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THE AGRARIAN

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THE AGRARIAN

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Block & Bridle Club
Clemson College 4-H Club
Collegiate Chapter FFA
Eta Zeta
Forestry Club
Horticulture Club
Kappa Alpha Sigma

Volume XVIII
December, 1960
CLEMSON COLLEGE, CLEMSON, SOUTH CAROLINA
The Cost of Becoming Educated

Every fall thousands of eager, alert, and presumably qualified men and women enter hundreds of colleges with the expectation of securing an education and a degree. They have been exposed to similar courses of training, have met certain entrance requirements, and are not ignorant of what they will face in competition, cost or curricula. However, students begin dropping out almost at once and four years later over half have left college. Why did they quit?

The obvious reasons present themselves: Lack of adequate preparation, lack of financial resources, emotional or moral instability, wrong choices of college or courses, and lack of ability. A less obvious reason, but more important than any of these, is that the student never had the sincere desire to become educated. He had come to an institution devoted to the development of the intellect with little will or desire to use what was offered to him.

No one can learn unless he wants to. No one can take four years, or more, of difficult, even exhausting concentration, self-denial, the constant criticism of performance, the pruning of ideas and ideals, and the monotonous "grind" of daily assignments unless he has a deeply ingrained desire to become intellectually capable.

Education cannot be taken like a pill or bought on the installment plan. Learning is a slow, hour by hour process which is never finished. Completing courses or achieving a degree does not complete the learning process, but merely develops the capacity for more learning. For most students the education that follows graduation is learned by experience on the job. For the few, the developing of mental capacity along lines of specialization continues, but only if the desire to learn is great enough to stimulate the student to pay the price in additional time and effort. The cost of this advanced education involves not only the expenses of attending college but also the postponement of earning and of the establishment of life work. However, we get out of any endeavor only what we are willing to put into it.

How much are you willing to pay for this increased capacity to learn?
THE AGRARIAN

BEEN STUDYIN' IT OVER....

An Editorial

.... And we've decided there may be lots of folks around who'd like to keep in touch with student activities over on Clemson's "Ag. Hill". Therefore, the various student agricultural organizations have joined together to assemble for you this publication which we wish to be considered a personal letter.

Our letter will be semiannual, being published near the end of each regular semester.

We are proud to have chosen for our title "The Agrarian." To many this will be a most familiar name, and rightly so. Beginning in 1938 and continuing through 1958, "The Agrarian" disseminated in a commendable manner the news and views of Clemson's Agricultural students. Certain problems associated with commercial aspects of the magazine necessitated a temporary discontinuation.

The present "Agrarian", as you will observe, keeps faith with the original in its point of view and objectives. Writers from the several organizations of agricultural students relate some story concerning their profession. Woven into each message may probably be discovered a bit of the writers individual philosophy as it relates to his profession.

In keeping with our intention to make this more of a message than a magazine, no advertisements are included. Furthermore, technical type articles are minimized.

We address "The Agrarian" especially to the young men and women of South Carolina high schools, through their agricultural leaders; to the families of Clemson's agricultural students; to our agricultural leaders and alumni; in short, to anyone who might share our enthusiasm toward the profession of Agriculture.

TREE PLANTING
A MATTER OF PERSPECTIVE

It is my opinion that the steward of the soil who heels into favorable locations diminutive seedling trees, demonstrates his best management ability. More projection of thought is required to see in a seedling, boards for a grandson's home than is necessary to visualize the reaping of grain sown the very year of harvest.

(continued page 5)
MODERN EDUCATION FOR TOMORROW'S AGRICULTURE

Dr. J. W. Jones, Director of Agricultural Teaching

The School of Agriculture at Clemson recently approved significant changes in the fields of instruction in order to provide the best possible education for the current and future needs in the rapidly changing industry of agriculture. The advance of science and technology has transformed agriculture from what was basically farming into an extremely complex industry. The new agriculture includes much more than farm production. About 7 million people produce for and service farmers, and 11 million process and distribute farm products. These two segments, together with farm production which employs 8 million workers, provide jobs somewhere in agriculture for about 26 million Americans. In addition a half million scientists directly or indirectly serve agriculture. In other words, approximately 40 percent of all jobs are related to agriculture.

Our land-grant colleges, such as Clemson, are now graduating about 7000 students each year in agricultural courses -- less than one half the number needed. This means that 15,000 jobs are available each year to college agricultural graduates - jobs important to every person, jobs with futures, jobs with a challenge, jobs with financial and personal rewards.

Among the major changes in the fields of instruction is the provision in several curricula for a student to choose between two or all three of the options in Science, Business, and Production Technology.

SCIENCE OPTION

This option emphasizes the basic sciences that prepare students to contribute to the advancement of knowledge in their respective fields. It is designed for students whose anticipated field of work requires considerable scientific training, usually including graduate studies. Employment opportunities include research with State Agricultural Experiment Stations, The United States Department of Agriculture, and industrial and commercial organizations; and teaching in colleges of agriculture, and other educational work with Federal, State and industrial organizations.

(continued page 5)
NEW EDUCATION
(continued from page 4)

BUSINESS OPTION

This option emphasizes principles and practices of business management as applied to businesses and industries associated with agriculture. It is designed for students who plan to work with one of the many businesses and industries that provide supplies and services for the farmer, and process and distribute farm products. Employment opportunities include work related to meat and poultry processing, sales and service of farm machinery, manufacturing and sales of fertilizers and pesticides, dairy and food processing, grain and seed processing, feed manufacturing, banking and credit insurance, farm management, land appraising, and the marketing of agricultural commodities.

PRODUCTION TECHNOLOGY OPTION

This option emphasizes the application of scientific principles to agricultural production. It is designed for students whose anticipated field of work requires broad general training in scientific and practical agriculture. Employment opportunities include general and specialized farming; agricultural extension service; teaching vocational agriculture; conservation of natural resources; agricultural communication; and agricultural services of The United States Department of Agriculture, State Departments of Agriculture, and private enterprises.

The curriculum in Biology has been transferred from the School of Arts and Sciences to the School of Agriculture and reorganized with options in Botany and Zoology. All revised curricula, including Biology, will become effective for a new freshman entering in June or September 1961. Students currently enrolled in the basic agricultural curriculum, Agricultural Economics, Agricultural Education, Agronomy, Animal Husbandry, Dairy, Entomology, Horticulture and Poultry will be expected to choose, around the middle of the second semester, between the curricula now in effect and the revised curricula. Students currently enrolled in Forestry and Pre-Veterinary Medicine will be expected to complete the requirements of the curricula now in effect. Students currently enrolled in Agricultural Engineering will be expected to complete the requirements of the curriculum now in effect, with the exception of two course substitutions. Classes for the second semester of this school year will be scheduled in accordance with the requirements of the curricula now in effect.

Editorial - (continued from page 3)

Each generation can inherit no greater legacy than that of trees. My Grandfather passed along to my Father a mountain farm well populated with native hardwoods remaining from the former's harvest of the virgin timber. This stand yielded the house and farm building of my home place, with plenty left over to sustain wildlife and reseed the area. About the time of my birth, Dad set an acreage in white pines which now contribute significantly to the farm's forest production. Eight years ago, following this example, I underset some of the hardwood area with pine which, to my young sons, are even now rather "lofty" fellows. By the time the boys reach maturity the beginning harvest of these should be at hand.

Not only will this green inheritance produce economic returns, but the soil which produces it will be preserved, and the hillside will be more sightly to look upon.
"IDEAL VARIETY"
GOAL OF CLEMSON'S
SMALL GRAIN BREEDING RESEARCH

Hugh B. Gray
Agronomy, '64

Plant breeding, a relatively new science, offers a golden opportunity for improving the efficiency and stability of the production of field crops. For example, the development of Anderson wheat, which was released by the South Carolina Agricultural Experiment Station in 1952, is estimated to account for more than a million dollars in additional income for South Carolina farmers each year. The cost of the development of a new variety is generally less than one tenth percent of the returns, and in many cases the returns from such a development in one year may exceed all money spent on agricultural research.

Clemson College's extensive research program on breeding of small grain (wheat, oats, and barley), under the direction of Dr. W. P. Byrd, includes the careful observation of more than 45,000 selections of small grains each year. Each year many of these are selected for critical evaluation of yield and other important characteristics in comparison with standard variation. Selections are saved for further testing only if they exceed the standards for one or more important characteristics and are equal in all other respects.

This "ideal variety" of a small grain may be described as one which is resistant to all diseases, insects, weather hazards, responds to high fertilization, is short in stature, resists lodging, produces high yields of grain and forage of suitable quality.

Although the short term goal of the small grain breeding program is to meet the most critical needs of the farmer through the development of new varieties, the greatest effort is directed to finding new breeding lines for future use. It is envisioned that desirable characteristics from as many as 8 to 10 different variations may be incorporated into one to produce the so-called ideal type.

The search for new breeding material with specific characteristics constitutes a major part of Dr. Byrd's program. Each year many untested varieties are grown for the evaluation of their potential for use in the "crossing" program.

This fall a collection of 215 of the "elite" Russian oat varieties brought to the United States by the U.S.D.A. is being grown at Clemson as part of the search for new materials for future oat improvement. These selections are being grown cooperative-ly with other plant breeders in Georgia and Florida.

With work like this going on at Clemson, soon varieties may be "tailor made" to meet the needs of the farmers who fill our country's bread basket.
MONEY
EARMARKED FOR EDUCATION

Hugh Knight, Feature Editor

Fourteen scholarships, valued at $300.00 each, are available to entering freshmen in the School of Agriculture. Some of these are renewable for the sophomore year providing the person's record as a freshman is satisfactory. In addition to these scholarships for freshmen and sophomores, there are eight scholarships available for either juniors or seniors in amounts ranging from $200.00 to $1,000.

The Freshmen Scholarships include the Sears-Roebuck Scholarships, the Smith-Douglass Scholarships, the George E. & Leila G. Singleton Scholarship, and the South Carolina Poultry Improvement Association Scholarship.

The Sears-Roebuck Foundation provides for ten one-year scholarships valued at $300.00 each, with an additional sophomore award of $300.00 to the most outstanding freshman Sears-Roebuck scholar. These scholarships are awarded on a state-wide basis to South Carolina boys who have demonstrated an interest in agriculture.

The Smith-Douglass Company, Inc. of Wilmington, North Carolina provides for two four-year scholarships valued at $750.00 each, payable as follows: $300, freshman year; $200, sophomore year; $150, junior year; and $100, senior year. To be eligible for one of these the recipient must be a resident of one of the following South Carolina counties: Clarendon, Darlington, Dillon, Florence, Georgetown, Horry, Lee, Marion, Marlboro, Sumter, and Williamsburg.

Mr. G. H. Singleton contributes one scholarship valued at $300 per year. It may be awarded for the second year to the same person if his record as a freshman is satisfactory. This scholarship is awarded to a South Carolina farm boy with preference given to residents of Oconee, Pickens, and Anderson counties, in that order.

The South Carolina Poultry Improvement Association gives a one-year scholarship valued at $300.00 to a student majoring in Poultry. This scholarship is renewable for the sophomore, junior, or senior year on a competitive basis with other students majoring in poultry.

To be eligible for one of these freshmen scholarships in 1961, the applicant must meet the freshman entrance requirements at Clemson and must enroll in the School of Agriculture either in the summer or fall of 1961.

The scholarships are awarded on the basis of the applicant's high school record, financial need, leadership, and the score made on the entrance examination required of all freshmen entering Clemson College. The winners are selected by a Clemson College Agricultural Scholarship Committee.

To apply for one of these scholarships, obtain, fill out, and return the necessary scholarship application form, making sure that the completed form is mailed before midnight on March 1, 1961. This form may be obtained by writing to: Agricultural Scholarship Committee, School of Agriculture, Clemson College, Clemson, South Carolina. Also to be eligible, the applicant must take the College Entrance Examination not later than February 4, 1961.

Such assistance programs have proved to be decisive factors in launching many successful agricultural careers. High school seniors, anticipating enrolling in Clemson's Agricultural program, are urged to take advantage of these opportunities.
MEAT THE EATERS

Bill Johnston, A. H. '61

Delicious, savory, nutritious, satisfying meat—whether it be beef, lamb, veal or pork—truly is one of the most important foods for American consumers. Most housewives consider red meat to be the "center of a meal", and plan their meals around the meat item. In the United States alone, approximately 150 pounds of beef, lamb pork and veal are consumed annually per capita.

About 40-50 variously named cuts may be obtained from a beef carcass. This system of naming cuts is rather complicated for the average housewife and she may be confused about the proper cooking method.

It is very likely that in the future these cuts may be sold in a boneless, portion-controlled form and the cuts grouped according to recommended cooking methods. Examples of this classification are "dry heat steaks or roasts" or "moist heat steaks or roasts". Dry heat steaks could be cooked by broiling or charcoal grilling and would consist of the more tender steaks from the carcass. Moist heat steaks or roasts would consist of less tender cuts that require more tenderizing through cooking. Generally, the less tender cuts of a beef carcass consist of the hard-working exercise muscle such as those found in the round or chuck. The more tender cuts, on the other hand, are obtained from muscles that do less work in moving the animal around, or the "support muscles".

Most of a meat cut consists of lean or muscle, but a certain amount of "marbling" or fat within the lean is needed to make meat more tender. Federal meat graders grade beef, veal, and lamb in an effort to select the more tender meat for consumers' use. They consider such factors as maturity or age of the animal, meatiness, and quality, and place the carcass in one of the following grades: Prime,

Choice, Good, Standard, Commercial, Utility, Cutter or Canner. The Choice and Good grades of beef or lamb are recommended for most consumers, since they assure the housewife of reasonably tender meat without an excess of waste fat.

Other factors besides grade also affect tenderness of meat. Tenderness of meat is apparently affected by heredity in animals. Meat researchers report that fast gaining cattle tend to produce more tender beef. It is also probable that certain strains in swine tend to produce more tender pork.

Every consumer and especially everyone interested in livestock production should be concerned about quality of meat. Some day the producer may select certain families of cattle, sheep or swine which tend to produce more tender meat. The consumer should learn to recognize those qualities which make for more satisfying "meat".

Cook with dry heat

Cook with moist heat
HORT CLUB

The Clemson Horticulture Club, traditionally a leader in horticultural student activities in the Southern region, extended its influence to the national level last summer. The Hort Club was represented in August at an Oklahoma State University meeting for the purpose of organizing a National Collegiate Branch of the American Society for Horticultural Science.

Representing both the local club and the southern region, Don Fox, graduate research assistant, Dr. Roy Ogle, Assoc. Professor of Horticulture and Jere Brittain, present chairman of the southern region, jointly led in this signal meeting.

Resulting from recommendations of this assembly, representing 30 states, a program of undergraduate research reports is planned for the 1961 meeting and each year thereafter.

The meetings are to be held in conjunction with the annual meetings of the American Society for Horticultural Science. The 1961 session is to be at Purdue University.

According to Jimmy Cothran, President of Clemson's Hort Club, about twelve Hort men will attend the February meeting of the Southern Region in Jackson, Mississippi. Jim Aitken will present a research paper in competition with delegates from ten other Southern States for a $100 award.

COLLEGE 4-H CLUB

The Clemson College 4-H Club initiated eight new members at the beginning of the semester into the Club. The Club has had some very constructive programs at the regular monthly meetings, and has plans for more activities and good programs in the future.

The Club was very honored to have four of the members accepted into the South Carolina Agricultural and Mechanical Society as life members. The South Carolina State Fair is owned and controlled by the South Carolina Agricultural and Mechanical Society.

Life membership was bestowed upon Rudy Bell, Bowman, S.C.; James Rozier, Moncks Corner, S.C.; James Gaddy, Dillon, S.C.; and Earl Robertson, Laurens, S.C.

LIVESTOCK JUDGING TEAM

The Clemson College Livestock Judging Team competed in the International Livestock Judging Contest in Chicago on November 26, 1960. The team left Clemson November 19 and worked out at colleges and farms in Tennessee, Kentucky and Indiana.

Members of the team were Bob Hunnicutt, Hartwell, Ga.; Rudy Bell, Bowman, S.C.; Walt McPhail, Seneca, S.C.; Millard Daniel, Clinton, S.C.; and Coach Dale Handlin, Assistant Professor of Animal Husbandry.

There were 37 colleges represented with 185 contestants from all over the United States. Outstanding members of the Clemson Team were Rudy Bell, who tied for 10th high individual in judging sheep and Bob Hunnicutt, who was 24th in overall judging. The team was 22nd.
BETWEEN THE FURROWS

(continued from page 9)

**ADSA**

In February, 1960, the Dairy Clubs of the souther agricultural colleges met in Birmingham, Alabama to organize a regional branch of the American Dairy Science Association. Meeting in conjunction with the Southern Agricultural Workers' Convention, representatives from the southern schools laid the foundation for expanded activities for dairy students. In addition to the social benefits of this effort, such a regional association can provide for closer student contact with current developments in southern dairy science, as well as for arrangement of graduate programs or employment in the industry.

Wayne Boone, president of the local chapter of ADSA, and the president elect, to be selected in January, will represent Clemson at the forthcoming second meeting of the regional group. This gathering is scheduled for early February, 1961 in Jackson, Mississippi.

**BLOCK & BRIDLE**

The Clemson College meats judging team participated in the 1960 regional meats judging contest, held November 13-16 in Baltimore, Maryland. Team members for the affair were Tom Barlow, Harry Goforth, and Bobby Tripp. Earl Dudley and Dave Walker served as alternates. Sponsored by the local Block and Bridle Club, the Clemson team placed an overall tenth in the keen competition of fourteen teams. In beef judging, however, the Country Gentlemen emerged a creditable second. Harry Goforth was fourth high individual in beef judging. Professor D. H. Kropf coached the Clemson team and accompanied them to Baltimore.

**FFA**

Need extra cash? The Collegiate Future Farmers of America Chapter is sponsoring a work program for ag men who want to earn a few extra bucks during their spare time. The FFA acts as mutual acquaintance to bring together the interested student with individual professors, departments, or local businesses desiring additional help.

The program has already enabled numerous boys to gain both dollar income and valuable experience through part-time employment.

**AGRONYM CLUB**

Five Agronomy Club members will be attending the National Convention of the American Society of Agronomy in Chicago, Ill. on December 5th. through the 8th. The official delegates to the student section are: Boyd Loadholt, junior from Allendale, S. C. and Edgar Lopez, senior from El Salvador, S. A. Also attending the convention are three seniors: Frank W. Crouch from Batesburg, S. C., Charles McLaurin from McColl, S. C., and Thomas L. Hucks from Aynor, S. C. After returning from the meeting delegates will report to the Agronomy Club on the highlights of the convention.

![Meat Team Views Quality Lamb Carcass](image_url)
HOW ABOUT HORTICULTURE

Jimmy Cothran, Horticulture '62

The primary dependence of man upon plants for food, fiber, shelter, and aesthetic value is generally recognized. Thus, horticulture, the art of cultivating fruits, vegetables, and ornamental plants, is perhaps the oldest Agrarian profession.

Until relatively recent years, the horticulturist has been rather limited by the whims of nature in his efforts to make the plant his obedient servant. With the dawn of the present "scientific era", there has unfolded a wealth of fundamental knowledge concerning plant processes. Such knowledge, placed in the hands of the horticulturist, becomes a great potential for more predictable and gainful culture of plants.

It is the objective of Clemson's Horticulture Department to resolve in some measure the problems associated with application of this knowledge "down on the South Carolina Farm". Let us see how the department functions in this respect.

To begin with let's consider research. Within the last few years, equipment to aid in the quest for more efficient and practical means of tackling daily horticultural problems has been added to this department. For instance, the Warburg Respirometer which provides an index of physiological activity of plant tissues, the Hunter Color Difference Meter through which the colors of fruits and vegetables may objectively be determined, and the flame spectrophotometer, an aid in measuring the nutrient content of leaf tissue, are all part of a combined effort to help farmers of the present as well as of the future.

Various research programs carried out by graduate students are also part of this effort. One such program has been the study of the effect of seaweed on the functions and processes of plants. There are also long-range programs to develop better and more productive fruits, vegetables, and ornamentals.

Ron Cowart, Hort Senior, shows his research project to Dr. Roy Ogle

One has only to be conducted through five busily employed greenhouses, a considerable acreage planted in grapes, peaches, pears and other horticultural crops, and a newly developed haven for the ornamental plants to realize the scope of this undertaking.

In close connection with the previously mentioned programs, there exists a new and most rewarding facility at Clemson--the trial garden. This garden contains annuals, perennials, and shrubs, as well as bulbs of various kinds. These various items are supplied by local as well as national organizations in an effort to provide the general public with products best adapted to this particular area as well as the most for their money. It is felt that this new addition will have measurable value in this phase of horticulture. (Continued page 16)
CLEMSON'S AMERICAN FARMERS

Charles D. Sparks, Ag. Edu. '63

At the National Convention of Future Farmers of America in Kansas City, Missouri, October 10-15, five Clemson College students received their American Farmer's Degree, which is the highest degree that can be obtained in the organization. They were James A. Boling, George Hugh Durham, James Jameson, George Paul Jones and Benjie Rhoad.

These students received this degree by working their way up through the steps of Green Hand, Chapter Farmer, State Farmer, and on up to the American Farmer's Degree. The qualifications for these degrees are set up by the National Organization.

James Boling, a member of the James F. Byrnes Chapter of Duncan, and the Clemson Collegiate Chapter of Future Farmers, does general type farming with his father. Some of his projects include beef cattle, dairy cattle, swine, corn and hay crops. He served his organization as James F. Byrnes Chapter Vice-President and Chapter President, Spartanburg Federation President, and State Secretary of the South Carolina Association. James now serves as Parliamentarian of the Clemson Collegiate Chapter. He received his award for his accomplishments in showing livestock and the keeping of outstanding records of his projects.

George Paul Jones, who is also of the James F. Byrnes Chapter and Clemson Collegiate Chapter, does general type farming on his farm which he is developing into a beef cattle farm. He served his organization as James F. Byrnes Chapter Treasurer and Clemson Collegiate Chapter Reporter. George Paul is now serving the Clemson Collegiate Chapter as Secretary. George Paul received his award for his accomplishments in farm electrification and showing of livestock.

A member of the Bamberg FFA and Clemson Collegiate FFA, Benjie Rhoad has served his organization as Reporter and President of the Allen-dale, Bamberg, Barnwell Federation, and State President of the South Carolina Association of Future Farmers. Benjie does general farming with his father. Some of his projects include swine, dairy calves, corn, soybeans, and small grains. Benjie received the Star Farmer Award of his local chapter and the Individual Future Farmer Award of District Four. He received his American Farmer's Degree by virtue of his records in supervised farming and his outstanding leadership.

Hugh Durham, who is from Piedmont, South Carolina, does general type farming, and some of his projects include dairy and beef cattle, corn, and small grains. He is a member of the Wren FFA Chapter and Clemson Collegiate FFA Chapter. Hugh has served his organization as Chapter President, Federation President, and Treasurer of the South Carolina Association. Hugh won the Tri-State Public Speaking Contest also. For his outstanding records and leadership in his organization, Hugh was awarded the American Farmer's Degree.

James Jameson, a member of the Pendleton FFA Chapter of Pendleton, South Carolina, does general type farming on his father's farm. He raises and shows dairy cattle. James has won state honors in fitting his animals. He has served as President of his local chapter and Treasurer of his Federation. He was awarded the American Farmer's Degree for his outstanding work with his dairy cattle and his chapter.
FOREST FACTS

Bill Goodman, Forestry ’61

The standard of living in a country is highly correlated with the amount of paper it uses. Since the United States is the greatest user of paper - which is made of wood grown in the forest - we conclude that we enjoy a high, if not the highest standard of living in the world. We also conclude that much wood must be grown to supply the raw materials needed for this paper and other forest products. Furthermore, we are compelled to assume that a large forest acreage is required to grow the needed wood. But where does this lead us in terms of forest research at Clemson?

It would be fallacious to believe that paper production is the sole purpose of forestry in the South. However, paper is a major forest product, especially here in South Carolina. For this reason, production of paper is used in this discussion to make a point concerning the subject, forestry research.

Suppose our population were doubled and, simultaneously, our total forest area were cut by 1/3. We would be hard pressed to maintain our present flow of forest goods and services much less provide for a doubled need for these forest products. By the year 2000, we expect our population to be doubled, thus doubling the need for goods and services stemming from the forest. The anticipated need for more roads, a more intensive network of power lines, more residential areas, more reservoirs will reduce our present forest acreage by 1/3.

Our suppositions may seem far-fetched. And yet, since they are predicated on findings of well-conceived surveys, we must take them seriously. What can we do about them?

There are many ways in which we can improve our forests. Some are: establish the desired species on its best sites, i.e., the best kind of tree on a given location; improve growth conditions where a poor growth rate now exists; establish full stocking on areas which are now understocked. These are but few of the ways leading to the improved production of our forests.

However, we are not so sure how to accomplish these ends. There are still many questions left which only an extensive forest research program can answer.

This is going to cost money! It's going to take a great deal of time. In a state like South Carolina, where 62% of the total area is in forest land and 77% of this is in small landowners' hands, it becomes evident that there are not many forest landowners who can afford this kind of research program.

The Clemson College Department of Forestry is working in cooperation with various agencies, such as the South Carolina State Commission of Forestry, Atomic Energy Commission, Soil Conservation Service, and the U.S.D.A. Forest Service. Twenty-three projects and experiments, designed to maximize the "plus factors" in forestry and minimize the "minus factors" are being carried out for this purpose.

Various projects are concerned with: Site preparation on land occupied by kudzu, sericea lespedea; seed production; direct seeding versus planting; nursery work; shading and mulching of seedlings; field survival and growth of pines and hardwoods; fertilizing of plantations; replacement of undesirable tree species with desirable ones.

Through these projects, the answers to some of the foregoing questions will be found, thus providing the scientific foundations for practices leading to proper selection of species, improved growth conditions, and increased stocking. All of these factors will contribute to the increased quantity and quality of forest products, upon which we have become so dependent, both as producers and consumers.
THE PRESSURE IS ON HAY

Kenneth R. Butcher, Dairy '62

Most of you have heard or read something about the pelleting of hay. In the past five years, considerable interest in this subject has been shown. Also, the development of Coastal Bermuda has aroused interest in both beef and dairy feeding circles in the South. However, some dairy farmers in the South have become discouraged with results obtained from feeding Coastal Bermuda hay to their heifers and cows. Realizing this problem, some of the members of the Dairy Department here at Clemson are conducting research on the feeding of Coastal Bermuda hay to dairy cattle. Through the help of information given to me by Mr. Glen O'Dell of the Dairy Department, I should like to tell you about some of the work that he has done, as well as some of the work he now has in progress on the feeding of pelleted Coastal Bermuda hay to dairy heifers and cows.

Before starting his research on pelleted Coastal Bermuda, Mr. O'Dell compared the costs of baled alfalfa and pelleted Coastal. The average cost of alfalfa last year in the Clemson area was approximately $50 per ton, while $30 per ton was the average figure for Coastal. Since the cost of pelleting amounted to about $10 per ton, the total cost of the pelleted Coastal was approximately $40 per ton.

Subsequently trials were conducted to compare the effects of baled to pelleted Bermuda on the growth of yearling heifers. The roughage required per pound of gain was higher for the pelleted Coastal Bermuda group, but from an economic standpoint the feed cost per pound of gain was considerably less. The pelleted Coastal group showed an average gain of 0.5 pound more per day than did the baled Coastal group.

At the present time, Mr. O'Dell is starting this same type of work with groups of cows in the Clemson herd to determine the effects of pelleted Coastal Bermuda on milk production. Many of the dairy farmers of South Carolina are looking forward to the results of this research. More pelleting of hay will be done if experimental evidence continues to be favorable toward pelleting, and if the cost of pelleting equipment is reduced.
OPPORTUNITIES IN AGRIBUSINESS

William R. Clayton, Ag. Ec. ’62

Agribusiness, a relatively new term, is now used extensively to describe all the interrelated functions of agriculture and business. Agribusiness has been defined as "the sum total of all operations involved in the manufacture and distribution of farm supplies; production operations on the farm; and the storage, processing, and distribution of farm commodities and items made from them". Thus agribusiness encompasses all the functions which the word agriculture denoted a century ago, plus some others.

The above definition denotes many things but above all it sets forth clearly the many opportunities present in the now very broad field of agriculture. It means, for example, that more and more young men with training in agriculture and business are needed to fill positions of many different types in this ever expanding field.

Studies conducted by the nation’s agricultural schools show that on the average a larger percentage of agricultural economics graduates are employed by governmental agencies than by commercial or educational interests. This is not surprising since many of the so called "action agencies" in the USDA are engaged primarily in the agribusiness field. The indications are that an increasing number of qualified persons will be needed in these fields. Agricultural economists in particular are needed in such agencies and organizations as the Federal Land Banks, the Production Credit Associations, the Rural Electrification Administration, the Employment Security Commission, the Foreign Agricultural Service, the Crop Reporting Service, and the Farm Economics Research Division. The various state agencies likewise have need for men and women trained in agribusiness.

More and more privately owned banks have adopted the practice of employing agricultural economics graduates to supervise their agricultural loan departments. Demand for persons to fill these positions will become greater as farming becomes more commercialized, thus calling for greater investments and more careful consideration of the efficiency of production.

In the marketing field, agricultural economics graduates are finding that there is plenty of room for well-trained young men. Meat packers, fruit and vegetable wholesalers, and all types of buyers of agricultural raw materials are eager to employ aggressive persons for buyers and salesmen. Manufacturers of agricultural implements, farm supplies, and fertilizers are the main employers of graduates for sales work.

Public relations for large agricultural supply companies is another phase of the work done by agricultural economics graduates. Many in this field spend much time writing articles and speaking on agricultural subjects of general economic and social concern.

As production units become larger, better management must be in evidence if farms are going to be operated with a high degree of efficiency with maximum profits being obtained. Owners of these large, commercialized farms are going to look for the best trained, highest qualified managers available, and many of these responsible positions will have to be filled by college graduates. Here too, the agricultural economics graduate is in an extremely favorable position.

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HOW ABOUT HORTICULTURE  
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Located at strategic positions in South Carolina are field branches of the Experiment Station. Here, emphasis is placed upon investigation of horticultural problems pertaining to the surrounding region.

Through its extension arm, Clemson's Horticulture Department is kept in continuous touch with the state's horticultural industry. Specialists in fruits, vegetables, and ornamentals convey to local extension agents pertinent information and recommendations, based upon research findings. Through the same channel, unique problems are referred to the research staff, sometimes resulting in special research endeavors.

A third, and by no means least important, aspect of Clemson Horticulture is the teaching at both the undergraduate and advanced levels. A versatile and constantly growing educational program trains horticulturists to fill positions in production, processing and distribution, and allied academic pursuits.

Outside "the arena of the classroom", as aptly expressed by Professor Goodale, students and staff members of the Horticulture Department meet in the Horticulture Club, where lasting personal friendships are formed.

From these observations, it may be concluded that the horticultural future of South Carolina is indeed bright. As plants and plant processes are better understood through research, both producer and consumer will reap such benefits as larger and higher quality fruit, vegetables especially adapted for fresh market or processing and ornamental plants of greater utility and beauty.

AGribusiness  
(continued from page 15)

The expansion of work in the field of community development likewise will increase opportunities of men and women with good training in agricultural economics and rural sociology.

Agricultural economics training in colleges today is of a broad nature, encompassing not only basic agricultural courses but also specialized courses in marketing, management, pricing, policy, and financing. This type of broad, well-rounded agricultural and economic training makes agricultural economics graduates qualified for many varied production management positions.

All in all, the field of agribusiness needs competent, well-trained, qualified persons so that it may thrive and do so efficiently. College graduates in agricultural economics will be able to fulfill these requirements and will be well rewarded for their efforts and training.

FARM FACT

In the 1960 crop year, the U.S. Farmer has produced enough food, fiber and tobacco for almost 24 persons, according to Agriculture Department estimates. In 1955 he produced enough for 20 persons, in 1950 for 16, in 1940 for 12, in 1930 for 11.

FARM FANCY

I am only an average man but, by George, I work harder at it than the average man.

Theodore Roosevelt
LET'S SWAT
THE "FLY-BY-NIGHTERS"

Tim Drake, Ent. '61

In the past fifteen years the legitimate termite control business has grown steadily, but along with it the illegitimate form of this business has also flourished. Although there are no state pest control laws in South Carolina, the reputable companies have to establish and maintain a good reputation in their operating territory in order to stay in business. There are several reasons why the illegitimate companies are still operating. One of these reasons is because all that is required of the fly-by-nights in South Carolina is that the company purchase a city license in every city in which they operate. This leaves the field open for anyone who has a truck and other necessary equipment to go into business for himself.

Another factor that has influenced the large number of "fly-by-night" operators is the high-income low expense of operation. They do nothing that cost any money to speak of except maybe to spray some burnt motor oil or creosote around under the house. Contrary to public opinion, there is much expense connected with legitimate pest control operations. Here, money is constantly being paid out for labor, transportation, chemicals, equipment, insurance, bonding, advertisements, and many other miscellaneous items. If the illegitimate operators would do the job right the field would be less profitable for them, and thus we would have less cause to worry.

The last factors, but by no means the least important ones, are the public's ignorance and the desire to get something for nothing. Most of the victims of these unscrupulous characters are older people who do not know about this racket, and people who think they need the service of an exterminator but can't afford it. These operators prefer to pick on older men and women, because there is less chance of the owner following them around under the house and asking embarrassing questions. In some instances these men may take their own termites under the house so that they can show the home-owner "proof" that his house is being eaten and will soon fall down. The home-owner usually will not question the integrity of the men and thus another sucker is hooked. These characters usually charge more than a reputable company and certainly do nothing to earn the money. If the purchaser would take time to consult a reputable company they would discover that in almost every case the cost would be less than that of the "fly-by-night" operators.
The winter meeting of the American Society of Agricultural Engineers was held December 4-7, 1960, at the Peabody and Chisca Hotels in Memphis, Tennessee. Students representing the Clemson College Student Branch were: Lindsay L. McElwee, club reporter from Clover, S.C.; John M. Carpenter from Easley, S.C.; James C. Henderson from Greenville, S.C. and Faculty Advisor Dr. H. E. McLeod. Seventeen Student Branches were represented at this meeting. The programs were divided into four concurrent sessions: Power and Machinery, Electric Power and Processing, Soil and Water, and Farm Structures. A Personnel contact session was held one afternoon to give the students an opportunity to interview Companies interested in Agricultural Engineers. An educational Atomic Energy Exhibit was on display the entire week in order that everyone might see the uses of Atomic Energy as applied to Agriculture.

Papers were presented by several former Clemson College Students. R. A. Shoolbred with Portland Cement Assn., presented "Hyperbolic Paraboloid Roofs" and Dr. H. E. McLeod, Dr. J. H. Anderson and Joe E. Clayton presented "Basic Investigations in Vibratory Harvesting".

FARM FACTS

U. S. farm population underwent a decline of 15.5% during the 1950-59 decade. The total population as of April 1, 1959 was 21,172,000. This decline occurred in all U. S. regions and divisions.

Of the $313.8 billion spent by Americans for consumer goods and services in 1959, the largest item was a record $85.2 billion for food and tobacco.

In the past several years I have learned of many cases where people have fallen prey to these men. In one instance an elderly lady was visited by one of these exterminators on three different occasions and was taken for nearly thirteen hundred dollars over a period of several years. Finally the house had to be treated by a reputable company because the termites were swarming all over it. The cost - one hundred dollars! Think how much money the poor lady would have saved if she had called a reputable company to begin with. It is your job and mine to keep these unscrupulous characters from swindling the home owners of South Carolina. The least we can do is to make sure they don't get any of our money. If a smooth-talking "termite-man" comes to your house, unless he can produce sufficient identification to prove he is from a reputable company, send him away. Next, call your local exterminator and ask for a free estimate on your house - you may be glad you did.

AGRARIAN PHILOSOPHY

I ain't ner don't p'tend to be,
Much posted on philo-sophy;
But there is times when, all alone,
I work out idees of my own.
And of these same there is a few
I'd like to just refer to you--
Pervidin that you don't object
To listen clos't and rickollect.

James Whitcomb Riley

One of our biggest problems these days is working out solutions for the solutions the last generation worked out.