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Yes, Camels are SO MILD that in a coast-to-coast test of hundreds of men and women who smoked Camels—and only Camels—for 30 consecutive days, noted throat specialists, making weekly examinations, reported

NOT ONE SINGLE CASE OF THROAT IRRITATION due to smoking CAMELS!
Grains of Opinion  
For The Welfare of the State?
by James E. Cushman

From all indications visible to the public, a bill before this session of the South Carolina State Legislature requiring the testing of all cattle which are being sold through stock yards of South Carolina and returned to the farm is being defeated. This bill was sponsored by the South Carolina Dairy Association in the interest of the protection of the state's cattle population from destructive diseases which cost southern cattle men thousands of dollars each year, not to mention the threat to the health of the consumers of milk and meat products. The holders of those offices which enable citizens of this state to express their beliefs in what they think best for all have, so far as we can determine at this stage of the game, rejected a proposal to stop unnecessary spending of funds from the state taxpayers pockets being spent on such a disease rage as Tuberculosis and many others transmitted by diseased cattle. There is also the alarming fact that thousands of animals are being slaughtered every year for the sole purpose of being burned or destroyed in other ways in order that disease might be eliminated. The old saying "a stitch in time saves nine" hits where it hurts here. The production of milk and meat is not peculiar to South Carolina. We're competing with a national industry and, as I see it, can't offer them much competition as long as we're filling our gullets with animals which produce meat selling at 70 cents a pound and milk at 23 cents a quart. Let's keep telling ourselves that we aren't "decadent" but at the same time act accordingly ... which is hardly defeating a bill which would greatly aid in the prevention of a spread of communicable and contagious diseases. In the interest of the general welfare of the state? I wonder ...

The Agrarian—published in November, January, March and May by the undergraduate students in the School of Agriculture and the Department of Vocational Agricultural Education of the School of Education. Opinions expressed in this magazine do not necessarily reflect the policy of the School of Agriculture or Clemson College.

Advertising rates: one-fourth page, $15.00; one-half page, $28.00; one page $50.00. A ten percent discount is given to those advertising four times consecutively.

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

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Cover
This month's cover shows Mr. Luther Smith of Easley reliving earlier days on the farm, while top-dressing a field of young wheat. Mr. Smith, who is now retired, is the grandfather of the photographer, Bennett B. Smith.
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progressive
Dairymen
because...

1. It is an excellent cattle conditioner.
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WESTMINSTER, SOUTH CAROLINA
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Never underestimate the value of manure in livestock farming. Ten years from now, when you tear the last calendar page from the decade of the 1950's, the size of your bank account may well be determined by the tonnage of manure you have spread on your farm.

For manure is truly a "magic" fertilizer. Well managed, it can return to the soil 75% of the plant foods that nourished your crops. Even more important, it can put new life into your land by adding organic matter for better tilth...greater water-holding capacity...higher soil temperature...easier root penetration—all of which make your "good earth" better, less subject to erosion, more productive, and more profitable.

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ANTIROT is simple to use. Dilute 1 gallon with 10 gallons of fuel oil, agitate to obtain a uniform mixture and you're ready to begin treatment. Place posts to be treated in vat containing the dilute ANTIROT and allow to soak 48 hours.

The cheapest post will then give you years of service, eliminating the expensive repair and replacement of fences.

* 

WOOLFOLK CHEMICAL WORKS, LTD.
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A GUEST EDITORIAL

SOUTH CAROLINA AGRICULTURE of TOMORROW

By DR. R. F. POOLE
President. Clemson College

Today, world complexities are so indeterminate and unsettled that prophesying as to future trends requires more than ordinary care.

Some of our needs for agricultural improvement are evident. Getting South Carolina agriculture on the same standard as the United States agriculture is of first consideration. If California, which is successfully bidding for the South's cotton crop, is producing two and one-half bales per acre South Carolina must meet the challenge with similar yields per acre of good quality cotton or otherwise South Carolina agriculture will remain poorer. The same may be applied to milk, hogs, corn, chickens, and all other products. It does not mean that South Carolina must discontinue production of these products, but it does mean that South Carolina growers will remain poor while California growers will profit more. South Carolina agriculture cannot successfully compete with agriculture in other parts of the nation and in foreign countries unless yields and quality are as satisfactory in South Carolina as elsewhere. I am glad to say great progress has been recorded toward reaching the desired goals.

Our greatest hope, I firmly believe, is contingent upon diversification. Nature with freezes, floods, droughts, insects and diseases often seriously disturbs the economy of a state with the one-crop system. With diversified agriculture some success may be accomplished despite such conditions. The success of diversification in which new crops and a variety of crops make up the state's agriculture is definitely contingent upon a favorable market. Our Clemson scientists have shown that superior cheese can be produced in this state; that sesame, a great source of vegetable oil, can be grown well within the state; and that aromatic tobacco is already a huge success. It is clearly understood that all farmers cannot discontinue growing cotton and other crops with which they are familiar and plunge immediately into new crops, but a reasonable number of farmers may do so and find a ready market for their products. In perfecting diversification our thoughts go beyond the introduction of new crops and the processing of products from the crops of South Carolina farms. We are thinking about the farmer who has a small acreage and a large family. For example, the production of aromatic tobacco fits well into a small farm and large family situation because of the high income it brings per acre.

The natural resources of South Carolina are its forests, clays, and what can be produced on the farms and in the waters. It is important for South Carolina to have the industries to process the products of these resources if we are to receive maximum profit from them. It is much more important than we have realized and is essential to progress. The introduction of more industries affords humane values, because thereby those who do not like farming can find employment in a desirable vocation. It seems to me that South Carolina cannot reach its maximum economic achievement while eating foods produced by farmers of other parts of the nation. This also applies to the feeding of the flocks and herds. It would not be so important if South Carolina farmers did not have favorable opportunities and conditions to produce an abundance of all the major staple crops. The freezer locker and deep freezer units are a hopeful answer to the use of home food preservation. Much is yet to be done to perfect the quality and quantity of packaged products for the freezer systems.

By transportation and communication the people of the world have been brought into close relations. It is important to study world trends in agriculture not only of the past but also for the present and for the future. In agriculture we dare not keep on doing tomorrow what we are doing today. We must make South Carolina agriculture meet changes and meet them to our advantage. If we do this we can go much farther than we do now toward living at home and diversifying. We must put forth every effort to make the soils of the state more fertile and to prevent the vital plant-growing substances from washing from the fields into the ocean. We must do more to process the natural resources of the state so that they may be sold advantageously.
Farmers Challenge Microbe

Latest Methods for Counterattacking the Microbe Menace

By HARRY LIGHTSEY
Agronomy '52

Today the farmer is nearing the completion of a long campaign to rid himself mechanically of crop pests. For many years he has known the secret of controlling weeds and parasitic pests that trouble him above ground. It is only within the past few years that the agronomist has learned the secret of controlling the countless millions of destructive organisms lurking underneath the surface of his fields.

One of the farmer's answers to these underground parasites is soil fumigation. Its development began in the pineapple fields of Hawaii. There the nematode problem had become so serious that it threatened to destroy the whole pineapple industry. It was entomologist Walter Carter that began the search for a soil fumigant that would kill the noxious organisms. He began by asking chemical companies for samples of their by-product waste-materials. After applying several of these, he found only one that was usable. This product, which was furnished him by The Shell Chemical Company of California, he named D-D, for its two principal constituents, dichloropropane and dichloropropene.

with a soil fumigant called Dowfume. This fumigant is effective against both nematodes and the larvae of insects that infest the ground.

Results received from soil fumigation have indicated its remarkable potentiality as an ally of the farmer. Pineapple yields in Hawaii have increased from 10 to 28 tons per acre as a result of its application. A grower of sweet potatoes who had previously been harvesting around 800 pounds per acre was able to gather about 13,800 pounds, an increase of 6½ tons per acre. Fruit trees grown on fumigated land yielded roughly ten times as many peaches as trees grown on unfumigated soil.

At present there are several methods of applying soil fumigants. The first method experimented with was to punch holes in the ground and to pour the liquid fumigant into them. From this idea was developed an attachment for the rear of a tractor. The fumigant applicator covers about 10 feet and treats the soil about every 15 inches. The newest type of soil fumigant is in the form of a capsule. This capsule is composed of methylbromide. It is placed in holes in the ground about every 18 inches; then it is burst with a stick or pick handle. The ground being treated is then watered and rolled with a cultivator.

The only field wide experiment with soil fumigation is being carried on in Colleton County. Mr. H. M. Lightsey fumigated 12 acres of strawberries last fall. While it is too soon to state definite results, the treated plot of berries has made much better growth and has developed much more extensive root systems than the untreated plot. Mr. Lightsey placed the cost of soil fumigation on a large, field wide scale at about $30.00 per acre. When the fumigant was applied, the men no-

(continued on page twenty-two)
The Art of Rose Growing

Pointers for the Growers of
The "Queen" of Flowers

By WILLIAM J. JENKINS
Horticulture '51

The rose has been called the "Queen of Flowers" and its universal popularity is clearly shown by the fact that people attempt to grow roses in all parts of this and other countries. Roses are among the oldest of cultivated flowers and the frequent references to them in the Bible and other ancient writings testify to the prominent part they have played in the history of mankind.

Although the climate in sections of the United States offers some handicaps to rose growing, it is possible to select certain types of roses which can be grown in any section where other flowers are grown.

Roses thrive in fertile well-drained garden soils of types that range from heavy clay loams to light sandy loams and that are either slightly acid or neutral. Clay loam soils that are retentive of moisture, but from which an excess of moisture drains promptly, are probably suited to more kinds of roses than any other type. A deep topsoil from ten to eighteen inches, over a well-drained subsoil gives the best results. If the soil is shallow it is usually best to excavate some of the subsoil and fill in with topsoil. Good drainage is an absolute essential in growing roses. If soil is not naturally well drained, artificial drainage must be provided. This may be supplied by ditching or by providing stone or tile drains.

Roses respond to deep thorough preparation of the soil with an abundance of fertility. A good application of manure, preferably cow manure, at the time of preparation of the soil will give good results. If manure or compost is not available any organic fertilizer such as dried blood, cottonseed meal, or ground bone, may be substituted. In using manure or compost, an application two or three inches thick is desirable. Apply organic fertilizers at about 10 pounds per 100 square feet. Often it is well to supplement the above with a top dressing of 3 to 5 pounds of 5-10-5 commercial fertilizer per 100 square feet. Sandy soils require heavier and more frequent applications of organic manures than do heavier soils. Roses require clean cultivation or well mulched soil.

When planting roses care must be taken to see that the roots do not dry out before planting. Set the roses in holes big enough so that the roots may be spread out in a natural position. Although roses are usually set out in the spring, in the South best results are obtained by planting in the fall as soon as the plants go into the dormant stage. Plant the roses about one to one and one-half inches deeper than they grew originally. Pack the soil firmly around the roots and water lightly if you water at all. Approximately one-half to two-thirds of the wood should be removed from rosebushes when they are planted. Prune out weak branches and long canes should be cut back so the wind will not whip them around and loosen the plant.

Many roses are more successful if they are protected during the winter by placing a mound of soil about the stem. This should be removed in the spring before growth starts.

In addition to good culture, protection from insects and diseases is required by many kinds of roses. This protection consists of timely spraying to control three principal types of pests—sucking insects, biting insects, and diseases affecting the leaves and stems. Even more practical than identifying the specific insect or disease attacking the rosebush is persistently applying three types of material—poison on the leaves to guard against chewing insects, fungicides on leaves and stems to prevent the entrance of diseases, and contact insecticides applied when sucking insects are found. For more detailed information concerning the insects and diseases attacking roses, contact the Extension Service at your state agricultural college.

(continued on page twenty-eight)
Parity Prices -- What Are They?

The concept of parity relative to agricultural prices is not new. As a factor in our agricultural policy, the concept of parity dates back to the early 1920’s. As a permanent part of our agricultural legislation, the provision for parity prices dates back to the Agricultural Adjustment Act of 1933. These legislative provisions have been substantially changed and amended by the Agricultural Acts of 1948 and 1949.

The significance of parity prices as a part of our agricultural policy concerns not only those actively engaged within the agricultural sector of our economy, but every member of our society who must either buy or sell agricultural goods and commodities. Parity price is defined as “that price which will provide the producer of a unity amount of goods with the same purchasing power as that unit of goods would have provided when sold during some base period.”

To illustrate let us assume that in 1938 (using this as a base) a farmer was able to purchase a tractor with five bales of cotton. With equality of purchasing power, the same farmer should be able to purchase a similar tractor today with the same amount of cotton. The price at which cotton must sell to allow him to do so would be the parity price for cotton.

Before the amendments of the Agricultural Acts of 1948 and 1949, parity prices were calculated by a relatively simple system, now commonly referred to as the “old” formula. The essentials of this system were a base period, and an index of prices paid by farmers.

The base period for most farm products was the five years of 1910-14. This period was chosen because it seemed to represent a period of equality between prices farmers received and the prices they paid for farm machinery, clothing, etc. This base period then serves as the yardstick by which to measure the extent of changes in prices during any other period.

The index of prices paid by farmers is obtained by comparing the average prices paid by farmers at any given time with the average prices paid during the base period. The average of prices paid during the base period is taken at 100 and average of prices paid at any given time is proportionately expressed and in similar terms. This index of prices paid multiplied by the average price of any commodity during the base period gives the parity price for that commodity.

By CALVIN C. TAYLOR
Agricultural Economics ’50

As an example, the average price of cotton during the base period was 12.4 cents per pound. In January 1950, farmers were paying 2.41 times as much for commodities purchased as they paid during the base period. This includes such purchases as feed, machinery, fertilizer, taxes, and interest. With the average of prices paid during the base period taken as 100, the index of prices paid by farmers in 1950 stands at 241. Therefore the parity price for cotton is obtained as follows:

\[ \text{price of cotton} = 0.124 \times 2.41 = 0.2988 \] (parity price)

As previously stated the Agricultural Acts of 1948 and 1949 provided for significant changes in the method of calculating parity prices. These changes resulted primarily from stern criticism of some parts of the system used in calculating the “old” parity formula. One of the major criticisms was of the way in which the average of prices paid by farmers, was calculated. In arriving at the average of prices paid by farmers, the individual items were “weighted” upon the basis of expenditures made by farmers for that item during the years 1924-29. It is readily apparent that the change in the technology of production since that time makes the period now antiquated for this purpose. The Agricultural Act of 1949 provides that the years 1937-41 be used as a basis for the weights used in calculating indexes of prices paid by farmers for any year since 1935. The act also provides that wages paid by farmers for labor shall be included in calculating the index of prices paid under the “new” formula. Because of the previous low levels of farm wages, they were not included in the old formula.

The second major change made by the act of 1949 is the substitution of an “adjusted” base price for the base period prices used in the “old” formula. This change is made for a seemingly adequate reason. The object of parity is to show the proper relationship between prices received by farmers and prices paid by farmers. It should also reveal the proper relationships among the individual commodities sold by farmers. For instance, it has been quite evident during recent years that consumer demand for livestock products has increased relative to the demand for some other farm products. Calculation of parity prices by the “new” formula more adequately reflects this relationship. Instead of using the average price of a commodity during a base period as in the “old” formula, the new formula uses an “adjusted” price. This is obtained by the following two steps:

1. The average price of a specific commodity during the preceding 10 years is calculated.

2. The average price obtained in step one is divided by the average of the index of prices received for the same ten-year period.

The preceding ten years as specified in step one means that ten years preceding the year for which parity is being calculated. For parity prices of 1950 the years 1940-49 would be used, for 1951 the years 1941-50 and so on. This is an attempt to keep the (continued on page twenty-six)
George M. Armstrong received his B.S. degree from Clemson A. & M. College in 1914. He returned that fall to a graduate assistantship before beginning work toward his Master's degree, which he received from the University of Wisconsin in 1917. Again he returned to Clemson, to become an instructor in Botany for the next year. In 1918 he became an Extension Plant Pathologist in the state of Alabama. He spent one year there before accepting a fellowship at Washington University, St. Louis, Mo., where he received his Doctor's degree in 1921. For the next three years Dr. Armstrong was Assistant Professor of Botany at that institution. Dr. Armstrong, being a very intrinsic man of science, left the teaching profession and returned to his home state to become head of the Division of Boll Weevil control at the S. C. Experiment Station in Florence. This is where the Armstrong's settled for the next four years. In 1928, Dr. and Mrs. Armstrong with their two sons moved to Clemson, S. C. where Dr. Armstrong became head of the Botany and Bacteriology Department. And this is where the Appleton, S. C. contribution to science and education remained.

Since 1924 Dr. Armstrong has been active in the field of Phytopathology. He worked in Florence for four years on Boll Weevil control. After Dr. Armstrong came to Clemson he continued to be active in the research on plant diseases. From 1936 to 1948 he served as chairman of the Cotton Disease Council and was one of the main contributors to the disease control of cotton in this area. For his outstanding work in plant diseases Dr. Armstrong was elected president of the Southern Section of the American Phytopathological Society in 1938. Another honor was bestowed upon him during the war when he was elected to serve on the War Emergency Committee of the Southern States from 1942 to 1945. This unusual distinction has been Clemson's in both of the two World Wars. Dr. H. W. Barre, who was Head of the Botany Department during the first World War, was also the representative from the Southern States during that period. Dr. Barre, incidentally, has recently retired from the position he held with the Cotton Research Department of the United States Department of Agriculture and has returned with his family to Clemson to make his home here during his retirement.

Other national associations claim Dr. Armstrong as a member. He is an active member of the American Association for the Advancement of Science, American Phytopathological Society, American Society of Plant Physiology, Botanical Society of America, and the South Carolina Academy of Science. He is also a member of Sigma Xi, Phi Sigma, Clemson Fellowship Club, Anderson Rotary Club, and has acted as the adviser of the local chapter of the Alpha Zeta.

Dr. Armstrong has written a total of fifteen publications since he has been at Clemson. He has written various articles for the Journal of Agriculture Research and South Carolina Experiment Station Bulletins. And, too, he has written articles for the Phytopathological and the Plant Physiology Journals of the United States.

Despite all these extra activities, Dr. Armstrong still finds time to teach Plant Pathology to the seniors and spend some time on his hobbies. As could be expected, his favorite hobby is working in his flower and vegetable gardens. A great deal of his time in the evenings is spent working with the local Boy Scout troop and on the county advancement committee for Boy Scouts. Dr. Armstrong's most prized hobby is really not a hobby but a contribution to science and man. It's his help and influence to graduating students to continue with their education by completing graduate school. During the time at Clemson, Dr. Armstrong has influenced some ten men to complete graduate work. His contributions to science and education, and his interest in various societies, clubs and hobbies do indeed make Dr. George M. Armstrong worthy of his recent selection to Who's Who in American Education.
FREE SOIL SERVICE FOR FARMERS

Soil Deficiencies Determined at Clemson Laboratory

The question of South Carolinians in the last few years has been—"how to keep 'em down on the farm?" This statement refers to more than a matter of jesting, because the trend of recent years has made it a very real problem.

Our farmlands have been so depleted, due to slow improvement of economic conditions and poor farming practices, that our farm youth have found more enticing opportunities in other fields of endeavor. For this reason, one of the prime objectives of our agronomists is to enlighten the farmer to the knowledge of the needs of his soil. To this end, the Soil Testing Service Laboratory at Clemson is devoting its efforts.

This Soil Testing Service at Clemson is under the supervision and direction of the Agronomy Department. It furnishes free service to all farmers in the state, and, except for specific cases, only the pH, available phosphorus and potassium tests are run.

Soil samples may be taken from farms throughout the state by the farmers themselves. The samples taken by the farmers should be representative of the different areas of his farm. On gathering these samples, they should be placed in ice cream cartons (pints), labeled with the farmer’s name and address, and accompanied by a statement regarding the crops tentatively planned for the specific area from which each soil sample was taken.

When these soil samples are received by the Soil Testing Service, they are subjected to several tests, as previously stated. Before any of these tests are made, samples are directly proportional to the amount of phosphorus available to the soil.

The potassium test uses the same extracting reagent. Sodium cobaltinitrite and a volume of ethyl alcohol equal to that of the extract is added. The amount of turbidity is in equal proportions to the amount of P or K.

The rapid or quick chemical tests, used in determining soil deficiencies, is not as accurate as the analytical procedures. At present, this test is the most popular of any employed in determining the fertilizer needs of soils.

When such tests are standardized against field results and employed intelligently, they do have a diagnostic value, but reliability on them for all crops on all types of soils cannot be claimed for any single test.

In the hands of a well-trained and experienced technician, such as Mrs. W. B. Aull, wife of the former Vice-Dean of Agriculture, who also taught Botany at Clemson during the first World War, tests of this kind have proved a valuable aid to better fertilizer recommendations.

Up until the present time, no one chemical criterion can beenvoked in appraising the supplying power of all soils for a specific nutrient element. Due to climatic conditions, nitrate do not accumulate to any appreciable extent, therefore nitrate tests are not run.

Much more is accomplished in the soil testing service than could possibly be described here, but it is hoped that some idea of the importance of this service has been conveyed to the farmers of South Carolina.

It should be our ultimate goal to bring all of our farmers to take advantage of the valuable service, which means so much to the future of our agriculture.

In the future, we can expect the soil testing service to do its share in the improvement of and the attainment of increased productivity of our depleted soils, and further justify farming as a profession in the eyes of our farm youth.

By W. W. ALLEN
Agronomy ’51

(Pictured is Miss Louise Brown of the Agronomy Department testing a soil sample in the Clemson soil testing laboratory.)

TEN

THE AGRARIAN
Ascochyta -- New Cotton Threat

CLEMSON SENIORS INVESTIGATE FUNGUS DISEASE

Since 1947 South Carolina farmers and the South Carolina Agricultural Experiment Station plant pathologists have been concerned about locally severe losses by a disease of cotton caused by the Ascochyta fungus. Actually, this disease is a relatively old one. The casual organism, Ascochyta gossypii, was obtained from cotton leaves and was named by H. Sydow in 1908. Other information indicates that the disease has been present in South Carolina for forty years, although under other names than the Ascochyta disease.

By WILLIAM B. BOYKIN
Agronomy '50

Dr. J. A. Elliott of the Arkansas Experiment Station conducted the first intensive study of the disease during 1920 and 1921. His interest was aroused by an outbreak in Arkansas of what seemed to be an unreported disease of cotton. The damage produced by this epidemic was locally very severe. In some restricted areas the stand of cotton was almost destroyed; while in other areas the stand was reduced and the plants stunted.

Until recently, this disease has not been reported as a cause of economically important losses in South Carolina and adjoining states. No appreciable losses were reported in this state from 1933 to 1946. During the latter part of May and June for the past three years, the disease has caused severe damage to young cotton plants in northeastern and northwestern counties of South Carolina. It has also caused losses of stands in Georgia and Alabama.

This recent incidence of the Ascochyta disease has aroused the interest of the plant pathologists in the possible causes of the outbreaks of the disease. The erratic occurrence of the disease seemed to indicate that it was associated with certain environmental conditions. To obtain definite information on the relation of temperature and the moisture to the prevalence of this disease, C. M. Brown and W. B. Boykin, two seniors who major in agronomy, have been carrying out experiments in the plant pathology laboratories in which cotton seeds inoculated with the Ascochyta fungus have been germinated and incubated at definite temperatures.

Elliott described the disease as a blight, and reported that natural and artificial infections have been found on all the above-ground portions of the plant, except the flowers. The lesions were found most frequently at the point where the leaf petioles were attached to the stem. Infection seemed to occur most readily on the minute "leaves" and buds of this area. Often when the infection occurred in the terminal bud, the upper portion of the plant was killed; and new top growth, when the plant was not killed, had to originate from buds lower on the stem. Such plants typically have several main stems above the point of the original infection. Stem and bud lesions may be sufficiently severe to kill the plants. The stem lesions usually enlarge more rapidly longitudinally than transversely. The fungus may also cause diseased spots on the bolls and leaves. The spots on the leaves are generally rounded in outline, ashy to tan in color, brittle, and from 1/8 to 3/4 inch in diameter.

The severity of the losses seems correlated with definite weather conditions. Of the early epidemics observed by Elliott, one in 1915, the other in 1920, each took place during periods of cloudiness, prolonged rainfall, high humidity, and relatively cool temperatures for spring or summer months. Also in epidemics in South Carolina in 1947, 1948, and 1949, the losses from the disease stopped immediately upon a change to hot dry weather. Leaf infection (continued on page twenty-four)
SERVING THE FARMERS
of
NORTH and SOUTH CAROLINA
for
FORTY YEARS

* *

PLANTERS
Fertilizer & Phosphate Company

Charleston, S. C. 3-7267
Charlotte, N. C. 2-1086
Are Chemical Fertilizers Really Harmful?

An Examination of The Claims
Made Against Commercial Fertilizers

By ALAN B. SIBLEY
Agronomy '51

In recent years a new cult of agriculturists has appeared. These agriculturists go by the title of Organiculturists, or "organic farmers" or by some other name which implies that they farm without the use of water-soluble commercial fertilizers and fertilize their crops solely with such materials as green manures, animal manures, tankage, fishmeal, composts and minerals in the ground rock form. These organic farmers have become rather numerous, and are publishing their own literature. Much of this literature is sound, for all agriculturists realize that organic matter is a valuable constituent of all soils; however, the Organiculturists are not satisfied in telling other agriculturists the value of organic matter, for they are publishing pamphlets and magazines which unfairly picture chemical fertilizers as being detrimental to the soil, the crops from which being very detrimental to human health. The nutritive value of organic matter is also sometimes exaggerated, and there is no basis for many of the facts presented against commercial fertilizers which are not in the form of organic matter. Practically all soil chemists need no explanation concerning these misleading facts and are able to disprove them in the light of modern research. To the layman, however, this literature can be very deceptive and can induce him to accept the false assumption made regarding the harmful effects of chemical fertilizers. In order to clear up this situation, it is necessary to examine the claims made against chemical fertilizers in an effort to arrive at an explanation that exonerates chemical fertilizers to the layman's satisfaction.

One of the main claims that the organic farmers publicize is the belief that the use of chemical fertilizers lowers the fertility and brings about the erosion of our soils. To substantiate this belief, they give results from various experiments that they have made or observed. For example, they will use two crop plots, one fertilized solely with organic matter, the other fertilized solely with chemical fertilizers. The results of the experiment show that the plot fertilized with the organic materials produced the greater yield, the crops from which being higher in quality. The Organiculturists conclude that these results are sufficient evidence to say that chemical fertilizers are making our soils poorer and producing crops which do not provide us with the correct amounts of nutrients to maintain our health. The experiment proves nothing of the kind. It only proves that organic matter was needed by the soil in the two plots more than was the addition of additional plant nutrients provided by the chemical fertilizer. The chemical fertilizers alone could not be expected to improve the physical condition of the soil to the extent that the organic matter does. The dealers of commercial fertilizers do not pretend to offer their chemicals as a complete substitute for organic matter as the experiment was set up to show. Chemical fertilizers will not take the place of organic matter in the soil, for a certain amount of organic matter is necessary to condition the soil from a physical sense in order that the plants may function properly in their environment and be able to utilize the nutrients offered in chemical fertilizers. In order to be accurate, the experiment should have been composed of three plots, the third being fertilized with both the chemical and the organic fertilizers. This third plot would produce the greatest quantity and quality yield, for the organic matter would improve the physical condition of the soil and, together with the chemical fertilizers, supply nutrients. In some cases, however, the application of chemical fertilizers to inherently rich soils, which contain an abundance of organic matter, may not produce a profitable increase in yields, for enough nutrients are already in the soil, but the application of chemicals to inherently poor soils, as some of those found here in the South where organic matter is not a stable constituent in the soil, will be very profitable.

Many farmers plant row crops on easily erodable land and apply chemical fertilizers to these crops. When the land erodes, the blame cannot be placed on the chemical fertilizers, but should be placed on the farmer for not providing adequate protection for his land. It is not the presence of chemical fertilizers but rather the absence of organic matter and other recommended farming practices which causes the land to erode.

The Organiculturists say that chemical fertilizers bring about an over-development of cellulose in plants which causes growth to be too woody and decreases the protein content. This is not always true. The amounts of cellulose, carbohydrates, and proteins in plants depend largely upon the amount of nitrogen available to the plant. A high content of nitrogen makes for less cellulose, less carbohydrates and more protein; consequently, the amount of protein in plants can be regulated by applying a chemical fertilizer containing nitrogen. Plants absorb nitrogen in the nitrate or ammoniacal form. The nitrogen present in organic matter does not become available to the plant until the organic matter has been broken down, at which time the nitrogen is available in the nitrate or ammoniacal form; hence, it is difficult to conceive that the Organiculturists object to the use of the nitrate and ammoniacal nitrogen found in commercial fertilizers, when the plant is going to get the nitrogen in the same form from organic matter.

(continued on page twenty)
47 YEARS OF SERVICE TO SOUTHERN AGRICULTURE

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C. C. TAYLOR. Agricultural Economics major of Mauldin, S. C., came to Clemson in February 1947 after serving in the Navy in the South Pacific. Taylor is better known by his friends as “C”. He is a member of Phi Eta Sigma, Alpha Zeta, and is serving as vice president of the Agricultural Economics Club. Taylor was also the winner of the 1949 Borden award. After his graduation in June, Taylor plans to remain at Clemson for another year, when he will become a candidate for his Masters degree.

JAMES K. PRICE. Animal Husbandry major of Gaffney, S. C., is one of the most outstanding students in the School of Agriculture. James came to Clemson in September 1948.

SAM W. HASTINGS of Norfolk, Va., is one of the most outstanding horticultural seniors in the School of Agriculture. After serving in the Navy in the South Atlantic he entered Clemson in February 1947. “Wild Goose Willie”, as he is known to his friends, is a member of Alpha Zeta and the Horticulture Club. He is also attached to the “Weekend Warriors” of the Naval Air Reserve in Atlanta, Ga. Sam plans to continue his studies in horticulture and work toward his Masters degree.

W. BAYNARD BOYKIN’S record in Agronomy at Clemson has been most outstanding. He came to Clemson from Boykin’ S. C. in September 1946, after serving with the Army in the Philippine Islands. His clubs and activities include membership in Blue Key, Phi Kappa Phi, the Canterbury Club, and “Who's Who in American Colleges and Universities”. Boykin is also Chancellor of Alpha Zeta and president of the Agronomy Club. His favorite pastimes are hunting and fishing. Upon graduation, Boykin plans to work in the fertilizer field.

CARL H. THOMAS. Agricultural Engineering major of Holly Hill, entered Clemson at the beginning of the second semester of the 1946-47 school year, after serving with the Marines in the Pacific theater. Carl has recently been elected censor of Alpha Zeta. He is also secretary and treasurer of the American Society
NEW MEMBERS OF ALPHA ZETA

The Clemson Chapter of Alpha Zeta, the National Honorary Agricultural Fraternity, took in fifteen new members Thursday night, March 16, at which time the final initiation was held. The new candidates under-went an informal initiation during the week prior to March 16. The new members are: Burton G. Maxfield, AH senior of Hoggis; Leonard Ray Allen, VAE sophomore of King’s Creek; Wyndham M. Manning, Hort., junior of Columbia; Theiron Donald Wilson, AgEd junior of Cades; Harvey H. Wheless, AgEd senior of Thompson, Ga.; Charles P. Hamer, Agron. junior of Tatum. Other new members were Owen F. Huff, Agron. senior of Branchville; John W. Gregory, Jr., Agron. junior of Oswego; Leonard D. Reynolds, VAE post graduate of Timmonsville; Lynwood G. Melton, AH senior of Lyman; Raymond L. Boozer, VAE sophomore of Leesville; William H. Craven, Agron. senior of Bamberg; Justus M. Curry, Agron. senior of Graycourt; H. M. Lightsey, Agron. sophomore of Columbia.

JUDGING TEAMS

Spring plans for judging contests have been made for Clemson seniors, sophomores and freshmen. The Senior Judging Team is now hard at work, practicing for the judging contest to be held at Louisiana State University, April 28. Five seniors will represent Clemson, and these men will be selected by an elimination to be held here in early April. Clemson’s Freshman Judging Team, sponsored by the Block & Bridle Club, will be selected here May 21. All agricultural freshmen and sophomores will be eligible to enter this selection contest, if they have not taken a course in junior judging. Trophies and medals will be awarded to the winners of this contest.
NEW NAME FOR A.H. CLUB

At a recent meeting of the Clemson Animal Husbandry Club, the members voted to incorporate the club into the National Animal Husbandry Fraternity, and to change the name of the local club to the "Block and Bridle." This has been a major issue of the club for several months, and the vote was unanimous in favor of the hook-up with the national organization. Most of the agricultural schools in the nation are represented in the national fraternity. A new constitution had to be drawn up to comply with the national constitution of the fraternity. The club will add to the executive committee a social chairman, a marshal, and a faculty adviser.

Prior to the war, the Clemson A.H. Club was a member of this national fraternity.

FUTURE FARMERS ELECT OFFICERS

At a recent meeting of the Clemson chapter of the Future Farmers of America officers for 1950 were elected. Those elected to office were Thomas E. Bankhead, junior from Sharon, president; Charles F. Carmichael, junior from York, vice-president; Robert K. West, junior from Cameron, secretary; and J. W. Westmoreland, junior, treasurer.

DEMONSTRATION AT EDISTO

The latest equipment and techniques in land clearing, drainage, ditching, leveling, terracing, and pasture preparation were shown during a land development demonstration held at the Edisto Experiment Station at Blackville, March 11.

The all-day show included demonstrations of bulldozers, tile trenchers, root rakes, land levelers, motor graders, post hole diggers, and tree setters.

Inexpensive fence post treatment methods and dynamite ditching were also shown to the many visitors who attended. In addition, the latest equipment for pasture preparation, liming, fertilizing, and seeding were in operation throughout the day.

One of the day's highlights was the display of what is reported to be the world's largest tractor, a 20-ton giant, which was used in the land-clearing demonstration. Sponsoring the demonstration was the State Soil Conservation Committee, composed of the Soil Conservation Service, the Clemson Extension Service, and the South Carolina Experiment Station, in cooperation with various heavy machinery dealers in the state.

Short talks were made by Governor J. Strom Thurmond, Dr. R. F. Poole, Dr. H. P. Cooper, Senator Edgar A. Brown and Representative Sol Blatt.

A barbecue luncheon was served to approximately a thousand visitors.

AH PROFESSORS TO RETURN

R. R. Ritchie will return to Clemson this summer to resume his duties as Professor of Animal Husbandry in September. For the past two years Prof. Ritchie has been serving as Livestock Specialist with the Occupation Authority in Japan.

Drayford Richardson will also return to Clemson in September to be Assistant Professor of Animal Husbandry. Prof. Richardson will receive his Master's degree this summer from Iowa State College, Ames, Iowa.

DR. FARRAR TESTIFIES

Dr. M. D. Farrar, Head, Department of Zoology and Entomology, testified on March 23rd before the Food and Drug Administration in Washington. Dr. Farrar presented results of research conducted by the experiment station and gave recommendations for the use of insecticides and fungicides. This was part of the current investigation on harmful effects of organic insecticides.

AG. ENGINEERS MAKE TRIP

The Clemson Student Branch of the American Society of Agricultural Engineers made a field trip to Atlanta, Georgia last Thursday, March 23. The students visited the General Motors Assembly Plant and observed the latest large-scale engineering methods. The students also visited the new John Deere Plow Company branch house where up-to-date farm implements are assembled.
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Agrarian Philosophy

By The Editor

President Truman, in his state of the union message, stated that in another fifty years the U. S. should reach a national income of approximately one trillion dollars yearly. An economist recently plotted a chart, using the last half-century's growth as his basis, and projected national income to the year 2000 (fifty years hence). He found that the national income would surpass Mr. Truman's estimate and would reach the two trillionth mark. Using the same basis, he plotted federal receipts (taxes) and found that it met the national income line at the year 1990. From then on taxes exceeded the national income at a widening span. Taxation and spending seems to be the order of the day in Washington these days. But we must not forget that spending means more federal aid, more federal employees, more handouts, and hence more VOTES.

Quite a howl has been raised over the present farm program and the "potato stinkeroo". Millions of bushels of government bought high price potatoes are being dumped, fed to hogs, and made into fertilizer. One of the biggest farces of the program was when the government sold a Spanish merchant fifty thousand tons of potatoes at one cent per hundred pounds. The merchant promptly shipped the potatoes to Spain and sold the sacks for thirty cents each . . .

Now why do we hear so much about the present farm program? It is the opinion of some that the whole furore is a technique projected by the administration itself, with the intention of focusing public attention on the potato scandal, and thereby convince them that it's time to try the Brannan plan. Now as you know, Mr. Brannan would take off all supports on all farm produce and let prices fall to a level determined by supply and demand. Then, under his plan, he would pay subsidies to the farmer to adjust the difference between price of farm products sold and that proportion of parity that Mr. Brannan should decide the farmer should have.

No one knows just what per cent of the potato crop is bought by the government, but a conservative estimate would be ten per cent. This means the tax-payer is paying for an estimated ten per cent of all potatoes produced in the United States under the present system. Under the Brannan plan with all supports off, and the price of potatoes seeking an international level, my guess is that the price of potatoes would drop to about half their present price. Then, if the subsidies plus the market price were equal to the present support price, the American tax-payers would be paying half the cost of all potatoes grown in the U. S. The same would be true for all farm commodities.

We don't condone either the present farm policy or the proposed Brannan plan, but it seems that the present plan would be less of a burden on the tax-payer than the proposed plan . . .
Chemical Fertilizers
(continued from page thirteen)
These strictly "organic farmers" are principally against the use of water-soluble chemical fertilizers, and they advocate the use of water-insoluble chemical compounds, such as ground rock phosphate and other mineral rock forms which contains potassium and the trace elements. They apparently realize that organic matter alone cannot always meet the full requirements for crop growth. These ground rock fertilizers, become slowly available to the plant, and when they are available, many are in the same forms as those nutrients supplied in water-soluble chemical fertilizers. The chemist can extract these elements from their crude forms more quickly than if similar reactions are carried on in the soil. The Organiculturists still maintain that chemical fertilizers are harmful and tie up certain trace minerals, which then become unavailable to the plant. This could be true if improper fertilization practices are followed, but if proper fertilization practices are adhered to, the nutrients in the soil will be in balance, and little tying up will occur.

Besides tying up other nutrients, the organiculturists claim that the soluble chemicals then "force" their way into plants. "Forcing" apparently means that the plants do not want these nutrients and already have sufficient amounts of them and that these unwanted nutrients then substitute themselves for other nutrients really needed by the plant. If certain nutrients are not present in the soil or remain in an unavailable form, sometimes other nutrients will substitute themselves for the lacking nutrients, but if proper fertilization practices are followed, the nutrients will be in balance and will be available.

Crops can be grown in the complete absence of organic matter. A new phase of agriculture, hydroponics, works on the principle of supplying nutrients to the plants by chemical fertilizers alone. An artificial culture medium is used to take the place of soil, and the medium is regulated to supply to the plants grown adequate nutrients. Hydroponics produces crops of unsurpassed yields and quality. Natives in the South Pacific and other areas of the world, where these soils are too inherently poor to produce crops, have lived successfully from produce grown by hydroponic methods. Our soils need organic matter and cannot produce good crops following the applications of chemical fertilizers alone, but hydroponics prove that chemical fertilizers do not lower the nutritive value of crops, as is claimed by the Organiculturists.

The Organiculturists point to China as an example of strictly organic farming to show others that those who eat foods grown organically are less susceptible to certain diseases. Of all the places in the world to point to, the Organiculturists certainly picked the wrong country as an example of a type of farming that eliminates diseases. China is a country of many famines and diseases and needs its agriculture improved. The Chinese may not be susceptible to certain diseases, for where in the world can one find a better example of the "survival of the fittest"? The Organiculturists also say that the sulfur in chemical fertilizers may cause cancer. Until more is learned about cancer, placing the blame on chemical fertilizers is only an assumption. The sulfur obtained by the plant from organic matter decomposition is largely in the same forms as that supplied by chemical fertilizers.

In order to think clearly, one must read clearly. Oftentimes the literature written against the use of commercial fertilizers is misleading. Many articles, whose titles make claims against chemicals, give examples of the improvements in health experienced by those who eat foods grown without the use of chemical fertilizers. The use of chemical fertilizers beforehand is implied, but no actual statement is made as to what was eaten before organically produced foods were consumed. Those who ate the organically grown foods may have been eating only a handful of rice a day, but the reader can easily assume that foods grown with chemicals were eaten, as implied in the literature. Any improvement in nutrition, whether organically grown foods or foods grown with the aid of chemicals are used, will cause bodily improvement to those who eat the more nutritive foods. Until the necessary facts are known, it is unwise to make assumptions.

In summary, chemical fertilizers are not harmful to use. They can be put to a good advantage when used along with organic matter. Poor soils especially need the boost that the chemical nutrients offer, for organic matter is not too stable in some soils, and its advantages will be limited. It is not always practical or profitable to follow a large scale organic farming program; hence, for best crop growth, all of the organic matter possible—when it is practical—should be turned into the soil, and chemical fertilizers then used to promote the extra growth.
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Microbe Menace
(continued from page six)
noticed that large flocks of birds were following them. Upon investigation, it was discovered that countless insect larvae were already leaving the ground.

On a small scale, experiments with soil fumigation have been carried on since 1948 by R. W. Bailey, County Agent for Richland County, and Mr. J. C. Haley, who is with the U.S. Department of Agriculture. They have had good results with both Dowlfume and D-D. Their experiments were conducted on gardens and soils that were to be used for such crops as beans, peas, tomatoes and okra. While application of fumigant is effective at any time before a crop is planted, their results have shown it to be most effective when applied about one month ahead of the crop.

The second way in which the farmer has been combating his underground enemies is through the use of fertilizers containing insecticides. The two insecticides that are most generally used today are chlordane and BHC. These insecticides have both been effective in overcoming the wireworm problem. Chlordane has proven effective against the Southern Corn Rootworm also. The Clemson Experiment Station has run experiments with fertilizers containing chlordane on corn and greatly increased yields have resulted. The experiment station warns, however, that taste contamination or other damage may result from the use of chlordane on other crops. The amount of chlordane that should be mixed with a ton of fertilizer should be adjusted to give one pound of chlordane to the acre of treated land.

Thus by the use of two methods, soil fumigation and insecticide fertilizers the farmer has been able to control the underground pests that have been increasing his costs and reducing his yields.

One, however, should keep in mind that all soil parasites are not detrimental to plants grown in soils abundant in microorganisms. A lot of information has been published regarding the eradication of soil parasites, and it is thus easy to become prejudiced against all soil organisms. In insect control sometimes beneficial organisms are destroyed along with the non-beneficial ones, and this has proved to be a problem to those investigators of new insecticides. If such soil organisms as earthworms, nitrogen-fixing bacteria and beneficial symbiotic bacteria are eradicated along with harmful organisms, new problems in soil management arise. Those workers who are seeking new insecticides are thus endlessly looking for control materials with selective action; that is, chemicals which eliminate undesirable soil organisms but do not damage beneficial organisms.

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TWENTY-TWO

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Ascochyta --

(continued from page eleven)
also seems correlated with shade and associated high humidity since, in a survey made in September 1949, Ascochyta leaf spots were much more abundant when the plants were large and the ground was well shaded, apparently because of the higher humidity around the central and lower portions of the plant.

Recent experimentation at Clemson College has been concerned with, as mentioned before, the pathogenicity in relation to temperature and humidity to the infection of cotton seedlings. Although the study has not been completed, there are some results worthy of interest concerning "damping-off" of cotton seedlings. In these studies acid-delinted cotton seeds were inoculated with the Ascochyta fungus by soaking them for 5 minutes in water containing mycelial fragments of the fungus which were obtained from fungus colonies grown on nutrient agar. The seeds were germinated in sterile sand to which the proper amount of a balanced fertilizer solution had been added. Uninoculated seeds were germinated under similar conditions. Each test consisted of a planting of 32 seeds in triplicate, a total of 96 seeds, in dishes in which 6 pounds of dry steamed sand had been placed initially. These seeds were grown in cases at temperatures of 18, 21, 24, 27, and 30 degrees Centigrade, a range of 64 to 86 degrees Fahrenheit. In these tests the number of healthy seedlings after 2 weeks of growth for these temperatures were 0, 2, 22, 64, and 92, respectively for the inoculated seeds. The percent of emergence and healthy seedlings for the same length of time was 85, 87, 96, 97, and 98 percent, respectively for the uninoculated seeds. These show that heavy seedling losses can be expected from 18 to 24 degrees Centigrade. At 18 degrees Centigrade none of the inoculated seed emerged, whereas 85 percent of the uninoculated seeds produced healthy plants. The embryos of the inoculated seeds were completely rotted when examined after 14 days incubation. At 30 degrees Centigrade, no seedlings were infected, and germination of both the uninoculated and inoculated seeds was 97 percent.

The first evidence of the infection on emerged seedlings was the appearance of a reddish brown lesion at the ground level. The outer portion of the stem (cortex) below the soil level is invaded, becomes chocolate in color, and sloughs off easily when pulled through the forefinger and thumb. The destruction of the cortex will cause the seedling to fall over, but the cotyledons (seed leaves) may remain normal for several days. Wilting of the cotyledons does not occur until the cortex has become rotted over a considerable area and the fungus has invaded the central portion of the stem (stele). This slow development of wilting is in striking contrast to the rapid wilting of the cotyledons when seedlings are infected by the two pathogens, the anthracnose and Rhizoctonia fungi, which are the most frequent causes of extensive seedling damping-off. These two fungi invade the stele almost as soon as the cortex is well infected.

Experiments were conducted at 24 degrees Centigrade and 18 degrees Centigrade with seeds which had been inoculated with spores only. These spores were obtained from the fruiting bodies of Ascochyta fungus. In the results so far obtained, the seeds inoculated with the spore suspension have produced a greater number of seedlings than the seeds inoculated by the mycelial suspension. However, the observations after a 16-day period indicate that about the same percentage of the seedlings will be killed for both types of inoculation.

Observations made last season in a field of cotton in which the old stalks had been turned under six weeks before planting showed no infection by the Ascochyta fungus, while the part of the field in which the stalks were not plowed under until the time of the planting, the incidence of the disease was severe.

(Continued on page thirty-two)
Substituting a bucket for old bossy, at weaning time, usually sets the stage for a barnyard rodeo. The meekest little calf sees red when he's faced with a pail—bucks and bawls like a wild steer. No wonder farm boys dislike playing foster mother to a stubborn calf. It is one of the few tasks that are just as difficult and disagreeable as they were in grandpa's day.

A mechanical calf weaner may remain a dream of weary farm boys, but modern power machinery has already revolutionized most other farm jobs. This equipment saves much of the muscle work that farming used to require, and steals hours from the clock that can be invested in other projects or spent with the family. It reduces the weather hazard, cuts production costs—helps to make farming a more stable and profitable business.

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Parity Prices --
(continued from page eight)
basis for the relationships up to date.
The base period 1910-14, however,
is still used as a primary medium of
measurement. In step two, the index-
es are calculated as in the old for-mu-
la by use of the 1910-14 base period.
After obtaining the “adjusted”

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price for a specific commodity as
directed above, the index of prices
paid by farmers for all commodities,
including taxes, interest, and wages
(as provided in the recent legisla-
tion) is calculated for the month for
which parity is being sought. In Jan-
uary 1950 this index stood at 249.
This multiplied by the “adjusted”
price of any commodity gives the
“new” parity price for that commod-
ity. The average of the indexes of
prices received for the ten years pre-
ceding 1950, is calculated to be 202.
Therefore, the parity price for cot-
ton as calculated under the new for-
mula would be as follows:
$0.2248 divided by 202 equals
0.1113 multiplied by 249 equals
$0.2771 (parity price)

The changes brought about by the
Agricultural Act of 1949 do not end
with the changes in the method of
calculating parity prices, but extend
to the provisions specified for vari-
ous commodities. Basic commod-
ities are separated from non-basic com-
modities relative to the provisions
for each under the new legislation.
There are presently six items on the
list of basic commodities. These in-
clude cotton, corn, wheat, peanuts,
rice and tobacco. For basic commod-
ities, the legislation provides that
the parity price until 1954 shall not be
less than the price calculated by the
old formula. In effect, this means
that the parity price which is higher
as calculated by the old or new for-
mula will be used until 1954.
For non-basic commodities, the
parity price shall not be less than the
transitional price. The transitional
price is one obtained as a transitio-
al medium from the old system to
the new. It is defined as the parity
price obtained under the old formu-
la reduced by 5 percent for each cal-
endar year since January 1949. The
transitional price will be used for
these commodities until it becomes
as low as the parity price calculated
by the new formula, after which the
latter will be in effect so long as it
remains equal to or higher than the
former.

The parity prices discussed above
should not be confused with the sup-
port prices for various commodities.
Commodity prices may be supported
at various percentages of the parity
prices. These support prices are like-
ly to fluctuate under current legis-
lation according to both economic
and political expediency.
NOW A Power FORAGE HARVEST

FORAGE harvester

America's heaviest tonnage crop is forage. Now an economical, completely mechanized system takes the hard pitchfork labor out of handling all forage crops—green, wilted or dry.

Allis-Chalmers introduces two new companion machines, a Forage Harvester and a Forage Blower. Operated by a full 2-plow tractor with power take-off, the Forage Harvester is actually three machines in one:

A DIRECT-CUT HARVESTER for cutting and chopping grass and legumes for silage, and corn stalks for stover.

A WINDROW HARVESTER with pick-up mechanism, for chopping wilted or dry hay, combined straw, or roughage for bedding.

A ROW-CROP HARVESTER for cutting and chopping corn, sorghums, and other tall row crops.

You purchase one base machine, plus any or all of the three attachments.

With the new 3-in-1 Forage Harvester and Forage Blower, power takes the crop all the way from field to storage. Moderately priced, they make home ownership practical for the individual family farm owner.

• Heavy 36-inch wide cylinder
• Curved, spiralled tool-steel knives
• Built-in knife sharpener
• Positive feeding, air-blast delivery

FORAGE BLOWER

Matches the capacity of the Forage Harvester. Handles all forages from silage to long, chopped or wilted hay. Extra long lift-up conveyor raises vertically. Large capacity blower pipe.
Roses --
(continued from page seven)
Roses are divided into a number of classes. There are: border roses, climbing roses, cut flower roses, budding roses and others of minor importance. There are numerous species and varieties, their general culture is about the same except for pruning. Border roses such as the Rugosa rose or Carolina rose require no pruning except cutting out dead or weak branches and cutting off the entire top every five or six years. When pruning Wichuriana or most other climbing roses, cut out most of the old branches immediately after blooming so that the young wood will be stimulated. Do not cut out the young wood for it is here that next year's blooms will be produced. Cherokee roses should be treated like the border roses. Climbing hybrid tea roses bloom throughout the season and the blooms form on current season's wood. Prune only to remove weak wood and those growths that are in undesirable locations. Cut flower roses generally require severe pruning if they are to produce individual blossoms of high quality. Pruning should take place as soon as danger from freezing is past. Cut out all weak or dead branches and then cut each main branch back to leave four or five eyes. The bedding roses are generally dwarf roses with a mature height of one to two feet. Their only requirements are that they should be fed liberally and pruned moderately but regularly.

From the standpoint of propagation roses may be considered in two groups—those which will reproduce from seed, with only trifling variations, and those which will not come true from seed and must be propagated vegetatively, that is, from a piece of stem with one or more buds or eyes. Most of the rose species are grown from seed but hybrids must be propagated vegetatively. There are a number of vegetative ways of propagation. Some roses produce stems that run under ground throwing up new growth at intervals. This is called "suckering". These underground stems can be dug up and cut into pieces, each having a bud. These pieces can be planted and each rooted piece having a live bud will make a new plant. Budding and grafting are frequently used methods of propagating roses. They involve growing a top of one kind of rose on the root of another kind. There are several methods of budding and grafting each of which has its own name. Propagation may also be by cuttings of immature wood, called "greenwood" cuttings, or of mature wood, called "hardwood" cuttings. Some home gardeners grow their own roses from plants they have seen and admired in their neighbor's garden.

This writer hopes that the reader realizes that because this article is of a general nature, there is much rather important information concerning roses that has been left out. There is no list of species or varieties of the classes named. This material was intentionally left out because climatic conditions greatly influence the adaptability of a variety to a particular region of the country. It is suggested that persons who intend to take up growing roses consult local growers, nurserymen, and their state Experiment Station or Extension Service for detailed information.

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Recently, Naco has offered a special pasture fertilizer with Minor Elements. The minor element formula was suggested by the Agronomy Department of Clemson and has proven itself successful in developing better quality pastures with the benefits passed on to the beef animal in the form of enriched nutrition. Naco's special pasture fertilizer is a 3-12-12 mixture with iron, boron, cobalt, zinc, copper, magnesium and manganese added.

For further information on any of Naco's insecticides, fungicides, or fertilizer, consult your nearest Naco dealer or write direct to —

NACO FERTILIZER COMPANY
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Constant ESSO Research Aids the Farmer

The huge new Esso building at Linden, New Jersey, pictured above is one of the world's most modern petroleum research laboratories, where Esso engineers and technicians are constantly seeking ways to make farming easier, better, more profitable. Here, new ESSO Products and uses are being developed and tested in co-operation with state farm experiment stations to meet problems and improve farming.

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DIRT FROM THE FURROWS

By "TOOK" GANDY

When I was asked to write this article, due to the absence of Ray (I'm finally going to graduate) Alexander, I really had no idea how to begin. Then after a week or so with my eyes and ears to the private lives of the so called "Plow Boys", I was convinced that maybe I should write a book instead of a few paragraphs. You know the troops will talk about their little escapades. This is where I fit into the story. I am to compile all of the prankish adventures of the boys in Long Hall.

From all that I have heard, Billy Smith is still "King Lover" among the "Local Queens." They tell me he has a reserved seat at the coming Calhoun High School Junior-Senior Banquet. It must be nice to know so many cute girls! How do you do it, Billy?

Bert Holland, Bill Deas, Charlie O'Neal, and Sambo Currie have set up housekeeping out on the Greenville highway since the beginning of this semester. The "Housemother" failed to arrive, but their faithful friends Haige and Haige never fail to get there every night before sundown. Just one other thing boys, we are still having classes you know.

Buddy (I don't cull nothing) Lemmon hasn't been able to get around so well for the past few weeks due to a dislocated knee. It seems that there was a party going on over at the "Fat Gals" house in Anderson and Buddy was dancing with the "Beast". During the course of the dance, there was a miss step by one of them and Buddy ended up on the Bottom. Sorry about that knee, Buddy.

Harold Furse has really been keeping the roads from Clemson to Pendleton hot since mid-winters. He met a cute little lassie (M. S.) and just can't seem to get her out of his system. Harold thinks he's found something new and I just can't bear to tell him that it is a beaten path.

Johnny Hardwick seems to have all the girls in Anderson very well satisfied with his idle lingo. But he really has been looking a little under-fed lately—could it be all talk that's taking the weight off poor Johnny?

Well, the School of Agriculture has finally got a representative on the Senior Council and a good one at that. Bill, keep your eyes on your "cornbread loving" friends and don't forget 'em.

The "Lord" has really been worrying about losing some of his Agronomy staff next fall due to one or two planning on working on their Doctors' degree. If he doesn't watch out, he is just as liable to lose his secretary since "Dirt" Steedly has moved in.

W. D. "Country" Evans swears that he gave "Fruity" the shaft, but I am inclined to believe just the opposite. How about it, "Country"?

Tom Wallace has finally left the dear ole' campus and set a good time record but Ray Alexander is trying hard to break it.

"Nose" Gilliam and Bobby Brown have been looking rather undernourished since they have finished both their meats courses.

Jack (I love to knock out windows) Early hasn't been on any more of his "Calvert Cadis escapades" since the last little escapade cost him nine windows and a frame.

Moose (I still run the barn) McLin has finally met his master,—and believe it or not, it IS a woman. He has his orders to be in Ridgeland not later than four o'clock every Saturday afternoon, and believe you me, he is going if he has to walk. Ain't cha "Moosie"?

"Boots" Altman sho' got the shaft at Coker. I'll get the details and let you know next issue. "Boots", you have had it!

Of course there are quite a few more on the campus that are in the same fix. If John Esterling spent as much time on his books as he did on the highway between Clemson and Florence, he would be a high honor student. Don't laugh Ralph Jackson, you haven't missed a weekend at Winthrop College this year.

Roland Hewitt, leader of three squads and one of William (I have three left feet) Derieux's troopers, is really a lover. If you don't believe it, just ask him. It never fails to snow no matter where Roland's apt to go. Or at least that's his side of the story. You know Derieux is majoring in Poultry. Quite fitting isn't it?

During the last dance weekend a few boys and I were riding around after the dance. We noticed a car parked down by the stadium and thought maybe someone was having car trouble. So we pulled up along side and it happened to be Billy Patton. I asked him if he had engine trouble. He said, "No." So I thought maybe it was the carburetor, but he said "No." Finally I said, "Is your tire down?" Billy replied, "Nope, I didn't have to."

My space has run out on me so like the farmer told the potato— "I will plant you now but I will dig you later."

Bye now — "Took"

P.S.: You plow boys better be good, or you'll sho read about it in the next issue of this Ag rag.
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See Your Dealer or Write . . .

MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA
Ascochyta --
(continued from page twenty-four)
and many of the plants were killed.
Following this trend of thought and
considering observations made by
Elliott, one could conclude that early
turning of stalks could be a possible
means for control of the disease
when cotton is to be followed by cot-
ton. It also appears that crop rota-
tion would be another means of con-
trol. This is supported by the ob-
servations of Elliott who found that
the fungus is able to overwinter on
dead stalks in the field and is able
to infect cotton throughout the follow-
ing season.

"Hello, Madam Mimi, speaking."
No, no, operator, I said 'Give me
the storehouse.'"

A tobacco farmer was asked why
he refused to allow his daughter to
enroll at college.
"Wal," he replied, "I started gittin'
mad when they told her to go to the
Registrar's Office to matriculate,
but by cracky, I shore put my foot
down when they said she had to use
the same curriculum as the men!"

The quiet little freshman coed from
the country was on her first college
date, and thrilled beyond words. She
didn't want to appear countryfied.
She had put on her prettiest dress,
gotten a sophisticated hair-do, and
was all prepared to talk understand-
ingly about music, art or politics.

Her hero took her to a movie, and
then to the favorite college cafe.
"Two beers," he told the waiter.
She, not to be outdone, murmured:
"The same for me."

"Did you hear what happened
when Mary backed into the airplane
propeller?"
"No, what?"
"Disaster."

One of the guests turned to a man
by his side to criticize the singing of
the woman soloist.
"What a terrible voice! Do you
know who she is?"
"Yes," was the answer, "She's my
wife."
"Oh, I beg your pardon. Of course
it isn't her voice really. It's the stuff
they make her sing. I wonder who
wrote that awful song?"
"I did," was the answer.

Once there was a traveling sales-
man. He was new to the job—but he
had heard a lot of jokes about farm-
ers' daughters. So when it got late,
instead of stopping in town, he went
to the nearest farmhouse. The people
were very hospitable; they invited
him to spend the night. They had a
daughter! And as usual there were
only two bedrooms, one for the old
couple; and the salesman was told to
sleep in the daughter's room.

About nine o'clock they all went
to bed for a good night's rest The
next morning the farmer got up, his
wife got up, the salesman got up, and
the daughter got home from college.

Hurry! Boys

Read the directions of the contest
and get your entry down to Harry
Dukes in Room 3-B-29 quick as pos-
sible. . . . The first ten get a free
carton of CHESTERFIELDS . . . Ed.
Men and Machines that Help Maintain International Harvester Leadership

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Here's what an IH researcher sees when he looks at a sample of steel under the electron microscope. This is a picture of the internal structure of heat-treated steel.

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An electron microscope, which enlarges objects 100,000 times, helps IH researchers to study the make-up of metals. Minute particles that hide from ordinary microscopes are easily seen. This enables International Harvester technicians to "fingerprint" metals—to actually take the measure of particles in steel. These findings help to solve practical manufacturing problems in IH factories.

The 250 technicians at IH Manufacturing Research work closely with product engineers and production men in IH factories. This trail-blazing team constantly seeks ways to improve today's farm equipment—helps to plan even better products for the future.

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Jasper T. Carter
BLANCH, N. C.

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