first greenhouse with headhouse.

ton and other crop production in the Delta created many new problems in management. The Economics Department initiated management and cost studies. The goal was to provide cost and return evaluations of new production techniques and an appraisal of their effect on farm organization, operation, and income.

The corn and small grain breeding and production program continued to expand. Seed of the new corn hybrid, Miss. 7106, developed at the Station was produced in 1948 for sale to Delta farmers. The expansion of the oat breeding program reflected an increased interest in oat production by Delta farmers.

Fertilizer studies were redesigned in 1946 to include higher rates of nitrogen. Also, ammonium nitrate had become available as a source of nitrogen. The highest corn yields followed the use of 90 to 100 pounds of nitrogen per acre with plant populations of 13,000 per acre. Sixty pounds of nitrogen per acre for cotton resulted in significant yield increases over the commonly used rate of 30 pounds per acre. The use of 40 pounds of nitrogen per acre in the form of ammonium nitrate was found to produce cotton yields equal to the best yields obtained following winter legumes.

The development of anhydrous ammonia gave promise of a new, relatively cheap source of nitrogen. In 1947, Delta farmers were desperately short of nitrogenous fertilizers and turned to the Station for a possible solution. Research workers at the Delta Station and at the Central Station at Mississippi State had been experimenting with anhydrous ammonia as a source of nitrogen since 1943. Suitable equipment for applying anhydrous ammonia was first available at the Delta Station in 1948-49. This information was transmitted to the farmers through group meetings and resulted in more than 100,000 acres being fertilized that otherwise could not have been. The estimated increase in gross returns to the Delta farmers for that year alone was more than $4,500,000.

Within 2 years, the use of anhydrous ammonia had spread to one million acres in Mississippi. In 1949, the cost of nitrogen supplied by anhydrous ammonia was 10.2 cents per pound as compared to 12.9 cents per pound for that supplied by ammonium nitrate. Research with anhydrous ammonia at the Delta Station over the following years was to continue to prove highly beneficial to the agriculture of the Delta, the

state, and the nation. The development of successful techniques for the use of anhydrous ammonia as a source of nitrogen led to the remark made in the 1960's that the benefits of this research alone more than offset the entire cost of the Delta Station up to that time. It has been estimated that total net savings from the use of anhydrous ammonia amounted to more than $20 million in the Mississippi Delta alone during the first 10-year period of its use.

Horticultural research continued with studies on vegetables and tree fruits. The release of Miss. No. 2, named Dixilee in 1949, was a result of a cowpea breeding program begun in 1944. The tomato breeding program produced a well adapted tomato variety, Miss. 751.

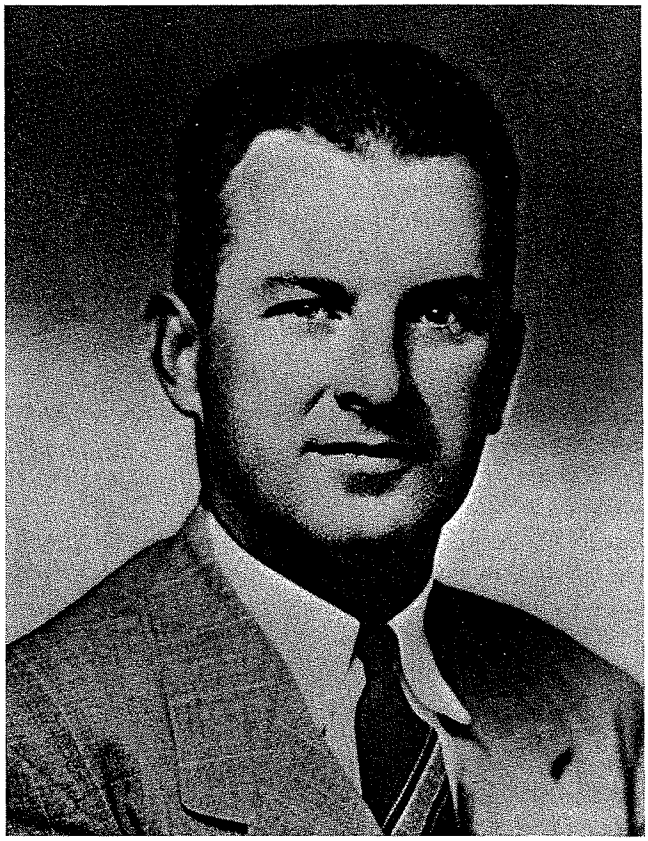
The Forestry Department began a pilot experiment in forest management of a commercial stand of timber on 1,200 acres near Vance, Mississippi. One objective of the experiment was to devise management practices for restoring depleted timber lands. Research continued on cottonwood regeneration. A one-acre cottonwood nursery produced 30,000, 20-inch cuttings the first year after establishment and 100,000 cuttings the second year.

Mr. Sayre was interested in the development of a close-knit, satisfied staff. He encouraged social activities among staff members. A concrete tennis court was constructed and a Stoneville softball team organized. There were no fixed working hours for staff scientists. Instead they were asked to get the "job" done without regard to hours per day. As a consequence, a nice spring afternoon might find some of the scientists on the lake trying their luck with a fishing rod.

During Mr. Sayre's tenure, and for a couple of years thereafter, the Station was practically free of houseflies and mosquitoes. The insecticide DDT had been developed during World War II and appeared to be the solution to these pests. As a part of a county-wide control program, all garages, chicken houses, barns, and sheds on the Station were regularly sprayed. However, the housefly quickly developed resistance to DDT and the spraying was stopped.

Mr. Sayre resigned effective July 31, 1948, to return to Harvard to complete his Ph.D. degree. He then joined Delta Council as Executive Director for a special assignment. Subsequently, he worked with the Cotton Division in Washington, D.C., and later served as President of Delta and Pine Land Company, Scott, Mississippi. He left D & PL to become President of Staple Cotton Cooperative Association in Greenwood, Mississippi.

D. Gray Miley
1948 - 1951



D. Gray Miley

D. Gray Miley became Superintendent effective August 1, 1948. Prior to assuming his duties as Superintendent, Dr. Miley had been Head of the Department of Agricultural Economics of the Mississippi Agricultural Experiment Station at Starkville. It was hoped that his appointment would increase the cooperation between the Delta Station and the Central Station.

The increase in staff and the initiation of new lines of research in response to the needs of a changing agriculture following World War II led to a shortage of office and laboratory space. Recognizing this fact, the 1948 Mississippi State Legislature appropriated $165,000 for alteration of, and additions to, the office building. Additional money was also made available for a new dwelling for the Station Superintendent. These buildings were started in early 1949. The addition to the office building was the same size as the old building and doubled the office and laboratory space. The new addition contained a much-needed auditorium, providing a place for groups to meet during the winter as well as a place for summer meetings in adverse weather.

Since its inception, the Delta Branch Experiment Station had provided technical know-now for Delta farmers. The information had been obtained, for the most part, from research conducted on sandy loam soils. Very little information was available from the fine-textured clay soils, which make up approximately 60 percent of the Delta. Agricultural leaders had recognized that research information was badly needed for optimum management and returns from these soils. However, the Delta Station contained only a few acres of clay soils. In 1949, the Delta Council appointed a special committee to appraise the Station's need for additional land and to formulate plans to make this land available. As a result of the ensuing study, the Delta Research Foundation was formed in 1950, under the auspices of the Delta Council. In 1951, the Foundation purchased 466.75 acres of land adjacent to the north boundary of the original Station property for $66,663.53. Approximately 25 percent of the acreage was sandy and silt loam soil and the remainder was clay and silty clay soil. The property was deeded to the Delta Branch Experiment Station on a lease-purchase arrangement. Proceeds from the sale of crops were used to make annual payments until the original purchase price was repaid in 1962. This land had not been farmed for several years and was heavily infested with many weed species. Several abandoned houses were located along Deer Creek. Work was begun immediately to prepare the land for field experiments. The acquisition of this property enabled the Station to greatly expand its research efforts, especially those related to clay soils.

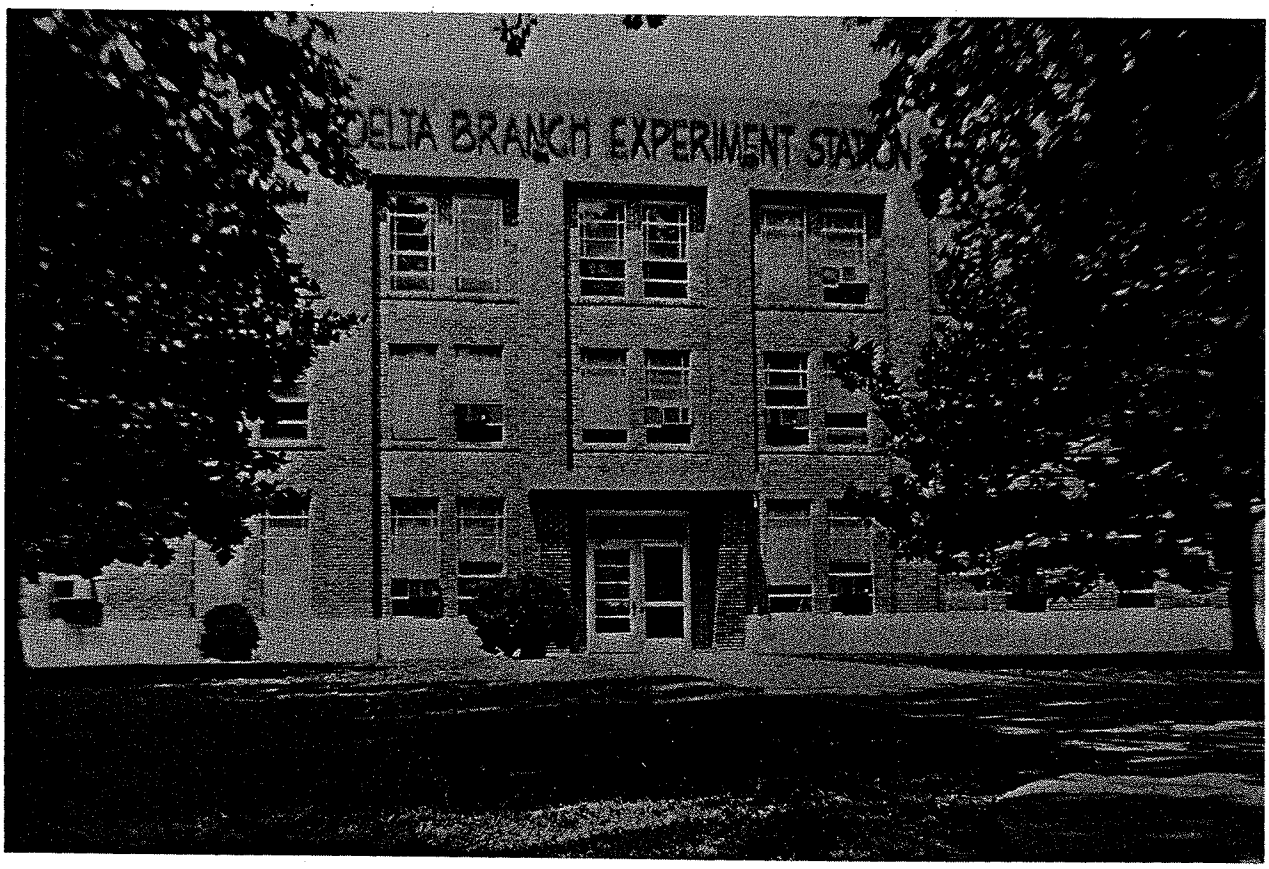
The agricultural revolution which started after World War II continued to gain momentum. Farm population declined drastically with the migration of farm workers to northern industrial cities. The long rows of tenant cabins, once a characteristic of Delta plantations, were rapidly disappearing, as were the large mule and hay barns. The mule population on Mississippi farms declined from an estimated 460,000 in 1945 to 254,000 in 1951, a decrease of approximately 45 percent. The shift from hand and mule labor required fleets of tractors and machines. The shift from simple cotton farming to vastly more complex systems called for greater technical knowledge,

a high degree of management, and greater mechanical skills. As it had since its inception in 1904, the Delta Branch Experiment Station would provide the technical know-how for the new agriculture.

The Mechanization Department, in cooperation with other departments and with industry, continued its work to develop new machines and improve the performance of existing equipment. One of the more significant developments was the development of a cultivator spray rig that enabled the operator to apply liquid insecticides and cultivate at the same time. The machine used one, two, or three nozzles depending upon the size of the plant. A duster-sprayer was developed which would permit the application of either dusts or low rates of liquid insecticides. Equipment was developed which permitted the application of preemergence herbicides in conjunction with the planting operation. Improvements were made on power driven stalk cutters and shredders, flame cultivators, and in anhydrous ammonia applicators. A rear wheel fender was developed for cotton pickers.

The costs connected with mules and hand labor were familiar, but the costs of mechanized farming were unknown. Studies in 1947 indicated that it cost $39 to harvest a bale of cotton by mechanical picker. This would be the equivalent of hand-picked cotton at $2.65 per 100 pounds of seed cotton. Partial mechanization required 106 hours of man labor per bale of cotton as compared to only 20 hours of labor per bale under full mechanization. Studies showed that a medium tractor could replace six mules, and a large tractor (at that time) at least ten mules. The cost of operating a medium tractor amounted to $6.87 per 10-hour day and a large tractor $7.04. The cost of one mule was $1.82 per 10-hour day. On small farms of 30 acres, two mules were cheaper than one medium tractor if labor was not charged to cost of production. But on farms of 60 or more acres of crop land, tractors were cheaper than mules regardless of how labor was handled. The Station warned, however, that these findings did not mean that unqualified recommendations could be made that tractors replace mules on these farms.

In 1949, entomologists initiated a new approach to the control of cotton insects, starting the control program at the time of the first cultivation. Their research showed that by starting the control program early, the total number of insecticide applications required during the season was reduced. Research con-



Main entrance to offices and laboratories after new addition was added in 1949. The entrance faces east.

tinued with the new organic insecticides such as aldrin, dieldrin, toxaphene, heptachlor, chlordane, and gamma BHC. All were very effective against the boll weevil and sucking insects. Insecticides applied as sprays or dusts were equally effective if applied properly. However, sprays could be applied throughout the day, whereas dusts could be applied only under favorable conditions, usually early in the morning or late in the afternoon.

The new field of chemical weed control continued to expand. While a major portion of the research was with cotton, experiments were also conducted with corn, soybeans, vegetables, and small grains. Considerable work was done with the use of nonphytotoxic oils. Equipment was developed for applying these oils.

At one time, the Delta grew more than 100 varieties of cotton. But by 1951, almost all of the acreage was planted to seven varieties: Bobshaw, Coker 100 strains, Deltapine 15, DPL Fox, Delfos strains, Empire, and Stoneville 2B. Cotton research expanded in 1948 to include fundamental studies in cotton genetics and cytogenetics. The objective was to study all species in order to discover useful properties or characteristics and learn how to transfer these into productive types of Upland cotton. To help understand how the cotton plant was affected by the environment in which it was growing, a cotton physiology project was initiated. The first work dealt with growth regulators.

The soybean project also expanded in 1948. A comprehensive breeding program was initiated to develop varieties better adapted to the Delta and the South. Contrary to earlier recommendations, new date-of-planting studies with current varieties showed conclusively that soybeans should not be planted until after May 1 in the Delta.

Farmers were still searching for the most profitable use of their land. Large areas were being shifted from row crops to pasture and livestock production. Most of the land being taken out of row crops was the heavy clay soils which were difficult to handle in a row crop enterprise. On the other hand, they were well adapted to pasture production. Pasture research at the Delta Station was expanded to determine the most productive pasture components and cultural methods. A combination of fescue grass and Ladino clover was recommended. Good summer pastures were found to be bermudagrass, white clover, and a combination of dallisgrass and lespedeza.

A grain crop new to the Mississippi Delta made its appearance in 1948, when Rex Kimbriel planted 300 acres of rice on heavy clay soil just north of Greenville. The harvested yield was approximately 2,700 pounds per acre. Rice acreage expanded rapidly and by 1951, 26,000 acres of rice were harvested with a value of $3,058,000. Since there were no facilities for growing rice at the Delta Station, a variety test was grown in 1950 on a neighboring farm.

The new property purchased by the Station in 1951 contained heavy soils suited to rice production. The first rice grown on the Delta Station consisted of a variety test including 25 varieties and 20 acres of the variety Zenith for seed production. Even though breeders' seed had been purchased, it was discovered upon maturity that the field contained a small percentage of red rice plants, a very serious weed pest, and the seed could not be sold as Foundation seed. The next several years were spent eradicating the red rice from this particular field. No research personnel at the Station had knowledge of rice culture and no funds were available to employ anyone trained in rice research. The responsibility for growing rice was divided between three projects: mechanization, weed control, and corn and small grains—an arrangement which did not prove too successful.

In 1951, the access road to the office building and the parking area was paved. While this did not have a direct bearing on research, it did much to improve the morale of the employees working in the office. It was now possible to enter the office without wading through frequently ankle deep mud during the rainy winter months.

Until 1950, the Station obtained its water from an artesian well located in front of the U.S. Ginning Laboratory. The water system was also tied into an artesian well belonging to the Stoneville Pedigreed Seed Company located on the south bank of Deer Creek between the Stoneville bridge and the C & G railroad tracks. An ever-increasing demand for water made this system wholly inadequate. The Station was granted sufficient funds in 1950 to improve the water supply. A 500-gallon storage tank connected to the U.S. Ginning Laboratory well was located on the south bank of Deer Creek near the bridge leading to Leland. The system was disconnected from the Stoneville Pedigreed Seed Company well. Water from the storage tank fed into a smaller 300-gallon pressure tank, then entered the distribution system at 30 pounds pressure. While this system alleviated the immediate problems, it was soon outgrown. During peak periods of use, water pressure was very low. However, it would be several years before a satisfactory water system was installed. In the meantime, the use of water for yards and gardens in the summer was discouraged.

Just as the old methods of farming were making way for the new, so too were old practices affecting staff members. Early in the history of the Station, each staff member was allowed to have one cow and keep it in a Station pasture. This procedure was changed in 1937, when Mr. McNamara became

Superintendent. Privately owned cows were disposed of and in their place, the Station maintained a small herd of dairy cows for grazing experiments. The milk produced was allotted on the basis of one gallon per day per family. The original barn housing the milk house was located on the bank of Deer Creek immediately in front of the Station office. When it was destroyed by fire in 1939, a new brick barn and milk house was built adjacent to pastures in what is now Field 6. Raw milk was bottled and delivered on the Station in a small two-wheeled cart drawn by a single mule.

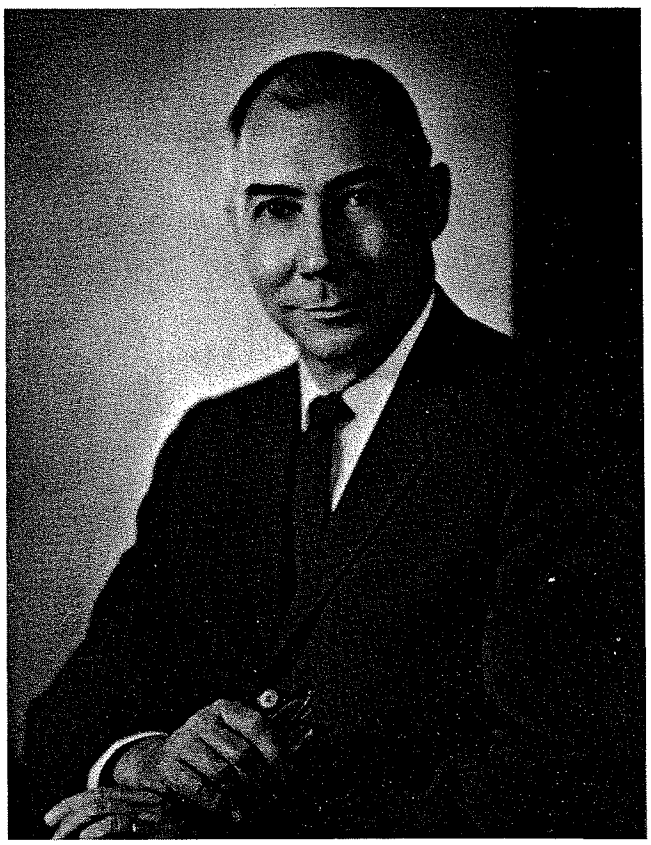
A few years after the dairy was started, the milk allotment was changed to one quart per day of raw milk for each member of the family at a cost of 6 cents per quart. Milk for staff members living in town was delivered to the office building. The dairy herd was eliminated in 1949 and replaced by beef animals. The disposal of the dairy herd eliminated an increasing number of associated problems for the administration.

Another change in policy directly affected personnel living on the Station. Prior to 1949, rents for staff members had been very low, while some of the supporting personnel paid no rent. This practice compensated somewhat for a salary scale lower than that which existed in many other states. In a move to equalize rents throughout the entire state experiment station system, the square footage of each house was determined and the rent based on this. This resulted in an increase in rent of 100 percent for staff members. Supporting personnel paid $10 a month.

Even with the increase, rents were below those in town for comparable housing. In addition to being a pleasant place to live with low rent, most house sites included a chicken house and garden plot. Yards were mowed and trash collected by the Station without charge. There was no charge for water, and natural gas was available at the wholesale rate. Housing on the Station was much in demand by staff members. A vacancy often resulted in a series of moves as staff members vied for the right to move into a house more to their liking.

Dr. Miley resigned effective December 31, 1951, to become Director and Manager of the Pantherburn Company, a large plantation in Sharkey County south of Hollandale, Mississippi.

William L. Giles
1952 - 1961



William L. Giles

Dr. William L. Giles was appointed Superintendent effective January 15, 1952. He came to the Station from Mississippi State University where he had been on the staff of the Agronomy Department.

Profound changes had occurred in Delta agriculture since the Delta Branch Experiment Station was established in 1904. Each step in cotton production from planting to ginning had been revolutionized. Revolutions had also taken place in the production of other Delta crops. Machines replaced men and animals. Efficiency became the modern farmer's watchword and more production per man was the goal. Labor requirements had been drastically reduced. In the mid-1950's, it was estimated that the number of man hours required to produce a bale of cotton had been lowered from 260 to 110. Someone at that time calculated that in the Delta there would be a savings in man hours equivalent to 145,000 people working 52 forty-hour weeks. Thus, the agricultural revolution also brought about significant changes in the social pattern of life as the unneeded farm workers moved to the cities and towns.

Research methods had also changed during the half century. As funds and facilities became available, the Station staff was expanded to search for solutions to the new problems. During this period, the major lines of research increased from 13 to 19. The number of state and federal professional research workers increased to more than 80. But as in past years, there were never sufficient funds to meet the demands. Salary raises for the staff were modest and infrequent. Pay for supporting personnel was generally lower than that for comparable work in the community. Extra summer labor was provided by boys of high school age or younger. The hourly pay rate varied from 25 to 60 cents per hour, depending on age and experience.

Prior to the 1950's, there was no retirement program for Station employees. In 1953, the state instituted a two-part retirement program: state supported combined with Social Security. Initially, in the State retirement program, the employee contributed 4 percent and the employer 2.5 percent on maximum earnings of $6,000. Following several increases in the intervening years, the rate of contributions by the employee increased to 6.0 percent and by the employer to 8.75 percent on maximum earnings of $63,000 in 1984. State funds were also contributed to group medical and life insurance plans.

The Station shop had become entirely too small to service the farm equipment as well as to provide a place for engineering research. An addition doubling the floor space was constructed in 1951.

A grant of $25,000 from the State Building Commission in 1955 enabled the Station to build a modern seed processing plant capable of processing corn, soybeans, and small grains. The old shed on the north bank of Deer Creek by the Gin Building which had been used for processing seed was removed. Funds became available in 1958 to construct an entomology laboratory and an insectary. A livestock feeding shed was constructed in 1959. An agricultural engineering laboratory for the federal agricultural engineers was constructed with federal funds in 1960, and a laboratory annex was added in 1961. Before this, the Federal engineers had worked in the state shop. A second greenhouse was constructed in 1956. A steam boiler capable of heating both the old and new greenhouse was also installed at this time, replacing

the natural gas heaters which were not very satisfactory.

In 1952, two parcels of land comprising 2.41 and 5.33 acres were deeded from the U.S. Cotton Field Station to the Leland Consolidated School District. An additional 20.6 acres were deeded to the school district in 1960. In order to straighten the property line, the Leland Consolidated School District purchased 0.23 acre in 1962 from James and Amelia Scruggs and secured the necessary state legislation to convey this land to the United States of America (U.S. Cotton Field Station). The arrangements transferring the several parcels of land included an agreement that the school district would construct a cyclone type fence on the property line. In 1952, 40 acres of forest land adjacent to the existing forest were purchased, increasing the size of the forest to 2,620 acres. Land in cultivation and building sites totaled 1,230 acres.

Drainage and excess water had been a continuing major concern since the inception of the Station in 1904. Research before 1920 had shown that tile drains did not solve the problem. During the early 1930's, under the administration of Mr. Ayres, the idea of producing crops on raised lands was studied. Much of the original Station farm was divided into 120 or 240-foot sections with slopes from the center to the edge. Lands were constructed with mule-drawn plows and scrapers. This method of land forming required a great deal of time and effort. Crops grew well on the ridges, but usually suffered from excess water in the depressions between the lands. The relatively narrow sections were not suited for mechanized farming.

The demise of the mule and the advent of the rubber tire tractor and larger equipment emphasized the importance of good surface drainage. One of the major benefits of mechanization was the timeliness of field operations. This benefit was negated by fields with poor surface drainage which kept machines out of fields following rain. The desirability of land forming was obvious, but there were many questions as to size of cuts and fills and effects on following crops. Research Station workers in 1956 to 1958, in fields throughout the Delta, showed that no ill effects would be expected if land forming was done properly. Land forming became a standard practice in the Delta. Approximately 60 percent of the cultivatable Station property had been formed by 1960. Rainfall totaling 73.5 inches in 1957, with 24 inches coming in April, May, and June, proved the benefits of land forming.

The rapid move toward complete mechanization brought forth many new questions. The revolutionary changes in agriculture demanded greater precision and more careful planning. Investment per acre and per worker steadily increased. As it had since its inception in 1904, the Delta Station geared its fundamental and applied research to find the answers to these questions and to anticipate new problems.

Every phase of cotton production was studied. The Station maintained a collection of Upland cotton varieties, strains, and genetic marker stocks as part of its responsibility under the Regional S-1 Cotton Improvement Project. Cotton breeders and geneticists throughout the United States could request seed from this germplasm bank. Sixteen of the 20 known cotton species were maintained. Cytogeneticists studied the wild and cultivated types of cotton from throughout the world and evaluated them for desirable characteristics. During this decade of research, many desirable characteristics were found, including resistance to Fusarium wilt and root-knot nematode, smooth leaf/smooth bract, deciduous bract, nectariless bolls and leaves, high lint percentage, and lint strength. The development of the highly uniform Stoneville double haploid was a very important tool for transferring these characters into Upland cotton.

Cotton variety tests conducted for 6 years at different locations throughout the Delta showed there was no consistent difference in "pickability" or "cleanability" among the standard varieties. However, new strains with the smooth leaf character resulted in better grades because of less trash.

Continuing plant population studies showed there was no yield difference in hill-dropped cotton with plant populations of 20,000 to 50,000 plants per acre or 1½ to 4 stalks per foot of row. Likewise, there was no difference in gin turnout or staple length.

The newly established Cotton Physiology Department conducted experiments with cotton defoliants to determine the best methods and timing of application, and the most effective materials. Studies were initiated on effect of environmental factors on fruiting habit and on the relationship of naturally occurring plant growth hormones to boll development. The interaction of nitrogen level and plant populations on bloom and boll formation were investigated.

Severe drought conditions during the growing seasons in 1952 to 1954 led to two new lines of investigation: deep tillage or subsoiling, and supplemental irrigation. Deep tillage experiments compared depth, spacing, frequency, and implements. Results of the deep tillage experiments have meant millions of dollars in increased crop yields. Irrigation studies were severely limited at first by lack of equipment and sources of water. Initially, irrigation was confined to fields bordering Deer Creek which proved to be a very unreliable source of water during extended dry periods. Eventually, numerous wells were strategically located over the Station property so that most of the row crop land could be irrigated, if needed, from wells. Experiments were conducted with many crops on irrigation timing, amount,

economics, and interrelationships with soil, fertilizers, herbicides, insects, and diseases.

During the mid-1950's, restrictions on planted acreage, particularly cotton in the Delta, became a fact of life. This led to skip-row planting—a practice aimed at increasing the yield of the harvested acre as compared to that of a solid planted acre. The most common planting patterns were four rows planted and four rows skipped or fallowed or two rows planted and two skipped, although numerous other patterns evolved. Studies were started in 1956 to determine yield advantages and interrelationships with other cultural practices and to determine what, if any, changes were needed in standard cultural practices.

The objective of the Mechanization Department was to mechanize every step in cotton production from seedbed preparation to harvesting in order for the farmer to produce a high quality product with the least possible hand labor and lowest possible cost. The research program attacked a wide range of problems from seedbed preparation, cultivation, application of herbicides, insecticides, and defoliants, to more efficient machine harvest. Research engineers cooperated closely with machinery manufacturers to bring about many improvements in a wide range of farm machinery. One such development by the Station engineers was the Stoneville blade for conditioning the top of the seedbed at planting. It was used in conjunction with a rear-mounted planter, thus eliminating one preplant operation. With a slight modification, this tool could also be used to accurately apply subsurface herbicides in the same operation. This simple tool was a major advance in crop mechanization. The introduction of a double-disk planter-opener as opposed to the conventional sword-type opener was of special significance in conserving moisture and obtaining a stand of seedlings in "buckshot" and trashy soils.

In order to keep up with changing agricultural practices, fertility research is a continuing process. During this period, studies were conducted on sources, rates, and application as related to seedbed preparation, plant population, insect and weed control, crops, soils, and irrigation. For many years, winter legumes were used as a primary source of nitrogen. This practice was discontinued during the 1950's. Detailed studies from plots maintained for 30 years showed that the only value of the legumes was from the nitrogen they supplied. An excellent crop of winter legumes was found to supply the equivalent of 60 pounds of commercial nitrogen. Problems associated with the production of legumes and seedbed preparation for the subsequent crop made the use of commercial fertilizers more economical. Nitrogen loss was also investigated. Studies conducted in 1958 and 1959 showed that as much as 100 pounds per acre of nitrogen could be lost from waterlogged heavy clay soils in a period of 20 days with high temperatures.

Soybeans became an important crop for the Delta during this period. They were shown to be well adapted to the heavy clay Delta soils. Many acres of low, heavy land were cleared of scrub timber and put into soybean production. Again, research at the Delta Station provided the answers on planting dates, seeding rates, seedbed preparation, and other cultural practices. The intensified breeding program begun in 1948 produced five new adapted varieties: Dorman, Hill, Hood, Lee, and Jackson. All were superior to formerly grown varieties in yielding ability, seed quality, disease tolerance, and seed holding capacity. The development of these adapted varieties, particularly the variety Lee, was largely responsible for the rapid increase in soybean production, not only in the Delta, but throughout the South.

Weed control research at the Delta Station was expanded considerably during this period on all crops being grown in the area. Weed control was the last, most expensive, and most complex step to be solved in reaching full mechanization. Some practical methods of reducing costly hand labor, especially in cotton, were necessary. The addition of a greenhouse and laboratory, together with funds for additional staff, facilitated the research. Basic research was initiated to learn more about the growth, development, and dissemination of some perennial weeds such as johnsongrass, nutgrass, and redvine in order to find a point in their life cycle at which they could be successfully attacked. A program was developed to study the disappearance and accumulation of herbicides in the soil. Economic evaluations of weed control practices were made. Many of the studies were cooperative efforts involving the Departments of Weed Control, Mechanization, Farm Management, and the department of the particular crop under study.

The flame cultivator and non-phytotoxic herbicidal oils were widely used in the 1950's in cotton production. In 1955, the best weed control program available at that time was found to reduce the required hoe labor in cotton to fewer than 10 hours per acre as compared to the normal 24 hours.

As the whole field of chemical weed control developed, much effort was expended in screening new chemicals both in the greenhouse and in the field; in determining times, rates, and methods of application; developing new equipment for application; and investigating the interaction of plant and chemical.

Abundant land and an environment favorable to plant growth indicated a potential for livestock production. The Pasture and Forage Department conducted many experiments relative to developing a year-round grazing program including permanent and temporary pastures. Many forage plants were

studied in pure stands and in mixtures. Cultural methods and pasture management practices were developed. Evaluation of forage crops included grazing and feeding trials with beef cattle.

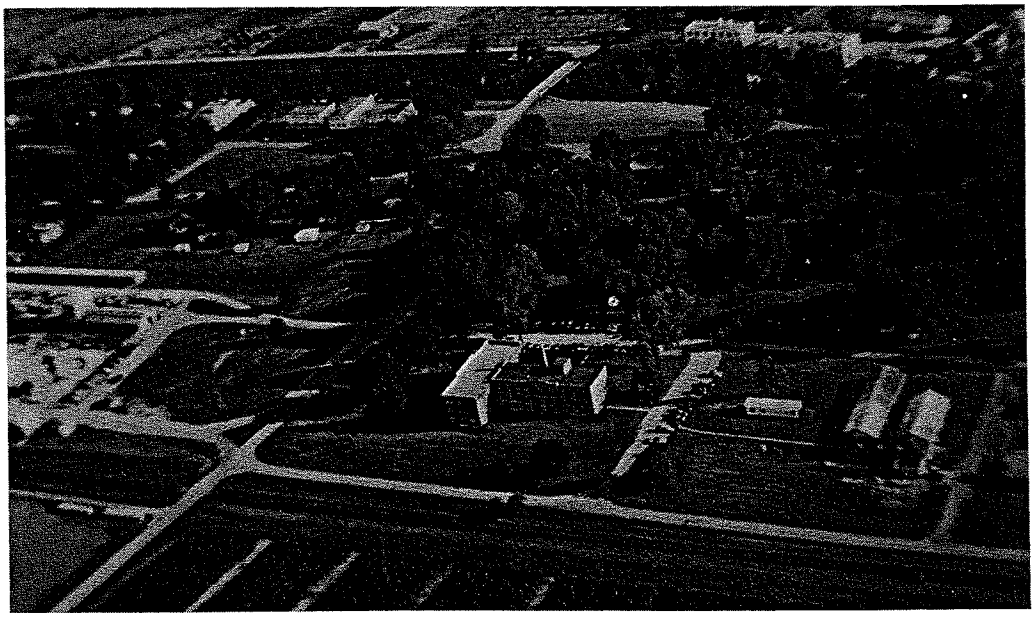
The forage crop disease scientist conducted numerous experiments comparing seed treatment chemicals. Many kinds of legumes were evaluated for adaptability and disease resistance under Delta conditions. Breeding programs were conducted in order to develop disease resistant ryegrass, fescue, and alfalfa. Lamont, a smut resistant variety of fescue, was released in 1957.

Livestock feeding experiments were expanded in 1952, with the addition of an animal husbandman to the staff. In the early work, feeding trials were conducted as an adjunct to the pasture program, utilizing pastures as much as possible and finishing to grade with a minimum of supplementary feeding. In later studies, animals were fed to grade in the feedlot. Numerous rations were studied with the purpose of developing a satisfactory ration which utilized crops produced in the Delta. Much work was done with rations using gin trash as part of the roughage and with oats and sorghum as replacements for corn. The use of stilbestrol, either as ear implants or mixed in the feed, was found to increase daily gains and feed efficiency. Feeding trials with feeder lambs and pigs were conducted briefly from 1956 to 1958.

The increase in livestock production brought other problems. As might be expected in the Delta climate, insects and diseases spread by insects became a serious problem. Anaplasmosis caused serious economic losses in cattle in the mid-1950's. In 1956, a livestock entomologist joined the Delta Station staff. Research was started on the biology of horseflies and deerflies, the primary transmitters of anaplasmosis. Numerous insecticides and control programs for the control of these flies were studied. Measures for the control of horn flies, stable flies, blowflies, house flies, and lice were investigated.

The use of hybrid corn spread rapidly during the late 1930's and the 1940's in the corn belt. However, the corn belt hybrids were not adapted to the southern United States. The failure of these hybrids to perform in the South actually slowed down the acceptance of corn hybrids in this area. None of the large commercial seed corn companies had yet established breeding programs in the South, so it remained for the scientists at the various experiment stations to develop hybrids using southern corn germplasm. Such hybrids with regional adaptation were designated as Dixie hybrids. The first such hybrid was Dixie 11. Hybrids without regional adaptation were given state designations.

The Delta Station had a large corn breeding program during the 1950's. This program produced Miss. 7106 and cooperated in the development of Dixie 55. It also introduced the Texas male sterile cytoplasm into the Mississippi corn program. The first corn inbred in the South which carried the genes to restore fertility was found at the Delta Station. The production of seed of the Station and/or Dixie corn hybrids depended upon local seed producers and farmers. There were no seed processing plants at this time in Mississippi, so the Delta Station undertook the task of processing the hybrid seed for the farmers. In order to reduce interference with regular research work, much of the corn processing was done after regular working hours, from 6 to 10 p.m. Farmers were charged a fee of $1 per bushel for processing their



Aerial view of Delta Station headquarters, 1958.

seed. This work was phased out toward the end of the decade as commercial seed corn companies developed corn breeding programs in the South and as the corn acreage in the state declined.

The oat breeding program expanded during this decade with the addition of a full-time oat scientist to the staff in 1954. The early variety Delair, officially released in 1952, was widely planted throughout the Delta for several years. The frequent occurrence of new physiologic races kept oat breeders in the South working overtime to develop new varieties resistant to the new races of crown rust. Toward the end of the decade, barley yellow dwarf or red leaf disease appeared in the Delta and became a serious threat to oat production.

Wheat production was stimulated in the Delta in the early 1950's by the introduction of the new variety Chancellor, which was resistant to leaf rust races present at that time. As the physiologic races of leaf rust changed, other new wheat varieties resistant to the new races were introduced.

Rice production in the Delta increased rapidly from 300 acres in 1948 to 77,000 acres in 1954. Acreage controls imposed in 1955 by the federal government reduced the acreage to 52,000. For the next 15 years, the rice acreage fluctuated between 31,000 and 67,000 acres. Rice research at the Station continued to be an orphan with responsibility divided between several projects. In 1958, the State Legislature appropriated $30,000 to establish a rice project. A full-time scientist joined the staff on July 1, and initiated a research program encompassing varieties, weed control, fertilizers, water management, and pure seed production.

Acreage restrictions, especially in cotton, led to a search for new crops which could increase the overall farm income. Popcorn production was tried for a few years in the northern Delta. The Station conducted variety and fertilizer experiments. While production was relatively good, the Delta was too far from the center of the popcorn industry to be competitive. Grain sorghum as a cash grain crop was tried briefly for a few years. The Delta Station conducted variety and fertilizer experiments. The available varieties had been developed in Texas, Oklahoma, and Kansas and were not adapted to the Delta environment. Many problems were caused by diseases, insects, birds, and marketing.

In 1956, the U.S. Department of Agriculture placed a scientist at the Delta Station to study the production of castor beans, sesame, and miscellaneous oil-bearing crops. Plant breeding projects with castor beans and sesame were initiated in 1957 to develop varieties resistant to disease and better adapted to mechanical harvesting. Cultural studies were conducted with both crops.

During this decade, the Horticulture Department conducted research on many vegetables and fruits. Experiments were conducted on varieties, fertilizers, weed control, planting methods, and disease and insect control. In addition to yield and quality, all phases of production were studied. Excellent crops of both vegetables and fruits attracted much attention. The results of this research were applicable both to the home and market garden and to large acreage commercial production. It was established that both vegetables and fruits could be produced successfully in the Delta and commercial production awaited only the establishment of processing plants and fresh markets. Commercial production of spinach, snap beans, and sweet potatoes was tried briefly and although production was good, marketing facilities were not available. A relatively modest commercial cucumber production proved successful when marketing facilities were established. A large peach orchard was started in 1954. Results from this research led to the establishment of several commercial orchards in the surrounding area. These orchards were successful for several years, but finally succumbed to labor shortages and the lack of established markets.

The Entomology Department continued field testing chlorinated hydrocarbon insecticides, comparing effectiveness of dust versus spray application, and refining application equipment. The development and widespread use of the chlorinated hydrocarbons made farmers and research workers feel that cotton insect problems were or soon would be solved. The rude awakening came when cotton insects developed resistance to the insecticides. Work then shifted to field testing of new phosphate insecticides. Several of these were found to effectively control cotton insects.

Funds for a new laboratory, greenhouse, and insectary in 1958 made it possible to revise the cotton insect research program. More emphasis could now be placed on basic research. A re-examination of insect life histories was undertaken. The plant-insect relationship was evaluated to determine the influence of one organism on the other. Experiments were designed to determine the influence of insecticides on the growth, fruiting, and chemical composition of cotton plants. One interesting result of the life history research showed that the life of the overwintered boll weevils on seedling cotton under Delta conditions was more than 30 days. This was in contrast to the 7 to 10 days which had been regarded as the normal life expectancy since the early 1900's.

From past experiences over many years, the Delta farmer pretty well knew the cost of feeding a mule and with that information and the cost of hand labor, he could closely estimate the cost of his cotton crop.

But the advent of mechanization, new technologies, and alternate farm enterprises left him without any basis upon which to evaluate his costs. The Economics Department began extensive management and cost studies. Many of the studies were in cooperation with other departments. The studies showed under what conditions and levels of management the new technologies would be advantageous.

Forest research was conducted by the U.S. Forest Service in cooperation with the Delta Station and the Southern Hardwood Forest Research Group. The awareness of the importance of timber and timber products was reflected by the increase in the number of forestry scientists in this decade—from four to ten. Research was conducted in the Station forest and with other state and federal agencies, industry, and individuals. Studies included plantings, management of natural forests, diseases, insects, soil and water relationships, and utilization. Forest research was facilitated greatly when, in March 1961, construction began on a $285,000 hardwood research building and greenhouse complex. The new building encompassed 18,000 square feet for offices and laboratories. Offices in the beautiful building were finished with wood paneling and flooring blocks of different species of southern hardwood, furnished by industry. The new research center conducted research applicable to the management of 45 million acres of southern river and stream bottomlands, swamps, and rich upland forest sites. The building was dedicated on April 28, 1962. Techniques developed at Stoneville set the stage for better hardwood management and the successful establishment of cottonwood plantations.

The erection of the Forestry Building, however, marked the end of another era. In order to prepare the building site, a large two-story frame house was razed. This house was the property of the U.S. Government and for years had been operated as a dormitory for single staff members and visiting scientists.

The new technologies in farming made the timeliness of many operations important. The success of these operations was often influenced by the weather. In October 1958, the National Weather Service (then the U.S. Weather Bureau), National Oceanic and Atmospheric Administration, U.S. Department of Commerce, established at the Delta Station the first pilot project to make weather information more useful to agriculture. The purpose of the project was twofold: through cooperation with research workers on the Station, to measure macro- and micro-climatic influences on crops and animals; and to furnish to farmers accurate weather forecasts as they might apply to agriculture. An agricultural meteorologist at the Delta Station, using teletype circuits to Weather Bureau offices in Memphis and Jackson, furnished timely localized forecasts to farmers through Delta radio stations, newspapers, and county agent offices. The more accurate forecasts of local showers resulted in large savings in the application of insecticides and defoliants.

In retrospect, the decade of the 1950's saw profound changes in the agriculture of the Delta. Mule and man were replaced by tractors, machines, and chemicals. The new technologies demanded high levels of management. The face of the Delta was literally changed. Many acres were land formed to a precise grade. There was much clearing of scrub timber and brush. New crops were carefully evaluated. The heavy clay soils became increasingly valuable with the development of new, adapted soybean varieties and the introduction of rice which grew well on these soils. Cotton was still king, but no longer was the well-being of Delta agriculture based entirely on one crop.

In keeping with the times, the last mule disappeared from the Station in the early 1950's. The large mule barn with its feed bins, hayloft, harness room, and watering troughs, which had once been the pride of the Station, was dismantled in 1955. By 1960, the swarms of cotton choppers in the spring and pickers in the fall no longer filled the Station fields.

Another change which took place during this period was that of working hours. When the Station was first established, the hours for field work were the same as existed on plantations—from "can to can't"—or from daylight to dark. These hours gradually lessened, until in 1950, the working hours during the crop season were from 6:30 a.m. until 5:30 p.m. 5 days a week and from 6:30 a.m. until 11:30 a.m. on Saturday, at which time the day laborers would be paid in cash. This schedule gradually changed until by the early 1960's, the working hours for everyone were from 8:00 a.m. until 5:00 p.m. during the week and 8:00 a.m. to noon on Saturday, with payment for laborers by check. Soon, the Saturday work was stopped.

During this decade, a certain esprit de corps existed among the Station staff. This feeling was enhanced by an annual picnic on the grounds, usually in October, for Station employees and their families. Occasionally a steer from the Station herd was barbecued for this event. Another pleasing event was the annual open house preceding the Christmas holidays at the Superintendent's home.

Many of the staff members during this period were avid sports fans. There were frequent "Monday morning quarterbacking" sessions following both high school and college football and basketball games. For several years, there was a Stoneville softball team entered in the city recreation league.

Dr. Giles resigned effective January 31, 1961, to become Vice President of Agriculture and Forestry at Mississippi State University. He was named President of the University in 1966.

Walter K. Porter
1961 - 1970

Walter K. Porter, Jr.

Walter K. Porter became Superintendent effective February 1, 1961. Dr. Porter returned to the Station from the Louisiana Agricultural Experiment Station (he had been a member of the Delta Station staff in 1949-1950).

Many changes were made in the general appearance of the Delta Station during Dr. Porter's administration. The land forming operation continued. Drainage ditches were reconstructed or cleaned out. Clearing brush and undesirable growth from the banks of Deer Creek had been started earlier but now was pushed to completion. The banks were graded and reseeded with grass. It was now possible to keep the creek banks and drainage ditches mowed during the summer. The few scattered trees remaining in the fields were removed. Washington County replaced the old, narrow bridge over Deer Creek near the Ginning Laboratory. The main shop area was black-topped as was the road around the greenhouses. A large, hard-surfaced parking lot was constructed immediately to the west of the old office building.

In the early 1960's, the fields on the Station were systematically numbered. Before this, many of the fields on the older part of the Station had been identified by names suggested by location or some identifying feature. Some examples: Field 4 was the gin field (U.S. Ginning Laboratory); Field 10, the gas house field (natural gas control station); the south half of Field 10A, the Dobson field (purchased from Dobson); Field 9, across the pike (Leland-Stoneville road); the south portion of Field 5, the mound field (Indian mound); and the south part of Field 6 north of the railroad, hell's half acre (very poor drainage).

The "quarters" consisted of a number of houses located on the bank of Deer Creek across from the Stoneville Post Office in what is now called Field 1. The "quarters" were maintained for labor. The houses were either razed or sold and moved off the Station in the 1960's. Field assistants occupied several houses adjacent to the "quarters" and also along Deer Creek across from the present Forestry Building. These houses were removed at this time. Seven houses formerly occupied by staff members were also removed. One of these was the large house built as a superintendent's home by George B. Walker. It had been remodeled in 1948 into three apartments. The chicken houses, fenced chicken yards, and garden plots associated with the early-built homes were all removed during this period and the areas converted to lawn. Four houses formerly occupied by staff members were assigned to foremen and maintenance personnel. The remaining seven houses were maintained for new staff members who could occupy them until they had found satisfactory accommodations in Leland or Greenville or for a maximum period of 2 years.

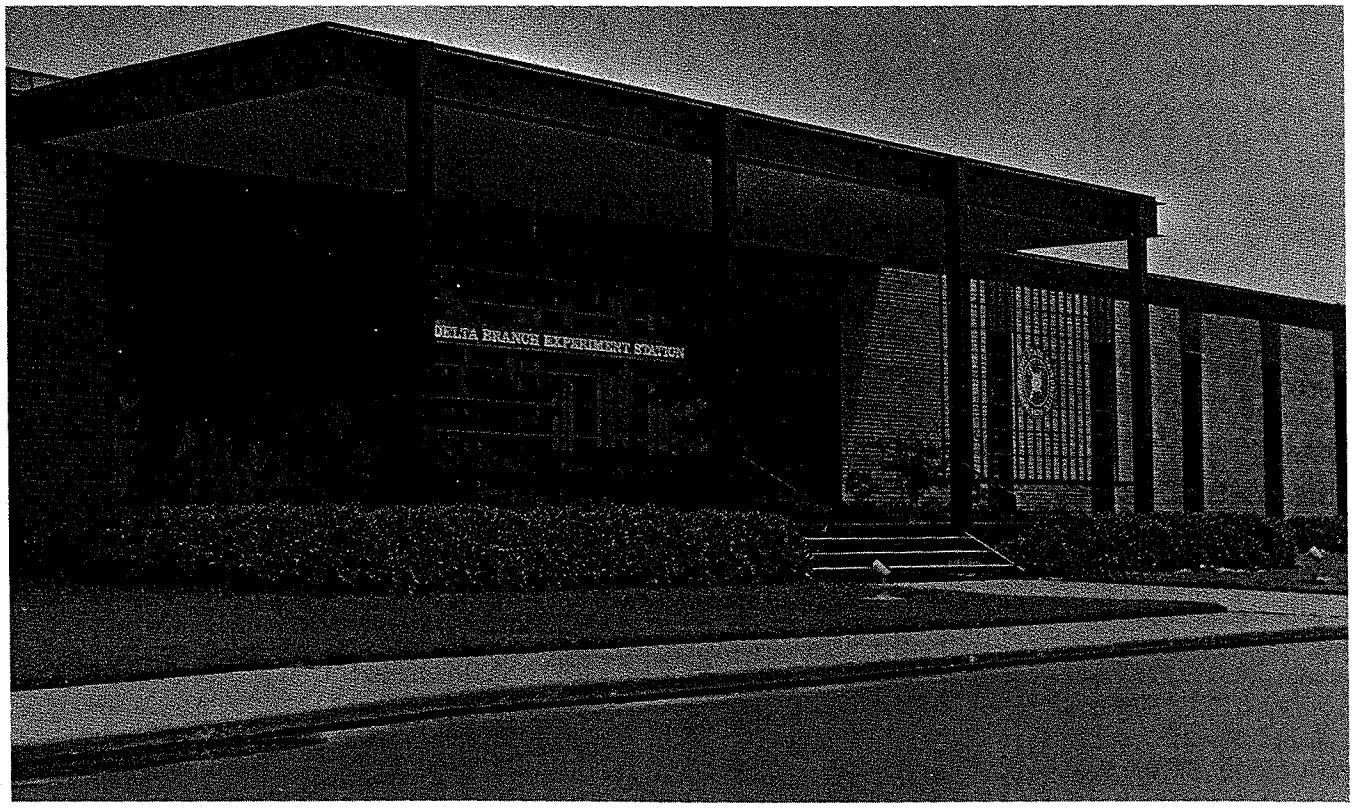
A number of new buildings were constructed during this period. Greenhouse space was more than doubled with the construction in 1962-63 of four greenhouses, each connected to a central laboratory building. In order to make room for the greenhouse complex, an old "meat house" was razed. This structure had been built in the late 1920's, and consisted of a work area and three refrigerated rooms for curing and storing meat. At the rear of the building was a round metal structure for smoking meat. At the time of its destruction, the building and refrigerated rooms were being used by the Forestry Department. The "smoke house" was in use as an incinerator for waste paper.

In 1964, public restrooms located on the north bank of Deer Creek at the front of the Station were relocated in a new building behind the greenhouse complex. According to old pictures, the "public" restrooms in the 1920's consisted of two structures mounted one on each side of the bridge across Deer Creek.

A state research engineering shop was constructed in 1965 at a cost of $38,690. This facility fulfilled a long felt need for a place for engineers to construct and maintain special equipment needed by state research personnel and to design and develop new equipment. A warehouse was constructed to house supplies and spare parts. New buildings were added to house general Station insecticides and herbicides, fertilizers, and a storage and formulating laboratory for the Weed Control Department. Several open sheds were built to house equipment.

Work on a new one-story office-laboratory building of approximately 25,000 square feet was started in 1965 and completed in late 1966. Dedication ceremonies were held on Friday, October 20, 1967, and on May 27, 1983, this building was dedicated to B. F. Smith, Executive Vice President of Delta Council, who had retired after 37 years of service. The new building provided space for six research laboratories, including a cotton fiber laboratory and a laboratory for growth chambers and temperature control faciltities; several offices for staff members; the Superintendent's office suite; business office; word processing center; conference room; and a 100-seat auditorium. The building was completely air conditioned. The auditorium furnished a much needed place for meetings of farmers, Extension workers, staff members, and other various groups. With the auditorium available as a meeting place, the bleachers on the lawn were no longer needed and were removed. Speakers no longer had to contend with the noise of cars, trucks, and tractors on the nearby county road and airplanes overhead. The business office contained a telephone switchboard to handle all calls. The word processing center was an innovation. No longer were the state secretaries scattered throughout the office buildings, each serving a few scientists. They were grouped in central but separate offices with the most modern equipment. All manuscripts, letters, and other requests for typing and duplication were routed to the word center. Mail and finished material were delivered to scientists' offices twice daily and new material picked up. This new procedure equalized the work load and provided a fast turnaround of clerical work for all the scientists.

The water supply from the artesian well was becoming more inadequate with each passing year.



This one-story office-laboratory building, completed in 1966, was dedicated to B. F. Smith in 1983.

A deep well was dug near Deer Creek in front of the office building in 1962 and connected to the standpipe at the U.S. Cotton Ginning Laboratory. This arrangement provided adequate water and pressure with a reserve in case of fire. Later, a connection was made with the well on the property of the U.S. Delta States Agricultural Research Center in order to furnish an additional supply of water in case of a bad fire. The old water distribution system was entirely inadequate and in poor condition. Over the years, it had grown without plan and location of pipes was trial and error. An entirely new water distribution system was installed in 1963. Eight-inch mains replaced old 2-inch mains. New fire lines were laid to serve all the buildings and houses. The old gas distribution system was in a similar state of disrepair and confusion and was replaced in 1969. New storm sewers for the campus area were added in 1969.

An old barn on the property purchased in 1951 was used by the Livestock Department. A trench silo had been built soon after the property was acquired. Both were inadequate for a livestock research program. As funds became available, silos were built and covered feeding pens constructed. In 1965, the old barn was razed and a new building containing laboratory, office, and storage space was constructed.

In 1965, the Station deeded 17.06 acres of land in Field 1 just north of the C & G railroad tracks to the U.S. Department of Agriculture. Construction of a five-story office and laboratory building to be known as the United States Delta States Agricultural Research Center was completed in 1970 and dedicated in 1971. Construction of greenhouses and service buildings continued for several years. The new facility housed the Area Director, Southern Weed Science Laboratory, Bioenvironmental Insect Control Laboratory, and Cotton Physiology Laboratory. This was an entirely federal facility and all personnel were employed by the U.S. Department of Agriculture. However, cooperation with state employees on the Station staff was good where lines of research permitted. Both basic and applied research were conducted.

In 1979, the name of this facility was changed to the Delta States Research Center, and in 1985, it was renamed the Jamie Whitten Delta States Research Center.

The growth of the Station and increasing environmental concern resulted in the construction of a sewage lagoon in 1969. New sewer lines were laid from all buildings and houses.

The construction of the Delta States Research Center necessitated the moving of the airstrip and anhydrous ammonia storage tank. A new airstrip was built on what is now Field 13 on the property acquired in 1951. A hangar for the Station plane was built adjacent to the airstrip and cattle feeding pens. The anhydrous ammonia storage was located nearby.

The Station stopped ginning cotton in the early 1960's, the cotton gin was dismantled, and the USDA Ginning Laboratory began cooperatively ginning some of the Station cotton. The original ginning complex of three 3-story buildings of brick, tile, and concrete built in 1937, was once the pride of the Station and of Superintendent Ayres. The buildings had been designed to house the cotton gin and for cotton and cottonseed storage. The many rooms of varying sizes were not well suited for other work although some projects maintained laboratories in them for several years. They were unheated, poorly lighted, and became very damp in the winter and early spring. After the gin was dismantled, the outsides of all three buildings, including the roofs, were renovated. The center building, which formerly housed the gin, was completely remodeled. Many of the old tile walls were removed, remaining walls were paneled, ceilings lowered, floors tiled, and water, heat, and electricity installed. The result was modern laboratories for the cotton breeding, cotton cytogenetics, soybean, and rice projects. The other two buildings continued to be used mainly for storage until more laboratory space was needed.

Another indication of the changing times was the appearance of window air conditioners. During the 1950's, air conditioners could be seen in a few windows of the old office building. One could be certain that such an office was occupied by an employee of the federal government. State employees continued to be cooled by electric fans. By the end of the next decade, every office and laboratory in the office building, as well as in some other buildings, were equipped with air conditioners. The quality and quantity of work may or may not have improved, but it was certainly done under more pleasant conditions.

The completion of the new office building in 1966 made space available in the old office building. The small auditorium on the second floor of the older building was remodeled and made into a library consisting of a limited circulation area and stacks for reference material. A librarian was employed.

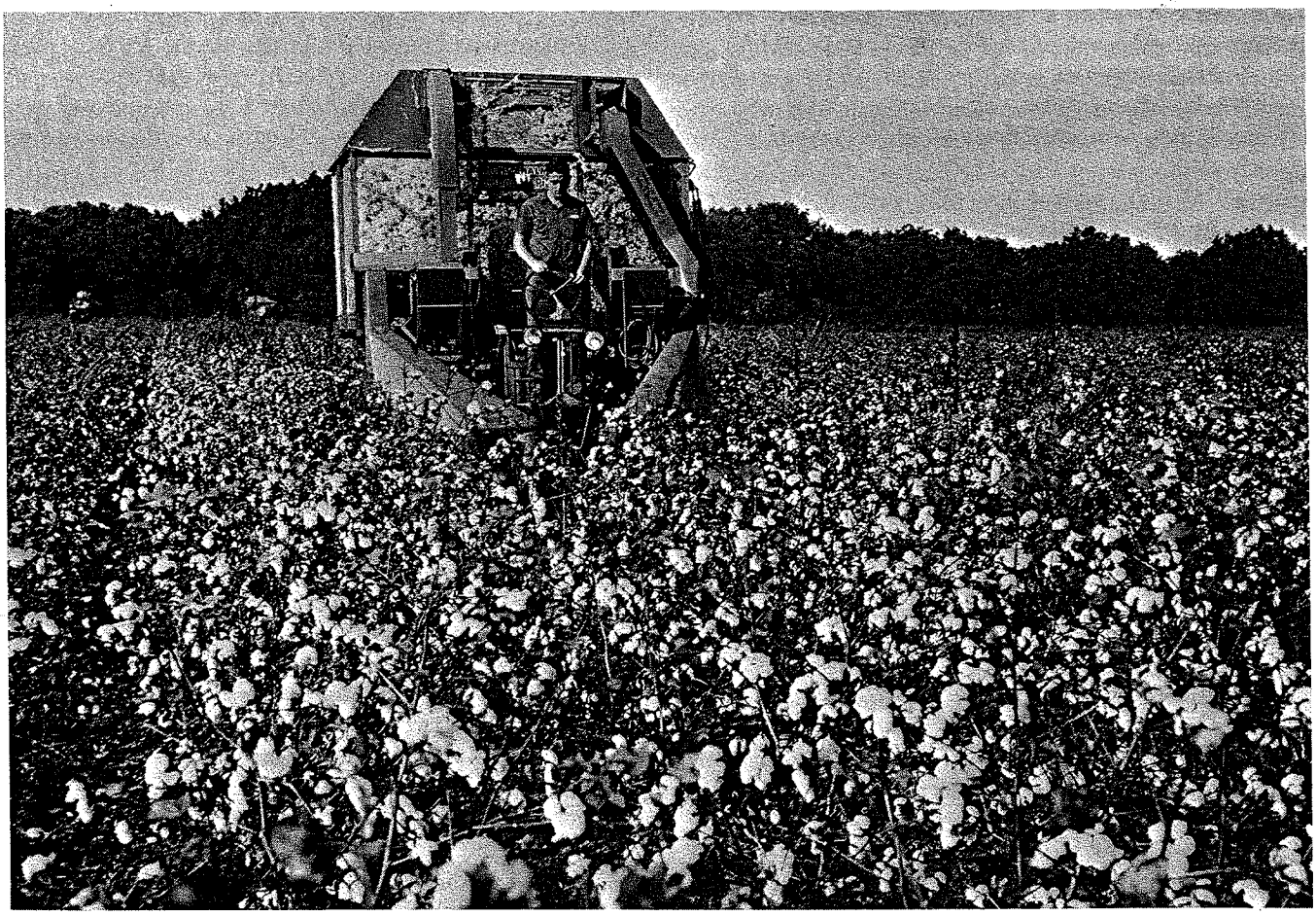
As noted earlier, the working hours had gradually been reduced until the 40-hour week was started in 1968. In 1966, the federal minimum wage law was applied to all Station support personnel. The implementation of this law radically changed the summer labor force. Until this time, many boys and girls of high school age or younger had been employed during the summer months by the various projects. In addition to requiring the minimum wage, the law restricted the work that employees under the age 18 could do. Henceforth, few summer employees were hired who were under 18 years of age. Also at this

time, all supporting personnel were paid on a biweekly basis.

Much of the new construction and remodeling was made possible by House Bill No. 481, an act of the State Legislature in 1963 which made new funds available. The ground work for this legislation had been done under Dr. Giles' administration with the help of the Delta Council and numerous friends of the Station. The act permitted Levee District counties to withhold 1 mill on ad valorem assessments previously going to the state, provided that an additional ¼-mill levy was assessed by the counties. The total 1¼ mills were to be used by the Delta Branch Experiment Station for agricultural research, with primary attention being given to cotton. Levee District participation in the program was 100 percent. During the 1960's, cotton was of vital importance to the economy of the entire area, and the necessity for an expanded and more effective cotton research program was becoming more apparent to area producers and administrators. The first funds from this program were received in 1965 and permitted the Delta Station to begin securing necessary facilities, tools, and equipment for expanded research in cotton. It is interesting to note in passing that this system of providing additional funds for the Station was similar to a proposal made in 1923 by Charles W. Clark of Clarksdale that the Delta counties tax themselves at the rate of ¼-mill for the support of the Station. It is also similar to House Bill No. 962, 1932, which authorized the Boards of Supervisors in the counties of the Yazoo-Mississippi Delta Levee District to levy, at their discretion, a tax not exceeding ¼-mill on assessed valuation of all property for the benefit of the Delta Experiment Station. This tax had been authorized for the years 1932 and 1933 only, but had not been implemented.

The decade of the 1960's saw the establishment of full mechanization and the new technologies associated with it. The Station continued to conduct research and provide useful information needed by the agricultural industry of the Delta region. The program encompassed both basic and applied research. The changing agricultural industry, together with the availability of increased funds and facilities, led to the abandonment of some lines of research and to increased emphasis on others.

All lines of cotton research continued. A new line



Cotton harvesting at the Delta Station in the 1960's.

of research, cottonseed storage, was initiated in the fall of 1962. The transition to advanced levels of production technology had a marked effect on cotton production in the Mississippi Delta. The advanced technology was characterized by improved varieties, high levels of fertilization, chemical weed control, intensive insect control, supplemental irrigation, mechanical harvesting, and careful management. For optimum success, all of these practices needed to be treated as a package. The use of advanced technology had little effect on the cost of cotton production per acre on the sandy soil Delta farms. However, cotton yields were increased approximately 30 percent and the production costs per pound of lint cotton were reduced roughly 5 cents per pound.

Cotton acreage controls and the establishment of a minimum wage for labor accelerated the adoption of new technologies and resulted in the production of cotton with very low labor input.

The improvement in cotton production was not the result of any one spectacular development, but rather the summation of research findings by many scientists at the Delta Station.

Soybean production continued to increase in importance in Delta agriculture. The popularity and importance of soybeans were the direct result of the expanded soybean research program begun in 1948. The newly adapted varieties developed as a result of this program accounted for nearly the entire soybean acreage in the state in the 1960's, as well as being grown extensively throughout the South. In earlier years, it was frequently difficult to identify a soybean field as such because of the severe infestation of weeds. The development of effective chemical weed control programs resulted in relatively clean fields and increased yields.

The objective of the soybean breeding program was to develop high-yielding strains which were high in either oil or protein content, were resistant to major diseases and insects, and which produced high quality, shatter-resistant seed. A total of five varieties, Bragg, Dare, Semmes, Davis, and Dyer, were released during the 1960's from the breeding program. Of these, Semmes, released in 1966, was resistant to phytophthora root rot, a destructive disease occurring on heavy clay soils. Cultural research was aimed at reducing the hazards of production. Research led to recommendations on seeding dates and rates, row width, and seedbed preparation. The introduction of the double-disc type planter was an important factor in obtaining stands on the heavy soils.

The use of chemicals to control weeds expanded rapidly in the 1960's and called for many new lines of research. Chemical companies were quick to enter the field with literally hundreds of new experimental chemicals. Station research was directed at determining the effectiveness and weed specificity of the chemicals; the rates, timing, and volumes; the method of application; the use of mixtures of chemicals; the interaction with temperature, soil, and insecticides; and the reaction of the crop plant. Engineering research was directed towards developing effective machinery for precision application of the chemicals.

The fact that chemicals were being widely used without any knowledge as to what the effect of their continued use would be led to studies on the persistence of the chemicals in soils and what their effect would be on the soil microflora. The control of one dominant weed frequently permitted a hitherto minor weed pest to become a major problem. This led to the need for chemicals which controlled a broad spectrum of weeds and to the use of more than one chemical. Anatomical studies were undertaken on such hard-to-kill weeds as johnsongrass and nutsedge in order to determine how these weeds might best be attacked.

The changing agricultural patterns in the Delta led to the phasing out of the corn and small grains research in the mid-1960's. Oats had been widely grown throughout the Delta from early times. Yields of over 100 bushels per acre were common. However, it became less profitable to grow oats than other crops. There was no longer a demand for feed for mules. The demise of oats was hastened by the occurrence of the disease barley yellow dwarf, or red leaf, a disease new to the Delta to which all the commonly grown varieties at that time were susceptible.

Wheat continued to be grown on a relatively small acreage. The size of the acreage fluctuated according to the market price and the availability of varieties resistant to wheat leaf rust. Wheat grew well on the clay soils with surface drainage, and yields of 60 bushels per acre were possible with the better varieties. Some farmers followed the practice of doublecropping—planting soybeans immediately after the winter wheat was harvested. This practice was successful provided there was sufficient rainfall to obtain a stand of soybeans.

In the 1930's, there were more than 3 million acres of corn grown in Mississippi. This acreage steadily declined throughout the years to approximately 400,000 acres in 1969. The decrease in acreage was even more striking in the Delta, due in part to lack of need for local feed, competition with cotton for best soils, no development of local cash markets, and the need for irrigation to produce profitable corn yields. The hybrids and production knowledge for profitable yields were available. The corn breeding project was phased out beginning in 1962. Only a hybrid performance trial was continued in order to determine adapted hybrids for planting on the limited corn acreage. Commercial seed corn companies had active

southern corn breeding programs which supplied seed of adapted hybrids. Most of the limited acreage of corn in the Delta was produced under high levels of management and for silage for cattle feedlots.

Rice research continued along the lines of varieties, weed control, fertilizers, and other cultural practices. The introduction of the chemical propanil in 1961 made possible the control of barnyardgrass, a very serious problem in the production of rice. The general acceptance of this chemical resulted in a dramatic average increase in yield of approximately 1,000 pounds per acre. Many acres of suitable soil, an abundant supply of good quality water, and a favorable climate favored the development of rice production as an important part of the agricultural economy of the Delta. Only government-imposed acreage controls restricted expansion.

The castor bean, sesame, and sunflower project was terminated after the 1964 season. Although progress had been made in solving some of the problems associated with the production of these crops in the Delta, the further expenditure of funds on this project was not thought to be justified at this time.

Pasture programs and cow-calf operations were gradually replaced in the Delta by row crops during the 1960's. The shift to row crops, mainly soybeans and rice, resulted in greater net returns per acre. Because of this, much of the pasture research was terminated in 1967, and pastures on the Delta Station were gradually returned to row crops.

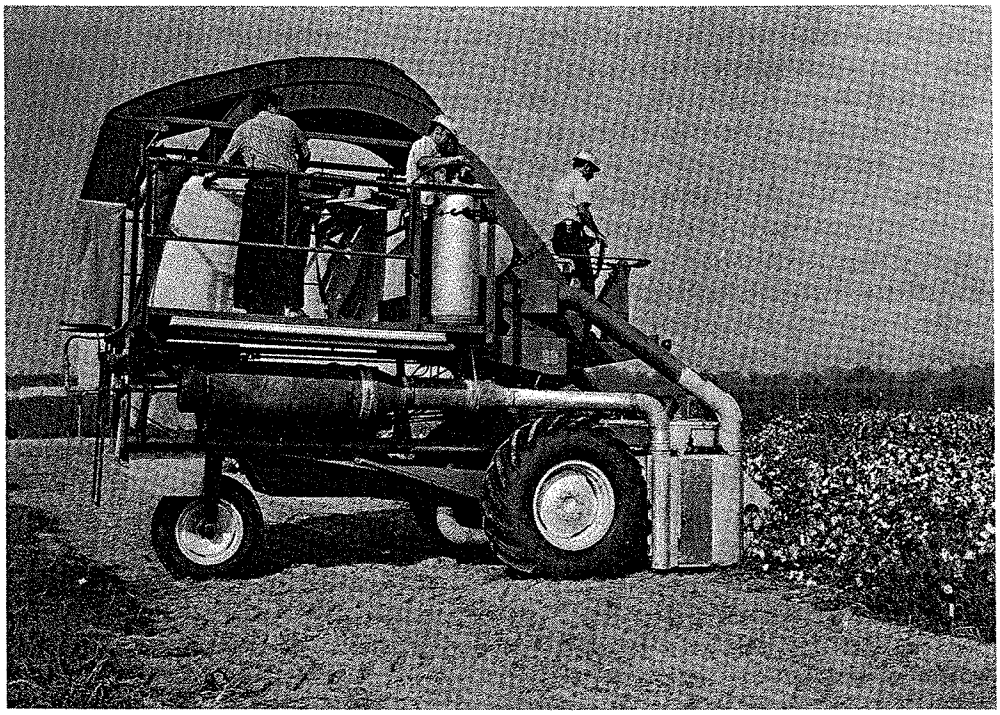
The forage crop disease project released a new variety of alfalfa in 1965. This variety was widely tested as Stoneville 1 but was released under the name "Delta." This project also released a new variety of ryegrass named "Magnolia" in 1965. Magnolia was resistant to the common races of leaf rust. The forage crop disease project, cooperative with the U.S. Department of Agriculture, was terminated in 1967, upon retirement of the scientist in charge.

With the reduction of the pasture program, the emphasis in livestock research was redirected to drylot feeding trials. A ration of high grain corn silage, supplemented only with feed grade urea at the time the silo was filled, was found to produce as high quality beef as other more complex rations and at a lower cost. The use of this ration was more suited to individual, farm-operated feedlots, where the owner could produce the corn silage on his farm, than it was to large commercial feedlots. Limited lamb feeding trials were conducted in 1960-61. The livestock insect project conducted research for the control of numerous livestock insects, especially horsefly, horn fly, deerfly, mosquito, and lice. The biology of several of the insects was investigated. Research was also undertaken to determine the insect vector or vectors of anaplasmosis.

During this decade, the Horticulture Department conducted research with many vegetables, fruits, berries, and nuts for the home garden, market garden, and commerical production. All phases of production from planting to quality of the final product were studied. The change from hand to machine harvesting of food crops drew the attention of commercial food processing companies to the Delta. The longer growing season, abundant water for irrigation, and large fields made the area attractive for growing a number of major food crops. Several of the companies established research plots in the area and cooperated closely with Station scientists in investigating the possibilities of large scale vegetable production. Prospects for the production of snap beans, small lima beans, southern peas, cucumbers, processor-type tomatoes, white potatoes, and leafy vegetables appeared particularly promising. The horticulture work was aided materially by the 1959 construction of a greenhouse and complete laboratory, office, and storage facilities in 1961. More time and space for the increased emphasis on vegetable production was made possible by the termination of research on peaches and other tree fruits in the mid-1960's.

The Soils and Fertilizer Department conducted extensive experiments with rates of fertilizers, primarily nitrogen, on various crops and cropping systems. The effect of crop rotations, fallow, and excessive water on the soil structure, and availability of soil nutrients was studied. Representative soils throughout the Delta were sampled and analyzed for physical properties and nutrient content. The results were correlated with actual crop yields from these soils in order that more accurate recommendations, based on soil tests, could be made to the farmer. The need for supplementary applications of various minor elements was studied and those soils which might need the addition of one or more minor elements were identified. This study alone was of considerable value, since the farmer was repeatedly besieged with different cure-all nostrums promising great benefits.

The entomological research was concerned primarily with insects attacking the cotton plant. A major portion of the work dealt with evaluating insecticides for the control of the boll weevil, bollworm, thrip, tarnished plant bug, and spider mites. Research was also conducted on methods and equipment for applying insecticides. The new concepts of applying very low volumes of undiluted materials by air and of applying systemic insecticide to the seed furrow at planting were studied. A new group of phosphate insecticides was evaluated and many were found to be effective in controlling most cotton insects. Life history and winter survival studies of the boll weevil continued. Studies on the ecology of the bollworm were initiated. Research was also conducted on in-



Two-row picker equipped with experimental cylindrical type drier. Delta Station, 1960.

tegrated control programs to utilize beneficial insects wherever possible. The influence of smooth leaf and nectariless cottons on insect populations and damage was investigated.

The Production Economics Group conducted extensive studies in cooperation with other research groups at the Station and with Delta farmers on the economics of different farm enterprises. Labor and power requirements for different farm enterprises were analyzed. Information was obtained on the size and type of production machinery used in the Delta and the performance rates and other production coefficients associated with new types of machinery. Information from these studies was important to the Delta farmer in order that he could keep abreast of the rapid advance in new technology. Only a relatively few years earlier, the farmer had been concerned with the problem of having enough healthy mules and sufficient hand labor to make a crop. Less than 30 years later, studies showed that even larger tractors and six-row equipment had a 45-65 percent higher performance than the four-row equipment. Cotton could be produced for $3.50 to $5.00 less per acre with six-row equipment than with four-row equipment. On the average, one tractor with six-row equipment could take care of 260 acres as compared to 170 acres with one tractor using four-row equipment. Studies underway at the close of the 1960's indicated that stubble planting of cotton, or limited seedbed preparation, further reduced the cost of cotton production as compared to conventional seedbed preparation.

The production of hardwoods for the rapidly growing pulp industry, together with excellent markets for hardwood saw and veneer logs, led to a bright outlook for good hardwood forests. The expanded staff at Stoneville conducted many lines of research including forest management, soil suitability, tree planting methods, insect and disease control, log storage, and species improvement. The suitability of Delta soils was determined for 30 commercial hardwood species. Site selection criteria were established.

Selection work for improved cottonwood clones resulted in the description of 14 superior clones in 1969. These superior clones, propagated vegetatively in nurseries at the Delta Station, out-produced natural seedlings by 20 percent. A growth of 30 feet in height with a diameter of 4.8 inches at breast height was obtained after only 2 years. The trend in hardwood management was toward increased production from superior planting stock in carefully planned and maintained plantations. Cottonwood plantings as large as 1,200 acres a year were made on a continuing basis for rotational cutting. Procedures and cultural techniques developed by the research at Stoneville were rapidly adopted by landowners to establish hardwood plantations.

The weather project established as a pilot program in 1958 by the National Weather Service continued

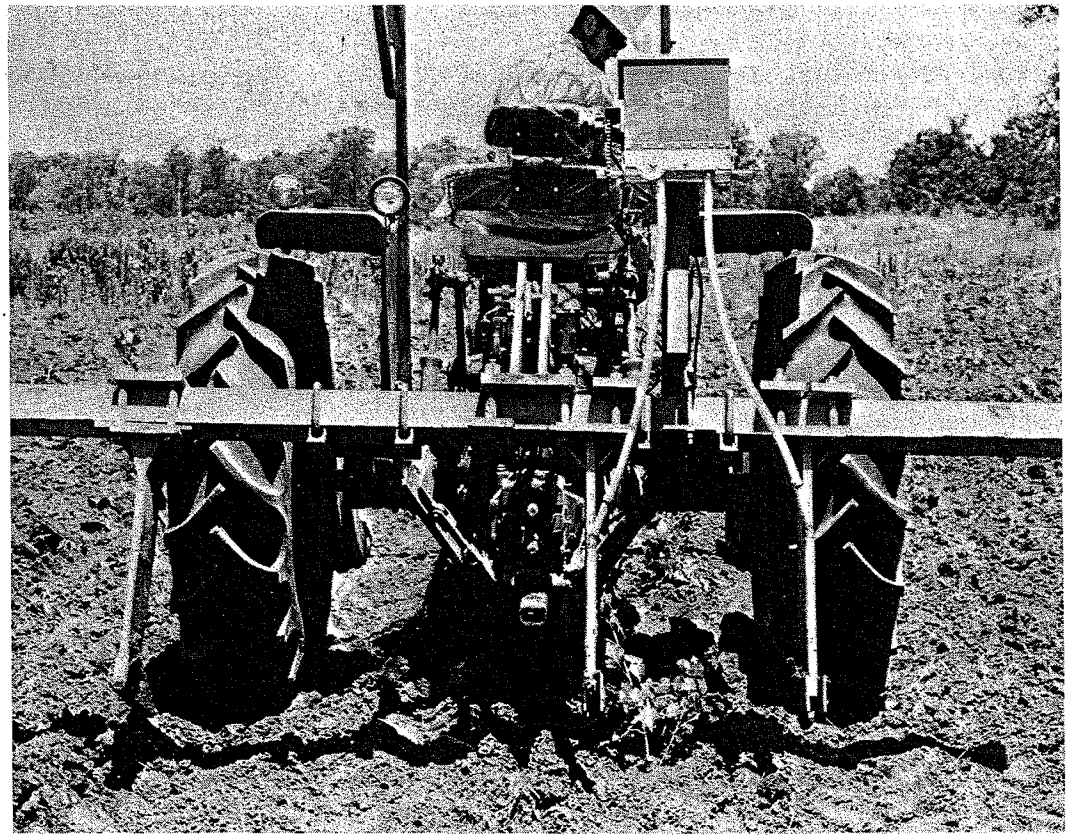
to gain in popularity with Delta farmers. Information supplied to the farmers aided them materially in making weather related decisions. Micro-climate research was also carried out cooperatively with other scientists at the Station.

In 1967, the Division of Community Studies, Office of Pesticides and Product Safety, Food and Drug Administration, Public Health Service, Department of Health, Education and Welfare, Chamblee, Georgia, entered into a contract with Mississippi State University's Department of Biochemistry to conduct a survey in the Mississippi Delta regarding the effects of exposure to pesticides on the health of the population. In 1972, the title of the contracting agency was changed to Division of Pesticide Community Studies, Environmental Protection Agency, Chamblee, Georgia, and in 1974 to the Epidemiologic Studies Program, Environmental Protection Agency, Washington, D.C. Some of the personnel conducting these studies were located at the Delta Branch Experiment Station with the Superintendent of the Station designated as a co-director of the project.

Very extensive studies were conducted, some of which included: community profile of pesticides in use in the home, in business, and in agriculture; epidemiology of occupationally exposed; investigation of agricultural plane crashes; investigation of acute pesticide poisonings; pesticide residues in tissues in the general population; aerial pesticide applicators; pesticide residues in the environment; indigenous allergic effects of pesticides in the general population; and detailed specific studies on selected pesticides.

The Mississippi Delta was selected for this investigation because of the widespread use of pesticides in this area for a number of years. Concerned individuals in the general public, the Public Health Service, and the Agricultural Experiment Station were desirous for knowledge relative to the extent of pesticide pollution and its effect on man and his environment. Reliable information would identify valuable pesticides with little or no hazardous effects, while at the same time pinpointing those which might be more hazardous to the environment. Adequate precautionary measures and use patterns could then be developed. This project was concluded in 1974.

Dr. Porter was appointed Assistant Director of the Mississippi Agricultural and Forestry Experiment Station, effective January 1969, but he continued to serve as Superintendent of the Station until February 28, 1970.



Subsoil-applicator developed for applying systemic insecticide granules within the soil around cottonwood trees in plantations and nurseries. Delta Station, 1960's.

Charles G. Shepherd
1970 - Present

Charles G. Shepherd

Charles G. Shepherd became the twelfth Superintendent of the Station on March 1, 1970. Dr. Shepherd had joined the Station staff as an Agronomist on June 1, 1969, coming from the Louisiana Agricultural Experiment Station. When Dr. Shepherd assumed his duties as Superintendent, there were 17 lines of research underway at the Station, involving approximately 100 scientists in the several agencies located at Stoneville.

The name Mississippi Agricultural Experiment Station had existed since the Station was established in 1888. In 1970, legislative action amended the name to include forestry. The new name, Mississippi Agricultural and Forestry Experiment Station, or MAFES, gave recognition to Mississippi forests and their importance in the economy of the state. The official name of the Delta Station thus became the Delta Branch of the Mississippi Agricultural and Forestry Experiment Station.

As a result of the State Legislature's change from biennial to yearly sessions, funds for the Station were appropriated annually, effective in 1970. The yearly appropriation of funds made for a more efficient and responsive operation of the Station.

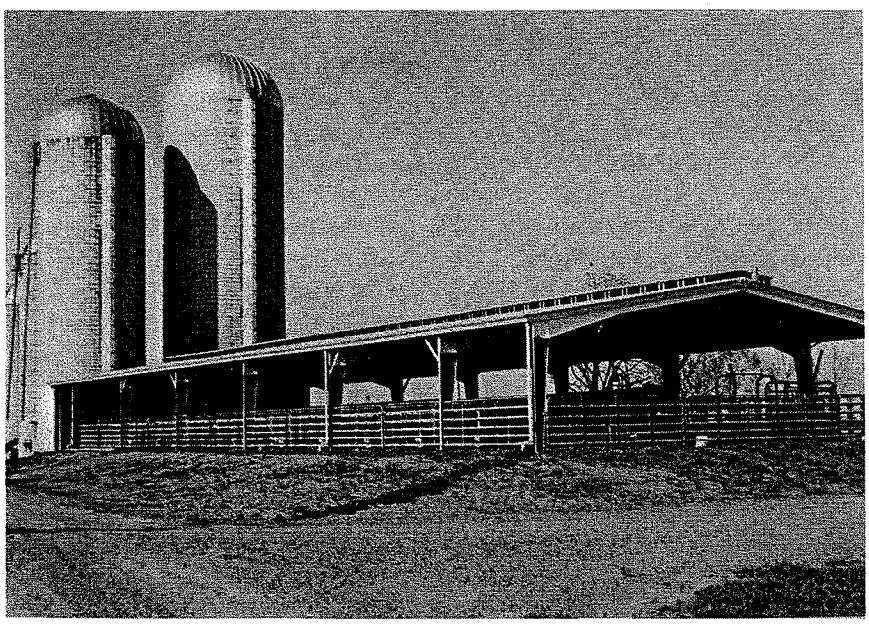
Other less obvious, but more far reaching, changes were made in the internal organization of MAFES. In an effort to better serve Mississippi agriculture, greater emphasis in the future would be placed on the team approach to problems. Task forces, representing all disciplines involved, were established to bring collective knowledge to bear on specific problems. The role of the branch stations was more sharply defined so that in the future each would become a research center providing authoritative information on a limited number of subjects as contrasted to more general information on many subjects.

The horticulture group of scientists for the entire MAFES system met in a planning conference in 1969. From this start, similar groups were organized in the next few years for all the major lines of research. The groups became known as Problem Identification and Program Development (PIPD) Committees. Each committee included scientists from throughout the Experiment Station system who could have an input in that particular field. Problems were attacked with an interdisciplinary, multi-location approach where appropriate.

The effect of the policy change on the Delta Station was probably not apparent to the casual observer. There had always been a high degree of cooperation among the scientists. Also, the Delta area was different from other areas of the state by reason of its origin and hence presented different problems. However, the concept of the team approach to solving problems was strengthened and the cooperation and exchange of information with other MAFES scientists increased.

The building boom of the 1960's had slowed somewhat by the time Dr. Shepherd became Superintendent. The Delta States Research Center continued to expand its research facilities with the construction of several greenhouses, service buildings, and laboratories.

Covered, slatted-floor, environmentally approved cattle feeding pens were constructed and put into use in October 1971. Existing supplemental feeding pens were covered. A large silo with a capacity of 852 tons of corn silage was also completed that fall. Conveyor



Slatted-floor feedlot for finishing beef animals. Delta Station.

belts from the silo complex were installed to facilitate the feeding operation and reduce hand labor.

The narrow bridge over Deer Creek at the Stoneville Post Office was replaced in 1972. The bridge over Deer Creek at the entrance to the Station from Leland was replaced, and in 1977, the highway leading into the Station was rebuilt.

Over a period of several years during this time, as funds became available, the old three-story office building built in 1931 was remodeled. Ceilings were lowered to 8 feet in the halls and offices, covering exposed piping. Walls in halls and offices were paneled and the concrete floors covered with tile. Stairwells were enclosed and outside doors equipped with panic bars to meet safety requirements of OSHA. The original electrical wiring in the building had been added to, patched, and repaired for nearly 50 years, until it was in a bad state of confusion and inadequate to meet the increased demands for electricity. In 1979, the building was rewired with provision for increased use of electricity in future years. The heating system in the original office building had long been a source of trouble and complaint. It was inefficient, frequently resulting in either too little or too much heat. In 1980, the old steam heating system was replaced by a new system capable of providing both heat and air conditioning. Temperatures could be controlled individually in both offices and laboratories. In 1982, new piping and fan coils were added to the heating system in the 1950 office addition to provide for air conditioning.

A significant part of this renovation was the completion of a Delta Station library. Extension Service personnel moved from the second to the third floor of the old office building and, by the 1970's, occupied nine offices in their new location. This allowed further expansion of the library, and in 1971 the entire second floor of the east wing became the DBES library. Hallways and two offices were converted into a circulation area. An enlarged stack area, the librarian's office, work space, reading and periodical rooms, and space for microfilm storage and printing equipment were developed. A half-time library assistant was employed in 1975. Today, the library consists of approximately 25,000 volumes of reference material specifically related to research programs at Stoneville.

In 1980, the shop compound was enlarged to the east by approximately 3.5 acres. Two new buildings were erected: a compartment storage building providing individual storage areas for Station departments, and a solvent storage building for the safe storage of solvents and chemicals. A machinery storage building was built in 1981.

In 1983, four grain bins with a capacity of 4,396 bushels each were erected.

In 1984, the weed quonset was enlarged to provide additional space for mixing and storing chemicals. A metal building, initially constructed in the Delta Experimental Forest for the pesticide incineration research in 1971, was moved to the Station compound and renovated to develop a building suitable for painting and repairing tractors, trucks, and other research equipment.

The fuel island in the shop compound was extended in 1984. Two new 12,000-gallon steel tanks and an automated fuel dispensing system were installed. The system provides for automated, controlled access to fuels by use of encoded cards.

As computers became available for use in analyzing

research data, scientists at the Delta Station used computer facilities at Mississippi State and at the USDA Research Center at Stoneville. Starting in 1973, data was sent from a terminal at the Station to Mississippi State via telephone or hand-carried by the scientist. Later it was possible to take the data to the computer center in the USDA building for processing by federal personnel. In March 1983, the Station purchased an IBM 3278 computer terminal and employed a statistical analyst to assist scientists with data input. The terminal, as well as other terminals located in various USDA units at Stoneville, were connected by underground coaxial cable to the USDA system. Making computer capability directly available to the scientists increased productivity and reduced the time necessary for analysis of data.

For many years, the Station bookkeeping records had been kept on an NCR posting machine which had long been obsolete. Beginning in 1982, these records were kept using the file capabilities of an IBM Displaywriter, which also served as a word processor for preparation of manuscripts, reports, and correspondence for the scientists.

The increase in demand for word processing capabilities soon required that this equipment be devoted entirely to the typing needs of the scientists. To achieve this, the Station, in May 1984, purchased an IBM PC-XT for the purpose of maintaining accounting, inventory, purchasing, and other business records. This equipment resulted in improved financial records and provided information necessary to evaluate the cost of each research program.

In 1979, the Station had taken another step toward going out of the house rental business. Five of the remaining eleven houses were either sold or razed. Maintenance and farm personnel were housed in three of the remaining houses and the other three were reserved for newly appointed scientists to occupy for a limited time until satisfactory housing in Leland or Greenville could be found.

A little noticed, but significant, change in policy with regard to planting seed occurred in this decade. For approximately the first 60 years of its existence, the Delta Station had expended considerable effort supplying pure planting seed directly to Delta planters. While this practice was of great importance to the planter and also of some monetary reward to the Station, it nevertheless required a considerable amount of effort on the part of Station personnel which otherwise could have been spent on research. With the development of the Mississippi Foundation Seed Stocks organization at Mississippi State University in the 1950's, more and more of the responsibility for producing pure seed was delegated there. By the end of the 1970's, the Delta Station was producing only limited amounts of breeder and/or foundation seed of a limited number of varieties of rice, soybeans, and cotton for the Mississippi Foundation Seed Stocks organization. No longer was any pure seed sold by the Station to planters either directly or through county agents.

Fire of undetermined origin completely destroyed the seed processing plant and contents April 29, 1980. The building was replaced with a metal building providing a 4,320 square foot area for repair and maintenance of equipment.

The two decades following World War II represented a period of rapid development toward full mechanization of Delta agriculture. But mechanization was more than just the development of machines. It called for new methods of management, planting, weed control, insect control, defoliants, new plant types, and more skilled labor. A great reservoir of research information on these subjects was developed during this period. The decade of the 1970's could be characterized as one of coordinating, adapting, and refining the earlier research into a highly efficient mechanized agriculture—a period of fitting the component parts into a system both productive and environmentally sound.

In 1970-71, three noncommercial breeding stocks of nectariless cotton were released to commercial cotton breeders for use in their breeding programs. The next year, an additional 16 noncommercial cotton lines containing cytoplasm from seven species other than Upland were also released to commercial breeders. These lines with different cytoplasmic backgrounds would furnish a wide range of variability in breeding stock. In 1976, 11 genetic strains were released to cotton breeders and cooperators. In 1978, the Station released two early-maturing cotton varieties, DES 24 and DES 56, which had been developed in the cotton breeding program. These varieties were the first commercial cotton varieties released by the Station since the release of Delfos 651 in 1942. DES 422 was released in 1981. It is estimated that in 1985, this variety was grown on 15 percent of the cotton acreage in the Mississippi Delta. DES 119 was approved for release in 1985 and approximately 71 acres of breeders' seed produced.

In 1985, an addition to the cottonseed delinting laboratory was constructed to expand the facilities for cottonseed delinting and ginning of small samples of cotton from the cotton breeding program.

Mechanization research continued to be focused for the most part on cotton production. Much of the work was concerned with refinements in equipment and its adaptation to newer production systems. A major development of the research at the Station was the integration of equipment and cultural practices into a limited tillage system for seedbed preparation. This system reduced the average number of trips through

the field in preparation for planting from twelve to seven. Economic studies showed that cotton yields increased following continuous stubble planting with a resulting reduction in production costs per acre.

Research continued on the "Stoneville wide-bed" cultural system. This method of planting, also called the narrow skip, began replacing the skip-row system of planting which developed during the 1950's. This newer method reduced production costs without affecting seed cotton yield or harvesting efficiency.

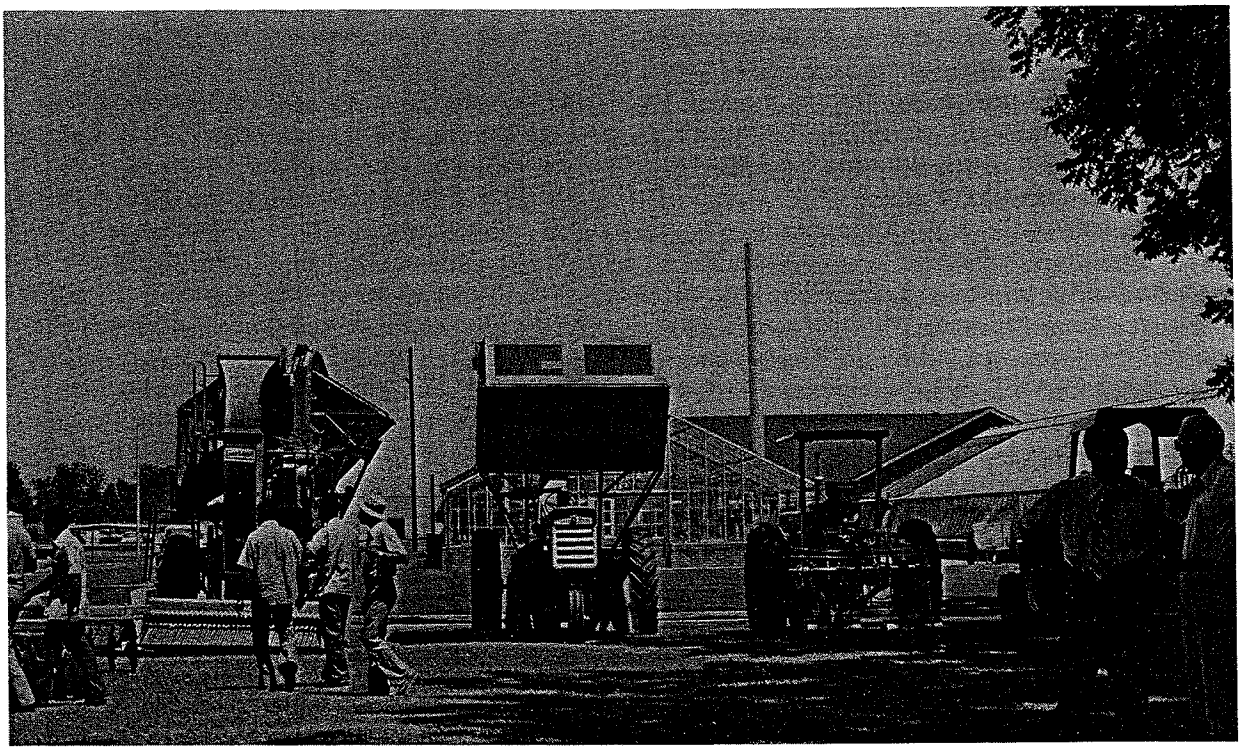
The Stoneville Parabolic Subsoiler and the Stoneville Parabolic Chisel Plow were developed by Station engineers during this period. These two pieces of equipment not only increased the soil fracture over that obtained by existing equipment, but did so at a reduced energy requirement. The parabolic design revolutionized the practice of subsoiling, and by 1985, 45 manufacturers of farm equipment had adopted this design, known to be in use in nine countries around the world.

Experiments were conducted in the early 1970's with an experimental "cotton combine" manufactured by the Ben Pearson Manufacturing Company. The combine would harvest the cotton and shred the stalks in a once-over operation. It did not prove successful in these experiments.

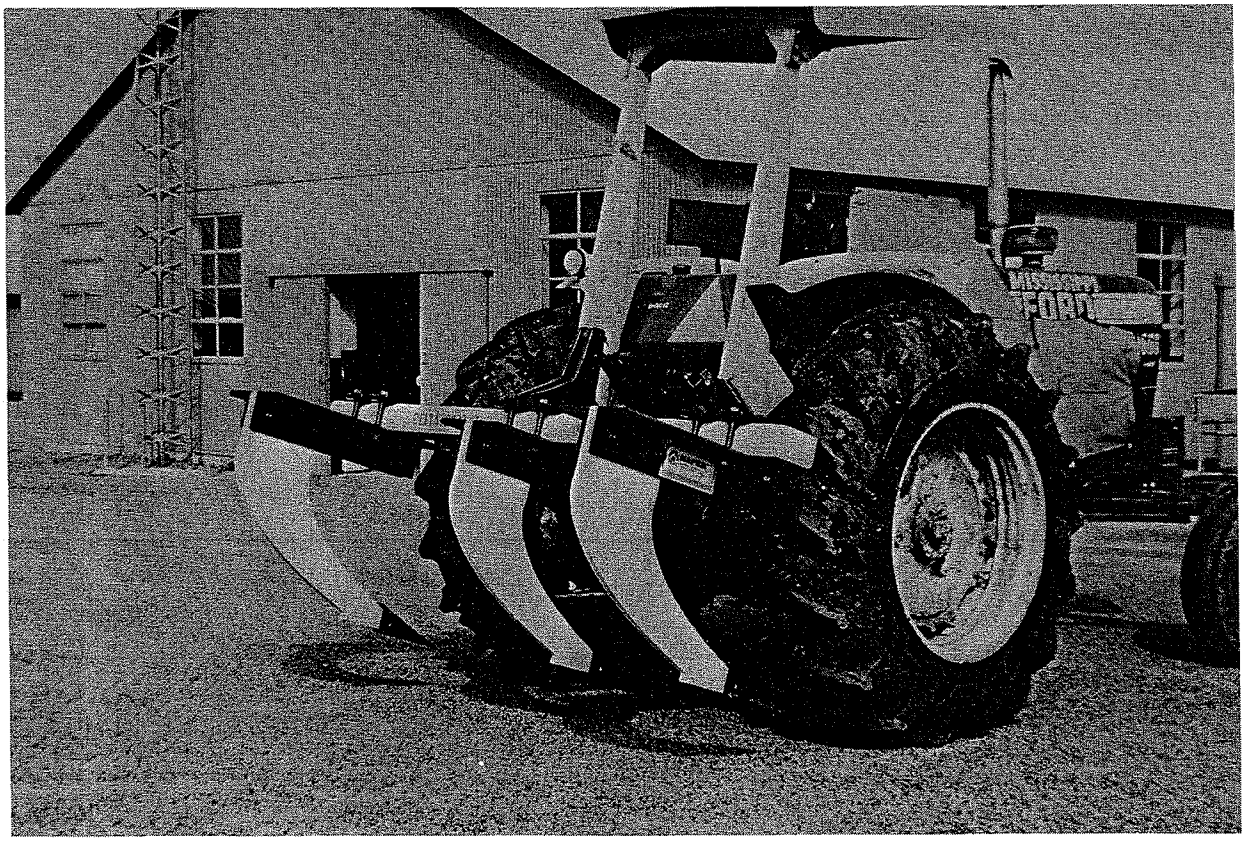
Weed control research continued with many different crops. In addition to effectiveness in controlling weeds, studies were made on interaction of herbicides with insecticides, effect on soil microflora, residual properties, translocation in certain weeds, and the relation of temperature, humidity, and soil moisture to effectiveness. The herbicide glyphosate was found to be the most effective foliar herbicide ever evaluated at the Station for the control of seedling and rhizome johnsongrass. Research showed that the chemical was translocated in phytotoxic quantities to the rhizomes within 12 hours.

A noteworthy achievement during this period was the development by the Weed Control and Mechanization Departments of the recirculating herbicide sprayer. This sprayer was particularly effective in

Aerial application of cotton defoliant. Delta Station, 1978.



Farm equipment display. Delta Day, 1970's.



The Stoneville Parabolic Subsoiler was designed in 1972 at the Delta Station.

controlling johnsongrass in soybean fields. The amount of chemical needed, and hence the cost, were reduced. Likewise, the threat of environmental pollution from applying an excessive and unneeded amount of herbicide was reduced significantly. In 1978, one of the scientists developed the idea of a ropewick applicator for application of glyphosate and phenoxy herbicides. This relatively simple and inexpensive tool gained acceptance both nationally and internationally within 2 years. Where this tool was applicable, the amount of herbicide used, and hence the cost, were substantially reduced and the risk of environmental pollution essentially eliminated.

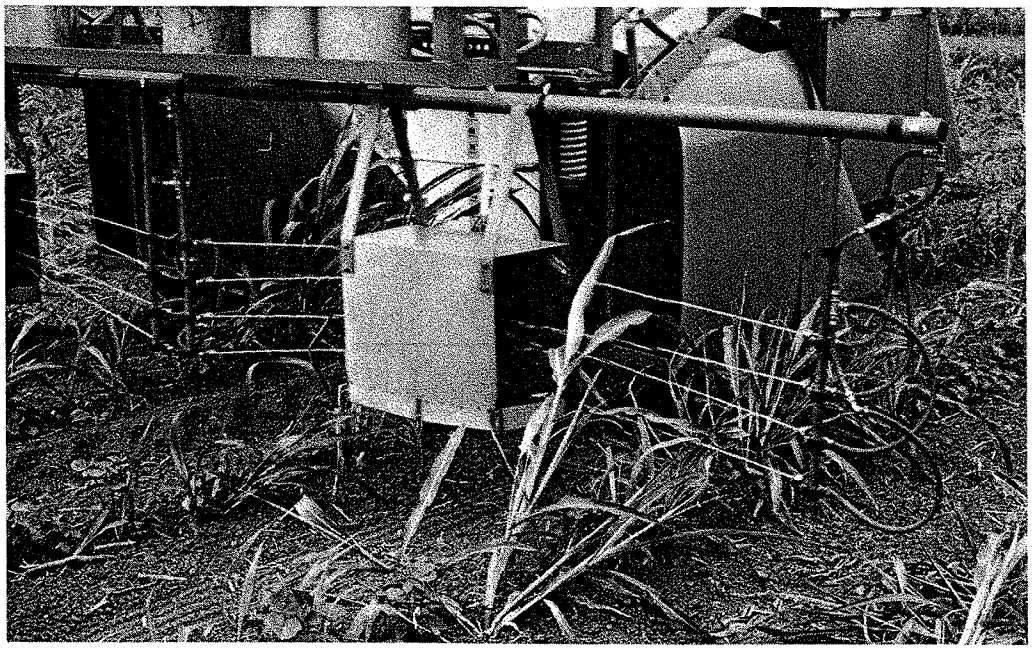
The Southern Weed Science Society's Southern Weed Contest was hosted by the Delta Branch Experiment Station in 1982. Forty-six students from eight universities throughout the southern United States competed in the 2-day contest involving weed identification, sprayer calibration, and herbicide injury symptoms.

Principles of Weed Control, a graduate/undergraduate level course offered through the Department of Plant Pathology and Weed Science at Mississippi State University, was taught three times during the period 1982 through 1984 by scientists from the Delta Station. Thirty-six students completed the course, which dealt with the basic principles of herbicide chemistry and weed identification.

In the soybean breeding program, a large pool of diverse germplasm had been developed to be used in meeting new problems and needs that arose. Different soil types presented different disease and insect problems which could only be solved economically by breeding for resistance. The program emphasized breeding for multiple pest resistance combined with high yield and other desirable characters. During the 1970-84 period the breeding program, cooperating with the United States Department of Agriculture and in some instances with scientists in other states, resulted in the release of 13 varieties: Tracy, Tracy M, Pickett 71, Forrest, Bedford, Govan, Centennial, Epps, Nathan, Almo, Jupiter R, Braxton, and Leflore. In the 37 years since 1948, the soybean breeding program has resulted in the development of 22 new varieties adapted to different environments in the southern states.

Very little research with grain crops other than rice was conducted during this period at the Station. The potential for rice production in the Delta had been recognized for many years. Rice and soybeans complemented each other in crop rotation programs. The development of adapted soybean varieties and the introduction of rice suddenly turned almost worthless heavy clay "buckshot" soils into very valuable property.

Acreage controls held limited rice acreage to generally less than 65,000 acres. These controls were removed in 1974 and acreage rapidly expanded to over 200,000 acres. The potential for high quality rice production in the Mississippi Delta was recognized by industry when Uncle Ben Foods, Inc., and Pacific International Rice Mills, Inc., built mills in Greenville in the late 1970's. The construction of the two mills assured the rice producer of adequate local markets.



Rear view of Stoneville Recirculating Sprayer. Delta Station, 1973.

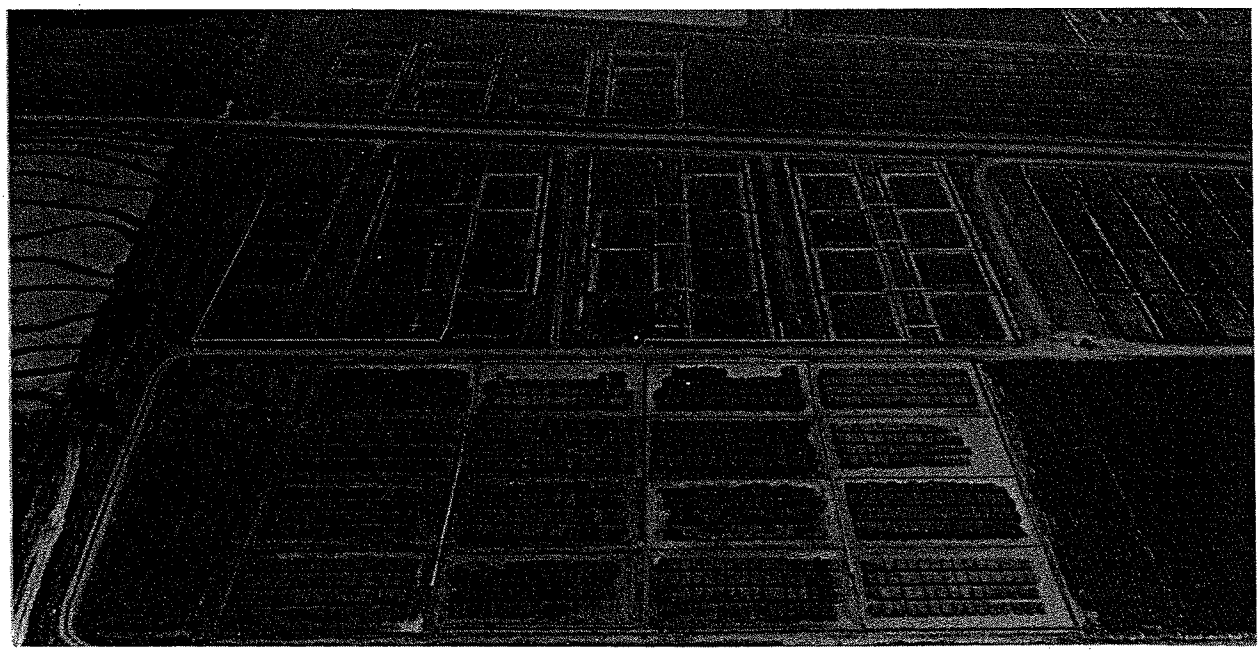
The Delta Station recognized that the expanding rice acreage would result in an increased need for research information. To meet this need, the rice project was expanded with the addition of part-time research by three additional scientists. A complete rice breeding program was begun in 1984 when the services of an internationally-recognized rice breeder were obtained on a part-time basis. This scientist became a full-time staff member of the Delta Station in 1985. Also, the Mississippi Cooperative Extension Service located a rice specialist at the Station.

Renovation of the first floor of the old east gin building was begun in 1983 to provide facilities for drying, cleaning, processing, and storage for rice research. The second floor was completely renovated in 1985. New well-equipped laboratories were developed for use by rice scientists. This renovation provided much-needed space for rice breeding, soil fertility, weed, and disease control work. Preliminary construction was begun in 1985 on the third floor to provide additional office and laboratory space.

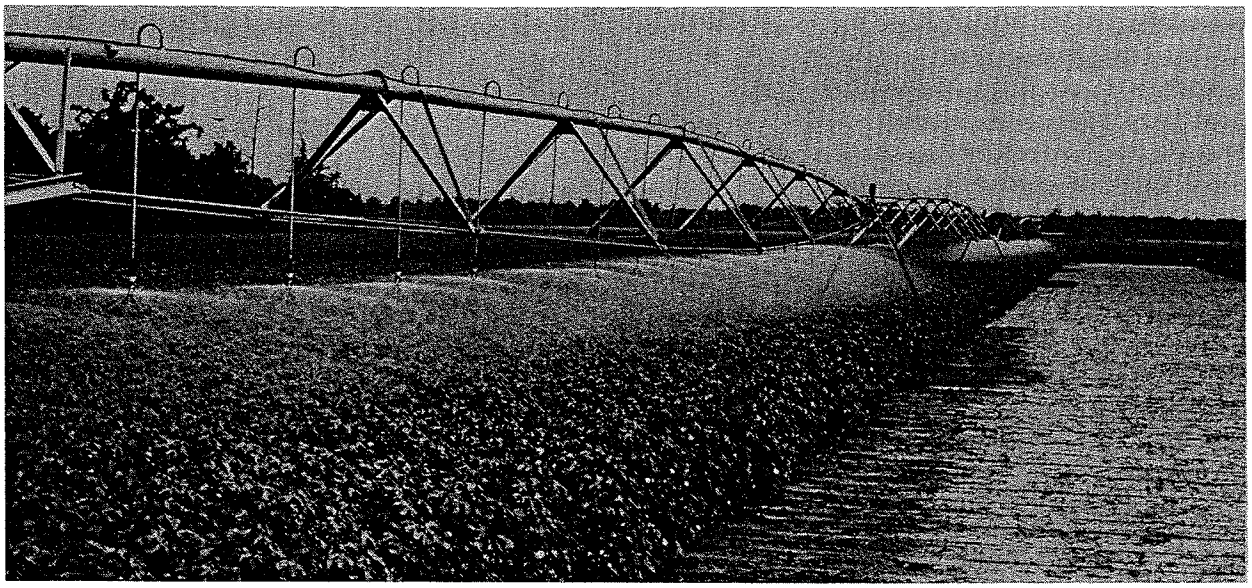
Soil fertility research continued on all crops. Changing technologies necessitated continuing research to ensure the farmer of the most economical practices to follow. A survey of soil types in the Delta identified general areas where a response to the addition of phosphorus and potash, as well as to nitrogen, could be expected. A few soils were found to respond to the addition of sulfur. Some time was spent almost every year investigating the claims made by numerous manufacturers of products offered for sale to farmers. These products were usually in the form of soil additives or amendments, foliar sprays, and seed treatments which were supposed to benefit the farmer in many ways through increased yields, sturdier plants, and more efficient use of fertilizer. Except in a few isolated cases, these products were generally found to benefit only the seller of the products.

Studies on clay soils were initiated in 1983 to evaluate benefits from various rotations involving rice, soybeans, and grain sorghum. These were primarily to document yield increases and determine the economic value and soil structure benefits from rotations. Similarly, in 1984, expanded rotation research was initiated on sandy loam soils involving cotton, corn, soybeans, grain sorghum, and rice.

Irrigation research was expanded in 1981 with the installation of a lateral move overhead system on soils ranging from sandy loam to silty clay on the north part of the Station. This system accommodated irrigation research in cotton, soybeans, soybeans x wheat doublecropped, and rice. A second overhead lateral move system was installed in 1984 to provide for the expansion of cotton irrigation research on soils with high silt and clay content. These irrigation studies included application rates, time of application, different amounts, and optimum times for termination of cotton irrigation in the latter part of the growing season. In addition, a small drip irrigation system for cotton was installed near Deer Creek in 1984. Also in 1984, equipment was purchased to expand irrigation research utilizing surface water. Two new scientists were added to the Station staff to conduct the



Foreground: rice weed control, soil fertility, and disease control research plots. Beyond are crop rotation experiments on clay soils. Delta Station, 1984.



Overhead cotton irrigation system for research on sandly loam soils. Delta Station, 1983.

expanded irrigation research: an agricultural engineer in 1982 to research cotton irrigation; and a plant physiologist in 1985 to conduct research in soil moisture-root development, water infiltration rates, and irrigation timing on soils in the Mississippi Delta.

The entomology project continued work with cotton, soybeans, and horticultural crops. Experiments were conducted on insecticides, methods of application, equipment, and biological control. Some insects developed resistance to the phosphorus insecticides just as they had earlier to the hydrocarbon insecticides. There was also an increased awareness during this period of the effect of insecticides on the environment. Some insecticides were not considered environmentally safe and their use was prohibited. Thus, the search for safe, effective insecticides or combinations of insecticides was a continuing process. The ever-increasing cost of controlling insects became a major economic factor.

These factors led to increased research on biological methods of controlling insects. One such insect receiving major research effort was the tobacco budworm. This insect became a serious threat to cotton production in the Delta in the early 1970's. Economic losses caused by the tobacco budworm, its development of resistance to insecticides, and the high cost of controlling it with insecticides stimulated the search for a method of biological control.

A scientist at the Delta Station obtained genetic male sterility in the offspring of a cross between the tobacco budworm and a closely related species. Moths possessing the male sterile trait were found to be equally competitive with moths in the natural population. Studies with a computer simulation model indicated that females with the capacity to transmit male sterility would suppress the natural population below economic levels in one season if released in the proper ratio. This procedure was tested extensively in 1978-80 in a pilot research program cooperatively with the Mississippi Agricultural and Forestry Experiment Station and the U.S. Department of Agriculture in St. Croix in the Virgin Islands. A density study was conducted in the Mississippi Delta in 1981-83, and in 1985, a preliminary dispersion study of released hybrids was conducted in Arizona. The results to date are very promising. If it proves successful, it would be of major significance. Not only would the cost of control be much less than the currently recommended insecticide program, but there would be no damage to beneficial insects or to the environment.

In 1983, cotton entomology research was expanded in the Delta. This research was a joint effort between the MAFES entomologists at Mississippi State University and the Delta Station. This work complemented existing research with evaluation of pesticides and pesticide application techniques.

In the mid-1970's, livestock research was limited to the study of rations for finishing beef animals in the feedlot. By 1974, all pastures were returned to row crops except for a small holding pasture.

Finishing beef animals to a choice grade on a ration of high energy corn silage with a supplement of urea had become a successful practice. However, the production of corn for this type of operation called for good sandy loam or "cotton" soil. Considerable research was conducted with the objective of developing successful finishing rations for farms having little or no soil suitable for corn production. Sorghum grew well on the clay soils but sorghum silage fed

without the addition of expensive supplements did not give the desired degree of finish. The use of oat-wheat silage in the summer for an initial feeding period followed by feeding high energy corn silage gave excellent performance and increased the efficiency of silo use.

In 1972-74, the possibility of feeding rice silage alone or in combination with sorghum silage was investigated. While the rations containing rice silage were readily accepted by the animals, they did not offer any advantages over other rations. Harvesting problems with existing machines were considerable. With the removal of rice acreage restrictions in 1974, it was more profitable to raise rice for grain. Livestock research in the Delta was terminated in 1981 and the animal scientist transferred to the Prairie Unit of the MAFES Black Belt Branch Experiment Station.

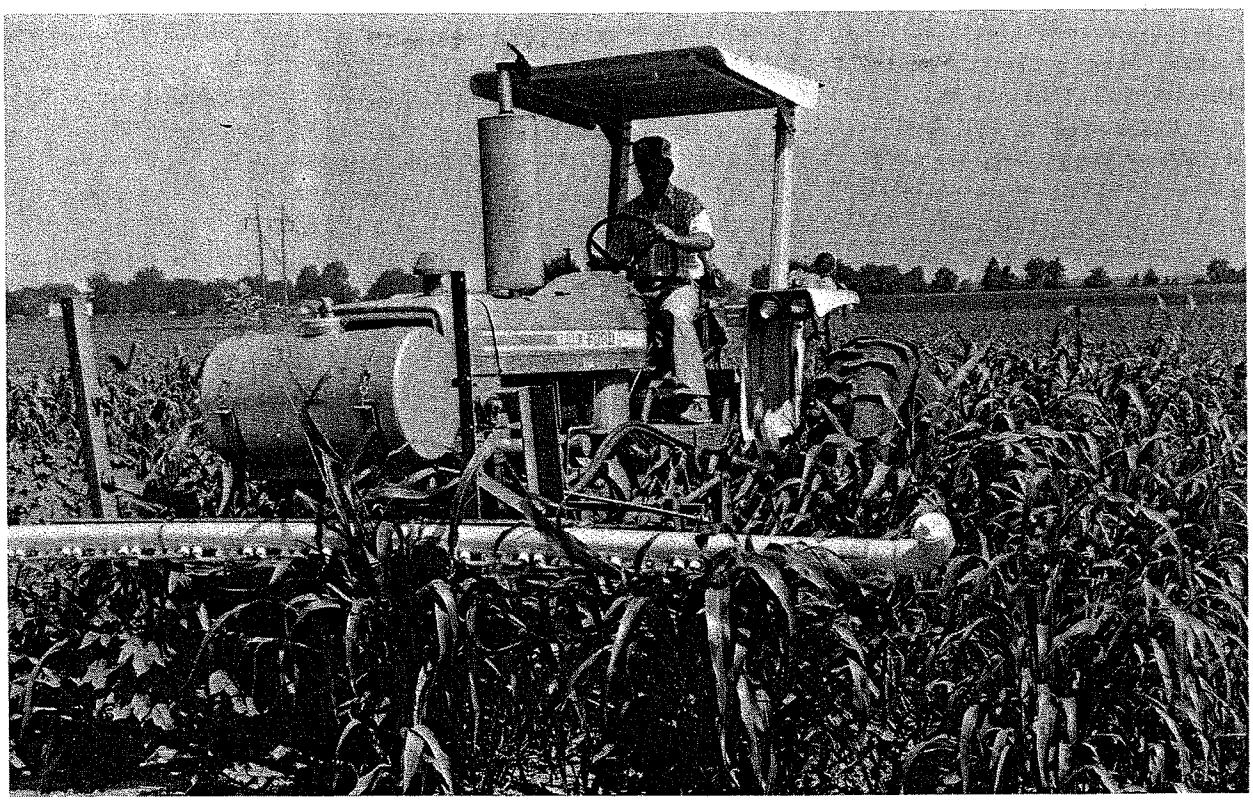
Horticultural research continued with varietal, fertilizer, and weed control studies with vegetables. Among the vegetables studied were snap and lima beans, Irish and sweet potatoes, English peas, onions, cucumbers, peanuts, and processor-type tomatoes.

Two new horticultural projects were started during this period. A vineyard was established to study varieties and production methods for muscadine and hybrid grapes. Research relating to the potential wine qualities of the muscadines was conducted at Mississippi State University. This research was the result of an act of the State Legislature permitting the establishment and operation of wineries within the state. Early results indicated that the production of muscadines and the wine and fresh juice therefrom would prove quite successful.

Research on freestone, fresh market peaches had been terminated in the mid-1960's. In 1972, a 5-acre peach orchard of clingstone types was established to study production, adaptability, and quality for the processing market. Another objective of the research was to determine if this type of peach could be successfully produced using mechanical pruning and harvesting, thus eliminating much of the expensive hand labor. The study was terminated after the 1979 season. Most of the other horticultural research at the Station had been terminated in 1977 and transferred to the MAFES Truck Crops Branch Experiment Station at Crystal Springs. However, the muscadine vineyard was continued at the Delta Branch and other MAFES locations.

With research budgets being reduced in most states, it was felt that an interstate cooperative effort could

Delta Station campus and office buildings, 1985. The main entrance faces south.



Rope wick applicator designed at Delta Station in 1978 for applying glyphosate and phenoxy herbicides.

Harvesting soybeans at the Delta Station in the 1970's.

make maximum utilization of existing research funds in each state if close coordination was developed and duplication avoided. In the fall of 1981, agricultural research administrators from Arkansas, Louisiana, and Mississippi met at the Delta Branch Experiment Station to develop plans for regional cooperation. Additional meetings and interactions between administrators and scientists were planned.

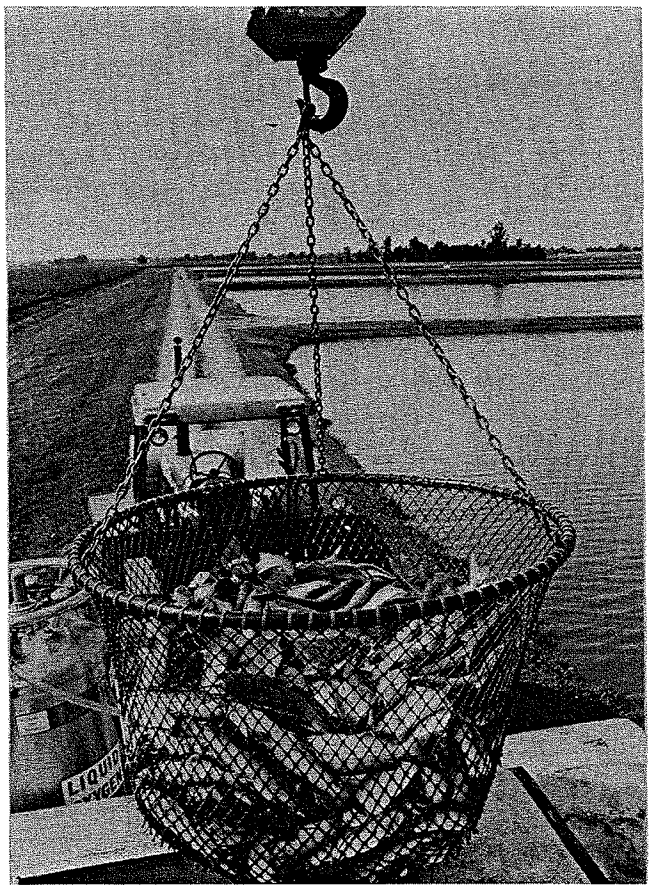
Forestry research continued with studies on fertilization, weed-tree control, forest genetics, insects, diseases, beaver control, and wildlife habitat evaluation. Studies continued on materials and methods of application of systemic insecticides to protect young cottonwood trees. Evaluation of the 14 superior cottonwood clones described in 1969 continued. Five of these clones (Stoneville 66, 67, 74, 92, and 109) were selected as superior to the others and on January 16, 1974, a bundle containing a mixture of these five clones became the first reproductive material (seeds, seedlings, or cuttings) in the United States to be given "Blue Tag" certification of genetic superiority in tree volume growth for public sale. The certification climaxed 13 years of cottonwood tree improvement research.

As a result of success and popularity of the pilot project of the National Weather Service of the National Oceanic and Atmospheric Administration, the project staff had increased to four meteorologists by 1984. The Weather Service specialized in providing daily agricultural advisories based on local weather forecasts. The advisories outline the types of field work possible based on weather interpretations. Cattlemen, poultry producers, and planters all benefit as the information supplied helps them make critical weather-related decisions. In addition, meteorologists work closely with research personnel at the Station and at other research centers in micro-climate studies and other projects with the purpose of providing even more beneficial information to the agri-community.

The agricultural economists continued to conduct research on crop production efficiency, cotton marketing, and rice production and marketing. The efficiency of new production practices was evaluated. Production budgets for the major Delta crops were developed to provide farmers with information to help them determine the most profitable crop mixes for their farms. The sharp increase in rice acreage led to much interest in on-farm drying and storage facilities. A study was made to determine the cost of owning and operating such facilities in order to help the rice producer make a decision most profitable for his operation.

In 1977, the USDA located a scientist at the Delta States Research Center to conduct pecan research in cooperation with the Delta Station. This research was expanded in 1984, when approximately 8 acres of land

Aquaculture ponds for research on channel catfish and crawfish. Delta Station, 1983.



Catfish harvesting at Delta Station in the early 1980's.

just west of the Delta States Research Center were planted with several pecan varieties. The initiation of this project fulfilled a long felt need by pecan growers both in the Delta and in the entire state.

During the period from 1977 to 1979, Mississippi had become the leading state in the production of pond-raised catfish with over 22,500 acres of ponds. In late 1978, the Delta Station completed arrangements for a long-term lease of 81 acres of land adjoining the northeast corner of the Station property for the purpose of initiating a catfish research project. This project was welcomed by the many catfish producers in the Delta since they had previously had to rely on research from other states for answers to their problems. Construction of 37 research ponds ranging in size from one-tenth to approximately 4 acres was begun in 1978 and completed in 1980. A bioassay laboratory, including small holding tanks and a fish hatchery, was also constructed.

The old west gin building was converted to an aquaculture unit and the first floor was remodeled in 1979 to provide laboratory space. Renovation of the second floor to provide offices for six aquaculture scientists plus areas for clerical personnel, a reception area, and a conference room for approximately 20 people was completed in 1984. Preliminary renovation of the third floor was initiated in 1985. Plans call for additional laboratory and office space for expanded aquaculture research, including catfish genetics and reproductive physiology.

In 1982, the Mississippi Cooperative Extension Service estimated that there were approximately 500 acres of crawfish production throughout the state. In response to this increasing interest in crawfish production and the possibility of doublecropping crawfish and rice, 16 small crawfish paddies (ponds) and a reservoir pond were constructed on the Station in 1982. This research was conducted jointly by the aquaculture and rice research units.

During 1984, with the assistance of the Delta Council and several Delta catfish producers, the Station was able to purchase an 83-acre tract of land which included the leased property. Eighteen additional 1-acre research ponds were constructed.

During this time, the catfish industry grew rapidly, and by December 1985, had increased to more than 75,000 acres of ponds. Several catfish feed mills and processing plants had located in the area assuring Delta producers of adequate feed supplies and markets for their catfish.

The aquaculture unit, staffed by Experiment Station research scientists and Mississippi Cooperative Extension Service fish specialists, conducts research on production technology, stocking rates, nutrition, water quality, and quality of processed fish. As a part of this project, the Mississippi State University College of Veterinary Medicine established the Aquatic Medicine Facility at Stoneville to conduct research in fish health.

The extensive renovation of the old west gin building had provided modern laboratory and office facilities for the aquaculture unit. Total worth of the ponds and other aquaculture research facilities located at Stoneville is estimated at one-half million dollars and the research unit has become known as one of the finest facilities in the United States.

In Retrospect

As the Delta Station passed its 80th anniversary, one pauses to reflect on the vision of that group of Washington County planters and businessmen who purchased the original 200 acres in 1904 and deeded the land to the State of Mississippi for an experiment station. If those leaders could return today to visit the Station and review its accomplishments, they no doubt would feel amply rewarded for their action 80 years ago.

The faces and physical features of the Station continually change; but the objective of the Delta Branch Experiment Station remains the same as it was in 1904—to make agriculture a profitable enterprise. To this end, more than 100 scientists and 200 supporting personnel are employed by the state and various federal agencies and located at Stoneville. The size of the Experiment Station has grown from the original 200 acres to 3,943 acres, more or less. The Station budget for 1985-86, exclusive of the budgets for the various federal agencies, amounted to more than $2.5 million derived from state appropriations, Delta county ad valorem tax funds, federal funds administered by the Station, and grants from private groups. Research results are not confined by state and regional boundaries and the results and benefits of research at the Delta Station have spread both nationally and internationally. Publications carry research findings to every state in the nation and to 65 foreign countries.

Agriculture has changed dramatically since the Delta Station first opened its doors. The economy of the region is no longer dependent upon the success of one crop—cotton. Today four other major farming enterprises, namely soybeans, rice, catfish, and forestry, add significantly to the economy.

The social structure of the Delta has also changed significantly as a result of full mechanization. Hand labor has largely been replaced by machines and chemicals. The migration of largely unskilled labor from the farms to the cities and towns in search of a livelihood created additional problems. This available pool of labor encouraged the establishment of many, usually small, industries throughout the Delta and Mississippi.

As late as 1950, there were thousands of acres of low-lying, scrub timber-covered land throughout the Delta which were contributing little or nothing to the economy of the state. The development of mechanization, new varieties of soybeans, and the introduction of rice and catfish production led to the rapid clearing and draining of much of this land. Thus, the unproductive land which had been of little value suddenly became a valuable asset in the economy of the Delta.

The changes in agriculture also brought about the demise of the small farm in favor of the larger and more efficient farming enterprise. Whether or not this is an unwise development as claimed by some will remain for the future to reveal.

The development of the Delta Station into an outstanding research center known all over the world can be attributed to many things—the dedicated staff members who have worked at Stoneville through the years, the funding and support provided by the Mississippi State Legislature and the Levee District Counties, special grants and other funds received from the Federal government and Mississippi producer groups, and most importantly, the support, encouragement, and use of the Station by the Delta people. Without any one of these, many of the research accomplishments of the Delta Station would not have been possible.

Delta Council

The early settlers of the Yazoo-Mississippi Delta operated independently with each plantation largely a self-supporting unit. As the population increased and trails became roads, cooperation between individual plantations gradually increased. However, cooperation to face common problems was generally restricted to localities.

In the late 1920's, a group of men developed the idea of an organization covering the entire Delta to promote the common interests of the half million people living in the region at that time. The first organizational meeting was held in August 1929, at Stoneville. The various Boards of Supervisors and Chambers of Commerce recognized the possibilities and appropriated nearly $3,000 for the county agents to use toward the expense of an exhibit at the International Livestock Exposition and Hay and Grain Show in Chicago. Further development of the association was stymied by the depression years.

A revival of interest in an area organization occurred in 1935 when Robert Leopold, State Chamber of Commerce Secretary; Mrs. C. H. Williams, Washington County Chamber of Commerce Secretary; and W. E. Ayres, Director of the Delta Experiment Station, discussed plans enlisting new leadership in a regional organization. Several informal discussion meetings were held throughout the Delta with community and business leaders.

The formal organizational meeting was held on March 5, 1935, at Stoneville. Officers, directors, and an executive manager were elected. W. M. Kethley of Cleveland was the first president with Robert Leopold elected as the first manager. The name Delta Chamber of Commerce was selected as the official name and Stoneville its home. The first budget was set at $5,000. At the third annual meeting in 1938, reorganization was approved and the name was changed to Delta Council.

The Delta Council represented the 18 Delta and part-Delta counties of Mississippi in an area technically referred to as the Yazoo-Mississippi Delta. This area stretches from the Tennessee state line on the north, 220 miles southward to Vicksburg, with the Mississippi River as its western boundary and the hills, the eastern boundary. The area has often been described as stretching from the lobby of the Peabody Hotel in Memphis to "Catfish Row" in Vicksburg. It is roughly in the shape of a half-moon and is approximately 60 miles across at the widest point. The area comprises 5,500,000 acres of alluvial land. Stoneville is located on the western side approximately halfway between the north and south boundaries.

Motivating factors behind the organizational effort of the Delta Council included the highly homogeneous nature of the people living in the area, the dependence upon agriculture for a source of livelihood, the vital necessity of flood control, and the need for the development of major highways.

The unity of effort that led to the formation of the Council has prompted the expansion of work from the original fields to include a program of activities relating to business, education, health, research, and industrial and community development. Today, the Delta Council represents all segments of the area's economy. Its influence has had considerable impact upon national policy affecting the Delta area. Its membership represents the top business, agricultural, and professional leaders of the area.

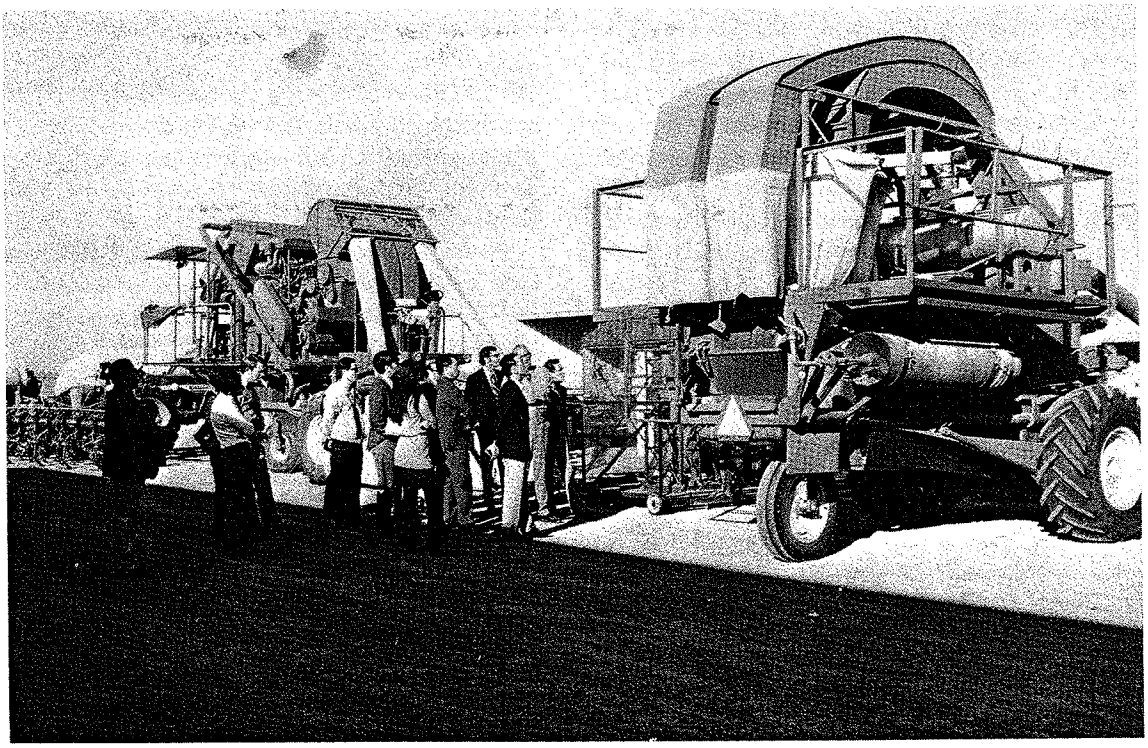
Since the Delta is still predominantly an agricultural area, a large part of the Delta Council's work continues to be devoted to agriculture. Throughout the years, it has made many noteworthy achievements in agriculture, not only in the Delta but of national scope. The Delta Council was the motivating influence behind the organization of the National Cotton Council of America in 1938. Delta Council leaders also spearheaded action to expand research and promotional efforts through the Cotton Producers Institute and, later, through Cotton Incorporated.

During the 1930's, unscrupulous cotton buyers and dealers labeled cotton grown outside the Delta as Delta-grown cotton, thus securing extra premiums which were allotted to Delta cotton. The resulting mixture of cottons at the mills resulted in uneven dyeing and rejected goods, costing cotton spinners appreciable amounts of money. In 1940, the Southern Combed Yarn Spinners Association appealed to the Delta Council for help in solving the problem. As a result, the Delta Council Bale Identification Association was formed under the chairmanship of Homer McNamara, Superintendent of the Delta Experiment Station. The association developed a distinctive red, white, and blue tag as its distinguishing insignia. A steel wire and lead seal attached the tag to the bale permanently marking the cotton. The tags were designed to serve as gin tags, thus identifying each gin. The sale of the tags each year by the Delta Council Bale Identification Association not only protects the sales of its cotton, but serves as a trademark of Yazoo-Mississippi Delta cotton for the buying trade.

Since its inception, the Delta Council has been housed at the Delta Branch Experiment Station. This relationship has been mutually beneficial. The Delta

Council Agricultural Advisory Research Committee maintains a close relationship with the Experiment Station and has been most helpful in securing needed research funds from state, national, and private sources.

The newly reorganized Delta Council, in 1935, worked with the Mississippi State Legislature to secure the tract of forest land for the Station. In 1950, the Delta Council formed the Delta Research Foundation which, in 1951, purchased and deeded to the Station 466.75 acres of land adjoining the Station property on the north. In 1984, the Delta Research Foundation worked with Experiment Station administrators and producers to purchase additional land for the purpose of expanded aquaculture research. The Research Foundation has continued to function as a means of channeling funds from industry into agricultural research.



Group of foreign cotton spinners observing experimental cotton harvesting equipment, including a picker-gin (left) at the Delta Station.

U.S. Cotton Ginning Research Laboratory

Unlike most other crops which leave the ownership of the producer before they are processed, cotton belongs to the grower until after it is ginned. Poor ginning can reduce the value of the cotton considerably. This fact was recognized by cotton leaders in the 1920's and organized efforts were made to secure cotton ginning and fiber research. The first result of these efforts was the assignment, by the U.S. Bureau of Public Roads, of Agricultural Engineer Charles A. Bennett to the U.S. Department of Agriculture Field Station at Tallulah, Louisiana, to conduct research on cotton drying. This early work showed the need for an experimental gin housed in a controlled environment for detailed research.

In 1930, U.S. Representatives Whittington of Mississippi and Buchanan of Texas introduced a bill in the U.S. Congress providing for the establishment of cotton ginning research facilities and carrying an appropriation of $100,000. This bill passed Congress and was signed by President Hoover. The Bureau of Agricultural Engineering was established on July 1, 1930, and the Secretary of Agriculture assigned the engineering research responsibilities of the new laboratory to it. Responsibilities for fiber quality research were assigned to the Bureau of Agricultural Economics. Charles A. Bennett was transferred to Stoneville to start construction of the new laboratory.

Construction work began in July 1930, on a 4.95-acre tract of land deeded by the State of Mississippi (Delta Station) to the U.S. Government. The site chosen was on the south side of Deer Creek. At that time, it was thought, or maybe only hoped, that a new Leland to Greenville highway would be constructed paralleling the Columbus & Greenville Railroad. The new state office building was constructed to face the proposed highway. The site for the Ginning Laboratory would then be located on the back side of the Station. But the best laid plans do not always bear fruit. The Ginning Laboratory complex is now the first unit seen as one enters the Station grounds on the road from Leland.

The first building constructed was a cotton house which was used for tools, equipment, and supplies. Until the Delta Station office building was completed in 1931, Mr. Bennett's office was in a tenant shack on the north side of Deer Creek across from the construction site. After the Station office building was completed, he and his small staff had office and laboratory space in this building until 1934.

With the help of funds from the Public Works Administration, a three-story office and fiber laboratory building was completed and occupied in 1934. Since that time, a commercial-type laboratory, gin, and numerous other buildings have been constructed. An additional 4.09 acres were deeded to the Ginning Laboratory in 1965 by the Delta Station for further expansion. This followed an appropriation of $250,000 by the U.S. Congress in late 1963. For many years, the Ginning Laboratory at Stoneville was the only such laboratory in the United States.

Since the ginning operation influences the research results in agronomy, marketing, and utilization, cooperative work extends from the cotton geneticist to the spinner of ginned lint. The Ginning Laboratory cooperates closely with state and federal cotton scientists at the Delta Station as well as with other public and private research agencies and with industry.

The first research project was the development of a seed cotton drying system. Since then, research has developed in all phases of cotton ginning including ginning processes, seed cotton storage and handling, drying and moisture control, cottonseed cleaning, drying systems, grass and trash removal, lint cleaners, lint samplers, fiber properties, utilization of waste products, packaging, and pollution control. Research conducted by the Ginning Laboratory since its inception in 1930 has contributed mightily to the world of cotton.

Many public patents have been issued on equipment and improvements developed and tested by the Ginning Laboratory. The research results are known throughout the world wherever man is concerned with ginning cotton. Groups of growers and ginners from the cotton producing areas of the United States and around the world are frequent visitors at the Ginning Laboratory.

Mississippi Cooperative Extension Service

Scientists at the Delta Station have always cooperated closely with the county Extension agents in the various Delta counties. They recognized that one important way of getting the latest research information to the farmer was through the Mississippi Cooperative Extension Service.

Research personnel furnish county agents with research data and recommendations, serve as speakers at county meetings, conduct off-station experiments in cooperation with the agents and assist in solving problems that arise. Extension agents bring groups of farmers to the Station during the summer to see the latest research. Agents usually meet once a year with the research staff to discuss problems and to suggest needed research information. The close liaison between the two groups not only insures the farmer of access to the latest research information, but also keeps the research personnel informed of current problems as they arise.

In 1953, the District Extension Agent and the District Home Demonstration Agent moved their offices from Greenwood to the Delta Branch Experiment Station. Since that time, the Mississippi Cooperative Extension Service has maintained a suite of offices at the Station for Extension specialists and support personnel.

State Department of Agriculture

Grain Inspection Service

Shortly after the end of World War II, the State Department of Agriculture Grain Inspection Service, located a representative at the Delta Station. The farmers in the Delta could obtain official grades for their soybeans, corn, oats, and wheat. This service was rendered the farmers from the Delta Station until the mid-1960's when the laboratory was moved to Greenville.

State Plant Board

The Mississippi State Plant Board, now referred to as the Division of Plant Industries, also located a representative at the Delta Station shortly after the end of World War II and still maintains an office there.

State–Owned Land at the Delta Branch Experiment Station.

Acres	Date	Transaction
200.00	1904	Purchased from Bettie and Joshua Skinner
51.00	1906	Purchased from N. C. Skinner
300.00	1928	Purchased from T. L. Dobson
9.00	1928	10 lots purchased to straighten property lines
560.00		(Commonly referred to as old station property)
–4.95	1930	Deeded U.S. Government for cotton ginning laboratory
–5.66	1934	Deeded U.S. Government for house sites
–3.45	1934	Deeded U.S. Forest Service
–5.10	1934	Deeded USDA (in present shop area)
– .25	1934	Deeded USDA for genetics building
540.59		State owned acreage 1935
2,580.00	1936	Forest land deeded to Station by State
5.10	1949	Deeded back to Station by USDA
466.00	1951	Crosby addition, leased 1951, purchased 1962
40.00	1952	Additional forest purchased
40.00	1960	Forest as result correction of original survey
5.66	1965	Deeded back to Station in exchange for 4.09 acres by U.S. Government
– 4.09	1965	Deeded to USDA for Ginning Laboratory expansion
–17.06	1965	Deeded to USDA for Delta States Research Center
83.00	1984	Purchased from St. Clair Plantation for aquacultural research
3,739.20		Total State–owned acreage, 1984

U.S. Government Land at the Delta Branch Experiment Station.

Acres	Date	Transaction
4.95	1930	Deeded by Station for Cotton Ginning Laboratory
202.50	1934	Armstrong Tract purchased for cotton field station
.25	1934	Deeded by Station for genetics building
5.66	1934	Deeded by Station for house sites
3.45	1934	Deeded by Station for U.S. Forest Service
5.10	1934	Deeded by Station for house sites
221.91		
– 5.10	1949	Deeded back to Station
– 5.33	1952	Deeded to Leland Consolidated School District
– 2.41	1954	Deeded to Leland Consolidated School District
–20.60	1960	Deeded to Leland Consolidated School District
188.47		U.S. Government acreage, 1960
.23	1962	Purchased to straighten property line
4.09	1965	Deeded to USDA by Station for Cotton Ginning Laboratory
17.06	1965	Deeded to USDA by Station for Delta States Research Center
209.85		
– 5.66	1965	Deeded back to Station by USDA
204.19		Total acreage, U.S. Government

State Building Inventory, 1985

Item	Date	Cost	Square footage
House No. 2	1930	$3,000	1,836
House No. 5	?	4,050	2,050
House No. 11	?	1,500	1,500
House No. 12	?	4,300	1,800
House No. 4	1949	12,000	1,824
House No. 6	1949	16,000	2,258
Old office-laboratory	1930,1949	211,967	29,436
New office-laboratory	1966	485,453	20,000
Entomology laboratory	1958	29,985	2,240
Entomology insectary	1958	6,000	1,830
Four greenhouse units	1964	98,208	5,200
Other greenhouses	1948,'52,'57,'58,'61,'68	70,101	9,927
Farm shop	1945,1951	10,000	4,942
Research shop	1965	38,690	4,800
Grain bins (6)	1966,1983	39,969	
Weed control quonset	1961,1962,1984	32,500	2,424
Chemical storage	1964	8,253	2,400
Fertilizer storage	1966	4,000	800
Solvent storage	1980	32,348	1,800
Compartment storage	1980	58,719	4,040
Warehouse	1966	9,244	2,400
Gin buildings (3)	1937	43,500	27,000
Carpenter shop	1944	3,825	2,052
Horticulture field house	1961	5,134	2,562
Fire house	1957	500	210
Ice house	1955	200	216
Acid delinting building	1975,1985	33,500	1,500
Public rest rooms	1964	900	1,500
Airplane hanger	1967	3,956	1,350
Large machinery storage	1980	30,872	10,320
East tractor shed	1939	1,875	5,670
West tractor shed	1945	2,750	5,670
Tractor shed	1961	1,000	2,560
Tractor shed	1964	5,540	5,376
Combine shed	1964	5,610	6,000
Equipment shed	1974	7,000	2,160
Equipment shed	1975	4,500	1,152
Auto shed	1956	1,200	6,468
Tool shed	1956	500	216
Labor shed	1964	1,818	400
Livestock laboratory	1955,1964,1965	8,995	5,000
Livestock insectary	1961	2,000	400
Livestock storage (2)	1961,1962	1,200	2,000
Hay storage	1961	4,000	6,000
Covered feedlot	1971	72,500	7,904
Silo	1952	1,030	
Silo	1959	1,300	
Silo (2)	1966	1,656	
Silo	1969	13,822	
Silo	1972	14,974	
Fish tank building	1981	58,405	6,000
Seed & equipment storage	1980	44,768	4,320
Paint shed	1983	4,000	800

Professional Staff of the Delta Branch Experiment Station[1] 1904-1985.

*Abbas, Hamed K.	Ph.D.	Res. Plant Pathology	1990-
*Abrahamson, L. P.	Ph.D.	Forestry	1969-73
Adair, H. M.	Ph.D.	Entomology	1978-79
Adams, J. E.	Ph.D.	Superintendent	1942-46
Anderson, J. M.	Ph.D.	Agricultural Economics	1969-76
Ayres, W. E.	M.S.	Superintendent	1922-37
Bagga, D. K.	Ph.D.	Pathology	1968-71
Bagga, H. S.	Ph.D.	Pathology	1966-76
Baggette, T. L.	B.S.	Agricultural Engineering	1944-46
*Bailey, J. C.	Ph.D.	Entomology	1967-89
*Baker, J. B.	Ph.D.	Forestry	1971-78
Baker, R. S.	Ph.D.	Weed Control	1961-91
*Barker, G. L.	M.S.	Agricultural Engineering	1964-72
Barrentine, W. L.	Ph.D.	Weed Control	1964-
*Bassi, Albert	Ph.D.	Weed Control	1983-85
*Beaufait, W. R.	Ph.D.	Forestry	1954-57
*Beland, G. L.	Ph.D.	Entomology	1972-79
Beleau, M. H.[2]	D.V.M.	Aquaculture	1982-87
*Bell, J. V.	Ph.D.	Entomology	1972-82
*Bell, M. R.	Ph.D.	Entomology	1985-
Bingham, S. W.	M.S.	Weed Control	1956-58
Black, Cecil	B.S.	Livestock	1941-42
*Blackmon, B. G.	Ph.D.	Forestry	1967-78
*Bobb, William R.	B.S.	Agri. Meteorologist	1990-92
*Bode, L. E.	Ph.D.	Agricultural Engineering	1972-74
*Bonner, F. T.	Ph.D.	Forestry	1959-66
Bowman, D. H.	Ph.D.	Agronomy	1948-76
*Boyette, C. D.	Ph.D.	Weed Control	1983-
Brain, S. G.	B.S.	Agronomy	1935-48
*Brewer, F. D.	Ph.D.	Entomology	1970-84
Bridge, R. R.	Ph.D.	Agronomy	1965-92
*Briscoe, C. B.	D.F.	Forestry	1967-73
*Broadfoot, W. M.	M.S.	Forestry	1956-73
*Broder, M.	Ph.D.	Weed Control	1985-86
Brown, H. B.[3]	Ph.D.	Agronomy	1915-21
*Brown, James	Ph.D.	Research Plant Geneticist	1988-89
*Brown, M. A.	Ph.D.	Math. Statistician	1980-85
Brown, P. H.	B.S.	Agronomy	1940-41
*Bryson, C. T.	Ph.D.	Weed Control	1983-
Bullock, J. S.	Ph.D.	Soils	1964-67
Burchfield, E. G.	B.S.	Administration	1963-
Busch, R. L.	Ph.D.	Aquaculture	1980-86
Caffey, H. R.	Ph.D.	Agronomy	1958-62
Caillavet, D.	M.S.	Agricultural Economics	1989-
*Calcote, Vernon	Ph.D.	Research Entomologist	1985-90
Calhoun, D. S.	Ph.D.	Agronomist	1993-
*Calhoun, S. L.	B.S.	Entomology	1944-51
Campbell, G. M.	Ph.D.	Horticulture	1966-70
Cannon, J. M.	Ph.D.	Horticulture	1971-73
Caperton, F. M.	B.S.	Agricultural Engineering	1936-42
*Carle, Robert R.	B.S.	Agri. Meteorologist	1990-
*Carlson, D. W.	B.S.	Forestry	1991-
*Carmichael, Gary	Ph.D.	Supvry Res Geneticist	1988-91
*Carns, H. R.	Ph.D.	Physiology	1950-57
*Carpenter, B. F.	M.S.	Forestry	1958-65
Carr, R. B.	M.S.	Agronomy	1943-50
Carver, L. A.	Ph.D.	Livestock	1975-77
*Cathey, G. W.	M.S.	Physiology	1967-87
*Chandler, J. M.	Ph.D.	Agronomy	1970-82
Chism, J. F.	B.S.	Agronomy	1965-82
*Christiansen, M. N.	Ph.D.	Physiology	1955-63
*Clayton, J. E.	M.S.	Agricultural Engineering	1961-64
*Cleveland, O. A.	Ph.D.	Agricultural Economics	1976-77
*Cleveland, T. C.	M.S.	Entomology	1974-86
Coats, G. E.	M.S.	Physiology	1965-67
Collins, J. C.	M.S.	Livestock	1958-65
*Cooke, F. T.	M.S.	Agricultural Economics	1957-86
		Economics	1986-
*Cooper, D. T.	Ph.D.	Forestry	1970-80
Cowart, Roland	Ph.D.	Soils	1933-37
*Cranston, Keith	B.S.	Forestry	1945-47
*Crowe, G. B.	Ph.D.	Agricultural Economics	1947-67
*Culp, T. W.	Ph.D.	Agronomy	1957-64
Currey, E. A.	M.S.	Horticulture	1928-43
*Dale, J. E.	M.S.	Weed Control	1976-90
*Daniels, J. A.	M.S.	Weather Service	1985-87
*Darwin, W. N.	M.F.	Forestry	1964-70
Davis, N. P.	B.S.	Agronomy	1949-50
Davis, Johnny	Ph.D.	Agronomy	1953-54
Davis, L. B.	B.S.	Entomology	1965-70
Davis, R. G.	Ph.D.	Pathology	1971-82
Deese, R. E.	M.S.	Livestock	1957-58
*D'Ercole, A. J.	M.D.	Community Studies	1972-73
*Dick, J. B.	M.S.	Agronomy	1935-36
			1946-65
*Downey, D. A.	M.S.	Weather Service	1975-77
*Duke, S. O.	Ph.D.	Weed Control	1976-
*Dumbroff, E. B.	Ph.D.	Forestry	1964-65
*Dunnam, E. W.	Ph.D.	Entomology	1936-55
Ebelhar, M. W.	Ph.D.	Soils	1980-
*Edwards, C. J.	B.S.	Agronomy	1952-89
*Edwards, G. E.	Ph.D.	Weed Control	1970-71
*Egley, G. H.	Ph.D.	Weed Control	1970-
*Elmore, C. D.	Ph.D.	Weed Control	1970-
*Elzen, G.	Ph.D.	Entomology	1988-89
Evans, R. R.	Ph.D.	Livestock	1978-81
*Ewing, Battle	B.S.	Agricultural Engineering	1947-49
Ewing, E. C., Jr.	B.S.	Agronomy	1949-51
Ewing, E. C.[3]	M.S.	Agronomy	1911-15
Farish, L. R.	M.S.	Horticulture	1944-51
*Farmer, R. E.	Ph.D.	Forestry	1961-67
*Ferguson, R. B.	M.S.	Forestry	1974-80
*Filer, T. H.	Ph.D.	Forestry	1963-90
*Firko, Michael	Ph.D.	Ecology	1988-89
Fisher, C. D.	B.S.	Administration	1959-93
*Flynn, M. S.	M.S.	Weather Service	1975-79
Fox, J. W.	B.S.	Superintendent	1906-10
*Fox, Joyce A.	B.S.	Weather Service	1982-83
*Francis, J. K.	Ph.D.	Forestry	1978-85
Francis-Floyd, Ruth[2]	D.V.M.	Aquaculture	1985-87
*Frick, K. E.	Ph.D.	Weed Control	1971-83

*Friesen, J. A.	M.S.	Agricultural Engineering	1965-67
*Fulgham, F. E.	M.S.	Agricultural Engineering	1952-90
*Furnival, G. M.	Ph.D.	Forestry	1952-55
*Furr, R. E.	Ph.D.	Entomology	1952-82
Furr, R. E., Jr.	B.S.	Entomology	1975-
*Gantt, C. W.	M.S.	Agricultural Engineering	1965-80
Gary, J. E.	M.S.	Agronomy	1967-68
*Gaston, Lewis	Ph.D.	Soil Scientist	1991-
*Ghetti, Joe	M.S.	Agricultural Economics	1973-79
*Gifford, J. R.	M.S.	Asst. Area Director	1975-80
Giles, W. L.	Ph.D.	Superintendent	1952-61
Ginn, M. K.	B.S.	Community Studies	1970-74
*Goelz, J. C.	M.S.	Forestry	1989-
*Goudie, Cheryl	Ph.D.	Res Physiology	1988-
Graham, E. N.	M.S.	Livestock	1955-57
Green, J. M.	Ph.D.	Agronomy	1947-49
Grimes, D. W.	B.S.	Horticulture	1926-27
Grissom, P. H.	M.S.	Soils	1946-63
Gull, Proctor W.	M.S.	Agronomy	1939-46
Guravich, D. A.	Ph.D.	Agronomy	1949-53
*Hacskaylo, John	Ph.D.	Physiology	1953-55
*Hacskaylo, Joseph	Ph.D.	Physiology	1968-73
Halterlein, A. J.	Ph.D.	Horticulture	1978-82
*Hamerski, Michael	Ph.D.	Entomology	1988-90
Hancock, F. G.	Ph.D.	Asst. Agronomist	1991-
*Hanks, James	M.S.	Agricultural Engineering	1981-
*Hanny, Barbara W.	Ph.D.	Physiology	1972-79
*Hardee, D. D.	Ph.D.	Entomology	1988-
*Harlin, D. P.	M.S.	Entomology	1972-74
*Harper, Sidney S.	Ph.D.	Weed Control	1985-89
Harris, F. A.	Ph.D.	Entomology	1989-
*Harrison, Willye W.	M.S.	Entomology	1983-
*Hartwig, E. E.	Ph.D.	Agronomy	1948-
*Hatchett, J. H.	Ph.D.	Entomology	1973-75
Hawthorne, W. L.	Ph.D.	Horticulture	1969-74
*Heagler, A. M.	M.S.	Agricultural Economics	1957-65
*Heatherly, L. G.	Ph.D.	Agronomy	1975-
Hegwood, C. P.	Ph.D.	Horticulture	1974-77
*Heihold, J. J.	Ph.D.	Plant Physiology	1988-
*Hendricks, D. E.	Ph.D.	Entomology	1988-
*Henson, P. R.	M.S.	Agronomy	1931-38
			1943-48
*Hoagland, R. E.	Ph.D.	Weed Control	1972-
*Hoffman, John	Ph.D.	Microbiology	1991-
*Hoffman, R. A.	M.S.	Entomology	1957-61
Hogg, P. G.	Ph.D.	Agronomy	1946-68
Hogue, C. W.	M.S.	Weed Control	1968-73
*Holder, S. H.	M.S.	Agricultural Economics	1973-79
*Hollingsworth, E. B.	M.S.	Weed Control	1972-83
Holloway, J. W.	Ph.D.	Livestock	1973-75
*Holstun, J. T.	Ph.D.	Agronomy	1950-65
*Hopper, K. R.	Ph.D.	Entomology	1983-86
*Hotz, David	B.S.	Agri. Meteorologist	1992-
*Howard, K. D.	Ph.D.	Agricultural Engineering	1992-
*Hull, D. D.	B.S.	Weather Service	1978-85
*Hursh, J. S.	B.S.	Weather Service	1963-84
Hurst, H. R.	Ph.D.	Weed Control	1974-
Ivy, H. W.	M.S.	Weed Control	1966-74
Jackson, B. R.	Ph.D.	Agronomy	1985-89
*Jackson, James S.	B.S.	Agri. Meteorologist	1992-
Jansen, Maura[2]	Ph.D.	Aquaculture	1992-92
*Johnson, H. W.	Ph.D.	Pathology	1946-68
*Johnson, J. W.	Ph.D.	Forestry	1947-52
Johnson, M. R.[2]	Ph.D.	Aquaculture, CVM	1989-
*Johnson, R. L.	M.S.	Forestry	1955-88
*Jones, J. K.	B.S.	Agricultural Engineering	1948-52
*Jones, J. P.	Ph.D.	Pathology	1956-59
*Jones, Walker	Ph.D.	Entomology	1980-85
Jordan, J. H.	Ph.D.	Rotations/Weed Control	1983-85
Jordan, T. N.	Ph.D.	Weed Control	1974-78
*Justus, N. E.	Ph.D.	Agronomy	1958-64
Kanter, D. G.	Ph.D.	Assoc. Agronomist	1988-
*Keeling, B. L.	Ph.D.	Pathology	1967-92
*Kennedy, H. E.	Ph.D.	Forestry	1966-69
			1970-
*Kilen, T. C.	Ph.D.	Agronomy	1967-
Kilpatrick, R. A.	Ph.D.	Pathology	1951-55
King, C. E.	Ph.D.	Entomology	1954-58
*King, E. E.	Ph.D.	Physiology	1972-80
		Associate Area Director	1980-84
		Associate Area Director	1985-87
*King, E. G.	Ph.D.	Entomology	1972-88
Kitten, W. F.	Ph.D.	Entomology	1979-89
*Kloth, R. H.	Ph.D.	Physiology and Genetics	1985-
*Knipling, E. B.	Ph.D.	Area Director	1972-78
*Koskinen, W. C.	Ph.D.	Weed Control	1980-86
*Kreasky, J. B.	Ph.D.	Weed Control	1974-78
*Krinard, R. M.	M.F.	Forestry	1957-89
Kurtz, M. E.	Ph.D.	Rotations/Weed Control	1980-
Kuykendall, Roy	B.S.	Soils	1927-43
*Kwiatkowski, John	M.S.	Weather Service	1980-85
*Lambert, Lavone	Ph.D.	Entomology	1980-
*Langsford, E. L.	B.S.	Agricultural Economics	1935-38
*Larson, L. W.	Ph.D.	Associate Area Director	1984-85
Laster, M. L.	Ph.D.	Entomology	1959-86
*Laster, M. L.	Ph.D.	Entomology	1988-
*Lee, Hee L.	Ph.D.	Plant Physiology	1991-
*Leffler, H. R.	Ph.D.	Physiology	1972-85
*Lehnen, Larry	Ph.D.	Plant Physiology	1988-89
*Leininger, T. D.	Ph.D.	Forestry	1991-
*Lewis, L. F.	B.S.	Entomology	1953-56
*Lewis, R.	Ph.D.	Forestry	1976-86
*Lindsey, M. M.	M.S.	Agricultural Economics	1960-65
Livingston, Rex	M.S.	Agronomy	1956-59
*Lloyd, E. P.	Ph.D.	Entomology	1956-63
*Locke, M. A.	Ph.D.	Soil Scientist	1989-
Loe, R. H.	M.S.	Agronomy	1961-64
*Looney, Z. M.	B.S.	Agricultural Economics	1973-74
Lowery, W. L.	B.S.	Entomology	1950-51
*Luckett, K. E.	B.S.	Agricultural Engineering	1960-
*Luke, H. H.	Ph.D.	Pathology	1954-55
Lund, Z. F.	B.S.	Agronomy	1951-55
*Maisenhelder, L. C.	M.F.	Forestry	1944-69
*Martin, D. F.	Ph.D.	Entomology	1968-80
*McConnell, J. L.	B.S.	Forestry	1969-73
*McCracken, F. I.	Ph.D.	Forestry	1968-91
McCrory, J. L.	B.S.	Agronomy	1961-63
McFadden, W. P.	B.S.	Livestock	1936-41
*McKnight, J. S.	M.F.	Forestry	1947-70
McMeans, J. L.	M.S.	Physiology	1954-61
*McMichael, B. L.	Ph.D.	Physiology	1971-79
McNamara, H. C.	M.S.	Superintendent	1937-42
*McWhorter, C. G.	Ph.D.	Weed Control	1952-92
*McWilliams, J. M.	M.S.	Entomology	1972-92
*Meadows, J. S.	Ph.D.	Forestry	1989-
*Meek, W. E.	B.S.	Agricultural Engineering	1945-51
*Meredith, W. R.	Ph.D.	Agronomy	1964-
*Merkl, M. E.	Ph.D.	Entomology	1953-63
*Meyer, J. R.	Ph.D.	Agronomy	1948-67

Meyer, Vesta G.	M.S.	Agronomy	1954-80
Milam, M. R.	Ph.D.	Agronomy	1981-84
Miley, D. G.	Ph.D.	Superintendent	1948-51
Miller, T. C.	Ph.D.	Agronomy	1976-81
*Minton, E. B.	M.S.	Physiology	1952-54
			1956-56
			1979-90
*Mohn, C. A.	Ph.D.	Forestry	1967-70
*Moorman, T. B.	Ph.D.	Weed Control	1983-91
*Morgan, F. L.	Ph.D.	Pathology	1962-66
*Morris, R. C.	M.F.	Forestry	1955-75
Morrison, E. G.	M.S.	Livestock	1952-56
*Mueller, Thomas	Ph.D.	Entomology	1990-
*Mulrooney, J. E.	Ph.D.	Entomology	1990-
*Muntz, H. H.	B.S.	Forestry	1941-44
Musick, J. A.	Ph.D.	Agricultural Economics	1983-85
*Neely, J. W.	Ph.D.	Agronomy	1935-46
*Newton, Oliver	B.A.	Weather Service	1962-63
*Ohr, O. H.	Ph.D.	Weed Control	1973-75
*Oliveria, F. L.	Ph.D.	Forestry	1976-79
Owings, A. D.	B.S.	Agronomy	1957-59
*Parencia, C. R.	B.S.	Entomology	1977-80
*Parker, R. E.	M.S.	Agricultural Engineering	1960-68
*Patterson, D. T.	Ph.D.	Weed Control	1977-83
*Paul, R. N.	M.S.	Weed Control	1980-
Pennington, D. A.	Ph.D.	Physiology	1985-90
*Pennington, Karrie	Ph.D.	Soil Scientist	1986-88
*Perron, R. C.	M.D.	Community Studies	1967-69
*Peterson, K. M.	M.A.	Forestry	1958-58
Pettiet, J. V.	Ph.D.	Soils	1964-74
*Pettigrew, W. T.	Ph.D.	Plant Physiology	1991-
*Pfrimmer, T. R.	Ph.D.	Entomology	1957-85
Pierce, C. A.	B.S.	Administration	1966-92
Pierce, Charlotte G.	B.S.	Librarian	1972-92
*Pires, E. G.	Ph.D.	Physiology	1966-67
Pitner, J. B.	Ph.D.	Soils	1944-46
*Polles, S. G.	Ph.D.	Entomology	1977-80
Porter, W. K.	B.S.	Agronomy	1949-51
	Ph.D.	Superintendent	1961-70
*Pothuluri, Jairaj	Ph.D.	Microbiology	1987-89
*Potter, J. R.	Ph.D.	Weed Control	1970-75
*Powell, Janine E.	Ph.D.	Entomology	1981-91
Pringle, H. C. III	M.S.	Agricultural Engineering	1982-
Pugh, Julia C.	M.A.	Librarian	1966-72
Pund, W. A.	M.S.	Livestock	1965-73
*Putnam, J. A.	B.S.	Forestry	1940-41
			1945-69
*Putnam, Paul A.	Ph.D.	Area Director	1987-
*Quimby, P. C.	Ph.D.	Weed Control	1972-89
Ramey, H. H.	Ph.D.	Agronomy	1955-57
			1959-61
*Randall, W. K.	M.S.	Forestry	1968-77
*Ranney, C. D.	Ph.D.	Pathology	1959-69
		Area Director	1978-87
Ranney, C. D.		Head DBES & Asst. Dir. MAFES	1987-
*Rayburn, S. T.	B.S.	Agricultural Engineering	1971-
Reames, J. E.	B.S.	Agricultural Engineering	1966-
*Reger, B. J.	Ph.D.	Weed Control	1970-75
*Rench, W. E.	Ph.D.	Weather Service	1975-92
Richard, E. P.	Ph.D.	Weed Control	1978-80
*Riley, J. A.	B.A.	Weather Service	1959-61
*Roark, B. A.	Ph.D.	Physiology	1958-70
Roberts, G. M.	B.S.	Weed Control	1968-73
*Roberts, R. H.	Ph.D.	Entomology	1961-75
Robinson, E. H.	Ph.D.	Aquaculture	1987-
*Robinson, E. L.	Ph.D.	Weed Control	1965-75
*Roth, J. P.	Ph.D.	Entomology	1977-78
*Rothman, P. G.	Ph.D.	Agronomy	1955-67
*Russell, W. J.	Ph.D.	Agronomy	1975-77
*Rutger, J. N.	Ph.D.	Asst. Area Director	1988-
*Savage, K. E.	Ph.D.	Weed Control	1966-80
Savely, H. E.	B.S.	Superintendent	1904-06
Sayre, C. R.	M.S.	Superintendent	1946-48
*Scales, A. L.	B.S.	Entomology	1963-73
*Schlaegel, B. E.	Ph.D.	Forestry	1974-86
*Schonbeck, M. W.	Ph.D.	Weed Control	1978-79
*Schweizer, E. E.	Ph.D.	Weed Control	1962-64
Sciumbato, G. L.	Ph.D.	Pathology	1976-
*Scott, W. P.	M.S.	Entomology	1976-
Shackelford, E. W.	B.S.	Agronomy	1962-63
*Shanklin, Ricky L.	B.S.	Supvry Meteorologist	1992-
*Sheets, T. J.	Ph.D.	Physiology	1959-60
Shepherd, C. G.	Ph.D.	Weed Control	1969-70
		Superintendent	1970-87
		So. Reg. Aqua. Center	1987-93
*Sherman, Timothy	Ph.D.	Plant Physiology	1988-
*Shropshire, F. W.	B.S.	Forestry	1968-75
*Smeda, R. J.	Ph.D.	Plant Physiologist	1990-
Smith, Archibald		Superintendent	1910-10
Smith, J. O.	B.S.	Agricultural Engineering	1929-37
*Smith, J. W.	Ph.D.	Entomology	1971-85
*Smith, L. A.	Ph.D.	Agricultural Engineering	1981-
*Smith, L. L.	M.S.	Agricultural Engineering	1962-74
*Smith, M. T.	Ph.D.	Entomology	1991-
*Smith, W. P.	Ph.D.	Forestry	1989-
Smith, W. R.	B.S.	Entomology	1948-50
Snipes, C. E.	Ph.D.	Plant Physiology	1986-
*Snodgrass, G. L.	Ph.D.	Entomology	1981-
*Solomon, J. D.	Ph.D.	Forestry	1962-
*Spencer, N. R.	M.S.	Weed Control	1983-87
Spurgeon, W. I.	M.S.	Soils	1957-87
*Stadelbacher, E. A.	Ph.D.	Entomology	1964-90
*Stanturf, J. A.	Ph.D.	Forestry	1992-
*Stark, S. B.	Ph.D.	Entomology	1984-85
*Stephens, J. C.	B.S.	Area Director	1972-75
Stone, W. J.	M.S.	Pathology	1958-59
Street, J. E.	Ph.D.	Weed Control	1980-
*Swanson, C. R.	Ph.D.	Weed Control	1969-75
Talley, P. J.	Ph.D.	Physiology	1948-50
Templeton, W. A.	B.S.	Agronomy	1943-45
Thom, W. O.	Ph.D.	Soils	1975-79
*Thomas, R. O.	Ph.D.	Physiology	1955-78
*Tiersch, Terrence	Ph.D.	Research Physiology	1991-92
Tilley, R. H.	B.S.	Agronomy	1949-49
*Tillman, Glynn	Ph.D.	Entomology	1992-
*Toliver, John R.	Ph.D.	Forestry	1988-91
*Toole, E. R.	Ph.D.	Forestry	1952-67
Trotter, I. P.	M.S.	Agronomy	1921-23
Tucker, C. S.	Ph.D.	Aquaculture	1980-
Tupper, G. R.	Ph.D.	Agricultural Engineering	1969-
*Turley, Rickie	Ph.D.	Plant Physiology	1990-
Turner, J. B.	B.S.	Agronomy	1924-27
*Tyler, J. M.	Ph.D.	Res. Geneticist, Plants	1991-
van der Ploeg, M.	Ph.D.	Aquaculture	1990-
Vanderford, G. A.	B.S.	Community Studies	1967-70
*Vaughan, M. A.	Ph.D.	Plant Physiology	1986-88
*Vaughn, K. C.	Ph.D.	Weed Control	1980-

*Vogt, G. B.	M.S.	Weed Control	1972-79
*Vozzo, J. A.	Ph.D.	Forestry	1967-69
Walker, G. B.	B.S.	Superintendent	1910-22
*Walker, H. L.	Ph.D.	Weed Control	1979-85
*Ward, Kenneth	Ph.D.	Entomology	1990-91
Watson, Rhonda H.	MLS	Librarian	1992-
Watson, W. W.	B.S.	Horticulture	1952-67
*Wauchope, R. D.	Ph.D.	Weed Control	1972-84
*Weathersbee, A.	Ph.D.	Entomology	1991-
*Wells, Randy	Ph.D.	Physiology	1991-
*Wergin, W. P.	Ph.D.	Weed Control	1972-75
*Wesley, R. A.	M.S.	Agricultural Engineering	1977-
*White, E. H.	Ph.D.	Forestry	1969-70
*Williams, R. D.	Ph.D.	Weed Control	1976-77
*Williamson, E. B.	B.S.	Agricultural Engineering	1946-77
*Williford, J. R.	M.S.	Agricultural Engineering	1967-
Wills, G. D.	Ph.D.	Weed Control	1966-
*Wilson, A. D.	Ph.D.	Forestry	1991-
*Wolf, R. A.	M.S.	Weather Service	1985-89
*Wolters, W. R.	Ph.D.	Res. Geneticist, Animal	1991-
*Womac, Alvin	Ph.D.	Agricultural Engineering	1989-92
*Wooten, O. B.	B.S.	Agricultural Engineering	1948-77
York, H. A.	B.S.	Agronomy	1923-43
York, H. A.			1947-49
*Young, O. P.	Ph.D.	Entomology	1983-89
*Youngren, L. B.	B.S.	Agri. Meteorologist	1991-93
*Zablotowicz, R. M.	Ph.D.	Microbiology	1991-

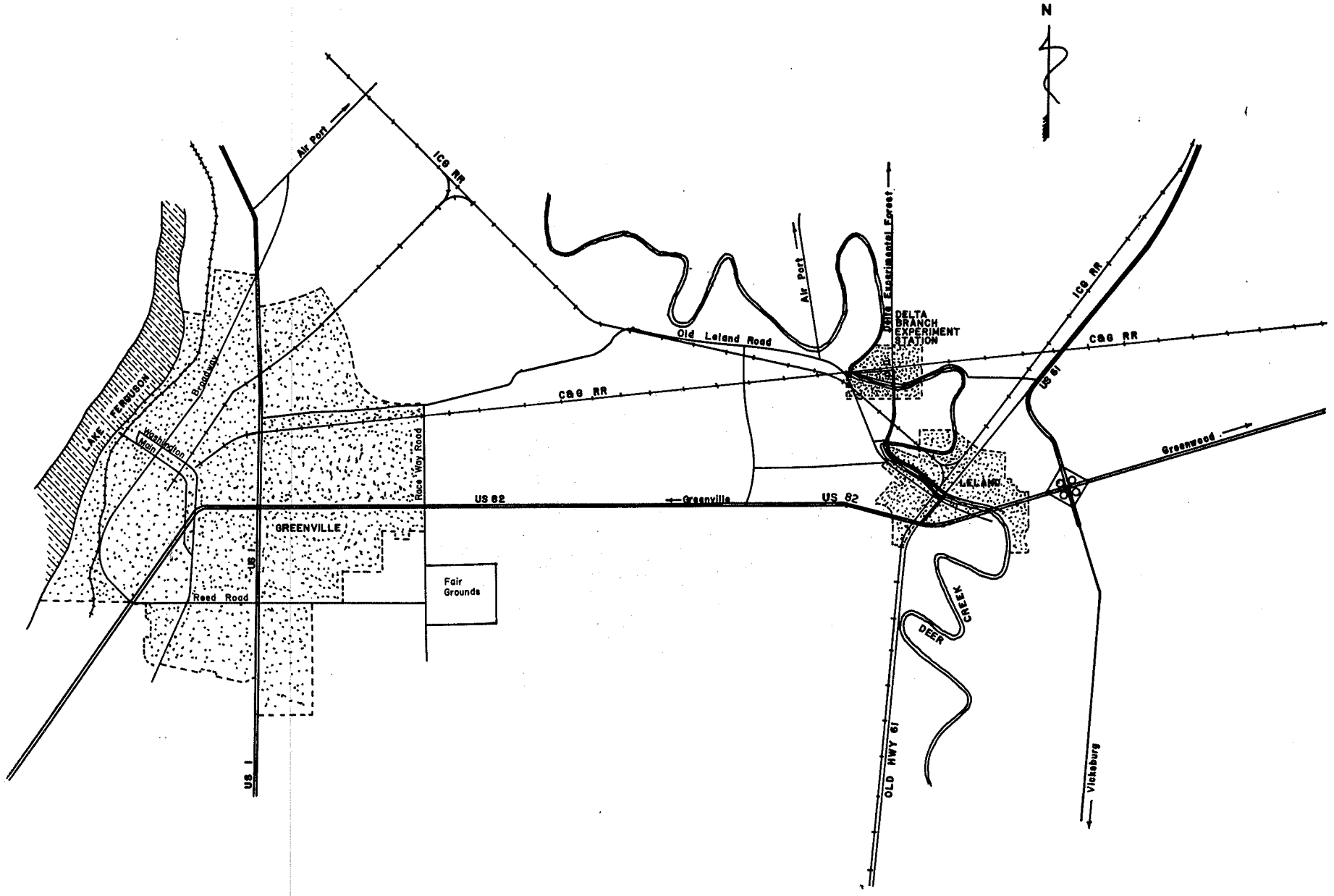
[1] Does not include staff of the U.S. Ginning Laboratory or non-research agencies housed at the Delta Branch Experiment Station.

[2] Employee of College of Veterinary Medicine, Mississippi State University.

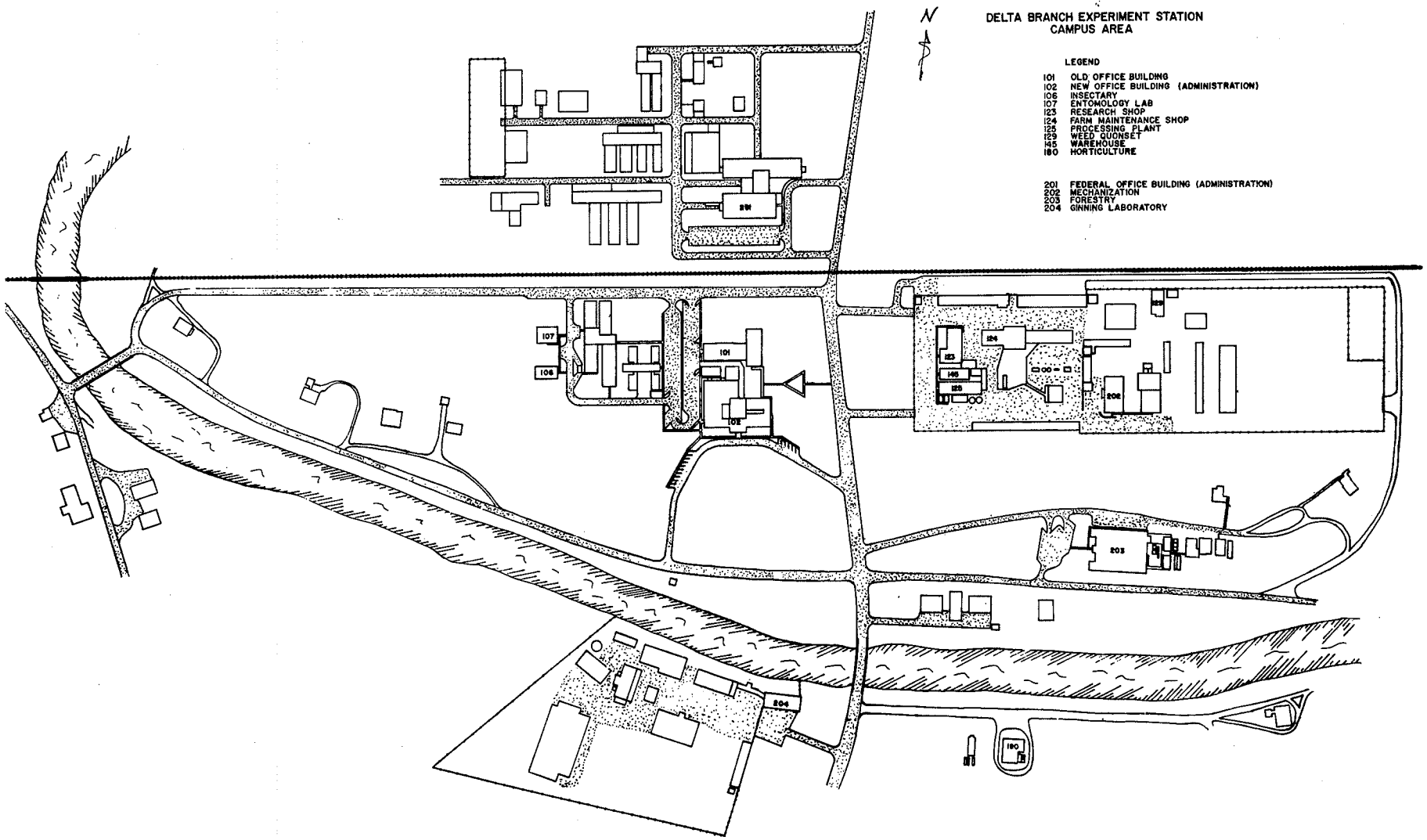
[3] On staff at Mississippi State but worked at Delta Station.

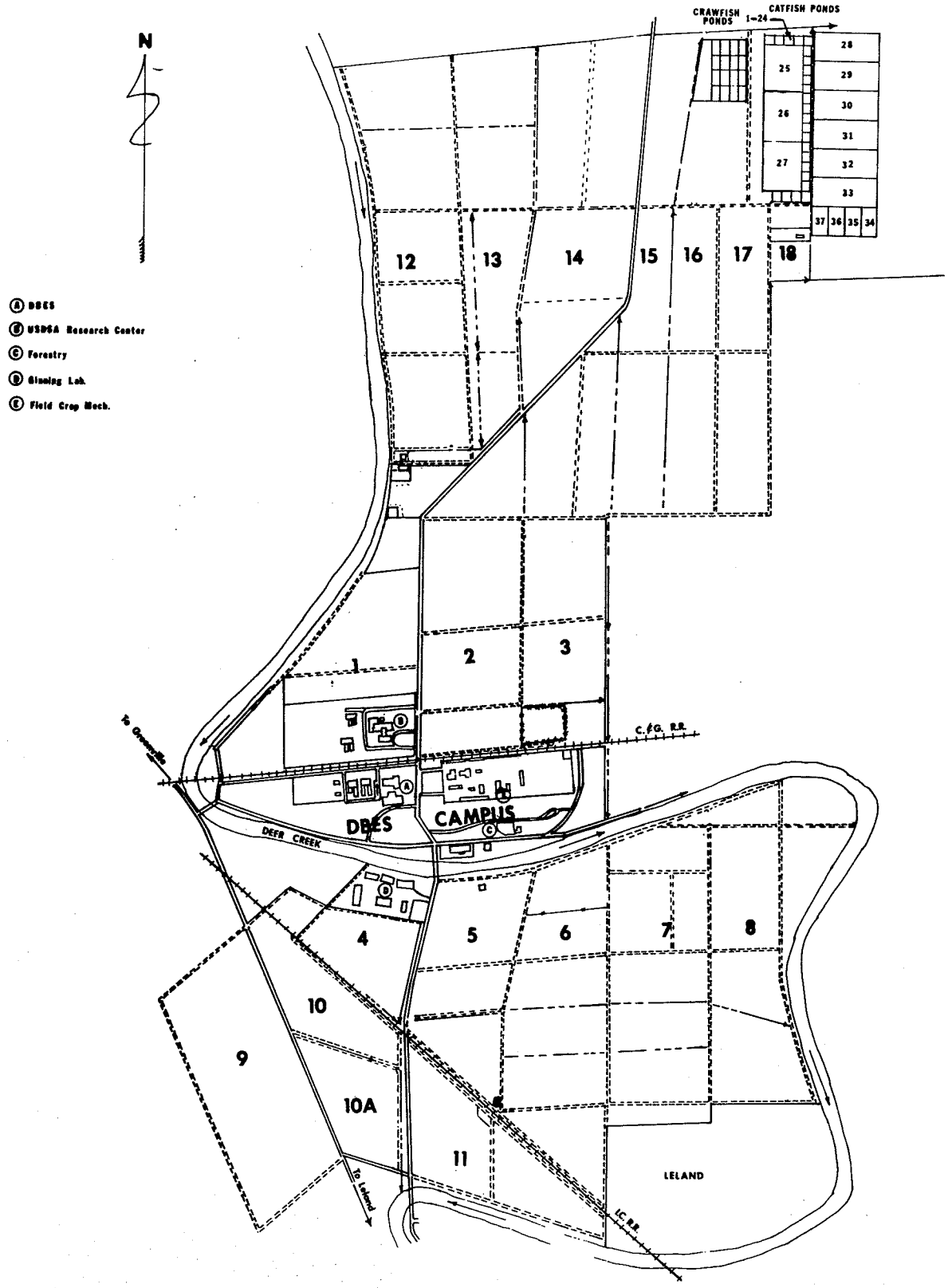
*Employee of Federal cooperating agency.

Delta Branch Experiment Station—Location Map



Delta Branch Experiment Station—Campus Map





Delta Branch Experiment Station—Base Acreage Map

Mississippi State University

Printed on Recycled Paper

Mention of a trademark or proprietary product does not constitute a guarantee or warranty of the product by the Mississippi Agricultural and Forestry Experiment Station and does not imply its approval to the exclusion of other products that also may be suitable.

Mississippi State University does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, or veteran status.

In conformity with Title IX of the Education Amendments of 1972 and Sections 503 and 504 of The Rehabilitation Act of 1973, as amended, Section 402 of the Vietnam Era Veterans Adjustment Assistance Act of 1974, and The Americans with Disabilities Act of 1990, Dr. Joyce B. Giglioni, Assistant to the President for Affirmative Action, 614 Allen Hall, P. O. Drawer 6199, Mississippi State, Mississippi 39762, office telephone number 325-2493, has been designated as the responsible employee to coordinate efforts to carry out responsibilities and make investigation of complaints relating to discrimination.

56059/0.3M