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THE AGRARIAN — published in November, January, March and May by the under-graduate students in the School of Agriculture. Opinions expressed in this magazine do not necessarily reflect the policy of the School of Agriculture or the College.

All correspondence should be addressed to the AGRARIAN, Clemson College, Clemson, S. C.

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COVER—A South Carolina girl landing a recruit for the frying pan; proof positive of the value of farm ponds. Numerous Clemson students have acquired acute cases of fishing fever (or is it spring fever) from a large copy of this picture adorning the classroom of Dr. G. H. Collings.

Photo—Courtesy of Soil Conservation Service.
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3 USE ONLY 12 LBS. PRESSURE
Farm Ponds plus Fertilizer equals Fun plus Fish

One acre of water in a properly built fish pond will yield 150 to 450 pounds of pan-size fish each year. These fish can be raised for only a few cents a pound after the initial cost of the dam has been paid. This does not mean that any haphazardly constructed pond on ill-suited soil will produce a good yield of fish or be of any value to the farmer.

Location of the spillway, texture of soil, desired depth, and slope of the land are the major factors which one should consider in determining the proper location for the proposed fish pond.

A natural spillway which will divert the excess water around the end of the dam should be used wherever possible. One of the most desirable locations for a natural spillway is the end of a valley where the sides converge; this will give the advantage of construction without disturbing the soil. If no natural spillway exists, one or more should be built of such size as to insure runoff without overflowing the top of the dam. Spillways should be made wider than the estimated necessary width to allow for safety in case of a severe storm. Some form of vegetation should be maintained in the spillways to prevent erosion, and no spillway should be cut into porous or erodible material.

Some farmers are having considerable trouble with ponds which will not hold water and are giving very unsatisfactory results. Before going too far toward building a pond, one should check the soil conditions at the proposed site with a soil auger at least 4 feet long. The floor of the pond should have a layer of water-holding material at least 2 feet thick to reduce seepage to a minimum. Remove all trees, brush, logs, and other debris from the pond area; clear the dam site of all topsoil, stumps, and other organic matter. Fill material for the dam should contain at least 20 percent clay by weight, and the dam should be built with side slopes of 2 to 1. In cases where fill material contains less than 20 percent clay by weight, a clay core extending to the high water line is necessary and a side slope of 3 to 1 on the “wet” side is required. In no case should a pond be constructed on land which has less than 2 feet of impervious material on the pond floor; a layer this thick should be left if fill material for the dam is taken from the floor of the pond.

A small valley with steep sides and gently sloping floor is an excellent site for a farm pond. The steep sides aid in controlling water weeds, and the gently sloping floor insures a greater area with a smaller dam. In order to have the dam as short as possible in proportion to the total shore line, build it where the sides of the valley converge if this location is practical.

Depths of from 6 to 10 feet give best results in ponds which are to be used for fishing. All brush, trees, and other growth should be cleared at least 15 feet from the edge, and the strip thus formed should be kept permanently sodded. The depth should not be less than 2 feet in any part of the pond. All shallow edges should be deepened to help in controlling waterweeds and mosquitos, store a greater volume of water, keep livestock from muddying and destroying spawning beds, and increase the areas of good fishing from the banks.

U. S. Department of Agriculture recommendations for the correct amount of fish per surface acre should be followed in stocking a pond. Over-stocking is one of the greatest mistakes made by pond owners. This results in a large number of smaller fish than would otherwise be produced and makes for poor fishing.

In natural ponds where no fertilizer is added, 200 pounds of fish per acre is generally the maximum which can be supported. However, this number can be increased to as much as 600 pounds per acre by putting ordinary commercial fertilizer into these ponds. Usual yearly fertilizer requirements for ponds is around 1200 pounds of an 8-8-4 analysis per acre, depending on the requirements of the pond. Besides increasing the food for fish, fertilizer added to a pond also controls submerged pond weeds and makes fishing more successful.

Over-fishing a pond which has been properly stocked is impossible. If only a small amount of the fish are removed, there will be little growth and the pond will be filled with more fish of a smaller size.

Some states have laws which govern the building of a pond, stocking with fish, and harvesting the fish in it. The legality of these operations should be looked into before undertaking the construction of a farm fish pond.

MARCH 1949
GOOD VARIETY SELECTION —
SUCCESS OR FAILURE FOR COTTON FARMER

Experiment Station Conducts Variety Tests to Assist Farmers in Picking Well-Suited Varieties

By CARLTON HERRING
Agronomy 1950

Long ago, before the appearance of so many diseases and insects, the cotton farmer had little trouble in deciding what variety of cotton to plant. The variety didn’t make an awful lot of difference to him. Of course, cotton, like most other crops, had leading varieties and the early progressive farmer tried to select a high yielding variety, although his personal preference in most cases probably determined the variety he planted.

The story is quite different now in our age of modern farming. Every year about this time, the cotton farmer is faced with a very important question: “What variety of cotton should I plant this year?” This question is an important one and should be given careful consideration. With new diseases and insects occurring almost every year, the selection of a variety that will give profitable returns may become a complicated process.

The difference between a right and a wrong selection can mean the difference between success or failure for that year’s cotton crop. Not only can it mean success or failure for that particular year, but also in years to come. Cotton is a very important crop in the South and a good crop does much toward making a prosperous and happy people. In a good cotton harvest farmers see chances increased for education of their children, for home conveniences for their families, for new equipment to make their acres more productive—all in all, for opportunities to make their lives more abundant.

In answering the question of variety selection, the cotton farmer has several things to consider. Among these, he has to choose a variety which is wilt resistant and well suited to his soil and climatic conditions. It is estimated that wilt, a widespread disease in the United States, especially in the Cotton Belt, cost American growers nearly half a million bales per year, or about 5 percent of the crop. During the past two or three decades much research has been done toward developing disease resistant varieties. The experiment stations and the extension service are the cotton farmers chief source of information about these different varieties.

Among the many tests and experiments which are conducted at the experiment stations are variety tests for cotton. These tests are conducted annually and the conditions under which the tests were conducted are usually stated on the data sheet. From the Pee Dee Experiment Station’s results of 1948, in which 37 varieties were tested, Coker’s 100 Wilt 47-6 was the leading variety on the basis of total monetary value per acre. This variety produced 382 pounds of lint and 1586 pounds of seed per acre, a total of 2418 pounds of seed cotton per acre, which gave a total value of $429.43 per acre. The percentage of lint was 34.4 and the length of the fiber was 1 7/32 inches, which brought a price of $45.42 a hundred pounds. Although Coker’s 100 Wilt 47-236-74 with 2526 pounds of seed cotton lead, in total pounds of seed cotton per acre, Coker’s Wilt 47-6 lead in total value per acre. In determining these results the lint percentage is the average of 4 representative samples of each variety. The staple values are based on Augusta spot market middling basis 15/16 at 31.32 cents as of October 1, 1948. The seed are valued at $65.00 per ton and the staple length is the average of 4 samples graded and stapled by the South Carolina Department of Agriculture. Each variety was replicated 4 times in 4 row plots and yield records were obtained from two inside rows of each plot.

According to The National Cotton Council of America, the marketing of cotton by varieties is a coming thing. Many spinners are becoming aware of the meaning of variety to their operations; however, a great deal more work will have to be done by all segments of the raw cotton industry before marketing by varieties would be adopted on a large scale. The spinning quality of cotton is very definitely associated with the variety, although it is affected by other factors such as location, soil and weather conditions.

If cotton farmers in the South are to maintain cotton as an important cash crop on a profitable basis, it will be necessary for them to increase yields per acre, lower cost where possible, and produce stronger fiber of the best possible spinning quality.

In order that the high percentage of one inch and longer staple length be maintained, it is necessary that farmers continue to plant the best variety, not allow their planting seed to become mixed, and keep their production not more than the third year from breeder seed.

Cotton fits into the Southern farmers program. It fits because it produces feed—cottonseed meal and (continued on page twenty-six)
See "Pageant of Progress" as thousands saw it daily for a week during the Wisconsin Centennial Exposition at Milwaukee last summer. Filmed then, this Case pageant of quaint costumes, strange skills, ancient tools and modern machines has been made into a full-color sound movie. Besides being shown by Case dealers, it will be available for meetings sponsored by educational and farmer groups. Write now for reservation of future date desired. Address our nearest branch house. J. I. Case Co., Racine, Wis.

Here is an ancient Egyptian plow, in replica, being pulled by one of the very few trained ox-teams to be found today. This same two-ox team was the pattern of farm power from the days of the Pharaohs to those of our own forefathers. Substitution of horses made the team a little faster, but no stronger. The plow was greatly improved, but remained similar in appearance.

Then came the American nation with new freedom, new enterprise, new invention. In a single century came plows with steel moldboards, wheels, multiple bottoms. Animal power was first supplemented by steam engines, finally supplanted by gas tractors. A man's capacity to plow and to produce has been multiplied tenfold.

In all those swift advances, Case played a leading part. As you look toward your farming career, remember that for 106 years Case has been creating ever-better machines, to make farm work easier and more productive, farming more prosperous. Look to Case machines to help you get what counts today—high yield per man.
WATCH OUT, SPORT!
DON'T GET CAUGHT WITH YOUR PATENTS DOWN

Opportunity for Breeders—
Plants with Valuable Characteristics Patentable for 17 Years

The passing of the Plant Patent Act in 1930 threw out a challenge to amateurs and professionals growers as well. Innumerable men have made large sums of money just because they had the foresight to patent their product.

A fourteen year old Texas boy accidentally produced a thornless rose. He succeeded in patenting it and sold his rights for $250.

The White Hale peach pictured above was patented in 1932 by Prof. Maurice A. Blake of the New Jersey Agricultural Experiment Station. This variety grew as an open pollinated seedling of the J. H. Hale. Firm white flesh, large fruit size and vigorous tree growth are among the characteristics which helped secure a patent on this peach. It ripens about the time of the Elberta and J. H. Hale.

This peach and the Garden State nectarine were patented by the New Jersey Experiment Station as a means of testing the effectiveness of plant patents on controlling the distribution and testing of new varieties. These particular patents were never intended to be a source of royalty for any party, and expiration of the White Hale patent this fall will place the propagation and distribution of this peach in the public domain.

More patents have been issued on peaches than any other plant except the rose, and three out of every four are sports of chance seedlings. Only recently Paul Stark, a prominent nurseryman, paid $10,000 for rights to an Elberta peach which consistently ripens three weeks earlier than do the July Elbertas. Today many nurserymen are seeking and finding fruits that lengthen the marketing or canning season, or serve better for freezing or dehydrating.

The patent bill created a great deal of interest in the horticultural world. The legislative committee

By W. J. JENKINS,
Horticulture, 1951

of the American Association of Nurseryman and other influential workers were responsible for the passage of this bill which gives the discoverer or inventor the right to be the sole proprietor of the new plant and all cuttings from it for seventeen years and it permits the originator to license growers to propagate and sell the cuttings, or grafted trees, and on every sale he can collect a royalty.

A patent can be applied for on any distinct and new variety which may be asexually propagated, except vegetable crops, seed crops, or plants propagated by tubers. However to have a patent granted a plant must show distinct variations from existing varieties. If it does not, the patent is usually refused. In order for a variety of plant to be distinct it is not necessary that it be a variety of a new species; it may be patented if it is a new and distinct variety of an existing species.

The characteristics that may distinguish a new variety would include those of growth habit, immunity from disease, resistance to cold, drought, heat, wind, or soil conditions; color of flowers, leaf, fruits, or stems; flavor, productivity, and ease of asexual reproduction. The difference will necessarily be one of degree.

The act does not give patents to new varieties propagated by seed, no matter what percentage of the seedlings come true. This excludes vegetables, except for one on a mushroom. The new variety must have been propagated asexually prior to the application for patent. Theoretically, under laboratory conditions, it is probable that all plants can be asexually reproduced but under most conditions a patent will not be applied for unless the plant can be reproduced on a commercial scale.

The applicant must take an oath that he believes himself to be the original discoverer of the variety of

(continued on page twenty-two)
PINT-SIZED SHADOW

Many a farmer has a pint-sized shadow that tags him all over the farm . . . shrilly repeats his pet words . . . dresses like a tiny twin. Like most little boys, he can't wait to grow up. The thing he wants most in the world is to be a farmer just like his dad.

Old-fashioned farming, with its never-ending toil, often shattered this childhood dream—sent the boy off to the city to seek his fortune. Today, it's easier to keep him on the farm. Better crops and improved farming practices have boosted yields and farming profits. Modern John Deere power equipment has taken over much of the muscle work, and chopped hours from the old dawn-to-dusk work day.

No wonder more and more farm boys are staying with the land—realizing a childhood ambition to follow in their fathers' footsteps. This is a good sign. These young farmers will hasten the fuller mechanization of our agriculture, pioneer new farming practices, and bolster vital food production.

Yes, labor-saving, profit-making farm equipment is helping to raise our most valuable crop—young Americans who love the land. In such hands the future of our agriculture, and of America, will be secure.
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and FERTILIZERS

ANDERSON, SOUTH CAROLINA
STATE FINANCES -- WHERE THE MONEY COMES FROM

By W. P. ROBERTS
Agricultural Economics, 1949

The third major factor in state expenditures has been the assumption of financial responsibility by the state for activities which were formerly financed by counties and districts. Principal among these may be mentioned: state financing of a nine months' school term, support of farm and home demonstration agents on a statewide basis, all sorts of grants-in-aid to local governments, more roads in the state highway system, and many others. Grants-in-aid alone equal the total cost of the state government of just a few years ago.

The prospects for reducing the expenditures of state government are not encouraging. Nor is there any substantial evidence to indicate that the state is providing more than a minimum of services now generally considered as necessary and desirable. As a matter of fact, South Carolina suffers by comparison with other states in the amount and proportion of its expenditures for certain essential functions, for example, education. This being the case a more equitable and logical distribution of the funds available would appear to be in order.

(continued on page eleven)
WOOD’S SOUTHERN GROWN HYBRIDS

The stalks in this picture were cut in a row of WOOD’S V-125 Hybrid White Dent, a superior pure white milling corn for the Upper South, or early corn in the Deep South. The 12-inch ears are closely packed with deep, sound grains on small cobs.

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THE AGRARIAN
STATE FINANCES

(continued from page nine)

The touch on our pocketbook, which accounts for that important matter of revenue, is developing into something more than a touch. Since the expenditure dollar must come from somewhere—and all of us know where some of it comes from—some of the current sources might well be compared. The revenue collected by South Carolina from taxes, licenses, fees, and miscellaneous charges during the fiscal year ending December 31, 1919 amounted to approximately $6,250,000. Twenty years later the collected revenue amounted to $30,000,000. A more recent illustration is the fact that fifty million more dollars were collected during the fiscal year ending June 1948 than during the year 1939.

Not only have there been tremendous increases in total receipts, but equally significant changes in sources of revenue. In 1919, for example, the general property tax yielded 77.3% of the total revenue for that year. In 1939 this same tax produced but little more than $1,000,000 or 3.7% of the total. Today general property is not taxed at all for state purposes. The question immediately arises—what source or sources has the state tapped to replace this formerly important revenue producer? One of the answers can be found in the so-called “gas tax”. interesting and unique in that, originally, at any rate, it was enacted as a privilege tax on dealers in gasoline rather than on the users of gasoline. With the exception of the depression year 1932, the amount of revenue from this source has steadily increased from year to year. The tax now constitutes the second largest single source of revenue collected by the state, and is now producing nearly two million dollars a month or about 26 percent of the total taxes collected by the state.

Other important sources of state revenue which were non-existent in 1919 include taxes and licenses on alcoholic beverages and taxes on personal and corporate incomes. Receipts from the former source totaled over $18 million for the year ending June 30, 1948, or approximately 23% of all state tax revenues. Income taxes, which in 1948 brought 32% of the total taxes for that year, led all other sources and provided approximately $26 million of the state’s total revenues. Some of the lesser important sources are the Business License which includes tobacco products, etc., and Soft Drinks Tax.

The writer hopes that in presenting such an article some interest will be created within each of us which will cause us to be concerned about this vital business of state government. Defects in our present government as a result of failure to adopt improved practices, lack of budgetary control, and “politics” can be corrected.

This article will be followed in a later publication by another on “Where the Money Goes”.

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MARCH 1949
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GREAT RIVERS OF MILK, CLEMSON GRADS AND PROSPERITY FLOOD ORANGEBURG COUNTY

Orangeburg County, S. C., located in the lower part of our state along the coast, is holding its own as one of the leading agricultural counties in the state. The people in this county have been working together in making their county grow. Much of the credit for this steady advancement is given to Clemson College. There are more Clemson graduates actively occupied in Orangeburg than in any other South Carolina county, and there are more Clemson graduates in this county than there are from any other school.

Statistics show us that Orangeburg now has the lead in the state in cotton production, pecan production, sweet potato production for market, dairy products, meat products (hogs and cows), total corn, and total small grains.

Their dairy industry is the largest in the state and has risen from a $200,000 industry in 1940 to its approximately one million dollar business today. There are approximately 165 Grade A milk producers in Orangeburg county supplying the milk needs of the city of Orangeburg, and most of the needs of Charleston, plus the surrounding county and territory. Dairy products constitute the largest gross agricultural products income for the county.

Like many of the more progressive counties in S. C., Orangeburg has a complete artificial breeding program in operation. They employ a full time technician who has at his disposal a modern completely equipped laboratory in the Agricultural Building at Orangeburg.

At the present, Orangeburg has the only full time county DHIA (Dairy Herd Improvement Association) in the state. This organization is made up of a group of dairy farmers who employ milk testing and dairy farm operation experts. These men also furnish the farmer who seeks their assistance a monthly report of their farm financial standing concerning their dairy operations and offer valuable advice to the farmers on the latest practical methods of making the dairy farmer's operations more profitable and labor saving. These milk testers make records on each cow in the herd on the total amount of butter-fat and milk she produces and the kind and amount of feed consumed. This test is made once a month on each cow until a 12-month production record can be made up from these tests. A fee is paid by the farmers for this service based on the number of cows in the herd. In discussing the dairy industry of Orangeburg county, C. G. Cushman, Leader of the Dairy Extension Department at Clemson, said, "Orangeburg County's leadership in the development of a substantial dairy industry is due to the adaptability of her soils to the production of feeds suitable to dairy cattle nutrition, to a livestock minded people and to the excellent market for milk in Charleston, the state's largest city".

One of the most important reasons for Orangeburg's prosperity is the cooperation of the community-spirited farm citizens. A good example of this is one of the oldest and most successful bargaining cooperatives in the Southeast located in Orangeburg County. It is the Coastal Milk Producers, Inc. All grade A milk producers in the county which supply milk to milk plants in Charleston are members of this cooperative. It has no one plant for pasteurizing milk, but sells to the various plants located in the county and the large Charleston market. These many facts and figures assure us of the rising generation that farming in South Carolina still leads as a prospering enterprise. It also shows us what can be done when hard work is made the password with the "Southern Agricultural Scientists"; for agriculture has become known as one of the most complex and technical vocations known to man. So, to J. C. McComb, Orangeburg County Agent, a Clemson graduate of 1930, and his fine group of farm enthusiasts, we take off our hats and salute you as the "Leader and Example" of our native South Carolina.

By J. E. CUSHMAN.
Dairying, 1951

COUNTY AGENTS OF ORANGEBURG COUNTY FROM 1915 TO DATE

J. C. McComb, present, R. D. Suber, L. E. Massey, R. F. Kolb, Dr. Julian Miller, L. F. Wolfe

MARCH 1949

THIRTEEN
Aberdeen-Angus Breeders Association Banquet

The South Carolina Aberdeen-Angus Breeders Association held its annual banquet at the Wade-Hampton Hotel in Columbia on March 6. This was followed by the show and sale on March 7th. The Angus shown were an improvement over the cattle that had been shown and sold in previous years. There has also been a considerable increase in the number of members of this organization. Professors L. V. Starkey and J. R. Cook attended the show and were impressed by the animals shown.

It is interesting to note that J. L. Herron from Starr, an Animal Husbandry graduate, showed the Grand Champion bull and R. L. Jones, another Animal Husbandry graduate from Mt. Pleasant Plantation, Andrews, S. C., showed the Grand Champion female. Many of the Animal Husbandry graduates are going back to the farm and are playing an important part in the livestock development of South Carolina.

W. J. Barker Elected to Forestry Office

During a recent meeting of the Appalachian Section of the Society of American Forestry, Mr. Barker, in charge of the forestry section of the Extension Service at Clemson, was elected Vice President. Mr. Barker held the position as a member of the Executive Committee in 1944 and Secretary-Treasurer during 1945. The membership during this time grew from 175 to 433.

Mr. Barker is also a member of the Section Committee on Licensing Foresters, and prior to this was chairman of the Committee of Private Forestry. A report on this subject was printed in a booklet “A Report of Private Forestry in the Carolinas.”

“Doc” Roberts Elected to Blue Key

W. P. “Doc” Roberts, president of the junior class at Clemson and Agriculture Economics Departmental Editor, was recently elected to the Blue Key. “Doc” from Lugoff, S. C., is also vice president of the Clemson YMCA.

Chicken-of-Tomorrow Contest

P. H. Gooding, leader of Clemson Poultry Extension Work, has announced that the Chicken-of-tomorrow contest will be held at Clemson June 6, 1949. To compete in this contest, the chickens must have been hatched during the week of March 14.

The purpose of this contest is to breed a chicken that will grow faster and produce more meat, thereby bringing increasing satisfaction to poultry consumers in the same method that scientific breeding has developed more economical cows and hogs.

The $1,000 award to the producer of the prize specimen is given by the A.&P. Food Stores. Anyone is eligible to enter this contest if they have a minimum of 100 straight-run chickens or 50 sexed cockerels.

Entry blanks may be secured from Mr. Gooding at Clemson.

J. M. Eleazer Elected Chiarman of Ag Editors

At a recent meeting of the Association of Southern Agriculture Workers in Baton Rouge, La., Mr. J. M. Eleazer was elected Chairman of the Agriculture Editors. He was an agronomy major while at Clemson and at present is Extension Information Specialist at Clemson.

Dr. R. F. Poole, president of Clemson College, is also president of the Association of Southern Workers. President Poole urged all extension workers and the teaching staff to cooperate and form a strong program to encourage more efficient agriculture in the South.

Professor Goodale on Borden Committee

Recently Mr. B. E. Goodale, professor of Dairying at Clemson, was chosen Chairman of the Borden’s Award Committee in Dairy Manufacturing.

Professor Goodale with two other men in Dairy Manufacturing from other agricultural colleges is to choose the winner of this $1,000 award. The winner will be an outstanding dairy teacher and research worker.
FURROWS
CALVES DEHORNED WITH ELECTRICITY
By HENRY SIMONS, Experiment Station Editor

Did you ever think that you'd be able to use a soldering iron to dehorn a young calf? Strange as it may seem, the Dairy Department of the South Carolina Experiment Station has been able to do just that, using an experimental iron with a specially modified head or tip.

The experimental dehorner consists of a conventional soldering iron with a special head or tip. Placing the hot iron in contact with the horn producing cells located at the base of the hornbutton kills the cells and prevents the horn from developing. The iron is placed in contact with the hornbutton and slowly rotated with a circular motion for about ten seconds. If the branded circular area is a bright copper color, the work is then complete. If not, another application of the electric dehorner for a few additional seconds completes the job.

Based on this information, an electrical dehorner is now being manufactured by a national electrical firm and will soon be available in South Carolina. This device consists of an electric soldering iron with three interchangeable heads or tips. One is a small tip for dehorning calves up to one month of age, another a medium-sized head for calves one to two months old, and the third a large head for calves up to three months of age. A conventional soldering iron tip for general farm use is also included in the outfit.

"The new method has been so successful experimentally that for the past six months all new calves in our Clemson dairy herd have been electrically dehorned", Prof. J. P. LaMaster, head of the Dairy Department reveals.

Only about two and a half minutes are required to complete the dehorning operation by the electrical method. However, thirteen and a half minutes are required for the same operation when using liquid caustic and 19 minutes with caustic stick. The electrical dehorning method is not only faster than the caustic but is less painful to the animal and completely bloodless.

THREE HYBRID CORN VARIETIES ARE RECOMMENDED FOR SOUTH CAROLINA

The following hybrid corn varieties have been tested by the Experiment Station and are recommended for South Carolina conditions: Dixie 17 (white) for Piedmont; N. C. 27 (yellow) for Piedmont and Coastal Plain; and Dixie 18 (yellow) for Coastal Plain. These hybrids possess high-yielding ability, good shuck coverage, strength of stalk and are adapted to the areas as listed. Farmers should buy only certified hybrid corn seed.

MARCH 1949
Carolina Floral Nursery
CHARLESTON, SOUTH CAROLINA
Azaleas - Camellias - Nursery Stock
Azaleas Liners, greenhouse grown
Wholesale and Retail

COMPLETE BUILDING SUPPLIES
CONTRACTING
Plans Drawn to Your Specifications
Walhalla Builders Supplies
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SULLIVAN HARDWARE COMPANY
ANDERSON, SOUTH CAROLINA
"Serving The Farmers of This Section
Over 62 Years"
Mr. How and his cousins, the Five W's — Who, What, When, Where and Why—are the investigators by which any product of human endeavor may be put to the critical test of practicability and usefulness. A test of this nature is good inventory practice for any form of enterprise.

Let’s put The Agrarian to the test; not so much with the idea of justifying its existence as with the hope that it may bring some understanding to those on the campus and elsewhere who seem to feel that extra-curricula activities such as this are merely instruments whereby the “eager-beaver” boys let off steam; that time and effort expended on such organizations is beyond the realm of education and therefore wasted; that an education constitutes only that which is strictly required.

The first four W’s are satisfied by simply stating — “The Agrarian is the official student publication of the Clemson College School of Agriculture, published four times a year by interested agricultural students.”

HOW brings forth the ever present problem of financing the publication and distribution of this magazine. The Agrarian is self-supporting in that all circulation is free and no financial aid whatsoever is received from the school. In this respect, we are somewhat unique among student agricultural magazines of the nation. Our advertisers are our sole means of support; their patronage our lifeblood.

WHY The Agrarian? Is it of any practical use? Does it perform and service?

A publication should perform three basic services to be considered worthwhile — a service to its readers, its advertisers, and its staff.

This is a semi-technical agricultural magazine; as such it cannot lay claim to “general reader interest.” However, our circulation list attempts to put The Agrarian in the hands of readers to whom it may be of some service — farmers, county agents, 4-H and Future Farmer groups, Granges, and others instrumental in the program of a better agriculture for South Carolina.

Layout and editing errors, cumbersome sentences and dull writing can be found in this magazine. We don’t pretend to be professional journalists; but we try our best in the belief that sincere efforts courts tolerance. It’s a cinch the professional best conquered clumsiness through experience.

If space permitted, we would take issue on the point that advertising in publications of this type is merely a good will measure. On that point alone, however, we would like to point out that a lot of good will can be built among some 3,200 Clemson students, 1,500 of the states’ more progressive farmers, and numerous other readers.

We constantly strive to give efficient, profitable and satisfactory service to our advertisers — who serve The Agrarian by letting it serve them. Their patronage is appreciated; their comments on our service solicited.

Article and feature writing, keeping the books and paying the bills, ad soliciting and writing, circulation and mailing, editing and makeup — these and other jobs staff members do of their own will on their own time. Why? We think it's good training for the years that follow "sheepskin day."

The ability of confident self-expression, gained through informative writing; the acceptance of trust and responsibility, brought about through team-work; the “at-ease” of making business and social contacts — these and other experiences gained may not help us get a better job upon graduation than the campus “Do-little”; but it’s a safe bet they won’t do us any harm after we get the job. Wanta’ bet, Do-little?

What am I selling? Gilt edged bonds that pay triple dividends — an interest in constructive things; other than those “required.”
L. C. MARTIN DRUG COMPANY
P. S. McCOLLUM, Owner

THE OFFICIAL COLLEGE BOOK AND SUPPLY STORE

SERVING CLEMSON STUDENTS SINCE 1908

Clemson South Carolina
Suni-Citrus Pulp is popular with progressive Dairymen because...

1. It is an excellent cattle conditioner.
2. It will take the place of BEET PULP.
3. It has a tonic effect upon the animal.
4. It will produce good milk flavor.
5. It is a bulky and succulent feed.
6. It contains 1520 pounds of digestible feed per ton — therefore a cheap source of digestible nutrients.

Cows Love Suni-Citrus Pulp

Suni-Citrus is rich in milk-making units, brimming with bovine health and happiness. That's why — "They Moo For More"

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McNair's Yield-Tested Seed Company, Inc.

WHOLESALE SEED GROWERS OF

Watermelon  Crotolaria
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ALL OF OUR SEED ARE GROWN ON McNAIR'S OWN FARMS BY

McNair's Yield-Tested Seed Company, Inc.

Phone 388 and 87  LAURINBURG, N. C.

Virginia-Carolina Chemical Corporation manufactures V-C Fertilizers balanced to meet the particular plant food needs of every crop you grow. When you buy V-C Fertilizers, what you really get is the more abundant harvest that makes farming a better paying business.

Virginia-Carolina Chemical Corporation
COLUMBIA, SOUTH CAROLINA
PRACTICE MAKES THE BEST TEACHER
Future Ag Teachers Teach -- While Being Taught

In order to train the prospective Vocational Agriculture Teachers of South Carolina, there has been installed at Clemson a program in teacher training which has proven to be very effective in training agriculture teachers for many years. This program consists of the principles and methods of teaching as well as the practical experience of actually teaching under the supervision of experienced well trained teacher trainers and the various agriculture teachers of the local high schools in which we work.

A student must have several preparatory courses before he is permitted to enroll in practice teaching. These courses serve as an orientation on the various phases of the curriculum, how it is set up, and what is expected and required of each student who elects to major in Vocational Agriculture Education.

Besides these courses in education everyone is required to take courses in English, chemistry, mathematics, agronomy, animal husbandry, dairying, agriculture engineering, botany, horticulture, bacteriology, and agriculture economics. After securing a technical knowledge of these subjects, the student is permitted to enroll in practice teaching.

The practice teaching program is supervised by Professors J. B. Monroe, F. E. Kirkley, W. C. Bowen, B. H. Stribling, and Dr. T. A. White. These teacher trainers set up a program of work with the cooperation of the agriculture teachers at Keowee, Central, Pendleton, and Seneca High Schools.

These teachers are very helpful and cooperative; their many suggestions, patience, and other forms of supervision are of immense value to the students.

There are two main phases in practice teaching at Clemson. Namely, these are: (1) all day training dealing with high school boys, their problems, supervised programs; and teaching the class, (2) evening class training consisting of working with adult farmers, visiting their farms, and leading discussions at the night meetings.

Let’s look at the student who is working with the adult farmers. He is assigned to a teacher trainer who works with him and personally advises him on the problems that arise. First he must learn something about the community, its major money crops, supplementary crops, minor crops, and the farm practices that are being used. During this time he is studying, in the classroom, methods and techniques by which this can be accomplished in the best and most diplomatic way.

The next problem concerns ways in which these farm practices can be improved; so that the farmer can better his environment and increase his income. With a thorough study, advice from his teacher trainer and the local agriculture teacher, the student forms a lesson plan so that he will be able to lead the discussion at the meetings and talk over the problems of these farmers, thus offering suggestions that will be of benefit to them.

The practice teaching work with high school students is somewhat different from the other phase of work.

This second phase is carried out with the close cooperation of the local high school agriculture teacher. This is necessary because the trainee takes over the local teacher’s program, which is planned to meet the needs of each student in the class. Of course, before any teaching is done the teacher trainer takes the students on a trip to familiarize them with the community, and visit the high school boys they plan to teach. This trip gives the trainee a chance to learn the home conditions and local problems that face each student in his class.

Topics for the lessons are assigned each trainee, who makes out a complete lesson plan and submits it to the teacher trainer for correction and approval. The trainee rehearses his lesson before the teacher trainer and fellow trainees so that his method of presentation may be evaluated.

The trainee then substitutes for the agriculture teacher and has the full responsibility of the class. Afterwards, a discussion is held concerning the way the lesson was taught and suggestions for improving the methods used by the trainee are discussed in detail.

Frequent repetitions of this double-pronged plan of assuming re-(continued on page twenty-six)
Dirty engines can cause costly breakdowns this spring... put a tractor out of use just when you need it most. Don't risk this threat to bigger cash crops. Protect your heavy-duty diesel and gasoline tractor and truck engines now and regularly with ESSOLUBE HD Motor Oil!

ESSOLUBE HD provides this protection in two ways:

1. Contains special detergent that helps keep valves, rings, pistons and upper engine surfaces free from harmful sludge and varnish.
2. Stays full-bodied at high temperatures, flows freely when motor is cold... for all-around engine protection in any weather.

See Your Esso Farm Distributor For These Other Important Esso Aids to Better Farming for Bigger Profits

ESSO GASOLINES—strong and smooth power flow for farm engines, high anti-knock under load.

ESSO MOTOR OIL— a proved, low consumption, high performance premium oil.

ESSOLUBE MOTOR OIL—dependable engine protection at a popular price.

ESSO CHASSIS GREASE—long-lasting, adhesive grease that stays on the job under rough going.

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ATLAS TUBES, BATTERIES, AND ACCESSORIES

AGRICULTURAL STUDENTS are offered free subscriptions to the regularly published ESSO FARM NEWS. Every issue packed with valuable articles and helpful hints on modern farming methods. Write today to: Esso Farm News, Room 777A, 15 West 51st St., New York 19, N. Y.

You can depend on Esso FARM PRODUCTS

ESSO STANDARD OIL COMPANY
BROW ROT STUDY MADE ON PEACH SHIPMENTS

By HENRY SIMONS
Experiment Station Editor

Do peaches which are apparently free of disease at harvest develop brown rot damage by the time they reach the retail market? To answer this question, experiments were begun last summer by the Botany Department of the Experiment Station in cooperation with the U. S. Department of Agriculture. Participating in the study were Dr. H. H. Foster, associate plant pathologist of the Botany Department; M. A. Smith and G. B. Ramsey, plant pathologists of the USDA.

Peaches from eight different spray treatments were harvested and then graded, packed and shipped the same day to Chicago, Ill. Two additional baskets from each spray plot were placed in storage at Clemson, one being stored at room temperature (78-85 degree F.) and the other at 38-45 degree F.

The freight shipment arrived in Chicago four days after leaving the shipping point in Spartanburg county. The peaches were then held at room temperature for four additional days to stimulate conditions in a retail market. At the end of this time, brown rot damage was found to be of commercial importance in the fruit from only three of the eight spray treatments.

Based on the results of these experiments, the following general statements can be made:
(1) Low temperatures during transit and storage reduced losses from brown rot in every case.
(2) Seven applications of wettable sulfur during the growing season gave excellent control of brown rot.
(3) Orchard sprays using the new organic fungicides, Zerlate and Phygon X-L controlled brown rot but were not superior to wettable sulfur. Phygon X-L at the rate used in these experiments caused most of the fruit to be discolored.
(4) The place to stop brown rot is in the orchard.

PLANT PATENTS
(continued from page six)

plant for which he solicits a patent; that he does not know and does not believe that the same was ever before known or used. The patent office requires two things of an applicant for a patent. First, he must file the specifications in duplicate, one under oath. Second, when the patentability of the plant rests on color, he must submit a permanent water color drawing on Whatman paper with the application. If the applicant is successful in securing a patent his minimum costs will be fifty dollars. The average total cost will amount to about one hundred fifty dollars considering the expense of a drawing or two if in color and the attorney’s fee.

Since the application for a patent must be made by the originator, the little man or employee of a large concern is protected. A company cannot profit from the plant patent of an employee unless he is under written contract with them.

As long as the field of agriculture remains profitable, plant breeders will continue to seek improved varieties of plants. The field is wide open. There are about 280,000 species of plants known in the world, of which about a tenth are used by man today. Surely there are countless variations which if recognized and protected would bring a lot of money to some lucky people.

METHIONINE FOR FEEDS

It has been announced that increased production of low-cost synthetic methionine has made the product now available for commercial consumption. The amino acid has great potential use in feeds, since small additions to vegetable protein increases its efficiency and allow replacement of animal protein now in short supply. The new process for synthesizing the amino acid not only has greatly increased supplies but also has reduced the cost about 97 percent.
This picture gives you the driver's-eye view, operating the new rear-engine Model G tractor.

Your eye follows the oncoming rows clearly and easily. You have straight-ahead vision, instead of looking down or behind.

Equipped with a new front-mounted, low-set 2-row drill planter (or a multiple-row planter for soybeans and narrow-row crops) the Model G is the ideal self-powered planter.

Any one of 10 front-view Model G Matched Tools can be attached or detached in 5 minutes or less. The tractor wheels can be spaced for planting or cultivating 1 to 6 rows. Speeds range from 3/4 to 7 miles per hour, including a special low creeper gear.

This is the tractor to replace that last team of horses. It operates on 2 to 3 quarts of fuel per hour, far thriftier than feeding a team the year 'round.

More than a new tractor, the rear-engine Model G is the central unit of a new system of motorized farm tools.

**MODEL G Rear Engine TRACTOR**

for some jobs on **ALL** farms
for **ALL** jobs on some farms

ALLIS-CHALMERS
TRACTOR DIVISION · MILWAUKEE, WISCONSIN, U. S. A.
CLEMSON HEREFORDS POLLED — HORNLESS THAT IS

BREED BEGAN IN 1900,
CLEMSON NOW HAS
LARGE HERD

The Polled Hereford breed originated in the central west of the United States and in Ontario, Canada. Prior to 1890, certain breeders of Hereford cattle realized the advantage of the polled head over the horned head in the production of commercial cattle, and attempted to eliminate the horns of the Hereford cattle and still maintain so far as possible the many good points which have made the Hereford one of the great breeds of beef cattle.

The first attempts to produce polled Herefords were made by crossing polled cattle of other breeds with the Herefords. By this method many of the calves were polled and had Hereford color markings. These calves were known as single-standard Polled Herefords, as only one parent was naturally polled.

In 1901 Warren Gammon and Son of Des Moines, Iowa, bred the first purebred Polled Herefords. They sent letters to all Hereford breeders inquiring for purebred polled cattle which had turned up in their herds. As a result of their search they purchased seven cows and four bulls which were naturally hornless. This was the origin of the double-standard strain of Polled Herefords.

The American Polled Hereford Breeders' Association was organized in 1900 with Mr. Gammon as secretary.

Clemson's Polled Hereford herd started in 1935 when Mr. L. V. Starkey purchased Mossy Plato 26th and six of his daughters. This is now the largest and one of the best herds of Purebred Polled Hereford cattle owned by an agricultural college in the United States.

(continued on page twenty-six)
All over America it’s proving itself a

YEAR ’ROUND TRACTOR

⇒ all ’round performance

Naturally, the farmer thinks of a tractor in connection with field work. And, the more he uses a Ford Tractor in the fields, for plowing, discing, cultivating and the like, the more respect he has for the way it buckles down to heavy pulling and tough going... for the way it “takes the toil out of the soil” and the amount of work it helps get done in a day.

Here’s a tractor that can handle a really tough plowing job and bring new speed and efficiency to other kinds of heavy field work. It’s a tractor that pleases with the quality of its work and surprises with its economy.

⇒ all ’round the farm

With a Ford Tractor and the right Dearborn Equipment, power and speed are brought to such jobs as scraping, leveling, loading, ditching, terracing, excavating, digging post holes, sawing wood, or clearing snow.

Most Dearborn Implements are lifted and lowered by a finger touch with Ford Tractor Hydraulic Touch Control.

⇒ all year ’round

All of this adds up to the fact that a Ford Tractor keeps busy for many extra hours in a year... saving time and drudgery, instead of sitting in the shed. There’s a difference in the greater amount of work done and in the way this tractor can be used to improve farms and increase earning power. For complete information, literature and demonstrations, see your nearby Ford Tractor dealer.

DEARBORN MOTORS CORPORATION • DETROIT 3, MICHIGAN

LOOK FOR THIS SIGN—It identifies your nearby Ford Tractor dealer. You’ll find him cooperative, a good man to know better.
COTTON VARIETY TESTS
(continued from page four)

hulls. Cotton fits into your farming because it is a dependable crop, because you have the experience and the equipment to handle it, and for many other reasons that you can readily name. The first practice recommended by the extension cotton improvement specialists for the production of large yields of high quality cotton is to grow only a well-bred, wilt resistant variety of proven worth as to high-yielding, early maturing, desirable staple length (1 inch or longer) and other quality characteristics. Make the most of your cotton crop by selecting the variety which will give you the best returns.

CLEMSON HEREFORDS
(continued from page twenty-four)

Mossy Plato 26th was a great breeding bull, and his name appears in the pedigree of many famous sires. Mossy Plato 26th was followed by Rollo Domino 2nd which is also an excellent herd sire.

The next bull of importance was Battle Domino 11th which is the present senior herd sire. This bull is the sire of many show cattle, including a reserve champion female and a grand champion bull at the National Polled Hereford shows. The female sold for $6,000 and the bull for $35,000.

At present the Clemson herd contains more than 100 females, most of which are of breeding age. Practically all of the females in the herd have been produced by the college.

The bull calves from this herd are usually purchased by farmers. Last year an auction sale was held to dispose of the young bulls, and this will probably be the plan followed in the future. Information concerning this plan will be available at a later date. Anyone interested in purchasing a young bull for breeding purposes should obtain information concerning this sale.

Visitors are always welcome to come and see this herd. Last summer an estimated 3,000 people visited the herd during the period of one month.

First Farmer: "Which is correct: A hen is sittin', or a hen is settin'?"
Second Farmer: "I don't know, and I don't care. All I bother about is when she cackles—is she laying or is she lying?"

THE AGRARIAN
PIONEERS came with their axes, guns and hoes, their wooden plows, iron plows, steel plows, oxen and horses; and through hard work, unimaginable hardship and drudgery carved for themselves homes and farms from a rugged, new land. Their farming tools were in many respects quite the same as those used in Biblical times and not much better. But unlike the people of older times, men in this land had equality, opportunity, aggressive ingenuity, freedom from oppressive restrictions...time and opportunity to think and plan. And men prospered...invented machines to help do their tasks faster and better. The last 100 years was a period of sudden, swift progress...real progress...and it parallels the history of the farm machinery industry. More progress was made in the last fifty years than in all the ages before.

That progress continues under the American system of free enterprise and capitalism. Men who plan beyond tomorrow know that modern methods of agriculture will assure posterity of fertile, productive soil. That is why more and more progressive farmers demand MM MODERN TRACTORS, MACHINES, and POWER UNITS. They know that the MM trademark is the recognized symbol of highest quality since 1865. Today MM modern machines of proved dependability and economy...machines built to do the work with comfort, convenience, and safety enable the farmers of America to supply the world with food, fiber, and oils.

Today's farmers using modern methods and modern machinery are truly Pioneers of Progress!
NEWS FROM '48 GRADS

Agricultural Economics
Gilbert Hardee, former state BSU president, and Jay Young, president of the YMCA while at Clemson, are graduate assistants at the University of Kentucky. During the summer they did field work in Kentucky and started work on their Masters' degree last fall.

Lamar Judy has accepted a position with the South Carolina Planning and Development Board in Columbia, which works toward bringing industries into the state. He also did some work on the new grain elevator in Anderson.

Agricultural Engineering
James H. Arnette is now assistant professor of Agricultural Engineering at the University of Florida.

Fred K. Norris is engaged in farming at his home in Eutawville.

Carl M. Lund is employed as Service Manager of the G. I. Case Co., in Charlotte, North Carolina.

J. S. Evans, L. A. McInnis, B. K. Quattlebaum, and Ernest Rogers are working with the college and the South Carolina Agricultural Experiment Station here at Clemson.

Agronomy
D. B. Rosenkrans, Jr., is now Associate Agricultural Editor at the Mississippi State College Experiment Station.

Don Sharp is now operating a farm in Orangeburg County.

B. N. Kelly is in charge of all farms at the State Hospital in Columbia.

E. D. Weimortz is now employed by the Perry-Morse Seed Company in Detroit, Michigan.

R. D. Nicholson is engaged in Farm Management work in Tennessee.

I. N. Rizer is engaged in farming and instructing veterans at Lodge, South Carolina.

E. G. Tate is employed as Assistant County Agent of Greenwood, County.

H. Z. Woodfin has a job with "Uncle Sam" at Fort Jackson.

N. C. Anderson is Assistant County Agent of Clarendon County and is currently residing at Manning.

K. R. Bell is located in business at Mullins.

E. R. Bozeman is doing work on artificial insemination in Laurens County.

Dairying
R. M. Hanckel is at the University of Missouri in Columbia, Missouri engaged in graduate work on dairy products.

Jerome Senn is stationed at Fort Jackson, South Carolina with the rank of 2nd Lieutenant.

C. E. Cousins accepted a position as Assistant County Agent in Richland County.

M. B. Smith is in the dairy business at Spartanburg.

W. T. O'Dell is connected with the staff of the Dairy Department at Clemson.

Entomology
W. M. Askew is located in Columbia with the State Board of Health.

R. B. Hancock is engaged in the Department of Entomology and Plant Quarantine in New York.

L. H. Moore is doing graduate work at Texas A. & M. College.

A. C. Turner, Jr., is doing graduate work at the University of Illinois.

Horticulture
W. J. Park is employed by a seed company in Greenwood.

Roscoe Higdon is now working at the Sand Hill Experiment Station in Columbia. He recently finished a semester of graduate work at Michigan State College.

James S. Rodgers is Assistant County Agent of Charleston County.


OK Boys, more free smokes this month—just put on that old thinking cap and see if you can't put your name in that winner list. Submit entries to room 3-228 or 8-230—Ten winners.

QUESTIONS

A Twice here in red, two-thirds in white. Explains just why a Chesterfield's right.

B Four are shown and all the same. In color and shape, but not in name.

C You've no doubt heard it noised about that oysters "R" in season, One glance at lovely Linda and you're sure to see the reason.

ANSWERS WILL APPEAR IN THE NEXT ISSUE OF YOUR MAGAZINE

RULES FOR CHESTERFIELD HUMOR MAGAZINE CONTEST

1. Identify the 3 subjects in back cover ad. All clues are in ad.
2. Submit answers on Chesterfield wrapper or reasonable facsimile to this publication office.
3. First ten correct answers win one carton of Chesterfield cigarettes each.
4. Enter as many as you like, but one Chesterfield wrapper or facsimile must accompany each entry.
5. Contest closes midnight, one week after this issue's publication date. New contest next issue.
6. Answers and names of winners will appear in the next issue.
7. All answers become the property of Chesterfield.
8. Decision of judges will be final.

LAST MONTH'S ANSWERS & WINNERS

A DANA ANDREWS and C. D. ALLEN talking about Chesterfield. Mr. A (Andrews) says "They're mild and they taste good." Mr. A (Ben) says "I've been smoking Chesterfield ever since they used to put them up in a cardboard box."

B DANA ANDREWS in "NO MINOR VICES." (The sequence refers to the number of letters in the three words of the picture title).

C Answer: SEMORA. Spelling backward (AROMES) you change E to A and get fragrant smells (AROMAS).

WINNERS...


OK Boys, more free smokes this month—just put on that old thinking cap and see if you can't put your name in that winner list. Submit entries to room 3-228 or 8-230—Ten winners.

THE AGRARIAN
SEED WITH SPEED AND ACCURACY . . . .

Here is the new IH Model M low-wheel grain drill—seeding 5½ acres of grain per hour.

The companion line of Model MF fertilizer grain drills resembles the Model M. But the MF has a large-capacity divided hopper with one side each for fertilizer and grain. The separate drive of the fertilizer mechanism can be set to deposit 30 to 1,135 pounds of commercial fertilizer to the acre.

These two models of the new line of IH drills are built for fast precision seeding of practically any size or kind of seed. The Model M and Model MF each have an all-steel frame of welded construction that gives the backbone of strength to work behind a tractor at today's popular speeds, as a single unit or in multiple hitches.

The 6.00-16 tires give these drills flotation on soft seedbed. That helps assure the seeding depth desired; also results in power-saving lightness of draft. Bearings are pressure-lubricated and well protected from dust.

These new IH drills are furnished with the type of furrow openers selected; and with fluted or double run feed. Your IH dealer has full information on the size of Model M or MF drill equipped exactly to suit individual needs.
“Everybody likes Chesterfield because it’s MILD. It’s MY cigarette.”
Linda Darnell

Sharing in
“A LETTER TO THREE WIVES”
A 20th Century-Fox Production

“I’ve been smoking Chesterfields ever since I’ve been smoking. They buy the best cigarette tobacco grown... it’s MILD, sweet tobacco.”

M. H. Griffin TOBACCO FARMER BAILEY, N.C.
(From a Series of Statements by Prominent Tobacco Farmers)

MAKE YOURS THE MILD CIGARETTE

For CHESTERFIELD CONTEST See Page 28