Know all the farm jobs an electric motor will do

FARMS MUST PRODUCE more food. Farmers must get along with less help. That's the wartime situation you who are now in agricultural college should be able to help farms and farmers meet.

One good way to meet this situation is to apply an electric motor to as many jobs as possible. There are more than 35 farm jobs electric motors will do—eight of them are pictured on this page.

The first four jobs can be done by a small, fractional h. p. motor. The last four make use of a larger motor. Look at them. See how much work a motor can do on the farm.

**Fanning Mill.** With the electric motor and its constant speed, you get cleaner and more uniform seed.

**Churn.** An electric motor does the churning while the farmer gets other work done.

**Corn Sheller.** With a 2 h.p. motor to help, a wagon load of corn can be shelled in an hour.

**Feed Grinder.** No need for the farmer to drive to town to have his feed ground. A motor and feed grinder save time, wasting trips and money, too.

**Hay Hoist.** Only one man and a motor are needed, to hoist hay.

**Fruit Grader.** It takes very little time to apply a motor to one machine after the other.

**Ensilage Cutter.** With a 5 or 7 1/2 h.p. motor, a silo can be filled using the ordinary help on the farm, at a cost of 1 kwh per ton.

---

**LEARN HOW TO CHANGE MOTORS EASILY FROM JOB TO JOB**

The Free Bulletin, "Farm Motors," shows how to make portable both small and large motors. A portable motor can be applied to one job after another, in a few minutes. "Farm Motors" contains facts on motor types, motor controls, motor care. It also gives ways to use a motor in every branch of farming. This bulletin will make a helpful reference book for your courses—and an invaluable handbook you'll be able to use many times after you graduate. Send for it today. Address Rural Electrification, Westinghouse Electric & Manufacturing Co., 356 4th Avenue, Pittsburgh, Pa.

Note: Farm Shop Equipment, Churn, and Fanning Mill can be run by Split Phase Motor, of 1/4 or 1/2 h.p. Fruit Grader needs Capacitor or Reversion-Induction Motor, 1/4 to 1 h.p.

Corn Sheller uses 2 h.p. motor; Feed Grinder, 1/2 to 1 h.p. motor; Ensilage Cutter, 5 or 7 1/2 h.p. motor; Hay Hoist, 3 to 5 h.p. motor.
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OUR COVER
Our cover picture well represents a fall scene in the South. The photo was taken in one of the fields of the South Carolina Experiment Station by Mr. Smith, Extension Service photographer.

Most South Carolina farmers have cotton as their chief cash crop. The gross income from lint and seed represents approximately 50% of the gross value of all products sold, traded, or consumed on the farm. Cotton occupies a prominent position in the farm set-up because cotton possesses a high specific value and a low cost of production. Highest yields are obtained by farmers in the counties of the upper Piedmont and the upper Coastal Plains.

South Carolina’s cotton crop has been forecast at 735,000 bales on the basis of normal conditions. This forecast is compared with 406,000 bales made last year, 966,000 in 1940, and the 10-year average (1931-40) of 820,000 bales. The harvest acreage this year in S. C. is 1,227,000 acres with an indicated yield of 287 pounds of lint to the acre compared with 166 pounds last year.

ACKNOWLEDGEMENT
The idea was suggested that The Agrarian should have a subscription list. The executive and advisory staffs were against this proposition because The Agrarian is unique in that it is, perhaps, the only college agricultural magazine that is distributed free in the United States.

We of the staff of The Agrarian wish to extend our deepest gratitude to those organizations who have contributed and those who will contribute to help keep this magazine going with all of its tradition.
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CLEMSON COLLEGE ▼ SOUTH CAROLINA
Agriculture's Place... IN THE WAR EFFORT

Guest Editorial... By Dr. H. P. Cooper

The agriculture of this country is now on a war basis. The American farmers are being called upon for the greatest production in history. More food, oil, and fiber crops are needed to meet the present needs. With a large proportion of the farm workers entering the armed forces, factories and other war enterprises, a heavy responsibility rests upon those remaining in agricultural production.

During the first World War, farmers were asked to produce more of the staple crops, such as wheat, corn, and cotton, which called for an expansion of the old enterprises rather than developing many new enterprises. Today farmers are being asked to produce more milk, meat, poultry products, vegetables, peanuts, soybeans and many other products which often require more farm labor than is readily available.

The manufacture of farm machinery and equipment will be greatly reduced, and it will be necessary to take good care of and make the widest use of existing facilities. The production of new equipment in 1943 may be more than 20 per cent of average production for the past few years. It is planned to increase the output of farm equipment repair parts to around 130 per cent of normal production. These additional repair parts will make it possible to get greater efficiency out of the equipment now on the farm.

The shortage of fertilizer nitrogen is one of the most serious deficiencies confronting the Southern farmers. The soil climatic conditions existing in this region have favored the use of chemical nitrogen, rather than the following crop rotation practices which accumulate atmospheric nitrogen in the soils. Without chemical nitrogen it will not be possible to produce profitable yields of many of our staple field crops. The yields of small grain will be particularly affected by the nitrogen shortage. It is highly desirable that special effort be made to make nitrogen available in time for the small grain crops. Last year much of the nitrogen was not available early enough for maximum efficiency. In many instances farmers did not receive their nitrogen supply in time to apply to the crops grown.

The critical shortage of fertilizer nitrogen emphasizes the necessity of growing more and better legume crops. The increase in legume crops call for a corresponding increase in the use of lime materials. As the Southern farmer has not included the addition of lime to the soil as a common production practice, many of the soils have become strongly acid and will not produce profitable legume crops until the excess soil acidity is neutralized with lime.

The War Production goals call for a large increase in the production of peanuts and soybeans. Since these crops do not grow best on strongly acid soils, it is not probable that profitable yields will be secured on the soils that have not received applications of lime. Farmers who expect to grow such high oil content plants as peanuts and soybeans will find that the addition of lime to the soil will generally be very profitable. One of the most needed developments in the Southeastern agricultural program is systematic applications of lime in the crop rotation system. The War Production goals may be an important factor in increasing the efficiency of farm activities and in establishing new and desirable practices.

The high cost of labor and the price ceiling on farm commodities is going to make it difficult and in many instances impossible for individuals and groups of farmers to meet War Production goals. This will be particularly true in regions where new industrial plants are paying high wages and are depleting the supply of farm labor.

Regardless of the existing deficiencies and new demands such as changed demands for farm commodities, machinery, fertilizer, and labor shortages, Continued on page 11.
DEHYDRATED FOODS

C. H. Brown, ‘43

Dehydrated foods facilitate more space for shipment over there

By dehydration, a bushel of apples, as shown in the picture, can be reduced to 5 pounds and packed in moisture-proof, airtight bags, such as the three above.

Dehydrated foods implies mechanical circulation of artificial heat, or as more definitely defined by Processed Standardization and Inspection Division of Agriculture Marketing Administration, "a food product in which the major portion of the moisture has been removed by artificially produced heat under controlled conditions to the extent that preservation of the product is assured."

Part of our army’s vast shipments of supplies to our boys in Australia and other points overseas contains millions of pounds of dehydrated foods especially vegetables. A short while ago Quartermaster purchases of 18 million pounds of seven of our “Bulk” vegetables, (potatoes, sweet potatoes, onions, carrots, cabbages, beets and rutabagas), with more to follow was announced.

Dried foods are in more concentrated form than foods preserved in any other way, and at the same time, they are less costly to produce and require less storage space than an equivalent amount of vegetables in frozen or canned form. Elimination of excess water from potatoes alone will, as estimated by official sources, save the army shipping space equivalent to two whole freighters.

It was not until 1917 that dried fruits and vege-

tables gained importance, and as dehydration reduces by 50 to 95% the space and weight requirements of transportation and at the same time lessens the demand for tin and other critical war materials of today, dehydration can not help but become important in the near future. Also, new and improved methods of dehydration have been developed in the past few years. Products that used to take many hours to dehydrate may now be dried in 20 seconds. Products such as dehydrated vegetables that used to become bleached, unpalatable, and tough when dehydrated, now dehydrate with more nearly the naturally fresh condition in flavor and color than ever before.

It is expected that the dehydration industry will in 1942 produce close to one hundred million pounds of vegetables, while it produced only approximately 1 million pounds in 1941, and in 1940 there were only seven concerns operating 15 plants which produced a total of approximately 5 million pounds of dehydrated vegetables. On the average, one pound of dehydrated vegetables is the equivalent of about 15 pounds of fresh vegetables, and in fruits one pound dehydrated fruit is equal to 5 pounds of fresh fruit.

Within the first 120 days of lease-lend food buying, 4,500,000 lbs. of dehydrated soups, probably all destined for Britain was purchased by the Surplus Marketing Administration. There have been reliable reports of dehydrated food shipments, via bomber, to Australia and England, by way of Newfoundland and various other points overseas, within the past few months. It is said that test flights have proven that a stripped bomber can carry enough dehydrated food in a single trip to provide one meal for 500,000 Englishmen. However, it was pointed out by aviation experts that even though stripped of armament etc., most planes now being ferried across to England by the North Atlantic route start out with a heavy overload in gasoline alone.

Perhaps the most staggering figures of all in the production of dehydrated foods will be reached after the war when the United States plans the largest relief expedition in history to aid or help feed famine-stricken Europe. In order to make the food go as far as possible, one executive suggests assortments made up especially for an intended destination. If the potato crop in one section of the country is exceptionally good, then the food that is received in that specific area will contain all the body-building vitamins except the ones that potatoes contain.

As a result of the needs for foods that are fresh, or as similar to the fresh product as possible, there has risen a need for dehydrated foods. We know, for it has been proven in the past that before fighting forces can go very far, they must be supplied with the proper foods and plenty of them. So, as

Continued on page 24
I Dare You!

By E. B. Collins, '43

"I dare you to stand tall, think tall, smile tall and live tall—to be your own self at your very best all the time." This challenge is an eternal stimulation to those who have come in contact with William H. Danforth, one who is man enough to accept his own challenge, one who, starting in a two-by-four wood shed mixing his own feed, has established The Danforth Mills Inc. and become one of the nation's outstanding men in the field of agriculture. This is a stimulation which gives each year approximately 350 Camp Miniwanca campers a new but amazingly practical slant on life.

Camp Miniwanca, near Shelby, Michigan, and on the shore of Lake Michigan, is the American Youth Foundation Camp to which 38 agricultural college juniors and 38 agricultural college freshmen are asked each summer in a two weeks program of life at its best along with a total of approximately 350 boys from all parts of the United States and Canada.

To adequately describe the experiences, pleasures and truly life building qualities received from Miniwanca is impossible. That has been tried continually since the Camp's foundation, and all must resort to the challenge "I dare you to win a Danforth Fellowship and see for yourself."

How would you, agricultural freshmen, like to meet a selected group of boys from all parts of the United States and Canada? How would you like to spend two weeks in a tent with possibly one boy from Canada, one from Louisiana, one from Colorado, one from Maine, one from Ohio, and one from Washington? A "bull session" made up of a group of such fellows is truly a super "bull session." How would you, agricultural junior, like to spend two weeks at St. Louis, Missouri, getting the inside story of one of the greatest businesses in America, coupled with two weeks at Camp Miniwanca? How would you like to play softball with Illinois pitching, Louisiana at short, Colorado at second, Washington on first, Kentucky catching, and the outfield manned by boys originating from various states between Maine and California? Wouldn't it broaden your life to travel across several states; meet, live, and discuss problems with 37 outstanding juniors from the United States and Canada; study the business methods and principles of one of the largest agricultural industries in America, hearing lectures by great nutritionists, chemists, salesmen, bacteriologists, advertisers, and personnel directors—men of education and practical experience; visit one of the best managed experimental farms in the country; tour the cities of St. Louis and Chicago, seeing a major league baseball game and other nationally known entertainments and sites of interest? and, as a clincher, listen to great leaders, philosophers, and psychologists at Camp Miniwanca? Don't be fooled; those aren't ordinary classes taught by ordinary people. They are classes that bring you to the edge of your chair with their sincerity and gravity of purpose—classes taught by the outstanding men in those fields. That, agricultural juniors, is in a nut-shell what the Danforth Fellowship has

Continued on page 6
The Extension Service Continues

By W. B. Camp, '44

In spite of handicaps, the Extension Service forges on

At the time when nationwide conscription went into effect, the South Carolina Extension Department did not have a special pre-developed plan for training a large group of new agents to replace those called into service. Their regular training plan for the small number of agents needing training was functioning well but soon became over-taxed.

The extension department could not afford to let the service run-down because the public expects the extension force at Clemson College to give guidance in organization and production and in supplying urban and military foodstuffs. The extension service is also looked to for guidance in better living, especially in the nutrition of the farm family. As a result they began to look for new men to keep organized farm production and the production of foodstuffs going at a high rate.

These men have to have some training already. They must have the equivalent of four years of college and some farm experience in order to become county agents. After these men are selected, they are sent out to work under the guidance of county agents. The county agents give special attention to these new men. During the summer after this period of apprenticeship they are brought in to Clemson College for a week’s special training course. Here the extension specialists in agronomy, horticulture, agricultural engineering, and other fields go over the extension programs with the men after which they have informal discussions asking questions and explaining the topics. They are then sent out to work as assistant county agents. These assistant county agents assume more responsibility as their knowledge increases. They become county agents when a vacancy exists and are picked in order of preference.

District meetings are being held often. There are about fifteen counties in each district, and all of the county agents and assistants attend to discuss a subject of coming importance.

The vacancies in specialists’ positions are being filled by picking specialists in their fields. This is the most difficult vacancy to fill as good specialists are hard to find.

To some extent, the extension department still feels the loss of experienced men. They have a staff of one hundred white men employed. The first man left for the service on January 1, 1941, and during the course of the year, they lost ten men. So far they have lost forty-three men during 1942. They feel the loss in 1942 more because it is an added loss; it represents 43 per cent of their employment. They have replaced about thirty-five men and are in the process of replacing three or four more at the present time, but there are still vacancies not yet filled.

Everyone of the men lost except two, went into the army as officers, ranking from second lieutenants to captains as a result of their college R. O. T. C. training; the highest ranking one is now a major. The two that did not enter as officers in the army are specialists in the Navy.

The extension service has never asked for a deferment for men in extension work since the war broke out.

They are expecting to lose additional men to the selective service, but the training program is rapidly progressing to try to counteract this loss.

About ten of the men lost have been specialists. G. E. Mears was the last man to go. He has been assistant director for the past three years and then went to a Maryland arsenal as a first lieutenant.

——THE AGRARIAN——

I DARE YOU!

Continued from page 5

to offer this year’s outstanding agricultural junior. Someone once said, “Your horizons broaden as you climb higher.” Agricultural freshmen and juniors, would you like to realize the full significance of that statement as applied to your own lives?

Next spring when the iron in your blood seems to be slowly changing to lead, a faculty committee will be at work selecting a freshman, who, with a half-scholarship, will represent Clemson at Camp Miniwanca for two weeks and a junior who, with a full scholarship, will spend two weeks at St. Louis and two weeks at camp Miniwanca. These scholarships are awarded by the Danforth Foundation, of which Mr. William H. Danforth is President. The basis of selection is that of scholastic grade average, participations in worth-while activities, fine qualities of character and personality, and evidence of Christian leadership in church work. The freshman winner is chosen upon one year’s activities at College. The junior is chosen upon three years of work. The time, for all freshmen, sophomores, and juniors to start is now.

Each of you can be a winner. Is winning limited to one freshman and one junior? I dare say it is not. Every boy can be a winner. It is true that all cannot receive a Danforth Fellowship, but the heights that one reaches in trying to accomplish anything can’t be taken away from that individual’s life. In the true analysis, we all can be winners.

I dare you, agricultural freshman or junior, to win a Danforth Fellowship. I dare you, agricultural student or whoever you are, to be a winner.
Tobacco is a great crop. By this I mean that it can be planted, transplanted, cured, and marketed before cotton picking time. Not only is tobacco a great crop, but it is an expensive crop whether good or bad. A farmer is justified in planting only the best tobacco land and only an acreage that he can take care of properly in every stage from the plot bed to the market. The following article is based on an experiment which was run on the farm of W. J. Jackson of Manning, South Carolina, who helped to prepare this article. The experiment deals with a new method of growing tobacco known as the wide row method.

First, the land was bedded out in eight foot rows early in the winter. This was done by using one of the larger two-horse turning plows. As soon as this was finished the middle was taken out with a 24 inch sweep. The land was not disturbed further until the time of planting.

At the time of planting a drag harrow was run crossways of the bed to loosen the crust which had formed and to level the land. By using a two-horse opener, a furrow was run in the top of each bed. Half of the fertilizer used was placed in this furrow and mixed with the soil. After this, two furrows with a large two horse turnplow was run making a high bed about two feet wide. The other half of the fertilizer was then placed in the furrow behind the turnplow, giving one-fourth of the total fertilizer to each side of the first large bed. The next operation was to cover this fertilizer by using a one-horse turnplow which did not throw the bed quite as high as the large plow. This plow was used to run six furrows, which left a small bank in the center of the row, which was taken out with a large sweep. The tobacco was set immediately after the land was prepared.

In setting the tobacco in the field a small compass was used to mark the spacing of the hills. One row was set out on each side of the first large bed which was made with the two-horse turnplow, or on top of the first one-horse turnplow furrow. This placed one fourth of the total fertilizer under the plant and one-half between the rows of tobacco.

After about ten days the tobacco was reset. It was noted at the time that this tobacco required far less resetting than tobacco planted the old way. It was also noted that tobacco planted this way caught roots and grew off much faster than the tobacco set in the single rows. Particular attention should be given to the first setting, because under favorable conditions the original of first setting will grow so fast that it will outpace the reset plants and they will not be able to produce as they should. Therefore, it is important to do as little resetting as possible with the wide row tobacco.

In regard to cultivation, the wide row tobacco requires very little if any cultivation. On this particular plot the tobacco was cultivated first by pulling the soil from the outer bed (between the two rows of tobacco) down to the plants. Very few weeds will grow between the rows. After the soil was pulled down around the plants, a one horse turn plow was used to throw up more soil from the middle of the row; and before the middle was taken out, one hundred pounds of Sulphate of potash was scattered over the middle. The middle was then taken out with a 22 inch sweep. A few days later a hoe was used to remove any grass that may have come upward to work the reset plants.

The tobacco was poisoned for bud worms and horn worms a few times. When it had reached maturity the blossoms were broken out and the succors were removed. The tobacco was succored three times in all.

At the first cropping, all overly ripe or burned leaves were pulled off and dropped on the ground. From then on the tobacco was cropped once weekly, the same as any other tobacco. However, in five croppings. During the curing process, the wide row tobacco responded to the heat rapidly and cured out with a rich lemon color of very good quality.

The plot of tobacco yielded 1224 pounds of tobacco per acre and sold for a net of $427 per acre. The wide row tobacco made slightly more than any other on the farm last year with a little less expense. Yes tobacco is a great crop. If you don't believe it, then I would suggest that you grow a little if the soil conditions are suited.
The Agrarian Presents

RUPERT A McGINTY
Director . . . Research Worker . . . Advisor . . . Scholar

Rupert A. McGinty, a native of Chambers County, Alabama, was born and reared on a farm. He attended Birmingham Southern College and Alabama Polytechnic Institute, graduating from the latter with a B. S. degree in Agriculture in 1913. Following his graduation, he became Instructor in Horticulture in Colorado Agricultural College, and was later made Assistant and Associate Professor of Horticulture in the same institution. In 1918-19 he became a graduate student at Missouri Botanical Garden, receiving his A. M. degree from Washington University in June 1919.

In 1920-21 Mr. McGinty was field manager of the Colorado Packing Corporation, Canon City, Colorado, large packers of fruit and vegetables. He left the Colorado Agricultural College for a year and a half to take this position and then returned to the college to resume his teaching job.

Mr. McGinty was a graduate student and instructor at Cornell University in 1926-27, specializing in vegetable production, soil, and plant physiology. He spent the summer of 1927 as field assistant at the New York Experiment Station at Geneva. In 1928 Mr. McGinty accepted a position as head of the Department of Horticulture at Clemson College. He went to Oklahoma A & M College in 1932 as professor of horticulture and head of the department, returning to Clemson in October 1934 to assume the duties of acting director of the experiment station. He was appointed to his present position of Vice-Director of Research July 1, 1936.

Mr. McGinty is co-author of "Agriculture for Elementary Schools" and "Southern Vegetable Crops," published by the American Book Company 1933 and 1937 respectively. He is also author of a number of bulletins and papers dealing with vegetable crops. In 1933 he initiated the movement which resulted in the location of the U. S. Southern Regional Vegetable Laboratory at Charleston, South Carolina. This laboratory proves to be of great value to the South in breeding varieties adapted to this section of the country.

Mr. McGinty took the leadership in securing a chapter of the National Honor Society of Phi Kappa Phi for Clemson and with Dr. D. C. Sheldon established the local chapter of the Freshman honor fraternity of the Eta Sigma.

In 1939, with the help of Drs. F. S. Andrews and W. C. Barnes, he developed the valuable new variety of okra named Clemson spineless. This variety has achieved the outstanding distinction of being awarded a silver medal in the "All American Selections of the American Seed Trade Association". He also made the original selection from which was developed the "Edisto Station 24" strain of Puerto Rican Sweet potato introduced in 1941.

R. A. McGinty married Letitia Ella Cross, of Birmingham, Alabama, in June, 1914. Their children are: Thomas F. McGinty, 2nd Lieut. Air Corps (Communications Div.), Boca Raton, Florida; William M. McGinty, 1st Lieut. (Regimental Adjutant), 118th Infantry, Iceland; Mrs. T. E. Jackson, Clemson, South Carolina—Her husband, Lieut. Jackson, is in Iceland; Richard A. McGinty, Clemson, South Carolina.

Mr. McGinty is a member of the following organizations: Sigma Xi, Phi Kappa Zeta, Phi Eta Sigma, American Society for Horticulture Science, Clemson Fellowship Club, and Fort Hill Presbyterian Church.

After working hours, Mr. McGinty gets a lot of pleasure out of working in his garden. He is also keenly interested in photography, and in his spare moments, he snaps pictures of whatever catches his eye.

On Wednesdays from twelve until one, one will often hear Mr. "Mc's" voice on WAIM's "Science in
Agricultural Problems During the War

By L. O. Drew, '44

Today our agricultural program is in a serious situation. The farmers are trying to produce more farm products with much less labor and equipment. Our greatest problem at present is keeping labor on the farms. One would think off hand that the Selective Service Act would be taking the heaviest toll of our able-bodied men on the farm; but in some sections of the country, defense industries with their high wages are luring most of the men away. In some of these areas, it is reported that seven men are leaving jobs on the farm for industrial jobs to every man who leaves to join our armed forces. There is a reason for this migration of farm laborers to the defense jobs; farm prices have risen fifty-two percent since 1910-1914 while the hourly earnings of factory workers have risen three hundred and forty-eight percent. Many sections of the country farmers report that they are planning to reduce their output next year. Their reason for such action, they say, is because of the shortage of labor. After the high pay of war industries has drained off the farm workers and tenants, only the key men on the farms are left. Then the Selective Service drafts many of these men, thereby leaving no one to manage the farms.

Our Government is now beginning to take action on this labor problem. Many draft boards are now deferring men who are engaged in the production of meat, poultry, and dairy products. By drafting the eighteen and nineteen year old men, many of the older married men or key men on the farms are permitted to remain at home and do their part toward winning the war by keeping their farms producing.

This question is being asked: Can the war effort afford the drastic cut in farm machinery and equipment as is proposed for 1943? Last year many people predicted disaster as farm machinery manufacture was cut to eighty percent of that manufactured in 1940-41. However, in spite of such action, the farmers of this country succeeded in producing the second largest wheat crop in history. This year there will be produced only twenty-three percent of the machinery and equipment produced in 1940-41. We can see, therefore, that the only way which we can keep our production of farm products up near the previous levels is by making efficient use of the machinery and equipment we now have. Repair parts will be produced and made available to the farmers. The production of repair parts this year is to be one hundred and thirty-five percent of what it was in 1940-41. To make the most efficient use of machinery and equipment it should be kept in constant use all of the time. Contract farming and the exchange of machinery should be promoted; tractor equipped with lights should be kept running night and day.

Secretary of Agriculture Wickard says: "Food will win the war and write the peace." It, therefore, remains for the farmers of America to put forth their best efforts, make the best use of what they have, and win the war by producing the necessary food.
The Fertilizer Situation This Fall

Editors note: The following is a condensation of the talk made September 16, 1942 by Dr. G. H. Collings, Professor of Soils at Clemson College, on the Science in Agriculture program presented each week by the School of Agriculture and the South Carolina Experiment Station. W. B. Camp of the class of 1944 condensed this article.

The government is asking us to produce more food so we can not only feed the livestock and the people of the United States but also care for the needs of peoples in other parts of the world; yet they say we can't have as much fertilizer as we have been using in the past. Why has this situation arisen? Well, shortages of manufactured goods these days are not confined to materials used by the farmer. It's a national complaint and will no doubt become more severe as the war progresses, for the shortages are nearly all due to the unprecedented demands of our war industries. The farmer is going to have to do without many of the things he has been accustomed to have in abundance. Our armed forces must have the weapons of war.

The army doesn't need fertilizers, but they do need many of the minerals and chemicals from which commercial fertilizers are made. Besides, we need to remember that a shortage of a particular material may not be entirely due to an increased demand by wartime industries. In the case of sodium nitrate, for example, the shortage is due in a large part to transportation difficulties. Not enough ship space is available to bring all the sodium nitrate we need from Chile.

Here in South Carolina commercial fertilizers are an essential for a profitable agriculture, and we may say they are essential to any kind of an agriculture worthy of the name. However, it isn't a question yet of doing without fertilizer but only a question of doing with the reduced supply which will be available. Fortunately, there is only a shortage of certain materials and not all fertilizers.

Except for the immediate future, it is impossible to say how much the shortage will be. Manufacturers of mixed goods buy their materials some months in advance; so, they already have on hand a part of next seasons requirements, and they are practically certain of the available supply of some of the basic materials.

Farmers have already had trouble in getting soda, and some folks have begun talking about rationing of fertilizer. I don't think mixed goods will be rationed—at least not in the immediate future. It may be, however, that we will be forced to rationing if the war is much extended. The only service shortage among the necessary plant foods is in the supply of nitrogen—such as is available in sodium nitrate. Already soda is being allocated by the fertilizer distributors, and in a sense, this is a form of rationing. Because of the transportation difficulties in obtaining Chilean nitrate of soda, it would appear now that farmers will be able to get a maximum of only 80 per cent of the sodium nitrate that they received last year. This is unfortunate in view of the governments demand that we grow more food, but I am convinced that farmers could ease this situation by using the soda they get more judiciously. I have long thought, for instance, that many of the big truck growers of South Carolina use more soda, as a side application to their crops, than is necessary.

The reduction of side applications to such crops as Irish potatoes, lettuce, peas, and string beans might well be made, for recent work by the South Carolina Agricultural Experiment Station has shown that large quantities used by many farmers for this purpose cannot be justified. The same fact is true with some of our field crops, such as cotton and tobacco, when grown on some soils.

Furthermore, farmers, especially in these wartime, should be growing at least a part of their nitrogen. Green manuring crops of Austrian winter peas, vetch, lespediza, and cowpeas can be made to supplement, if not entirely replace, commercial nitrogen. In addition, many South Carolina farmers might pay more attention to the proper conservation of their farmyard manure.

It now appears that for next year, cotton seed and other meals and organics and ammonium sulfate will supply most of the nitrogen in mixed goods, but here again farmers will probably be able to get only about 80 per cent of the nitrogen they have been accustomed to use, since much of the seed meals will be consumed by the feed trade. According to a recent order of the War Production Board, no more mixed goods can be sold on the South Carolina
Market for the duration which contains more than 4 per cent of nitrogen.

There should not be a shortage of phosphoric acid. Our supply of phosphates in Florida and Tennessee and of sulfur in Louisiana and Texas are unlimited for the present at least; so, I expect no shortage of superphosphate. In fact, I am inclined to believe that our total state consumption of this plant nutrient will be greater this year than last year. Certainly farmers will be able to get all the phosphoric acid they want; unless, of course, unexpected transportation difficulties develop and change the picture.

South Carolina farmers should use as much or more phosphoric acid as they have been accustomed to using because it would be necessary if we are to produce more feed and food, because South Carolina soils are deficient in this element. However there are South Carolina farmers who have been using more phosphoric acid than their crop yields justify. I am speaking now of those farmers who are farming moderately acid soils. If these farmers would lime their soils, they would not need to apply so much phosphoric acid in maintaining their crop yields. In this way many individual farmers could greatly reduce their consumption of phosphoric acid.

I am not expecting a shortage of potash; although, it is possible that a slight shortage may develop. It is possible that strikes and perhaps transportation difficulties may somewhat alter the present outlook.

South Carolina soils and crops need more potash than they have been getting, especially the sandy soils. Cotton rust is due to a deficiency of available potash. If enough potash is available on the market, I look for more of it to be used in South Carolina next year than this year, and the consumption of fertilizer mixtures carrying 5, 6, and 8 per cent of potash will be fairly large.

There should not be a shortage of liming materials. However, I am sure there will continue to be a tremendous deficiency of lime in our South Carolina soils because it has existed for years, and many farmers still refuse to apply sufficient quantities of lime. War or no war, the supply of liming materials from local sources should far exceed our consumption.

Many farmers ask, “just what’s the use of putting down more potash and superphosphate if at the same time we are to have less nitrogen?” As I have mentioned, cotton rust, which indicates a deficiency of potash in our soils, is all too prevalent, and in addition, our moderately acid to very acid soils require more phosphoric acid than they would if we used the lime we should and don’t. This means that under the practical farm conditions that exist in the state, more potash and more phosphoric acid than we have been applying might be used profitably. If liberal amounts of phosphoric acid and potash are applied, we should obtain a more efficient utilization of the limited supply of nitrogen which will be available.

—The Agrarian—

Agriculture’s Place in the War Effort

continued from page 3

the American farmer can be depended upon to make the efforts and sacrifices necessary for the production of the essential farm products. With favorable climate and the extra efforts that will be made by American farmers, it is possible and highly probable that the war demands may result in the establishment of an all time high record for the production of farm commodities.

MARETT FARM & SEED COMPANY

Plant Breeders In Field Seeds
COTTON~BARLEY~WHEAT~OATS

K. A. Maret, Directing Plant Breeder and Manager

W. T. McClure, Sr., Plant Breeder

Lt. W. T. McClure, Jr., Plant Breeder, (Now in armed services)

S. J. Hadden, Plant Breeder

Westminster, S. C.
BETWEEN THE

AGRONOMICAL SUGGESTIONS

1. Plow heavy clay land now if practicable and make spring work easier. 2. Oats can still be planted. 3. Sow enough wheat to make a good supply for home use. 4. Don’t leave cotton unprotected from weather; it may lose five or ten dollars per bale in value. 5. Destroy at once any remaining cotton stalks. 6. Begin preparing synthetic compost piles. 7. Buy and apply limestone.

—THE AGRARIAN—

DR. G. H. COLLINGS ANNOUNCES PUBLICATION OF NEW BOOK

Dr. Gilbert H. Collings, agricultural editor of the Blakinston Publishing Company, announces the publication of a new book. This book has been adopted by the plant pathology department, and is being used by Clemson Juniors and Seniors. The new book is entitled THE NATURE AND PREVENTION OF PLANT DISEASES. Dr. Collings is the author of COMMERCIAL FERTILIZERS also used by Clemson Juniors and Seniors.

—THE AGRARIAN—

DR. GORMAN COMES TO EXPERIMENT STATION

Dr. W. H. Gorman came to the experiment station this summer. He is a graduate of Penn State, and was formerly connected with the Texas experiment station and the agronomy department of the University of Georgia.

—THE AGRARIAN—

BORDEN PLANT OPENS

The Borden Milk Company opened its new $250,000 plant at Chester, S. C. in June. A receiving station has been set up in Newberry, S. C. This plant is getting about 43,000 lbs. of milk each day and is paying $1,000 each day to South Carolina farmers. It was formerly used as a cheese plant but was converted to an evaporating plant in June. The farmers are not expected to go into the dairy business, but are to use this new market as an additional source of farm income. Some farmers have doubled their income by taking advantage of this new milk market.

—THE AGRARIAN—

MORE MILK FOR MORE CHILDREN

How the school milk program works:

1. The school milk program must be under written by a local sponsor, school authority, Parent Teacher Association, or other responsible group, who will make all negotiations with dairies and provide the necessary facilities.

2. The sponsor will sign an agreement with the Agriculture Marketing Administration in which the sponsor agrees to purchase and distribute the milk to the children. The AMA agrees to reimburse the sponsor in an amount equal to the farmer’s price for unprocessed milk.

3. The sponsor assumes responsibility for all handling costs. To meet them, wholly or partly, the sponsor may charge each child NOT MORE than a penny for a half-pint of milk.

—THE AGRARIAN—

STOMACH WORM TREATMENT FOR CATTLE

Phenothiazine is being used with good results in treating cattle for stomach worms. It can be given as a drench or in a capsule form. The dose is twenty grams of powder for each hundred pounds of live weight with a maximum dose of six and a half fluid ounces suspension or three ounces of powder for animals weighing over four hundred pounds.

Do not use milk from animals for any purpose whatsoever for seven days after dosing.

Do not starve animals before dosing.

—THE AGRARIAN—

CLEMSON MEN ATTEND MEETING OF LAND-GRANT COLLEGES

Dr. R. F. Poole, Dr. H. P. Cooper, and R. A. McGinty attended the Fiftieth annual convention of Land-Grant Colleges and Universities. This convention was held in Chicago, Illinois on October 28-30. The program centered around the wartime responsibilities of the Land-Grant Colleges and the part these colleges are to play in carrying on the war.

—THE AGRARIAN—

HORTICULTURAL ADVICE

1. Prepare land now for setting fruit trees for home orchards in November and December. 2. Prune scuppernong type grapes last of November. 3. Make cuttings of grapes and figs and set them out. 4. Set strawberry and raspberry plants. 5. Sow lettuce in coldframe for use in January and February. 6. Harvest carefully sweet potatoes, if not already harvested.
DAIRY CLUB SERVES FIGHTING DAIRY GRADUATES

The Clemson College Dairy Club is undertaking a project of service for the dairy graduates in the armed forces. The club is now finding out where these graduates are situated, and a list of these men will be compiled and mailed out to the fighting Clemson dairymen.

---THE AGRARIAN---

ALPHA ZETA TAPS NEW MEN

The Clemson chapter of Alpha Zeta has tapped ten new members. The new members are E. B. Eskew, G. H. Fairey, H. Cohen, M. O. Berry, J. P. Mikell, J. H. Cannon, H. M. Simons, E. W. Allen, R. W. Touchberry. These men were elected to membership in the club because of outstanding scholastic achievement, leadership, and character.

---THE AGRARIAN---

DR. A. D. EDWARDS JOINS FACULTY

Dr. A. D. Edwards, associate Rural Sociologist, comes to Clemson from V. P. I. Dr. Edwards is in the department of Agricultural Economics, and is also affiliated with the Experiment station.

Before going to V. P. I., Dr. Edwards taught three years at The American University in Syria.

---THE AGRARIAN---

DR. GILBERT H. COLLINGS HONORED

Dr. Gilbert H. Collings has been elected to Who's Who in The Western Hemisphere. The book is made up of the leading scientists in the western hemisphere, and is printed to help bring the scientists of North and South America closer together, that they may study the problems that confront these countries.

---THE AGRARIAN---

CROTALARIA PROVES WORTH

Beaufort county farmers who planted Giant Striata crotalaria this year are greatly pleased with the results. County Agent S. B. Walker reports. Three of the crotalaria demonstrations were checked: M. L. Bostick made a yield of 26.2 tons per acre; E. B. Mitchel, 24.4 tons; Fred Ewing, 26.6 tons. "There was no Striata planted in the county last year, but as a result of our drive in the spring 10,000 pounds of seed was ordered," says Mr. Walker. "Farmers who seeded this type found it better adapted than the Carolina variety. Several farmers put four or five rows in corn alleys and found this satisfactory also."

---THE AGRARIAN---

ALPHA TAU ALPHA TAPS NEW MEMBERS

Alpha Tau Alpha, national professional fraternity, for students of vocational agriculture has chosen the following members: R. E. Linder, Chapin, (junior); R. M. Richbourg, Camden, (junior); J. E. Herlong, Saluda, (junior); C. S. Hughes, Greer, (senior); C. B. Pence, Tatum, (senior); and W. F. Minton, Lewiston, N. C. (senior). Membership is based on scholarship and leadership. Other members include: Ralph Hoffman, Georgetown, C. B. Lowman, Lexington, C. H. Brown Travelers Rest, W. S. Jackson, Manning, W. A. Collins, Mullins, L. E. Pence, Tatum, N. J. Thomas, Knoxville, Tenn., and L. R. Cox, Russellville.

---THE AGRARIAN---

REPAIR FARM MACHINERY NOW FOR NEXT SEASON

CLEMSON. October 17—Placing farm machinery and equipment in good shape now can insure South Carolina farmers against costly delays later, according to C. V. Phagan, Clemson extension agricultural engineer.

Curtailment in the manufacture of farm machinery next year will make it extremely difficult for many farmers to get farm machines as replacements for old or worn-out equipment, the specialist said. For this reason, it is highly important that farmers check up on their machinery now and make plans to recondition it for another year's operation.

---THE AGRARIAN---

COOPERATION FOR BETTER COTTON

"Our 100 percent better farm living community, which selected one variety of cotton—Coker 100 Wilt Resistant—had favorable weather conditions, and most of the farmers are making a bale per acre," says W. H. Craven, count farm agent. "The seed orders were obtained by the local leaders with the assistance of the county agent, and one leader hauled the seed for community delivery. This variety has stood up under severe wilt conditions."

"The farmers have shown splendid cooperation in harvesting and saving planting seed, and we have placed 1,200 bushels, with additional orders to be filled in October. It is reasonable to expect that this community will be practically 100 percent one variety in 1943, and some of the growers will buy seed direct from Coker next spring for their entire plantings."

---THE AGRARIAN---
Price Parity and Congress

Editorial . . . By J. S. Schaffer, '43

We hear a great deal about giving the farmer parity. This idea originated in George Peck’s book, EQUALITY FOR AGRICULTURE, which was written about twenty years ago. He defined parity as, “the price which bears the same ratio to the current general price index as the ten year pre-war (first world war) average crop price bore to the average price index for the same period;” however it is generally accepted that parity is based on the period between August 1, 1909 and July 31, 1914. Congress in 1933, tried to do this when it passed the Agricultural Adjustment Act.

Parity is determined from 20,000 reports which the Department of Agriculture receives. It compares the prices of major farm crops and the 174 commodities that farmers purchase most.

The President, in his speech of September 7th, asked Congress to pass legislation that would give him powers to set prices and said that parity was a just farm price. Immediately the farm lobbyists converged upon Washington. The organizations represented in the lobby were the American Farm Bureau Federations, National Grange, National Council of Farm Cooperatives, and the National Milk Producers Federation. Now who do these organizations represent? They do not represent the small farmer, but large well-to-do farmers instead. They represent the 10% of the farmers that produce 50% of the farm products. They had men working for them in the House of Representatives and the Senate. Paul Brown of Georgia, Henry B. Steagall of Alabama, and Hampton P. Fulmer of South Carolina were their representatives in the House. By a vote of 205-172 these men engineered a bill through the House that would raise parity to 112% in spite of the fact that the Gallup Poll, whose record has shown it to be completely reliable, showed that 71% of the country favored the President’s bill for 100% parity while only 11% were against it.

In the Senate, the farm bloc leaders are Carl Hatch of New Mexico and Elmer Thomas of Oklahoma. There were excellent indications that the farm lobbyists were going to win the Senate as they had the House until Senator Prentiss Brown from Michigan arose to speak. He told the Senate that they had to choose whether they were going to be run by the desires of the vast majority of the people or the interests of a handful. He said that the Senate must avoid the possibility of a clash between the executive and legislative branches at this time. The whole country was watching the Senate, and the good Senators reaped their reward. Congress was adjourned for the week-end, and during this time the nation let the Senate know how it felt about the bill. The bill never materialized and a clash of major importance was narrowly avoided. Let no one say that the farmer does not do his share. It is his sons who fight the war and his hands that till the soil to feed this nation at war, but the few who are interested in only themselves are putting all farmers in a bad light to those who are not acquainted with the true facts.

A lesson should be drawn from this occurrence. The farm lobby is not the only one gnawing at the heart of Congress. There are hundreds of other greedy little men who have only the interest of those who line their pockets with filthy lucre. They don’t know the meaning of the word patriotism. Their standard is the gold standard. They are opportunists who would sell their souls to the highest bidder. It doesn’t matter to them that we are fighting a war for our very existence so long as it will bring them greater monetary return; they are the men that would sell out to the dictators. Let us beware of them, for they are like crawling little rats who chew away at the foundations of our democratic institutions.

—THE AGRARIAN—

Pity the poor farmer who feels that he has nothing to learn from exhibits at fairs.—Bryan.

Clemson’s 2,300 Cadets

CUT A CLEAN FIGURE

WHY?

Clemson College Laundry
In the summer of 1938, an inspection of Stump-house Mountain tunnel revealed to Dr. P. G. Miller, Clemson Associate Dairyman, potentialities necessary for the curing of Blue Mold Cheese. Permission to use the tunnel for research study was obtained in July, 1940, and the first batch of Blue Mold Cheese was ready for curing by January, 1941.

After remaining in the tunnel for a three-month curing period the cheese was wrapped and stored in a cold room at the Clemson College creamery. By this time a luxuriant growth of blue mold had occurred within the cheese, and a pronounced characteristic flavor had developed. Experienced judges examined the cured cheese in May and described it as a product of excellent quality.
SELECTION OF PEACH VARIETIES

By C. K. Stuart, '44

Successful peach growing requires a knowledge of the varieties grown.

Peach growers in common with the growers of other horticultural crops are confronted with many problems. One of the most important is varietal adaption and selection. Varieties of peaches for commercial production in South Carolina should produce fruit which possess good color, flavor, size and quality combined with good shipping ability. With the development of the canning industry, high quality, uniform shape and large size are also essential.

Factors that should be considered in the selection of a variety are (1) ripening date, (2) quality, (3) color and size, (4) shipping ability, and (5) date of blooming.

The first factor to consider is the ripening date. The ripening date of a particular variety is ordinarily compared with the old "standby," Elberta. (In this article dates are given.) Growers have been wanting early varieties that possess all the characteristics that are necessary for a good shipper. Until recent years many varieties that have been on the market before the Elbertas have been inferior in quality. Many growers grow only Elbertas and approximately 65 per cent of the over four million trees in South Carolina are Elbertas. When so many peaches reach the markets at the same time the markets become glutted and hence, a very low price per bushel is received. Now since new early varieties are available, the growers can capitalize on the good prices that can often be obtained before the Elberta season begins. In this way the peach grower can profitably enjoy a much better and longer peach season. As more growers plant varieties other than the Elberta, glutting of the markets will be eliminated to some extent.

The second factor to be considered is quality. The term quality embraces the edible characteristics. The variety to be selected should have a good flavor,
good flesh color, a melting texture and should not be too dry and stringy.

The third factor to be considered is the color, size and shape of the fruit. The fruit should possess a sufficient amount of red color to make an attractive appearance. Usually the more red color the better the appearance. Most of the new varieties have more red color than many of the older varieties. The size and shape should be uniform. Irregularities in size and shape are very undesirable. The variety that is chosen should produce fruits that have a fair size and uniform shape when the tree is heavily laden with fruit.

The fourth factor to consider in the selection of a variety is its shipping ability. There are many excellent varieties that are very desirable for local markets and home use but are unfit for shipping. Some of these varieties are superior to the good shippers in appearance, and also in edible qualities, but they do not possess the thick, tough skin that is essential for a good shipper. Although peaches are in refrigerator trucks and cars, they must be able to withstand the rough handling they receive from the time they are picked until they reach the consumer.

Time of blooming is of considerable importance in southern peach sections and of little importance in others. If a good site is used for the orchard, as frosts or freezes in late winter and early spring causeless damage than when poor or frosty sites are chosen. For example, the Valiant variety blooms three to five days earlier than the Vedette variety and some years the Valiant crop is killed while the Vedette produces a crop practically every year.

It is, therefore, necessary for the successful grower to study all the characteristics of the variety or varieties he is planning to plant. He must choose a variety that possesses excellent color, size, shape, quality and still meet all the requirements of a good shipper if the crop is to be sent to distant markets. Above all, he must choose and produce a product that will appeal to the consumer.

The following notes are intended as comments on the performance of the varieties for the 1942 season.

The peach enterprise is assuming more and more importance in South Carolina.

and are not intended as full varietal descriptions. Observations on the following varieties were made at the Sandhill Experiment Station, Columbia, South Carolina. Some of the observations are necessarily limited because some of the varieties fruited for the first time in 1942.

The ripening dates are indicated by the dates in parenthesis, with the date of the first picking indicated first and the date of last picking shown last.

EARLY DISCOVERY. (June 8-17). White cling of good color and size. This peach has a fair flavor for an early variety. It holds up well after picking.

MARIGOLD. (June 10-19). This is a highly colored, medium size peach with a very good yellow flesh color. It is a freestone when dead ripe. This peach has better quality than any variety near its season.

ERLY-RED-FRE. (June 15-22). A semi-free only when ripe. It is quite attractive on account of its size and red color. It colors well before softening and apparently would hold up for shipping as well or better than other early varieties.

BEST MAY. (June 17- ). The ripening period is very prolonged and the well colored fruit hangs on the tree a long time after coloring. The flavor is very perfumed. It is a very good roadside market variety.

MIKADO. (June 17- ). This variety, although it has good flavor, is entirely too tender for handling even as a locally consumed variety. It is not recommended for planting.

FISHER. (June 17-24). Very attractive in appearance and quality should justify limited planting by everyone.

RAPITAN ROSE. (June 29-July 5). A white fleshed, freestone of fair quality and attractive color.

NEWDAY. (June 29-July 13). This freestone variety has a prolonged ripening season. This fruit has an excellent ground color with an attractive blush when hard ripe. It could probably be shipped suc-
cessfully. It possesses a very distinctive flavor of fair quality but somewhat too acid.

DIXIE GOLD. (July 5-13). A disappointing variety as compared to other new freestone varieties. It is not attractive in appearance, has poor quality and the skin is too tender for handling.

FLAMING GOLD. (July 5-13). Very similar to Dixie Gold. It is not recommended for planting.

GOLDEN GLOBE. (July 5-13). This is an excellent yellow freestone variety for roadside and other local markets on account of its extremely attractive appearance, large size and good quality. However, it probably would not withstand shipping.

SUNHIGH. (July 5-16). The size, shape, color and edible qualities of this variety are very outstanding. However, there is some question about its shipping qualities. It is a yellow freestone and is recommended for limited planting.

TRIOGEM. (July 5-14). This yellow freestone variety has good color and appearance but its failure to size when trees are loaded makes it less desirable than some of the other varieties in this ripening date period. On heavier soils better size is usually obtained.

FIREGLOW. (July 5-14). Colors beautifully, ripens evenly and hangs on trees well after ripening. This should be a good commercial variety although its skin is not as tough as the Elberta or Halehaven. Ripening begins with the Halehaven but does not have as long a ripening season. Its quality is not as good as Halehaven but is perhaps more attractive in general appearance. It is a yellow freestone.

JULY ELBERTA. (July 3-16). This variety is highly colored and of good quality but is somewhat coarse and dry. It does not have the Elberta characteristics. It is not considered as good as the Halehaven as a commercial peach.

GOLDENEAST. (July 8-16). Goldeneast has not lived up to expectations. Fruit exposed to the sun tends to develop a dull, dark red that is not attractive. Likewise, the variety does not develop a good yellow ground color. Another fault of this variety is its tendency to show growth cracks at time of ripening. This is a yellow freestone.

HALEHAVEN. (July 6-20). This variety has been more closely observed by the author than any of the other varieties mentioned. The bud and fruit set are normally very heavy, necessitating thinning. The variety sizes very satisfactorily even under a very heavy crop. Its quality and appearance (after brushing) is equal or superior to any variety tested. Carrot shipments have amply proved the variety’s shipping qualities. This variety was found by a commercial canner to be very satisfactory to handle in canning operations. A possible fault has been its tendency to show growth cracks at the beginning of the ripening season under conditions of excess moisture. However, these cracks have largely been confined to fruit produced on weak trees. The heavy pithiness is also objectional on unbrushed fruit. This is a yellow freestone.

REDELBERTA. (July 18-24). The fruit of this variety tends to be disappointingly small. The color is such a deep red that it lacks attractiveness. It is not recommended for planting.

POLLY. (July 24-29). Seems to be a promising white freestone. It has a good size, color and quality, but cannot be recommended because of lack of observation.

MARLATE. (July 24-29).

MARK-BERTA. (July 24-28).

three varieties are all Elberta type, yellow freestones. From limited observation it is difficult to distinguish between the three varieties.

ELBERTA SUPREME. (July 28-31). Apparently a very good strain of Elberta but has not ripened earlier than regular Elberta as stated by originator.

FRANKIE. (July 28- ). A yellow freestone of fair size, color and general appearance.

GOLDEN ELBERTA CLING. (July 28-August 3). This is a very good cling having Elberta characteristics, is attractive in appearance, and grows to good size with firm, rubbery, fine grained flesh if excellent color. This is preferable to Japan Cling of similar ripening date.

SHIPPER’S LATE RED. (July 28-August 6). Very highly colored peach of good quality and grows to good size. It should be very satisfactory variety to follow Elberta.

WHITE HALE. (July 29-Aug. 6). Ripens one week later than Elberta and is recommended to growers desiring a white freestone of this season. Tree bears heavy crops of uniform, large sized peaches. Its attractive color develops well before ripening, and its edible qualities are considered very good.

AFTERGLOW. (Aug. 6- ). A yellow freestone of rather dry flesh and only fair quality. It does not have the Elberta characteristics. This variety is unattractive in appearance and tends to fall from tree before ripening.

THE AGRARIAN

Exchanging scrub sires for purebred is worth more than it cost.—Bryan.

Clemson College
Roadside Market
Open April 15 to December 15

We sell over 100 varieties of peaches and many varieties of apples, grapes, plums, cherries, raspberries, pecans, elder and canned ripe yellow freestone peaches, green asparagus and frozen peaches and asparagus.

Many of these varieties have better appearance and quality than the varieties usually grown in home or commercial orchards. Try some of these delicious fruits next season.

THE HORTICULTURE DEPARTMENT
Beef Production in S. C.?

By R. W. Touchberry, '44

Beef cattle can bring Profits in South Carolina

Not so many years ago there were few fed cattle. Herds were left to graze on the open range. The Texas Longhorn steer was a product of this period and environment. These Texas cattle were well armed with sharp horns to repel enemies and were gaunt and lean because of the rigors of weather and feed. Huge herds of such cattle were driven on the long trail across the sun praries to markets in the central west. During this period the consumers had little choice in the matter of quality of beef; they took what was offered. Quality, as it is known today was a secondary consideration. One never knew whether a steak would be tasty and tender or tough and stringy.

The advent of livestock transportation by rail and later by truck, the consumer's demand for finer textured, well marbled meat, and the gradual perfection of technique caused an almost complete change in the beef cattle industry. Farsighted breeders began to import stock from England and Scotland to cross with native animals. From this beginning there has been the gradual evolution of the beef animal. By far, the largest part of the cattle now coming to market is fed stock. Originating in the range states, the cattle are shipped to the grain belt where cattle feeders take them in hand to put on weight, give them conformation and proper marbling.

The technique of feeding cattle is not developing in South Carolina as it should. We have imported from other regions quite a number of well developed breeding cattle. A review of the county and state fairs this fall shows that the cattle are superior in quality to those of a few years ago. This is a great improvement but we still haven't advanced enough. Most farmers sell their steers much too small and before they are properly conditioned. They do not feed the cattle long enough. With the cheap feed we can produce in South Carolina and with the mild climate and cheap labor we should be able to feed and fatten cattle profitably.

To feed cattle profitably it is beneficial that farmers have knowledge of good cattle management and feeding practices. The cattle feeders must know the food requirements of feeder cattle and they must know the most economical sources of these food requirements. Many common methods all have to be done away with and new, simpler, and far more economical methods will have to be substituted. South Carolina is endowed with a good climate, and cheap feed can be easily grown. The farmers of South Carolina should "cash in" on such advantages.

When practical knowledge is combined with breeding and feeding, South Carolina should progress as a cattle producing state.

---THE AGRARIAN---

The first commandment of farming: Thou shalt not let thy land get poor.

---THE AGRARIAN---

Pines on idle lands will make them no longer idle and unprofitable.

---THE AGRARIAN---

For the land's sake, don't neglect the terraces in the face of the winter rains.

---THE AGRARIAN---

Switch the lazy hens—switch them from the chicken yard to the dinner table.
Garden Irrigation in S. C.

By St. Clair Knight

Irrigation helps the farmer carry his crops through droughts.

Thousands of farm families in South Carolina could have better gardens by utilizing water from wells, springs, streams, or ponds for irrigation during dry spells. The hesitancy on the part of our people to develop irrigation can be attributed to the lack of information. The advantages of supplemental irrigation have not been presented clearly or thoroughly. The average farm citizen treats the matter rather nonchalantly because he feels that someone is only trying to elaborate on a new subject that has no connection with his business. In the light of these circumstances the author shall attempt to divulge some general information relative to irrigation in South Carolina.

The primary purpose of irrigation is to maintain an adequate amount of moisture in the soil around the roots of plants, and this can only be done by an efficient method of application. Resultant crop yields depend for the most part on the uniform distribution at the right time of the proper amount of water to the soil. Crops are irrigated in various ways, the most important methods being: spray or overhead, flood, basin or check, border or furrow irrigation. The system best suited depends upon the seasonal rainfall, the slope and general character of the ground surface, the water supply, kind of crop to be grown, soil type, and the porosity or imperviousness of the subsoil. To these can be added the question of cost, economy, and permanency.

The average rainfall in South Carolina ranges from 46 to 48 inches per year. Even 20 inches of rain may meet the water requirements of many crops, but the factor of distribution enters into the results. In the Piedmont, the heaviest period of precipitation is late fall, winter, and early spring. Our major crops are not growing then; therefore, they do not receive the benefit of it. During mid-summer and early fall precipitation is the lightest. Thus we can see the necessity of maintaining a source of water to replenish the depleted moisture effected by short periods of drought on shallow rooted crops. Irrigation can be thought of then as a form of insurance against complete loss.

Taking in consideration the above factors, the number of important methods in South Carolina can be narrowed down to two. The spray or overhead method seems to have the edge with furrow in popularity or feasibility. With the spray system it is possible to apply small amounts of water during dry spells without increasing the risk of putting on too much prior to a heavy rain or of damaging truck crops by running water through the rows.

The furrow method cannot be used in the Piedmont where there is a rolling topography. With this method the factor of control enter as the chief problem. This problem can be handled by the proper cultivation and preparation of the soil before the water is released and by the use of flumes with check gates to release it. The soil must be evenly broken and pulverized before the water is allowed to cover the plot or there will be uneven distribution over the surface. This results in some plants getting moisture while others do not. Again it is all important that a wooden or concrete flume be placed at the head of the rows with check gates. This flume will insure the conduction of an equal amount of water in each furrow or row through the check gates.

As the final determination, it can be said that supplemental irrigation helps the farmer carry his crops through those minor or major droughts which occur even in localities where the average annual rainfall is adequate for the production of satisfactory crops. Its use increasing, although for financial reasons it is confined largely to the higher priced garden and orchard crops.

THE AGRARIAN

Did You Know?

1. that the average length of a person’s life in South Carolina is 55.76 years, which is longer than the corresponding length of life in Illinois, California, Pennsylvania, or New York?

2. that South Carolina has the smallest number of foreigners of any state in the Union?

3. that Branchville, South Carolina is the oldest railroad junction and has the oldest railroad eating house in the world?

4. that South Carolina is almost exactly the same size of Scotland?

5. that of the 48 states in the union, South Carolina ranks 17th in density of population?

6. that Piedmont is derived from the Latin word pes, meaning foot, and mons, meaning mountain and means “at the foot of the fountains”?

7. that Sassafras mountain in Pickens county is 3,548 feet above sea level and is the highest peak in South Carolina?

8. that fertilizer industry of the United States had its beginning in this state?

9. that brick from Sumter County has been used by architects in buildings all over the United States?

10. that South Carolina holds the world’s record for the amount of corn grown on one acre?

11. that nearly $100,000 worth of gold was mined in South Carolina in 1905?
Symbol of a World Set Free

Not until long after Philadelphia's Liberty Bell had stung a jad cracked was this humble bell heard. It is the dinner bell on an old farmhouse in Illinois. Its voice is a call to eat, a abundance of hearty, wholesome food. It means more than ample fare for a farm family. This bell is the symbol of a system of farming which for the first time in human history can produce plenty of food for all of the people all of the time. Its valiant ring proclaims freedom to farmers from serf-like drudgery for a peasant's pittance.

Before this, no nation ever had been free from famine. For hundreds of years, the average in England was ten years of famine in each century. In Europe, whole cities were well-nigh wiped out as pestilence finished the ghastly work of starvation. That was in lands whose soils still produce more per acre than the average in America. When the first colonists came here they had all the wealth of a new world beneath their feet. Yet half their people died for lack of proper food.

Neither richness of soil nor abundance of acres has ever of itself spared mankind from danger of death by hunger.

In the American way of farming hybrid corn and highbred livestock, inoculated legumes and chemical fertilizers all do their bit to add production per acre. But it is farm machinery that multiplies production per man and puts plenty in the place of scarcity.

For less than five per cent of farm income, farm machines enable the farm family to feed itself and three other American families, to furnish fiber for most of their clothing, and still leave a huge surplus for export or for the miracles of chemurgy. By freeing those other three families to create music and movies, automobiles and radios, high schools and hospitals, farm machinery gives us all our material blessings.

For a hundred years the American system of free enterprise has given us new and improved machines so thick and fast that it was good business to discard the old and replace with new. We dare not do that now. Every machine, new and old, must be kept fighting to its full capacity on the food front. To win the battle of food despite less and less of farm help, we must make machinery do more and more.

Speeding the Day of Victory

To meet the need for munitions, Case factories now are producing large amounts of war materiel. Case industrial tractors, too, are being built for the armed services, air fields, ship yards, docks, defense plants and other war agencies. Similar help with the war effort is provided by Case farm tractors, combines, and other machines. They multiply crop-producing capacity per man and help maintain food production despite depletion of farm manpower. On both the military front and the food front their performance reflects the endurance which has been a Case principle for a hundred years. J. I. Case Co., Racine, Wis.
The Conservation of Nitrogen

By W. H. Eaddy, '44

Nitrogen is one of the most important basic elements known at the present time. It is a constituent of explosives used to a great extent in our present crisis. Due to its vital importance in making war munitions and for growing crops, we are now threatened with a shortage of this element.

We must attempt to increase or restore our present supply. The main supply is drawn from nitrogen compounds in the soil. If these are lacking, the compounds are supplied by fertilizing with nitrate of soda obtained from a commercial product. The use of this inorganic fertilizer has become almost imperative for the production of many crops.

Loss of nitrogen by leaching is of grave importance. Very little leaching occurs in our forest and heavily vegetative land. Trees and other vegetation return the nitrogen they assimilate by their product and finally parent material. This is nature's way of conserving and providing available nitrogen to her plants. The losses are much greater in the way we produce cultivated crops, but do not require more nitrogen than areas of thickly vegetative spots. Losses occur now under our present agriculture which never take place under natural conditions.

Only a small portion of our total nitrogen is lost by leaching. By gradually depleting our soil of this element it becomes necessary to use commercial fertilizer.

Nitrogen and other necessary elements are present in manure. Manure effects the soil physically, chemically, and biologically. In addition to nitrogen, phosphorus, and potash, many of the so-called minor, but often very important plant foods are increased in the soil. Many desirable strains of soil bacteria such as legume bacteria are created.

When farm animals do not supply enough manure, a synthetic product is used. This synthetic product is spoken of as artificial farm manure. The following method may be used in producing this manure as recommended by Circular 214. (1) Use all excess litter such as straw, leaves, and crop residues. (2) Build compost pen with logs or boards. Good foundation walls mean better manure. (3) Mix 10 pounds ammonium sulphate, 50 pounds of limestone, 20 pounds of superphosphate, and 20 pounds of muriate of potash. (4) Pack down litter on foot deep, using 50 pounds of fertilizer mixture per ton of dry litter. A few shovelfuls of animal manure tend to add necessary bacteria. Keep the pile wet with water and continue this process until the pile is 6 ft. high. The center of the pile should be lower than the edges and the sides straight. The pile should not be built higher than normal rainfall can penetrate. Synthetic manure is very effective and is used more than ever before.

Growing cover crops will conserve nitrogen before it is plowed under. Besides controlling nitrate losses many other benefits occur; it controls erosion to some extent, it adds organic matter to soil, and improves the physical condition.

Nitrate losses are greater on bare land than on soil growing soil-forming plants. Nitrates remain in the soil after row crops are gathered. A crop should be grown during the winter months to utilize this nitrate before it is leached out.

Farmers who are now producing good leguminous crops need little or no nitrogen for small grain. This is the most effective way of meeting any shortage of nitrogen. Most crops demand fertilizer for economic production. The fact is that the present emergency may last for years. The farmers who are more or less dependent upon this element should strive to seek a way to gain their needs.

In our cultivated crops such as tobacco, cotton and vegetables, nitrogen is taken from the soil with little or no prospect of returning it. Yearly removal of our best nitrogen that the soil contains cannot long continue. Leaching and erosion also deplete our soil by taking a large percentage of the total nitrogen. In order to produce these products which are so much benefited by available nitrogen, we must consider this present shortage as a definite problem.

—The Agrarian—

The chief trouble about deep plowing—there isn't enough of it.—Bryan.

FOR MEN'S WEAR SEE

HOKE SLOAN
HE KNOWS WHAT'S RIGHT

THE ANIMAL HUSBANDRY DEPARTMENT
of
Clemson College
Purebred

Berkshire Swine
Polled Hereford Cattle
Hampshire and Southdown Sheep
Canned Foods and the War

By J. A. Mixon, '43

"Praise the Lord," and pass the food.

Generations ago on the advent of a war, nations so involved would beat their plowshares into swords and go forth to battle. Today the food producers of this great democracy need to sharpen their plowshares to expedite all-out-production. One often hears the slogan "Food Will Win the War." Of course, food alone cannot accomplish the end, but the nation that can continuously supply its fighting forces with adequate food will have a distinct advantage.

Anyone who is familiar with military tactics will not deny that the service and supply arms are as essential to winning the war as the actual combat forces. Bataan did not fall because our forces became exhausted from continuous combat. No, with the proper foods as a source of energy and as a barrier for diseases, and with an inexhaustible supply of ammunition, those gallant defenders would be fighting yet.

The job of feeding men who are far from sources of food creates a problem which can be partially solved by safe, scientific methods of preserving foods. Thus, for such purposes the canning industry has grown and developed. In the winter of 1795, Napoleon's Army and Navy were facing disaster as a result of a rage of scurvy which was caused by a deficiency of fruits and vegetables, and as a result Napoleon offered an award of 12,000 francs for an improved method of preserving food. Nicholas Appert, a French brewer, achieved the award by his successful experiment.

Today the Army and Navy of the United States is counting on canned foods to help feed men in the services, and the canning industry is better prepared than ever to meet this challenge. There are sufficient canneries in the United States to produce enough food for our fighting forces and domestic consumption. If there is a shortage of canned foods, it will probably be because the vegetable and fruit growers have not increased their production enough to meet the increased demand. Of course, there remains the possibility that there may be an underproduction because of a shortage of tin available for such purposes.

Some will argue that there should not be an increase in the demand for canned goods since the increase in personnel of the Armed Forces will result in a corresponding decrease in civilian population. The fact remains, however, that the proportion of canned foods to total foods consumed by the service men is much greater than civilian consumption.

Fruit and vegetable farmers who produce their crops primarily for canneries can help assure an adequate supply of canned foods by producing capacity. Other farmers and civilians as well, who are located far from canneries can contribute to the effort of assuring an adequate supply by preserving more foods, and using glass containers in preference to tin containers.

With the proper support from farmers and housewives, the canneries of America can and will make a great contribution toward winning the war.
The American Farmer and the War

By A. S. Waldron, '44

Upon you, Mr. American farmers, rests the question of victory or defeat. It is true this is everybody's war but the American farmer plays one of the most important parts. Never before has the American farmer been recognized as he is in the present crisis. Guns and shells, ships and planes, cannot be effective without farm products. Many vital war materials can only be made with farm-grown ingredients. This year, even with the greatest production of all times, there is none too much.

Food is the most essential of all war goods, for it is a known fact that an army moves on its stomach. America is self-sufficient and independent of the rest of the world except for a few non-essential foods. We are the only nation who can boast such a fortune. Therefore, it becomes not only the American farmers' task to feed our busy millions, but also to help feed our allies. The fact that American agriculture is equipped and organized to do the job has already been proven in this war. "Food will win the war" is no idle slogan, for science has proven that proper nutrition is necessary for maintenance of strength and morale among both military and civilian forces in prolonged total war.

Farm products are created only by work. The draft is taking many of our strongest and ablest young farmers. War industries, offering higher wages for shorter hours and simpler work, are taking even a larger number. Those who are left must work, and their muscles must be increased by machinery. Already women are taking their places beside men on the farm. With the aid of better farm machinery, they will help in keeping, or even increasing, our present records of production.

Along with producing food and other essential war materials, the American farmer must back his nation from a financial standpoint. This can be done by buying war bonds and stamps. Remember to make every market day your bond day and to buy every time you sell. It's true that no armies trample your crops; no shells plow up your fields; no planes roar down on your home—yet in this war victory begins on the farm.

DEHYDRATED FOODS

Continued from page 4

one measure to insure our victory, we should send to our armed forces throughout the world the best food available, prepared in such a manner to insure its' highest nutritive value. Since dehydrated foods may be stored a long time, shipped most advantageously, and prepared in such a way that it is very hard to distinguish it from the fresh product when it is ready to serve, dehydrated foods will play an important part, not only in feeding our armed forces, but also in meeting the demand of American public in general.
Women Join the "Field Artillery"

as International Harvester Dealers

Teach Power Farming to an Army of "TRACTORETTES"

The sun is just over the ridge. Breakfast is just under the belt. The farmer and his helpers sample the breeze as they stand on the back steps, and the farmer says:

"I've got to go into town this morning and I'll be gone a while. Mean-time, Emily, you and Ruth might as well start in on the south forty."

Emily? Ruth? Girls? Sure, why not? For Emily and Ruth are Tractorettes ... and they know their stuff. They'll check their tractors for fuel and lubrication. They'll make those minor engine adjustments they noted mentally last night. They'll roll out early and do a first class job of field work, straight down the rows.

What is a Tractorette?

A Tractorette is a farm girl or woman who wants to help win the battle of the land, to help provide Food for Freedom. She is the farm model of the girl who is driving an ambulance or running a turret lathe in the city. Like her city sisters, she has had the benefit of special training.

Late last winter International Harvester dealers began to train this summer's Tractorettes. The dealers provided classrooms, instructors, and machines. The Harvester company furnished teaching manuals, slide films, mechanical diagrams, and service charts. The girls themselves were required to bring only two things—the will to work and a complete disregard for grease under the fingernails or oil smudges on the nose.

They studied motors and transmissions, cooling systems, and ignition. They studied service care. They learned to drive tractors. They learned to attach the major farm implements that are used with tractors. And they were painstakingly taught the safe way to do everything.

Today, on their family farms or elsewhere, thousands of "graduates" of these emergency schools are doing a real job for victory. Tractorettes are working to provide the food that is a vital weapon in the war that America wages. They are doing the farm work that used to be done by boys who now are flying bombers or riding the slanting decks of a destroyer.

Their Tractorette training cost them nothing except the energy and intelligence which they put into it. The company conceived and launched the program. Its financial costs are shouldered by both the Harvester dealers and the company.

This fall and winter Tractorette training courses will be broadened to meet new needs as they arise. Thousands of new girls will take the course and join the "women's field artillery" next spring, fit and ready for the every-year battle of the land. Until Victory is won, Tractorette training will continue to be one of the important extra services gladly rendered by Harvester dealers, as typical American businessmen, to the farmers and to the nation.

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Ave., Chicago, Illinois
THEY'RE MINDER
ALL WAYS—
THEY DON'T TIRE
MY TASTE—
THERE'S NOTHING LIKE
A CAMEL!

FOR
STEADY
PLEASURE

Camel
the cigarette of Costlier Tobaccos