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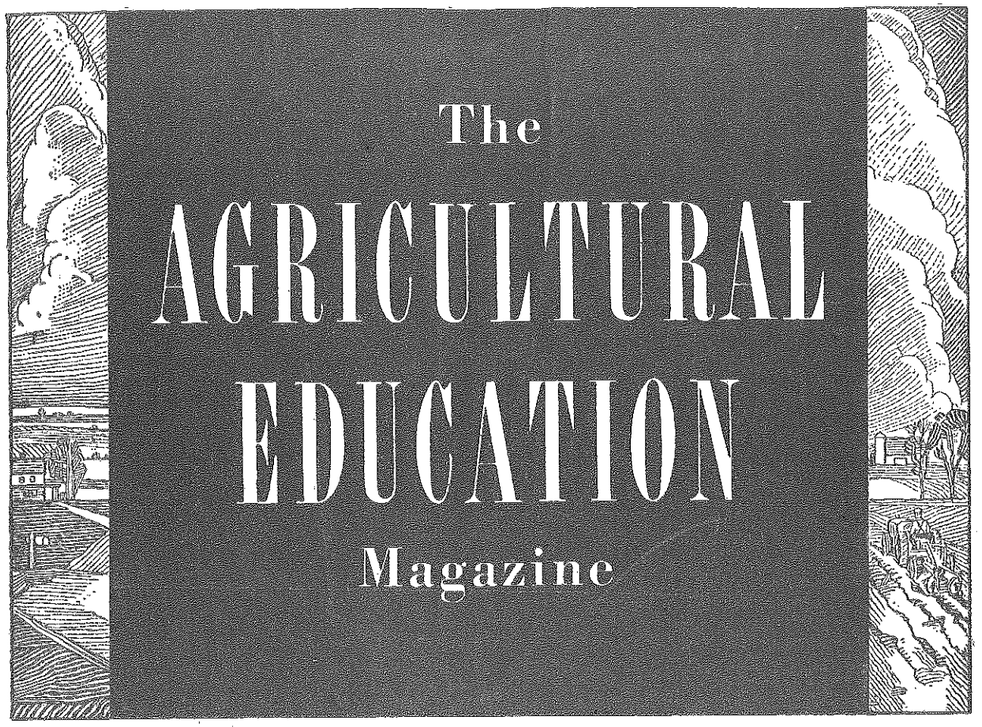

IT IS well for a man to respect his own vocation, whatever it is, and to think himself bound to uphold it, and to claim for it the respect it deserves.

—Charles Dickens

The Agricultural Education Magazine

A monthly magazine for teachers of agriculture. Managed by an editorial board chosen by the Agricultural Section of the American Vocational Association and published at cost by the Meredith Publishing Company at Des Moines, Iowa.

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Editorial Comment

Professional Growth and the Agricultural Education Magazine

ONE of the problems in teacher education is that of initiating prospective teachers into activities that will result in continuous professional growth. Mr. Roy L. Chappelle, Head of the Agricultural Education Department of Texas Technological College, has devised a plan for getting all trainees into the habit of reading the *Agricultural Education Magazine*.

Being of the opinion that our reading habits are rather fixed and that the *Agricultural Education Magazine* could be of great assistance to a beginning teacher, Chappelle devised a guide for the use of the *Agricultural Education Magazine*. He reports the results have been exceedingly gratifying.

We would like to have suggestions from our readers relative to the use being made of the magazine. Compare your plan with Mr. Chappelle's. If you believe you have a better plan, let us have it, and we will pass it on to our readers.

Below is Chappelle's plan.

A GUIDE FOR THE USE OF THE AGRICULTURAL EDUCATION MAGAZINE

Instructions: Read your magazine, and from the articles you find interesting, jot down in your notebook the points you wish to remember. Then fill in the blanks below. Under "Page" give the page in the magazine where the article is found; under "Title" give the title of the article; under "Author" give the author of the article; under "Page in N. B." give the page of the section of your notebook that you have devoted to the magazine; under "Teaching Subject" give the subject in which you think you could use the article; for example, if it deals with farm shop, the teaching subject would simply be "Farm Shop."

There will be some blank spaces; it is not intended that you find something to keep under each section. Provision is made for as many as three articles under each section; you may find one or three or none.

The month, year, and number should be the month, year, and number appearing on your current magazine.

Month:.....194..... No.....

Section	Page	Title	Author	Page in N. B.	Teaching Subject
Editorial					
Professional					
Methods					
Supervised Practice					
Adult Classes					
Farm Mechanics					
Studies and Investigations					
F.F.A.					
Others					

The Need for Good Teaching

SINCE our country became involved in the present world conflict, first in the preparations for defense and more recently as a direct combatant, the columns of this magazine have been devoted in large measure to the part which vocational agriculture has in the struggle for freedom. As an educational agency, we will make our contribution to the War effort in the degree to which we are good teachers. May we therefore not lose sight of this objective!

Is our teaching relevant? If we are to make the maximum contribution, we must deal directly with problems which have to do with increasing production, and on an efficient basis insofar as this is possible. The pupils in our high-school classes should therefore be more interested in testing their dairy herds for butterfat and in improving methods of feeding than in studying breed histories or the judging of exhibition classes. Likewise, young and adult farmers are more concerned just now with labor problems, cultural practices, machinery repair, and rations for livestock than with social and recreational activities, important as these may be.

Do we know our subject matter? If we are to render assistance, we must be familiar with the program for increasing the production of peanuts, flax, soybeans, and of swine, dairy, and poultry products. We must have a practical knowledge of cropping systems and of livestock management including breeding, feeding, sanitation, and control of diseases. We must possess certain skills which are pertinent to agricultural engineering, agronomy, animal, dairy, and poultry husbandry, and horticulture. These requirements mean that we must be students of agriculture and must take advantage of all opportunities to keep up to date.

Are we getting application? The present demands insist upon the realization of outcomes which have always been upheld in connection with the program of vocational agriculture. Our all-day pupils can contribute to production requirements by raising livestock and poultry and by growing flax and soybeans. Likewise, their other farming activities such as the construction of brooder houses, the repair of machinery, and the use of approved practices are all essential to good farming. The plans which we have had for getting part-time students set up in farming on the partnership basis and eventually in full-time farming for themselves fit into the present situation insofar as these young men are available for farming. The organization of adult farmer classes for systematic instruction is a most logical arrangement for getting application on the part of this group. None of our classes is in such a favorable position to apply sound practices relating to present needs as are the members of evening classes.

Are we encouraging co-operative effort? No group with which we work is in a more favorable position to practice co-operation than is the F.F.A. The major types of commodities purchased thru it include livestock, feeds, seeds, fertilizers, spray materials, nursery stock, and miscellaneous equipment. Co-operative marketing ordinarily includes livestock products, poultry products, potatoes, vegetables, and seed grains. Credit is frequently arranged co-operatively from within the chapters or from outside sources such as local banks and federal lending agencies. Just now the F.F.A. is performing a splendid service in the collection of scrap materials and the purchase of War Bonds.

The foregoing questions are not intended to suggest criteria by which the effectiveness of our teaching may be judged; rather they represent some of the considerations which cannot be ignored if we are to have good teaching, without which vocational agriculture will not have been fully effective in the present emergency.—G.F.E.

Professional

A. K. GETMAN — R. W. GREGORY

Who Is Responsible for the High Cost of Living?

FRED H. SEXAUER, President, Dairymen's League, Co-operative Association, Inc. New York

EVERYBODY is interested in the *high cost of living*. As Calvin Coolidge, when asked what the preacher said about sin, replied, "He was against it," so we are all against the *high cost of living*. *High cost of living* might be defined as—prices higher than we paid last week, last month, last year. When looking for the nigger in the *high-cost-of-living*-woodpile it has become popular for statesmen, politicians, backyard economists and agitators to talk glibly and lengthily about two things: first—high farm prices; second—high farm prices as the cause of the *high cost of living*.

Misconceptions

These are the two most common misconceptions about which public statements are made. Both are wrong. There is too much loose talking and too few facts known about the farm price situation. The only truth about these statements is that they prove the old adage—"If something is repeated often enough by enough people, the public is likely to end up by believing it."

There is a real reason for the intense interest of the public in food prices. We all like to eat regularly. This is a nation of 130,000,000 people. Each is presumed to eat three meals a day. This means 390,000,000 meals daily. Not counting extra meals at night clubs and tea parties, this means 142,350,000,000 meals each year. Let us assume each meal costs the moderate sum of 25c. This means that the public spends in the neighborhood of $35,578,500,000 a year for meals.

Food Costs

This is a lot of money for food. It is over one-third of our total national income. Farmers do not get all this money. The food must be processed, hauled, packaged, handled, sold, and distributed. Farm income from domestic food is only about $11,000,000,000. This is a little over 25 percent of the consumers' food cost, or about 7c out of the 25c cost of each meal. Under these circumstances if the prices which the farmer receives for his products were increased 50 percent so that he received 10½c instead of 7c for the products, that would only raise the price of the meal 3½c, or from 25c to 28½c; while the farmer might receive 50 percent more in this case, so far as his contribution to the higher cost of living is concerned, that increase would be less than 14 percent.

There is another old adage that figures do not lie, but that liars do figure. When someone says that farm prices have increased 50 percent and that at the same time the cost of living has increased 50 percent, the natural reaction is to put the two figures together and blame the farmer. But that can hardly follow when 50 percent increase to the farmers only means 3½c, whereas 50 percent increased cost of living would mean 12½c.

Where did the other 9c go? If the farmer did not get it, who did? Well, perhaps that is one of the "niggers" that somebody had better dig out of this woodpile.

Farmers Patriotic

Right now our first job is to win a war. Fights between classes and groups must be submerged to the general good. There probably is nothing that raises more havoc with the morale of farmers than these continual statements by public officials, labor leaders, and the public itself that farmers have had their income greatly increased; that they are responsible for all of the ills of the nation; and that they are likely to lead us into uncontrolled inflation.

Are we facing uncontrolled inflation from the standpoint of farm prices? Someone has said we should not allow ourselves to drift into the situation which faced us during the last war. Well, we can easily agree with that, and the facts indicate that we are a long way from any such situation so far as farm prices are concerned, altho I am not so sure that the same can be said about some other elements of society.

Let us take milk prices. In January, 1918, the first January after our entry into the war, the price of milk to farmers supplying the New York market was $3.78 per cwt., or 8c per quart. In January, 1942, the price to farmers in the same area for milk approved for the same market, but meeting much more rigid inspection, was $2.67 per cwt., or 5⅔c per quart. Actually, the farmer only received 71 percent as much for milk last January as during the first January of the first World War.

But what about prices to consumers? The retail price of milk to consumers in New York City in January, 1918, was 15c per quart and in January, 1942, 17c, or an increase of 2c. So, farmers are receiving 2c per quart less and the consumers are paying 2c per quart more.

Wages Compared

Again, where is this "nigger" in the woodpile? Well, I cannot be sure, but it is interesting to know that wages of milk plant help in the city were 63c per hour or $30.62 per week then and today are 83c per hour or $40.25 per week, an increase of 31 percent.

It is also interesting to note that the wages of milk wagon drivers were $27 per week then and are $53 now, an increase of 96 percent.

The farmers receive 29 percent less, the wages are from 31 percent to 96 percent higher, and the consumers pay 12 percent more. Putting it another way, are living costs—food prices—really high? Taking the average of all factory wages in New York State, the consumer today, in spite of the increase in retail prices, none of which the farmers seem to have gotten, will buy 53 percent more milk now than then. In 1918 it took the average laborer 26 minutes of work to purchase a quart of milk; today it takes him 14 minutes. Or if he wishes to go to the store, where 60 percent of the milk is purchased, and buy it, he can buy it for 11 minutes of work.

This really does not look as tho the high cost of living is so high. It would hardly seem as tho farmers could be accused of being responsible for the high cost of living so far as milk is concerned when we find that the farmers are receiving less money for their milk today than in January, 1918. But then, perhaps, milk might be looked upon as an isolated commodity.

Butter

What about other prices as compared with consumer purchasing power? Well, let us take butter as an example of farm prices, and wages as an example of purchasing power. In January, 1918, the price of butter to farmers was 52.2c. In January, 1942, it was 35.4c—16.8c less, or 32 percent lower. Then it took 89½ minutes to buy a pound of butter; now it takes 29 minutes.

Where is this "nigger" in the high-cost-of-living-woodpile? It does not seem to be on the farm. Let's take some other product. What about pork? In January, 1918, the price of pork to farmers was $15.26 per cwt., and in January, 1942, it was $10.55 per cwt. Here again there seems to be no evidence of the high cost of living stemming from the farm.

I wish to make it very clear that I am not condemning the amount labor gets. I am merely trying to focus attention upon what is probably the most misunderstood problem today—prices of farm products—and the most misunderstood class of people—farmers.

Of course, there might be some real cause for complaint against farmers regarding the high cost of living if farmers got what some folks think they get. If farm prices were based upon price and a half for all farm products that were produced with labor used more than 40 hours a week, or if for those products which had to be produced on Sunday or holidays the farmer received double prices, the high cost of living might have a farm price base. I think there would be a great deal of jubilation among farmers if they could set aside all of the eggs which they gathered on Saturday and receive a 50 percent greater price for those than for the eggs which they gathered other days of the week. Then if they could set aside those gathered on Sunday and instead of receiving 33c a dozen for these, received 66c a dozen, there really might be a high cost of living complaint against farmers. Of course, almost all of us on the farm would want to eat Monday, Tuesday, Wednesday, Thursday, and Friday eggs and sell the Saturday and Sunday eggs, while most consumers would want to buy Monday, Tuesday, Wednesday, Thursday, and Friday eggs and leave Saturday and Sunday eggs on farmers' hands. But occasionally, we might find it necessary to buy some of the Saturday and Sunday eggs.

Small Percent of National Income

We might approach this problem from another angle. In 1918 the national income of everyone in the United States was $60,200,000,000. Of this farmers received $11,205,000,000 or 18.6 percent. In 1941 it is estimated to be $89,425,000,000 and of that farmers received $11,185,000,000 or 12.5 percent.

In spite of this reduced percentage of the national income and because they have been requested to do so and have been placed under great patriotic stimulus, they have produced 32 percent more milk, 10 percent more grain, 39 percent more eggs, 16 percent more vegetables. They are not going to stop because the price levels are not what some of us feel they should be. As a class they are too patriotic to go on sitdown strikes. While they complain about the situation, I expect this summer will see every farmer and his wife toiling away to the best of their ability regardless of time, regardless of hours, to continue to do their share in the protection of the institutions and principles which they hold dear.

However, it is unfair when they have maintained their production during depression periods; when they have increased it under the stimulus of patriotic fervor; when they are selling their products for less than they did in the first World War; when others are receiving great increases in their compensation for their hours of labor, to add insult to injury or to add the last straw that breaks the camel's back—by condemning farmers for being responsible for the high cost of living, which no one thru any sound analysis can place at their door.

High Lights of the North Atlantic Regional Conference

C. H. LANE, Federal Agent, Washington, D. C.

C. H. Lane

THE three-day North Atlantic Regional Conference, held in New York City on April 8, 9, and 10, had before it two major subjects for consideration: (1) What is before vocational education in agriculture, home economics education, and occupational information and guidance in the present war effort? and (2) the contributions that agriculture, the schools, and the home should make toward winning the war.

Dr. J. C. Wright, Assistant Commissioner for Vocational Education, U. S. Office of Education, discussed the first problem from the standpoint of what is before vocational education schools and classes in the coming year. Mr. Allen W. Manchester, Director, Northeast Division, AAA, considered the topic from the point of view of what the U. S. Department of Agriculture is doing. Miss Helen Mitchell, Senior Nutritionist, Office of Defense, Health and Welfare Services of the Federal Security Agency, brought to the group the work of various state nutrition committees.

Mr. Clyde Marquis of the Foreign Agricultural Relations Service, U. S. D. A.; Dean W. F. Russell, Teachers College, Columbia University; and Mrs. Marguerite W. Zapoleon, Specialist in Occupations for Girls and Women, U. S. Office of Education, dealt with contributions in their respective fields in the present war emergency.

In addition to the foregoing addresses which were discussed from the floor of the conference, each state was called upon to indicate what had already been done thru the agricultural teachers in adjusting state programs, especially from the standpoint of emphasis on the 1942 production quota, farm machinery repair, farm labor shortage vs. school pupils, victory gardens, opportunities in agriculture at the close of the present World War struggle, participation in civilian defense, and meeting the shortage of teachers of vocational agriculture.

This conference was the first joint conference with home economics workers in the North Atlantic Region for many years. Among other things, the joint committee of agriculture and home economics supervisors and teacher-trainers recommended:

(1) That attention be given to cooperative efforts both with respect to the on-going long-time program of vocational education and with respect to those things which contribute specifically to the total war effort.

(2) That vocational education must assume a large share of responsibility for the social and educational activities of young people during the period immediately following graduation from high school.

(3) That it should be the responsibility of home economics education to prepare young farm men for the wise buying of foods and household goods.

(4) That teachers and counselors must continuously recognize their shared responsibility for understanding and helping in the problems of the families of their pupils.

(5) That an interested group of administrators, teachers, and counselors in home economics, agriculture, and guidance should make a point of assisting in the development of a community planning project in a community suitable to serve as an exemplary experiment in their state.

Standing committees of the Region made recommendations in their respective fields as follows:

(1) In view of the redirection of our program of teacher education we recommend an increased emphasis on itinerant teacher-training for teachers on the job. This involves discovering subject matter and other needs, and supplying the assistance required.

(2) It is recognized that the adult education program has been stimulated by OSY defense-training courses. We urge that OSY courses continue to be clearly identified with the vocational agricultural program and recommend that these courses be accredited as a part of adult education.

(3) Assistance and advice may be given to local farmer groups who wish to establish youth work and harvest camps to meet seasonal labor needs. The committee on placement further recommended that elementary instruction in farm skills be given by teachers to village and city youth who wish to work on farms during the summer season.

(4) The committee on supervised farming programs classified its recommendations into five areas as follows:

(a) Encourage wise readjustments as needed in the boys' farming programs in the current year.
(b) Direct the class teaching during the remainder of the school year toward the development of plans which will serve as a satisfactory basis for the boys' conduct of the programs and for the supervision of these programs by the teachers.
(c) Supervise the farm programs with special consideration for conserving the time of the teacher and the means of transportation, without unduly curtailing the effectiveness of this supervision in the period in which it is most urgently needed.
(d) Plan for appropriate reorganization of farming programs for the coming year and for the selection of appropriate programs by new students.
(e) Supervise the farm practice of those boys decidedly lacking in farm experience who will be working on farms this summer on account of the emergency in food production.

Farm Mechanics

(5) The committee on farm mechanics indicated the lack of training on the part of most of the agricultural teachers and pointed out the need for intensive summer courses for teachers in service. The following ways and means were suggested for meeting the problem:

(a) Much more use should be made of farm machinery dealers in the states.
(b) Due consideration should be given the problem of training women to take the place of men on the farm who have been called into the armed services and defense plants.
(c) Home mechanics must be developed due to the curtailment of electrical appliances and other household equipment by the Federal government.
(d) It is urged that states do their utmost to prepare and make available as soon as possible job plans and teaching materials on all phases of farm and home equipment maintenance not already covered in some form.

Methods

A. M. FIELD

Some Changes and Developments in the Teacher-Training Program in Agricultural Education

ARETAS W. NOLAN, Teacher Education, University of Illinois

A. W. Nolan

AMONG the early recognitions of the importance of teacher-training in agricultural education was the provision, in the Nelson Act of 1906, that a portion of the funds provided to supplement the Land Grant Act of 1862 could be used for the professional training of teachers of agriculture. This was a rather late recognition of a need, as time appears to us, but even after 1906 only a very few institutions took advantage of this opportunity and provided for teacher-training in agriculture.

First Methods Courses in Agriculture

In the early part of the twentieth century, a few colleges and universities offered courses in methods of teaching agriculture to seniors who were preparing to teach agriculture in high schools. The writer organized and taught such a course at the University of Illinois from 1912 until 1917. During that period there were from 30 to 40 high schools in Illinois teaching a one-year general course, using textbooks as in science or any other subject. The writer, G. A. Bricker, A. V. Storm, and a few others published books on methods of teaching agriculture before the Vocational Education Act of 1917 was passed. These books were used as texts in the early teacher-training classes mentioned above. Such textbook studies, and a few courses in general education, together with the students' training in technical agriculture constituted the only teacher-training in agriculture then offered.

Contact With Land Grant Colleges

During those years in the first two decades of the century, what few teacher-trainers there were met with the Land Grant College Association under the high-sounding name of "American Association for the Advancement of Agricultural Teaching." Out of these meetings came content and inspiration for programs of teacher-training in the Land Grant Colleges, and they paved the way for the coming of the Smith-Hughes Vocational Education Act of 1917.

The first major change or improvement in teacher-training was the setting up of practice teaching and observation centers for trainees. Since the Vocational Act provided for supervised farm practice in vocational agriculture as essential in the training of future farmers, it was only logical that supervised teaching practice be prescribed in the training of future teachers of agriculture.

First Program of Practice Teaching

The early programs of practice teaching were meager and inadequate. Usually the city in which the teacher-training institution was located permitted its high school to offer a one-year's course in agriculture, taught by the trainees under the supervision of the department of agricultural education. Supervised farm practice was a joke and the atmosphere of the city school was not conducive to learning to teach vocational agriculture. The next progressive step in teacher-training was to tie up with good near-by rural high schools having first-class departments of agriculture, where trainees could observe and teach as apprentices under a successful experienced teacher. Under this plan, at first, the trainees were "shuttled" to and from the university each day to the rural high school for observation and practice. Naturally little or no community relations or supervised farm practice was possible.

Apprenticeship Teaching

More recently trainees are being apprenticed out to good co-operating centers for practice teaching for periods ranging from one month to a quarter, a semester, or even a year. This plan is adding greatly to the efficiency of the teacher-training program in vocational agriculture.

Other changes for the better relate to the content of the educational courses and the courses in technical agriculture. In the educational courses more teachers are adding graduate units, looking to higher degrees. In technical agriculture more hours are being required in all phases of preparation, and the acquiring of more agricultural skills is being encouraged.

Training in F.F.A. Activities

In the training of teachers of vocational agriculture, more emphasis is being placed upon Future Farmer leadership and the conduct of adult education classes. There has been a gradual and positive increase in the professional spirit of teachers of vocational agriculture. From the teacher-training institution there must come, in addition to knowledge and technique in teaching, a margin of motivation and inspiration which will carry over thru the teachers to the last farmer in the land. It is being recognized more and more that the teacher of agriculture occupies a most strategic point of service in rural life.

Incidentally, may I add that the magazine *Agricultural Education* is making a most excellent contribution to the whole program of modern teacher-training for vocational agriculture.

Adult Farm-Machinery Repair Course

ARNOLD H. ROGEAN, Teacher, Hyannis, Massachusetts

BEGINNING on February 10, an Adult Evening Course was conducted in the repair of farm machinery in the town of Barnstable on Cape Cod, Massachusetts. Prompted by the nationwide move to conserve and repair farm machinery, the agriculture instructor instigated and supervised a seven-week evening course in the repair and maintenance of motorized and non-motorized farm machinery.

Selecting a Center

One of the major problems was to find a centralized place to conduct the course. The town Highway Department garage had excellent facilities for such a course. The Highway Department granted us permission to use their garage, which readily passed State Inspection. Mr. Kenneth Dottridge, the foreman in charge of repairs at the same garage, also passed State Inspection and was hired as instructor. Mr. Dottridge was especially well qualified for the job of instructor since the highway machinery under his care consisted of tractors, mowers, spray pumps, and various other tools used on the farm.

A tentative plan for a seven-week course of two evenings a week was submitted to the State Supervisor of Agricultural Education, and information was sent concerning the date the course would start.

Classes were held on Tuesday and Wednesday nights from seven to ten o'clock from February 10 to March 25. During the seven weeks much farm machinery was repaired. A list of some of the work done is listed below:

Grind valves and replace rings in tractor
Re-bush truck wheels
Rebuild car for tractor use
Repair water pump
Repair clutch (mower)
Welding
Repair electric motor
Rebuild tractor front end
Repair and paint tractor plow

The work was all done on machinery and tools brought in by the members of the class so that a double purpose was accomplished. The men were learning to handle tools and repair equipment and at the same time they were getting their own equipment ready for a summer's work.

Methods of Range Sheep Improvement

TONY FELLHAUER, University of Wyoming

THE following is a brief outline of methods followed at one of the large livestock farms in Wyoming. It was prepared with the hope that it might be of value to sheepmen in further improvement in the wool and lamb crop in the state.

Methods

The manner in which quickest results can be expected is to cull all the ewes the first year the sheepman starts as a co-operator or initiates this type of improvement on his farm. He should then select the ewe lambs to be placed in the breeding flock each year thereafter. However, some sheepmen may not wish to cull their older ewes. If so, similar results can be obtained by carefully culling and selecting the ewe lambs that will be used in the breeding flock and gradually replacing all the older ones, but naturally it will take a little longer to get the same results. The selection and use of well-bred, good-bodied, heavy-wooled bucks is very essential.

Selecting Ewe Lambs

In the fall just ahead of or at the time the wether lambs are disposed of, the ewe lambs should be culled down to the number that will be needed for replacements. It is suggested, however, at the beginning of this program that an extra 10 to 20 percent of the better ewe lambs be saved and a final culling made in the spring as some lambs may not develop well thru the winter. Also, with about a year's growth of wool a better final job of selection can be done on the yearlings.

Unless the lamb crop is poor or the owner wishes to increase the numbers in his breeding flock, it should be possible to make a cut of 20 percent to 50 percent of the ewe lambs in the fall. The extras that have been carried thru and culled as yearlings in the spring have in the past found a ready market. There has been a rather good demand for yearling ewes from many states.

Culling the Older Ewes

The best time to cull these older ewes is when they have a good growth of wool, such as a 10 to 12 months' growth. However, any time during the winter and spring up to shearing time is satisfactory. This usually fits in with the rancher's operations because during this period he will have the ewes in on feed or where he can readily get them to corrals and a chute.

The number to cull out will depend on the wishes and plans of the owner. However, at least 10 to 12 percent should be marked out to make the operation worth while. Usually about 15 percent are culled out.

The most desirable ones as to density and length of wool, completeness of covering, and uniformity are kept in the flock. Work at the New Mexico station with fine-wooled sheep also showed that length is a good but not an absolute indication of fleece weights. The size, constitution, and body conformation are also taken into consideration. The lower end of the flock, up to the percent desired culled, is marked with chalk by the one doing the culling. The owner usually puts a paint brand on those culled. At shearing time the fleece weights of the selects as compared to the weights of those culled out should be made to check on results.

Those usually culled are either sold soon after culling or carried thru the spring and summer to obtain the wool and lamb crop. The better bucks are used on the select ewes from which ewe lambs for the breeding flock are saved. This is usually followed when the owner has pasture and feed to the extent that he does not wish to dispose of the culls. It should be stated here that if any owner is short of sheep compared to the pasture and feed he has, it is not intended that he cull and sell some because any kind of a sheep under these conditions is better than none. He might dispose of them if he can find better sheep with which to replace them.

Equipment

Fortunately, culling by this so-called "touch system," devised by Dean Hill, is very rapid, and no special chutes or corral arrangements are necessary. In fact, it does not take as much time nor cause as much trouble as the average sheepman may think. It is, however, essential that *there be a chute, preferably three to three and one-half feet wide and about 65 to 100 feet long*. Corral arrangements to get the sheep into and out of the chute are of course necessary. A chute of the above size is long enough to hold from 50 to 100 ewes at a time. It is narrow enough so that the ewes can be held rather compact and the man doing the culling can get to them as he works down thru the chute, grabbing each fleece on the back of each ewe. A short chute holds so few sheep that much time is wasted in refilling it. With good equipment and help, 800 to 1,200 ewes can be worked per hour. Sheepmen in some instances have even put up temporary corrals and chute on the range not far from the shearing sheds, for the sole purpose of culling the ewes just previous to shearing.

Well-bred, Heavy-wooled, Good-bodied Bucks Necessary

The co-operator will be advised as to the characteristics he needs most in his bucks, in his particular case, to improve the weight and uniformity of his wool. There are still too many short-wooled, rather poor bucks in use in Wyoming. However, more and more good bucks are available from purebred breeders. In many cases, the bucks are also culled.

At one livestock company two years ago the bucks were again worked and a more thoro job was done by giving special attention to body conformity as well as wool. The bucks were divided, about two-thirds selects and one-third not so good because of lighter fleeces, off-type, etc. At shearing time the selects sheared three pounds more per head on the average than those marked out. This company was selecting and breeding for one-half blood wool. The grade of wool of these bucks was as follows:

(1) Selects:

Fine	20%
One-Half	65%
Three-Eighths	15%

(2) Those marked out:

Fine	60%
One-Half	10%
Three-Eighths	30%

Table I gives the weight, grade, and shrinkage of the 1940 yearling bucks that were reserved as compared to those marked out.

TABLE I
Results From Culled and Unculled Bucks

(1) Reserves: Grade and Length	Percent Total	Percent Shrinkage	Avg. Greasy	Fleece Wt. Clean
Fine Staple and French Combing	21.5	61.0		
One-Half Blood Staples	54.9	56.9		
Three-Eighths Blood Staple	23.6	52.1		
All Grades	100.0	56.8	15.6 lbs.	6.74 lbs.
(2) Those Marked Out:				
Fine Staple and French Combing	46.7	65.9		
One-Half Blood Staple	25.8	59.5		
Three-Eighths Blood Staple, and Trace ¼ Staple	27.5	52.8		
All Grades	100.0	59.6	13.9 lbs.	5.61 lbs.
		Difference	1.7 lbs.	1.13 lbs.

Some Results

The results will depend upon the weights of fleeces at the start and the variation in grade and quality of wool. If the average fleece weight is low or if there is a great variation in fleece weights, grade, and quality, there is greater need for and possibility of improvement.

Over a period of five to 10 years the average fleece weights can be increased two to three pounds and the clip made more uniform and with longer staple.

Fleece weights in any band or flock vary a great deal. In examining a larger number of samples taken thruout the state by the University Wool Department for fleece weight, shrinkage, and

(Continued on page 38)

Supervised Practice

C. L. ANGERER

A Successful Project—Sow Testing

E. F. FERRIN, Professor of Animal Husbandry, University of Minnesota

TEACHERS of vocational agriculture in Minnesota have made an outstanding record in a number of instances with the sow testing project. It is especially well suited to those communities where swine raising is an important part of the farm business either as a complementary enterprise to raising beef cattle or, in dairy areas, to selling butterfat. Records of herds in sow testing over a period of years demonstrate an improvement similar to that made in dairy herds under dairy improvement programs.

Background for Testing

For the background of this swine improvement work, we go to Denmark at the time when Danish exports of hogs and pork products to Germany were seriously reduced by embargo restrictions. Prior to 1895, Germany had been a good market for Danish farmers and the sudden freezing of this outlet had serious effects upon farmers' incomes. To open up a new market in England, the Danish farmers co-operated to establish a comprehensive plan of reducing the costs of producing pigs and improving the carcasses to suit the English trade. So successful was this program that neighboring countries such as Germany, Sweden, England, and others developed plans for the improvement of swine.

In Sweden, dairy herd improvement and swine recording were combined so that one person obtained the data from farmers for both types of stock. Litters of pigs were weighed at 35 days of age and this factor along with several others was used in culling animals from herds and selecting future breeding stock. The weight at 56 days of age of the litter was more generally used in other countries, especially in Germany and in England.

In the development of the swine industry in the United States, several breeds of hogs well adapted to conditions here were perfected. The extensive use of pasture and heavy feeding of corn were conditions radically different from the environment to which British and European hogs had become accustomed. British breeds were modified or new breeds built to fit American conditions. Great accomplishments have been made in perfecting the American breeds but until recent years, producers were little interested in selecting and breeding for lowest costs of production.

American producers of swine did not begin to think about selecting for greatest economy of production until about the time of the first World War. The first evidence that there are large differences in the ability of sows to return dividends was in the results from the Ton Litter project. This was very popular for a time and was valuable chiefly because it pointed out the possibilities of high production by selected sows. The herd production project sought to apply the Ton Litter principle to the entire group of breeding females but except in isolated cases was not followed consistently over a period of years.

Record of Performance Studies

The great differences in the producing ability of individual sows in herds in this country were not definitely proved until Record of Performance studies were begun by experiment stations. Set up on essentially the same basis as the plan followed in Denmark, this work was started in 1927 at the Iowa station. It was conducted by several states and the United States Department of Agriculture until pigs of approximately 1000 litters had been tested. The method followed was to take a sample of four pigs from a litter, many of these from purebred herds in the surrounding area, and feed the lot of four on a standard ration. The age at the beginning of the feeding period was 70 days and the final point was a weight of 225 pounds per pig. Detailed slaughter records were obtained from three of the four pigs in a lot.

These data show an average of just under 400 pounds of feed to make 100 pounds of gain in the weight of a lot, with about one-fifth of the lot records under 340 pounds of feed. From these economical gainers, selections could be made just as in Denmark where the average feed for 100 pounds gain was reduced from 400 pounds in 1910 to 330 pounds in 1937. The small number of litters which could be sampled at a comparatively high cost by this method precluded any rapid advance in improving American swine by this method.

Fortunately, another factor was uncovered in analyzing data from the federal experiment stations. It was shown that the birth weight of a pig and subsequent weights as he is growing are directly related to weights at marketing time. Furthermore, the weight for age is also an approximate measure of the economy of gain. This was the basis on which the pig surveys in several European countries were established.

The Minnesota Program

In 1934, the Minnesota sow testing project was started as a part of the extension swine program. It has grown slowly until in 1941 about 600 farmers were keeping records of the weights of litters at 56 days of age. The plan is simple enough to appeal to any farmer who wants to select from the best stock in his herd, but experience has shown that some supervision and encouragement are needed to persuade individual herd owners to follow the program year after year.

A number of Smith-Hughes teachers in Minnesota have used this project for several years. The most intensive work has been done in the Austin area where records for four years are available. The averages for number of herds and weights at weaning time are as follows:

Year	No. Herds	Av. 56-day weight
1938....	53 herds.....	30.7
1939....	82 herds.....	30.0
1940....	101 herds.....	31.9
1941....	100 herds.....	32.4

Sales of tested boars and sows are held in the Austin area, including only pigs from those litters which weighed an average of 35 pounds or more at 56 days of age.

In another county in southeastern Minnesota, sow testing has been carried on for a period of six years with an enrollment of 60 herds for 1942, including every purebred herd in the county. In Brown County, three teachers of vocational agriculture are co-operating in this project with local committees which cover most of the townships of the county.

Organization and operation of the plan are the same whether conducted with vocational students or farmers in adult evening classes. The successive steps are as follows:

1. Information relative to the advantages of the program
2. Enrollment of herds prior to the beginning of the farrowing season
3. Marking of pigs when farrowed and the use of simple records
4. Weighing litters of pigs as near the 56-day age as possible and calculation of weights to the standard age
5. Selection of sows to be retained and gilts for future breeding stock with emphasis on heavy litters
6. Purchase of a purebred boar from a heavy litter

The 56-day weight brings into account many factors essential for economical pork production. The breeding stock must have high fertility and the sows be good mothers with the ability to suckle a large litter well. The pigs must have strong vitality and be resistant to disease. Early maturity and rapid gains are necessary to have a heavy litter weight at weaning time. Accidents will happen at times to some of the pigs of the most promising litters but the owner can use his judgment about making an allowance for this. The statement of the plan should emphasize that it is not a race to show high records between herds but an improvement program for individual herds.

Without a doubt the greatest success is made by the most skillful caretakers. Efficient management or the reverse accounts for the greater part of the results secured. For this reason the brood sow testing project is an excellent means of demonstrating practice skills. The considerable improvement in swine production in those areas where testing has been followed for a period of years is proof that the demonstration method is one of the best means of education.

A Supervised Farming Program in Action

ROBERT E. PRICE, Teacher, Graham, Kentucky

IT HAS been said that the supervised farming program is the foundation of vocational agriculture. I would say that supervised farming is vocational agriculture itself, since there is very little learned that is not constantly used. The success of the program is determined, in large measure, by the agriculture teacher himself who must develop his program until he can inspire his pupils to become a living part of the program. This takes time and cannot be accomplished if the teacher moves every year or two. The successful program is a long-time program built up step by step over a period of years until it is no longer an innovation but rather an accepted and necessary part of vocational agriculture.

The Graham Consolidated School District is located in the hilly section of the western Kentucky coal field. When the Department of Vocational Agriculture was established nine years ago, it faced several handicaps. The soil was naturally low in plant nutrients, and continuous cropping had further depleted its fertility. Income from farming was in competition with union labor prices paid by the coal mines. Most of the boys were not "farm minded." There is also a density of population that requires nearly fifty percent of the boys to find employment elsewhere.

From a farm survey and other information at hand, I was convinced that the community was definitely suited to the production of sheep and beef cattle. With this in mind, I have planned a long-time program based largely on these enterprises.

The Division of Vocational Education in the State Department of Education and the Department of Agricultural Education at the University of Kentucky working together assist teachers of agriculture in buying sheep and cattle cooperatively at a great saving. With their help, six boys in this department secured 60 Northwestern breeding ewes five years ago and headed these flocks with purebred Southdown rams.

Establishing Livestock Projects

It soon became evident that if we were to succeed in our livestock program we must materially increase the scope of the activity. I decided to expand the program to carry it over to the young-farmer and adult classes. In this way, I would be reaching not only boys but young men and farmers of all ages. I would not have to reach the parents thru the boys; I could reach them directly. Whenever possible, I am trying to bring about a father-son partnership. This creates a more sympathetic and understanding attitude on the part of the father.

Financing Livestock Projects

Our local banker is eager to work with us in financing our livestock projects. The procedure is this: I get in touch with the men and boys who want to improve their farming conditions and I help them plan a livestock program; then I go to the bank with them to work out their financial arrangements. After this is settled, I order their stock for them. Instruction on the proper care of their stock is provided thru all-day, young-farmer, and adult programs.

Farm Improvement Program

Last year the young-farmer and adult-farmer classes developed the following farm improvement program which we think is aiding greatly in getting our work across. We are revising it for this year.

1. Cover crop on all tilled land
2. Winter pasture for sheep, cattle, swine, and poultry
3. Developing permanent pasture
4. At least one cash crop: strawberries, potatoes, hybrid corn, tobacco, production of farm seed, or tomatoes
5. Production of at least one class of livestock, with proper feeding methods: sheep, beef cattle, dairy cattle, or swine (at least enough of the last two to supply the family)
6. Improvement of real estate
   Paint at least one building
   Provide storage for tools
   Plant trees or shrubs
   Build farm shop
   Develop water supply
   Build agriculture library
   Build storage place for fruit and vegetables
   Plant or develop a 20-35 tree orchard
7. Social adjustment
   Attend church regularly
   Take part in high-school activities
   Join Farm Bureau
   Join Young Farmers Organization
8. War contribution
   Raise more pigs
   Gather all scrap
   Produce more eggs
   Produce more milk
   Repair tools in off season
   Produce more bean seed
   Raise Victory garden

In the past five years we have established two purebred Southdown flocks of sheep and 800 western ewes with farmers and boys. Purebred rams are heading the flocks. We have placed 115 high-quality Hereford breeding heifers and two registered Hereford bulls.

Results

Along with this program we are developing winter pasture to provide a major portion of the feed for the livestock. Last year the men and boys with sheep and beef cattle had over 100 acres of winter pasture and small grain used for pasture.

We secured eight registered Poland China gilts and a registered boar whose sire was reserve world champion. The price of hogs remained so low that these projects were not expanded, and only two of the gilts are now in the district.

Our plan for the future is to have 3,000 or 4,000 head of sheep and 500 head of breeding beef heifers and cows on the farms of the community.

To bring up children in ignorance and then to give them the problems of the Nation to settle ought to be a crime.—Wm. McAndrew

Credit for the Supervised Practiced Program

J. B. McINNIS, Teacher, Lauderdale, Mississippi

ALMOST every student of vocational agriculture comes to the point where he needs some financial assistance if he is to carry on in the most effective way. Credit agencies as a rule are rather hesitant to provide the necessary financing, unless a plan of supervision is satisfactory to the credit agency concerned,

Teachers of vocational agriculture can be of great assistance to the boys and the credit agency concerned by submitting feasible plans for the operation of the program. There are several credit agencies available in almost any community where the needs of the students may be fulfilled provided a satisfactory plan of supervision is given.

The writer has used several sources of credit in carrying out the supervised practice program for all-day boys. The Production Credit Associations will finance groups of vocational agriculture students in any community where adequate supervision is given by the vocational teacher in charge. This organization has forms for supplying all of the necessary information and it is relatively simple to obtain loans thru this channel.

In some areas the Farm Security Administration is providing funds for the all-day supervised practice program. The routine is similar to that required by the Production Credit Association.

Other sources of credit are also available to almost any teacher who is able to convince the prospective creditor that the program is sound.

In six years of such activity I have not yet failed to collect a loan. No trouble has been experienced in collecting loans where the students were impressed with the importance of making a good credit record.

A satisfactory connection with one or more of these agencies will prove very valuable in successfully completing the supervised practice program.

Book Review

How to Speak Effectively, by George Eric Peabody, second edition, pp. 108. Published by John Wiley & Sons, Inc., 1942, price $1.25. In arranging the materials of the text the author treats the subjects of preparation and delivery in the normal order in which the speaker finds it necessary to consider them. Starting with the fact that on a certain date he will be expected to deliver a speech the speaker must go thru certain steps of preparing the speech and then presenting it. The text is elementary in style and should prove useful to persons who wish to know how to prepare and deliver a speech. Part II of the publication is devoted to a brief interpretation of parliamentary practice.—A.P.D.

Agricultural production is the first in order, the strongest in necessity, and the highest in usefulness in this whole system of acquisition. The other branches stand upon it, are sustained by it, and without it could not exist. (Address before the New York Agricultural Society, 1847)—Silas Wright

Farmer Classes

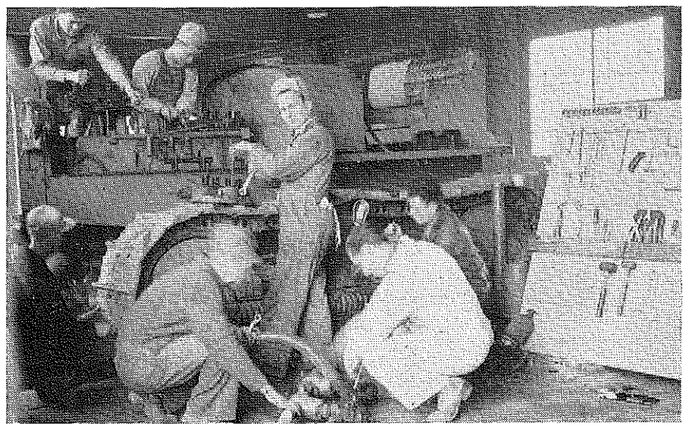
J. B. McCLELLAND W. H. MARTIN

The Out-of-School National Defense Training Program in Kansas

M. R. WILSON, Assistant State Supervisor, National Defense Education, Topeka, Kansas

THE OSY-4 Out-of-School Youth National Defense Training Program has met with marked success in the state of Kansas this year, but it is disappointing that more high-school instructors and especially industrial arts teachers and vocational agriculture teachers did not take a more active part in promoting and supervising these courses.

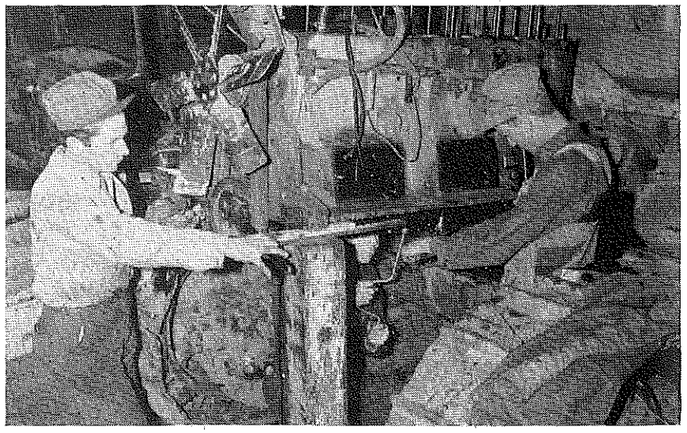
The tradesmen of Kansas, and when I speak of tradesmen I mean automobile mechanics, foremen of garages, owners of garages, general metalworkers, carpenters, electricians, etc., have cooperated in this program and have put forth every effort to give these young men training in those tricks of the trade and skills which have taken the tradesmen many years to master. This is a spirit and attitude for which they should be highly complimented. Some superintendents feel that these mechanics have not had the academic training to carry on this type of instruction. I have found the opposite to be true. It takes as much brain matter to be a first-class automobile mechanic, machinist, or other type of tradesman as it does to be a school teacher. Two of the main qualifications of both a first-class mechanic and an excellent school teacher are patience and perseverance. Any mechanic or teacher who lacks either of these qualities never gets very far along the road to success.



OSY-4 class in tractor, truck and automobile operation, care and repair

This is the second year for the OSY-4 Program in Kansas. Last year we carried on approximately 92 eighteen-week classes in some 40 different communities. The largest number of classes carried on was in the operation, care, and repair of tractors, trucks, and automobiles. The second largest number of classes was in the field of general metalwork which consists of forging, cold metalwork, sheet metalwork, welding—both oxyacetylene and arc—lathe work, soldering, etc. This course also consists of a large amount of farm machinery repair.

The next class in point of numbers was in carpentry. One class in the state finished up its program last year by building a large barn. Two other classes in the eastern part of the state finished up their program by building a six-room house. The smallest number of classes offered in any of the types of training was in general electricity, altho some of the trainees from the course in general electricity received the highest paying jobs.



Wellington, Kansas, boys repair a tractor

Courses Meet Varied Needs

Last year a large number of the trainees wished to get jobs in industry after obtaining the OSY-4 training certificate; large numbers of them did, but this year industry does not want young men of this age group who carry an A-1 draft rating, or who are liable to be reclassified soon with an A-1 classification. Therefore, most of the young men this year are taking the training for one of three reasons:

First, this training will be of material benefit to those who are allowed to stay on the farm or who will return to the farm after the war is over, in that they may take better care of their farm machinery, tractors, trucks, automobiles, etc.

Second, this training is an asset to those young men who have been drafted or are expecting to be drafted into the armed forces. We have been receiving some very fine reports from those young men who were trained last year and have been inducted into the armed forces. It enables them to be chosen for some of the better jobs in the Army such as repair and maintenance men and also as drivers of automobiles, jeeps, trucks, armored cars, tanks, etc.

Third, there is a small group of young men this year who thru physical disability do not wish to make use of this training on the farm, or having dependents, will not need to use it in the Army. These men can make excellent use of the training in industry.

Up to the present time, 170 nine-weeks courses have either been completed or are still in operation in this state. These are being conducted in 60 different towns in the state and approximately 3,000 trainees have received some of the training in one of the four above-mentioned courses. We have students traveling as much as 40 miles per day to receive this training. We have one student who is even hitch-hiking 14 miles per day in order to attend classes.

A large percent of the classes organized in Kansas have been conducted for at least one additional nine-weeks period, and in some centers they are being carried on for the fourth nine-weeks period. Some of the original students are still taking advanced training in the fourth period. We encourage this, as any mechanic will tell you that not a great deal of proficiency is acquired by any trainee in the limited time of nine weeks, even tho he takes the training four hours per day, five days per week. Some classes are being conducted on a six-hour-per-day basis, and two classes are being conducted on an eight-hour-per-day basis.

Many Youth Available

Some superintendents, industrial arts instructors, and vocational agriculture instructors have been greatly surprised at the large number of boys between the ages of 17 and 25 they can find to take this work whenever a good promotion campaign is conducted in the community and surrounding trade territory. One superintendent of schools made the remark one day, "This OSY-4 Training Program is an answer to the prayers I have been offering for the last ten years for some type of vocational training I could put into my school system and give to those young men who have been able to get only academic training previously in this community."

Other superintendents see that thru the OSY-4 Program they are able to prove to the "powers-that-be" that all training of this kind can be carried on much more efficiently in the local school center than by other agencies.

Skilled Workers Needed

The nation is in urgent need of more trained men who can do things with their hands. There was never a time in the history of the world when craftsmen of all kinds were in such great demand. The welfare of the nation depends upon getting large numbers of men trained in mechanical work in the shortest space of time, and the OSY-4 Program has more than proved its worth, not only to those large numbers of young men who have been trained for agriculture machinery maintenance, to those who have found jobs in industry thru this training, but also to those large numbers from rural areas who have proved their worth in the field of mechanics in the armed forces after being inducted into the Army.

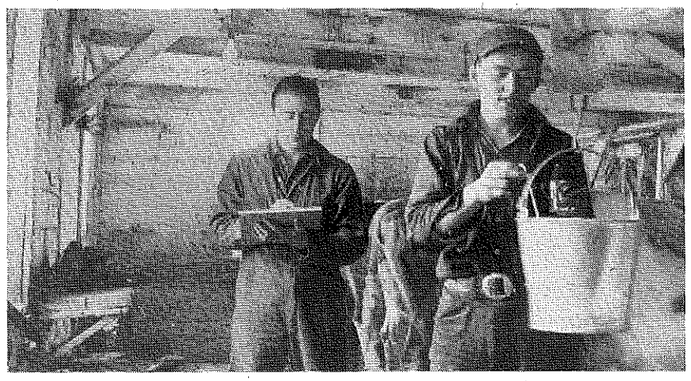
Nearly every superintendent who had one of these programs last year in his school system or who has conducted one for any length of time this year is able to tell of specific cases where the trainees in the OSY-4 National Defense Training Classes under his supervision have obtained excellent jobs in industry or have been picked out in many instances for additional training in the Army in some of the specialized schools maintained by the armed forces.

It is not education of children that can save the world from destruction; it is the education of adults.—H. G. Wells

Co-ordinating Evening Schools and All-day Classes in a Dairy Section

HAROLD R. CUSHMAN, Teacher, Peacham, Vermont

A JUNIOR Dairy Herd Improvement Association, brought about thru cooperation between the all-day classes, one or more evening schools, the State Extension Dairyman, the State Supervisor of Agricultural Education, and the local vocational agriculture instructor, can lend much vitality to the program of agricultural education in a dairy section. The Junior Dairy Herd Improvement Association can become a functional part of the program, a nucleus around which the all-day classes and evening school can be co-ordinated, and thru which the respective members of each can co-operate effectively toward bringing about better agricultural conditions in the community.



High-school boys supervising Jr. Dairy Herd Improvement Association testing

Dairy Community

The department at Peacham is located in an intensive dairy section. Seventy-five percent of the farm income is derived from dairy cattle and their products. In such a community the problems of dairying become the urgent ones confronting the average farmer, and the Dairy Herd Improvement Associations come into their own. However, in the past, dairy farmers of the area have been slow to grasp the significance of the Dairy Herd Improvement Association. Only the more progressive farmers exposed their herds to the benefits, but those who did came away walking, talking advertisements. The local tester now has his schedule crowded to the utmost and some farmers have difficulty in finding the service available. The Selective Service Act has brought about a sharp decline in the number of men available to do the testing work.

These, in brief, were the conditions in the summer of 1941 as I talked with the prospective evening-school members and started to develop an evening-school program in dairy herd management. Two evening-school groups were organized, one in Peacham and the other in the near-by town of Barnet, each with "Dairy Herd Management" as a central theme. Approximately 40 men participated in the weekly meetings. Below is the course outline for the Peacham community:

September	3	Organization of Meeting
September	10	Keeping Breeding Records
September	17	Dairy Herd Improvement
September	24	Dairy Herd Improvement
October	1	Forming a Junior Dairy Herd Improvement Association
October	8	Taking Part in the Bangs-Disease Control Program
October	15	Feeding the Dairy Herd
October	22	Feeding the Dairy Herd
October	29	Care of Cow at Time of Parturition
November	5	Care of Cow at Time of Parturition
November	12	Care and Management
November	19	Care and Management of Herd Sire
December	3	Exchange Night With Danville Evening School
December	10	F.F.A. Banquet and Presentation of Certificates to Evening-school Members Who Attended at Least Seven Meetings

At the close of the second meeting on dairy herd improvement, it was apparent that a real demand existed for that type of service in the community—a demand, which for reasons enumerated above, the local Dairy Herd Improvement Association could not fulfill.

All-day Boys Help With Program

Meanwhile in the junior-senior division of my all-day classes I had, with the help of Mr. Ralph Evans, Assistant State Extension Dairyman, trained several boys to keep dairy herd improvement records and had selected those of the class who possessed both interest and ability to do junior testing work.

Following the evening-school meetings on Dairy Herd Improvement, an organization meeting was held and the Peacham Junior Dairy Herd Improvement Association was organized, with 10 evening-school members and three student testers. The association is recognized by the Vermont Dairy Herd Improvement Association as an official association and

(Continued on page 35)

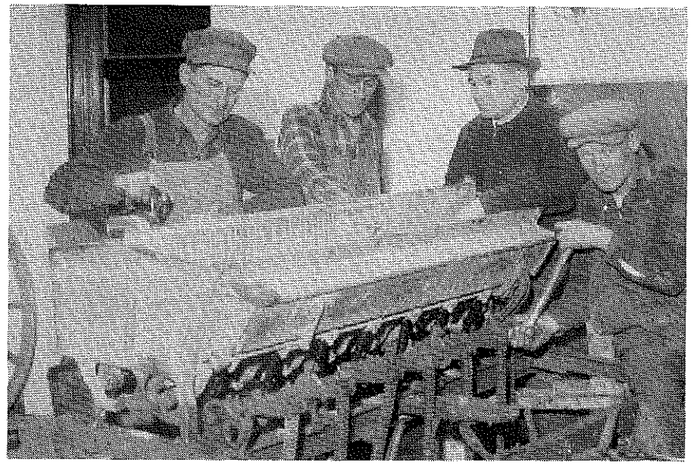
Farm Mechanics

L. B. POLLOM

Farm-Machinery Repair Program for Evening Schools

D. P. BROWN, Instructor, Ripley, West Virginia

FARM-machinery repair: what a challenge to the vocational agriculture teachers of the second World War period! Now as never before there is a need to encourage the repairing and rebuilding of farm implements that have been discarded or are out of adjustment. One of the most effective ways of accomplishing that purpose, and reaching the largest number of individuals possible, is thru our evening schools in machinery repair. There appeared on the cover of the January issue of the *Agricultural Education Magazine:* "Today there is not a single job on a farm concerned with the actual production of farm products which pays a farmer or a member of his family as much per hour as they can earn doing their own carpentry, painting, paper hanging, and even the repairing and rebuilding of their tractors." The writer could just as well have added mowing machines, grain drills, and cultivators, because every farmer could make good wages repairing them during the slack season.



Farmers in evening school reassembling a grain drill

Survey Helpful

If the time permits, a machinery repair survey of some kind is helpful in the organization of the instructional program. If the survey is conducted, it should be done as quickly as possible and without too much attention being given to small details; in other words, the form should be simple enough that the farmer can fill it out in a few minutes without any help.

One of the easiest ways to get the class started is to get a group of farmers in the shop and let them start to work. This, of course, means that adequate shop facilities are necessary. Such items as a forge, vises, hoists, double doors, and grinders are necessary and these are already available in most of the agricultural shops. Nothing will stimulate interest more than for the men who are in the class to see a piece of machinery being torn down, reassembled, and adjusted to proper working conditions.

A few influential farmers in the various communities can do more toward getting an evening school under way in proper order than any other one thing. One of the first men whom I contacted was a man who is the father of our F.F.A. President, and a rural mail carrier, as well as a farmer. This man is an influential person in his community and has done much toward getting the class under way. He has a pickup truck and brings his neighbors along with their machinery to the shop.

Articles in the local newspaper will help considerably in getting the class started. Our local papers are always interested in what the agricultural department is doing and will publish news articles any time we desire them.

Conducting Class

Evening schools in farm-machinery repair are a never-ending source of interest and pleasure for the instructors. What could be more encouraging than to have the school patrons bring in their broken-down machines to repair and paint? Here is one place in the teaching that accomplishments can actually be seen and evaluated by the layman.

A few well-planned demonstrations at the beginning of the class will prove to be a saving of time. Demonstrations on mowers such as checking lead and register are very appropriate. The calibration of a grain drill is an interesting task for the fellows to learn to do. Along with these demonstrations a few helpful suggestions as the work progresses will usually keep things moving along smoothly.

Providing Parts

Most farmers live quite a distance from town and consequently are not in town very often. It is a great help to them if the instructors will get the needed parts from the hardware store for them and bring to the shop. Arrangements can usually be made with the local dealers to carry the accounts until the machines are completely repaired. This requires some time on the part of the instructor, but if some sort of a check sheet is used for broken or worn parts when the machines are torn down it will greatly simplify the task of securing the new parts. The numbers from the old parts should be secured if at all possible in order to facilitate selection at the store.

These check lists also make it easy to figure how much each owner owes for the repairs on his machine.

Result of Class

When the first mowing machine came into the shop this winter for repair, the owner was asked how much he thought it was worth. He said, "Well, I don't imagine I could get over $25 for it." But after it was repaired and painted it was not for sale at $75. This was $50 more than he had valued it just a few days before. He had spent for repair and paint a total of $11.89, leaving a difference of approximately $38 as an increase in value over and above the cost of his repair parts. Another farmer spent approximately $15 on a grain drill and valued it at around $90 more than he did before he repaired it.

Book Review

Farm Management & Marketing, by V. B. Hart, M. C. Bond, & L. C. Cunningham, pp. 647, illustrated. Published by John Wiley & Sons, Inc., price $2.75. The business problems of the farmer are treated on the scholastic level of high-school seniors and college students. Extensive use of farm management surveys was made in selecting factual data for the text. In the organization of the text emphasis has been placed on making the chapters complete units within themselves in order to facilitate the adjustment of teaching schedules to varied regional and local conditions. The northeastern point of view prevails thruout the text. While the marketing section is general, the major emphasis is placed on dairying.—A.P.D.

Repairing Farm Machinery

D. N. BOTTOMS, Teacher Education, Auburn, Alabama

THE farm shop program in Alabama has been reorganized to meet the needs of the war effort. Altho it was not necessary to make any radical changes, more emphasis was placed on certain phases of the program and minor adjustments were made in procedures.

D. N. Bottoms

In the courses more emphasis is placed on the repairing of farm machinery, which emphasis is serving a threefold purpose, namely: (1) repairing machinery for farmers; (2) relieving the strain on industry which needs to produce war material; and (3) providing an opportunity for students to receive the necessary training for carrying on this work as farmers.

Before any repair work is done it is necessary to do a certain amount of teaching. Lessons are taught in repairing; removing rust, dirt, and grease; assembling and painting.

There has been no problem of getting good farm-machinery repair jobs off the farms in that the farmers of the communities bring their machinery to the shop and come for it when it is repaired. Interest in this work is growing each year, as farmers recognize the saving, service, and training rendered in this type of shop work. Many farmers would gladly have all farm equipment reworked if the boys in the courses had time in which to complete all jobs.

Procedure in Repairing Machinery

The general procedure followed in repairing farm machinery is to attach a tag to all machinery upon arrival. This tag contains the owner's name, owner's address, type of machinery, and plans worked out for repairing. The student doing the repair always writes his name on the tag. The next check is to observe the condition of the machinery, type of machinery, and to determine whether parts are to be bought or made. Each piece of machinery is checked as to the way it is assembled before it is taken apart. This prevents the students from running into trouble in assembling and replacing parts.

It is the policy of the department for the students to determine whether machinery can be repaired economically or not. This is checked by the teacher. A list is made of the needed parts and turned over to the farmer or to a dealer if he prefers, since all new parts are furnished by the owner of the machinery. The next steps are removing broken or worn parts; removing rust, dirt, grease, and other caked materials; assembling and painting. Each machine is tested to be sure that it operates efficiently before leaving the department.

Types of Machinery Repaired

The types of machinery repaired so far this year are: mowers, rakes, Joe and section harrows, gee whiz, Georgia stock, cotton and corn planters, wagon and wagon-harnesses, distributors, hoes, shovels, wheelbarrows, wagon bodies, double foot. Each boy has an opportunity to condition the common tools found on the farm such as: scooters, sweeps, scrapes, cross-cut, hand, timber, circle, and rip saws; chisels, planes, auger bits, etc.

This type of work is being carried on in all high-school vocational agriculture departments in Alabama with all-day boys, evening-school members, OSY classes, and other groups. Many shops have been set up in communities where farmers come and do their own work. Several of the departments have set aside certain days for the farmers to bring their repair work to the department for repair under the supervision of the agriculture teacher.

Outline I. Suggested plan and information for teaching and repairing farm machinery

Farm Implements	Item to Be Checked for Repair	Procedure to Use in Repairs
Turning Plow	1. Handles	1. Tighten handles 2. Recondition usable handles 3. Replace worn-out handles
	2. Frog, Wing, Slide, Snare	1. Replace worn-out parts 2. Tighten old bolts or replace with new
	3. Braces	1. Straighten and adjust braces a. Between slide and wing b. Between handles c. Between handles and beam
	4. Beam a. See if beam is bent or sprung	1. Straighten to its original shape
	5. Rusted parts and decayed surface wood	1. Scrape off all accumulation of dirt and grease 2. Rub rusted parts with steel brush and sandpaper 3. Remove loose rust with gasoline (gasoline is *highly explosive* and should be used outdoors or in a well-ventilated room where there is no open flame or fire) 4. Remove caked rust or old paint with blow torch 5. Oil or grease bright wearing parts 6. Remove decayed surface wood with scrape wood rasp, or coarse sandpaper
	6. Paint	1. Use good farm implement paint 2. Metal paint 3. Wood paint
Distributor	1. Broken and worn-out parts	1. List broken parts 2. List worn-out parts 3. Replace parts where needed
	2. Handles	1. Tighten handles 2. Recondition usable handles 3. Replace worn-out parts
	3. Box (if new one is to be made)	1. Remove old box a. Mark or check all iron parts to be assembled on new 2. Make new box, using old one as pattern
	4. Wheel (if new one is to be made)	1. Remove wheel a. Mark or check all iron parts to be assembled on new 2. Make new wheel using old as pattern
	5. Beam	1. Replace with new if needed
	6. Metal chute	1. Replace with new if needed (using old as pattern)
	7. Rusted parts and decayed surface wood	1. 1, 2, 3, & 4, same as under Turning Plows
	8. Paint	1. Paint all parts before assembled (see suggestions under Turning Plow)

Studies and Investigations

C. S. ANDERSON

Problem-Solving by Two Methods: the Philosophic and the Scientific

GILBERT L. BETTS

Supervisor of Graduate Research in Education, Colorado State College of Agriculture and Mechanic Arts

Part II

THE PSYCHOLOGY OF PROBLEM-SOLVING

Gilbert L. Betts

PSYCHOLOGICALLY the goals of learning may be given as belief, meaning, and action. As shown in the accompanying diagram, they may be considered to lie cupped around a three-sided figure. Surrounding these goals are procedures for attaining them. These procedures may be considered to lie along the sides of a triangle, each side of which may be regarded as a continuum with contrasting procedures at each end and combinations or variations of them scattered between, along the continuum.

Belief

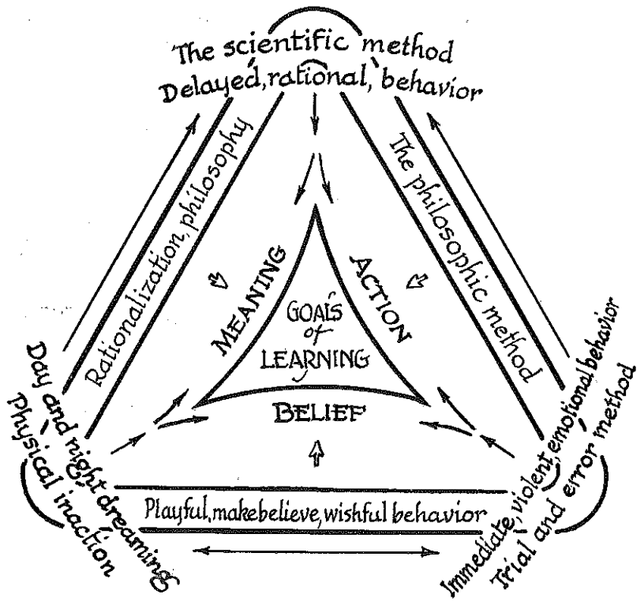
The basest and most primitive of the goals of learning is belief. It, therefore, is the base of this three-sided figure, above which arise superior goals. As an emotionally toned idea, a belief arises from activities that vary from day and night dreaming (with physical inaction) at one end of the scale, to violent, emotional, unthinking physical activity at the other end. Dreaming (day or night) is symbolic wish-fulfillment; the wish is father to the thought; and thus the belief arises. Many beliefs of primitive people arise from day and night dreams—"the happy hunting grounds" of the American Indian, for example.

At the other extreme of this continuum lies violent, emotional, unthinking behavior. This also is a source from which beliefs arise. Such behavior leads eventually to a satisfying course of action. Ideas that arise in connection with this feeling of satisfaction are emotionally toned ideas; consequently they may be designated as beliefs. Between these two extreme kinds of behavior, dreaming and inaction on the one hand and unthinking, emotional behavior on the other, lie all their combinations and variations, including playful, make-believe, and wishful behavior. Primitive incantations, rituals, and ceremonies may arise from this area.

But belief as a consequence of dreaming or of emotional behavior need receive no further consideration here; it is described merely to gain a clearer perspective of the other two goals of learning (meaning and action) and of the procedures for attaining them.

Meaning

Dreaming, as it merges into reveries and reflection, culminates in meaning. This, therefore, becomes one end of another continuum along which certain learning activities may be placed. Reflection merges into philosophy, and this in turn merges into the scientific method of arriving at new truth or meaning. This last method becomes the upper end of the



A frame of reference for the goals of learning

continuum comprising the left side of the triangle. Physical activity varies from the complete physical inaction of dreaming or reverie to the prowling, investigative activities of the scientific method. Procedures along this continuum satisfy curiosity, the desire for meaning. Closely allied to philosophy (which lies somwhere between dreaming and the scientific method) and at times undistinguishable from philosophy, is rationalization. This is a procedure commonly used to justify or assign meaning to some comforting belief on the one hand or to some satisfying form of behavior on the other. It sometimes overflows into and prostitutes the scientific method.

The third goal of learning and the procedures for attaining it may now be considered.

Action

Most activities of adult life consist in smooth, automatic responses to recurring stimulus situations. A stimulus situation is one that induces an urge to act. Some situations have greater stimulating qualities than others, and some responses are more automatic than others. Automatic responses are either reflexes or habits. In either case no further learning is required. However, when a new stimulus situation is encountered (neglecting reflexes), no response is ready and one must be learned. The response that is made will depend upon the strength of the stimulus. In an emergency the call to immediate action is imperative, and if no response is ready, violent, random, emotional behavior will result. This is the trial and error method of overcoming the difficulty or solving the problem. This also is the other end of the continuum along which lie the procedures culminating in belief. From this point rises the right side of the triangle, along which may be ranged the various ways of meeting new or problem situations. If the stimulus is mild in strength and the call to immediate action is not imperative, the response may be deliberate or even delayed indefinitely. In the interim implicit or imaginary trial and error behavior is substituted for overt trial and error. Mental activity is substituted for physical activity. Questions are asked and answers are sought. The questions are of such nature that their answers lead toward an appropriate reaction to the stimulus situation. In seeking the answers to these questions, prowling or investigative activities are carried on. But this is the point that terminates the upper end of the left side of the triangle, the side representing procedures that culminate in meaning. At this point lies the scientific method, the supreme procedure not only for the attainment of meaning but as direct preparation for action.

Having constructed this picture, part by part, it may now be well to indicate some further interrelationships.

Interrelationships

At the three points of the triangle lie day dreaming and physical inaction on the left, emotional activity on the right, and the delayed, rational behavior called the scientific method at the top. Day dreaming leads to belief and meaning; emotion leads to belief and action; but the scientific method leads to meaning and action. That is, altho it stands atop the triangle, the scientific method may be viewed from two angles, either as a procedure for developing meaning or as direct preparation for action. On the left side of the triangle, below the scientific method, lies the philosophic method as a way of solving a problem in preparation for action. This illustrates what was said earlier—that there are two points of reference from which to consider both the philosophic method and the scientific method: one as they lead to meaning, the other as they lead to action.

Two Problem-Solving Methods

From the practitioner's point of view problem-solving is a certain kind of behavior, a way out of a practical difficulty. A difficulty, in turn, is a blocked or interrupted course of action where the urge to act remains. Rational problem-solving, as distinguished from the irrational, trial-and-error method, may be designated as problem-solving by the philosophic method or by the scientific method.

The scientific method, when functionally and psychologically considered, is a formalized problem-solving procedure closely paralleling the steps involved in reflective thinking. It consists in the following steps:

1. A description of an on-going course of action in which the researcher is actively concerned and of the circumstances attending its interruption. This constitutes a description of a difficulty.
2. The formulation of a question knowing the answer to which will enable the interrupted course of action, or a substitute for it, to be resumed. Almost invariably, also, a series of subordinate questions pertaining to separate aspects of the main question will need to be formulated so that answering them will lead step by step to the answer to the main question. All this constitutes a statement of the problem and its analysis.
3. A thoro and critical search thru available sources to find existing answers or partial answers to each of the subordinate questions. This is usually done thru a review of the literature, altho in law and in some other cases testimony is sometimes secured.
4. The formulation and execution of a plan for collecting and using additional (new) information to answer one by one the questions set out to be answered.
5. An evaluation or verification of the answers secured.
6. The description of a recommended course of action that can be followed safely, judged by the results of the study.

Comparing the Two Methods

These six steps comprise the scientific method. The formal steps in the philosophic method of solving a problem are the same as these with two exceptions: new data are not collected, and the answer to the problem question is not verified. The scientific method involves research and evaluation; the philosophic method does not.

Merits of Each Method

Each method has its own peculiar merit. The philosophic method is less exact but more practical than the expensive, laborious, time-consuming scientific method. It, therefore, is better adapted to the use of busy, non-research practitioners than is the scientific method, for professional injury suffered thru mistakes in practice is less than the injury suffered thru a do-nothing policy pending scientific study. On the other hand, the more exact, scientific method is adapted to the needs of the professional research worker who is employed to solve problems.

Graduate Work

Thus it is that some higher institutions for the preparation of practitioners have two plans for graduate work. For the preparation and improvement of the non-research practitioner they have a curriculum culminating in supervised practice in solving the problems he meets on the job by the *philosophic method*, a method not requiring the collection of new data or a verification of the solution. For the professional research worker, on the other hand, training and supervised practice in the use of the *scientific method* are provided. This method requires the collection of new data and the verification or evaluation of the solution. In both plans, however, problem-solving begins with a blocked or interrupted course of action on the part of the practitioner and ends with a recommended course of action.

F.F.A. Chapter Raises Money

R. LANO BARRON, Assistant Supervisor, Austin, Texas

THE Corsicana, Texas, Chapter has received more than $600 from co-operative activities this year.

Educational booths shown at Corsicana, Marshall, and Dallas earned $172.50, while the sale of advertisements for football programs accounted for $215 additional revenue for the chapter. Railroad tickets were awarded the Corsicana Chapter for the State Champion Poultry Judging Team and their adviser, Quinten S. Mathews, to attend the National F.F.A. Convention and Poultry Judging Contest. The Corsicana Chamber of Commerce contributed an additional $150. Later in the year a co-operative broiler project supported the Father and Son Banquet at a saving of $34.

On the expense side of the ledger the Corsicana boys have supported the purchase of a registered Hereford heifer for Charles Henry Harrison in appreciation for his management of the football program and advertisements; have secured three registered gilts for the continuation of an F.F.A. Swine Improvement Program already in progress; are furnishing improved seed to 14 Future Farmers and their dads for a Corn Improvement Program now in progress; supported the co-operative growing of 2,500 plants for Victory gardens of the members; and financed the purchase of a $25 War Bond.

The Corsicana Chapter owns its own bus for making field trips and for other travel in the community.

Co-ordinating Classes

(Continued from page 31)

its records receive the same treatment and publicity accorded all other official associations. Monthly records are kept on approximately 150 dairy cows.

A definite service is being performed for these evening-school members; the student testers are gaining priceless experience; and, in addition, a common understanding is being built up between farmer and all-day student.

If I were to "prune" my program in any way, the Junior Dairy Herd Improvement Association and the evening school would be the last features to go. To enumerate a few items in justification for such a sweeping remark, I offer the following advantages of the program as it has operated:

1. The program afforded farmers a valuable service at low cost
2. All-day students gained new insight and interest in the problem of dairy production
3. Excellent motivation for evening-school and all-day instruction resulted from the activities
4. Several students qualified for positions as testers in regular associations which had lost many testers in recent months
5. Valuable teaching materials and the ready acceptance of improved practices were especially valuable outcomes
6. The vocational agriculture program has gained a fine reputation with the farmers of the community

Future Farmers of America

A. W. TENNEY

Wartime Goals in Livestock Production for Future Farmers

J. I. THOMPSON, State Bureau of Agricultural Education, California

FIRST, let's interpret this subject—"Wartime Goals." We may assume that in normal years all of us have goals that we hope to reach or almost reach, and that those goals indicate efficiency in most of the factors comprising the total. The question naturally arises—should *wartime goals* be different than peacetime goals?

Changing Goals

Surely, most goals are not stationary. Even in normal times, some need to be raised, some new ones added, more emphasis placed on some this year than last, and less on others that have lost their importance. As an example of this latter condition, there were in California a few years ago many communities where pork production was important but where the adults had never been convinced of the importance of feeding a high-animal-protein supplement to growing pigs. It was necessary, in many Future Farmer Chapters, to set as a goal the use in every pig project of sufficient meat scrap or fish meal or milk to properly balance the ration. The results, on a dollar and cents basis, were so outstanding that in many areas this goal is no longer necessary.

War Goals

What is the picture that we are facing? First, we are in a war, a World War. For a number of years one of our chief agricultural problems has been surpluses: too much wheat, corn, cotton, tobacco, pork. Most of that has changed. Except for wheat and some types of cotton we need more of everything, at least essential things; and with labor shortages appearing on many farms and ranches, the job of producing *more* is a formidable one. There is some question whether *more* milk, flax, soybeans, will be enough.

Here comes the first shift in emphasis for farmers and Future Farmers. When there was enough or too much, we said over and over again, "Produce the amount that you can most efficiently." It now seems absolutely necessary to reverse this—produce *all that you can* and put efficiency in second place. Some people will not agree with that statement, but if this war lasts several years, that is what must happen whether we like it or not.

There needs to be some revising of some of the livestock goals that we have been using, but more particularly an increased emphasis on some, "de-emphasis" on others. For example, we have found a lot of stimulation in fairs and shows; some 60 have been held annually in this state and the premiums have been very liberal. Most of that is out for the duration in California. Few, if any, fairs will be held here, fewer in other states. Even if fairs were held as usual, I would still say show one steer where you formerly showed a carload and market the others when they will kill best.

Therefore, one new goal or terminal point must be stated very definitely and often—do not feed a market pig, lamb, steer (except the few that may be shown) a single day after its most desirable market condition has been reached. This should not be interpreted to mean that you must not get any more lard on a market hog than you did two years ago, but it does mean that when a market pig has reached the point where more weight or more lard does not make him more suitable for the market than he was before, he should be sold.

Sheep

Since sheep and beef production need not be stepped up very greatly, few new goals seem necessary, but one condition is important. Shear lambs or yearlings long enough before marketing so that pelts will carry at least one-fourth inch and not over one inch of wool. These pelts, all of them, are needed for jackets for aviators.

After that, for sheep, the goals that seem to need most emphasis now are:

1. Emphasize sheep projects only in suitable regions
2. Use the breed best adapted to conditions
3. Determine the type of production for which the location and the Future Farmer are best adapted
   a. Feed market lambs—or
   b. Produce milk fat market lambs (grade ewes, purebred mutton sires) —or
   c. Produce rams for range use, or ewes for range replacement
   d. Where conditions, location, and available capital warrant it, develop an occasional purebred breeder after graduation
4. Secure 100 percent to 125 percent lamb crop
5. If market lambs, they should weigh 75 pounds at 90 days
6. 90 percent of lambs to grade choice
7. Increase your state average wool production 10 percent
8. Loss of lambs, birth to market, under 20 percent
9. Loss of breeding ewes under 20 percent
10. Not over 2 percent dry ewes

If the above are equalled or exceeded, the production is reasonably certain to be more efficient than the average of most regions.

The principal requirement in beef is for greater slaughter. That means that you should put on all of the weight that you can, efficiently, in conformity with the market demands.

Hogs

Pork is one of the essentials that must be increased by at least 14 percent. Some very definite goals need to be emphasized and re-emphasized.

1. Instead of the regular statement, "Produce somewhat less than your quarters and time indicate," it must now read "Produce to the limit of your quarters and get in all the time you possibly can, even if you neglect some recreational activities."
2. Produce one pound gain on all market pigs—from weaning to market weight—on four pounds of feed or less (1939 California Future Farmer average, 4.06 lbs.)
3. Market hogs to average 200 pounds when 180 days or less of age
4. Raise seven or more pigs per litter to weaning age
5. Average loss of pigs farrowed, less than 15 percent
6. Average weight of pigs at farrowing, two and one-half pounds or over
7. Have pasture lot (preferably alfalfa or clover) at least 50 feet by 200 feet for each sow. Better yet, have one acre of alfalfa or clover for each two sows and their litters
8. Weigh litter at 56 days (from mature sows, eight pigs to weigh at least 320 pounds—add 25 pounds for each pig over eight.)

One or more related projects—alfalfa, barley, corn, dairy—are just as important as ever; perhaps more so, for instead of shipping feed by rail or truck, convert it into meat where it is produced. This not only means more economical production, it's now much more important to save space badly needed to haul war supplies and equipment.

It takes two freight cars to haul the grain or feed that is eaten by one carload of hogs.

Some of the above-stated goals may be unimportant in some states, some may be too high or too low for others. Since production is being stepped up considerably, diseases are liable to be more prevalent than normal. Prices are relatively good to high. Since there is one disease costly to hog producers, cholera, that can be almost completely controlled by vaccination, we do not hesitate to say very definitely that for the duration all hogs should be vaccinated. Pigs should be treated just before or just after weaning.

Keep everything clean. Sanitation is a big factor in helping to prevent diseases and various ailments. Make the greatest possible use of home-grown feeds, especially pasture. The posters say "Keep Them Flying." Our job is to "Keep Them Growing."

Agriculture is the nursing mother of the arts. For, where it succeeds prosperously, there the arts thrive; but where the earth necessarily lies uncultivated, there the other arts are extinct.—Xenophon

Future Farmers Honored at Florida State Fair

J. F. WILLIAMS, Jr., State Supervisor, Tallahassee, Florida

FUTURE Farmers were highly honored at the Florida State Fair which was held at Tampa. Saturday was named Future Farmer Day in honor of the thousands of farm boys who belong to this great organization.

J. F. Williams

Future Farmers did their part in helping to make the day a success. More than 3,500 members representing 125 local chapters were present for the gala occasion. The boys, wearing F.F.A. caps, arrived early and stayed late. While there they participated in many worth-while activities which had been planned for them. A team from each chapter competed in judging beef and dairy cattle. A team from each chapter in north Florida judged exhibits of hays, grains, and meats while teams from south Florida were judging exhibits of fruits and vegetables.

F.F.A. Parade

Ten thousand people arose in tribute to these farm boys when they paraded in front of the grandstand as a part of the afternoon program. The F.F.A. boys were greeted by officials of the Fair Association, by Dr. Colin English, State Superintendent of Public Instruction, and by Honorable Nathan Mayo, State Commissioner of Agriculture. Mr. Mayo presented a check for $100 to Joe Pelot, of the Ocala Chapter, winner in the Sea Island Cotton Production Contest.

Exhibits

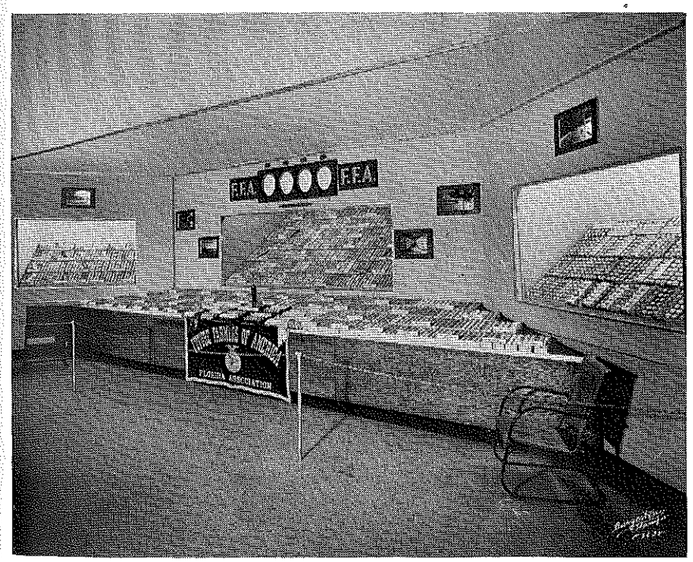
Future Farmers were well represented in other phases of the fair. More than 400 dozen eggs were on exhibition in the Future Farmer Egg Exhibit. The Florida Association also sponsored a 60-foot educational exhibit. The theme of this exhibit was "Future Farmers Do Their Part in National Defense." Six appropriate activities were presented in the exhibit. These were as follows: repairing farm machinery, producing food for freedom, participating in civilian defense activities, buying defense bonds, promoting defense training classes, conserving food and feed.

In addition to illustrating the above activities an automatic slide projector with 72 hand-colored glass slides was used to show other F.F.A. activities.

Prizes

The Florida State Fair Association and the State Department of Agriculture gave to Future Farmers a total of $1,450 in awards and prizes.

Future Farmer Day has been observed at the State Fair for several years and has now become one of the outstanding days of the fair. It has proved worth while for the Fair Association, interesting to the spectators, and one of the finest publicity mediums available to Future Farmers of the Florida Association.



Future Farmer egg exhibit at the Florida State Fair

Education has become the chief passion of the American people.

F.F.A. Chapter Solves a Part-Time Farming Problem

R. M. KIRKBRIDE, Adviser, Suffield, Ohio

THE Vocational Agriculture Department at Suffield is located in the heart of the most highly industrialized section of Ohio. Therefore, we have a high percentage of part-time farmers. These men spend from six to eight hours a day in the rubber shops in Akron and the rest of the time on their farms. They realize that to live on a farm with their families is desirable.

Small Farms

A vocational agriculture department in such a community has its problems. Approximately 50 percent of the all-day boys are from these part-time farms. After our department had been organized for four years we realized something must be done to help the boys on these small farms in carrying out a supervised practice program. These farms range in size from one acre to 50 acres. Here was the problem we faced. The boys and parents were very much interested in agriculture, but the farms were small and there was very little, if any, equipment with which the boys could carry on a farming program.

F.F.A. Boys Buy Equipment

In the spring of 1939 the F.F.A. had a special meeting and voted to buy a tractor and plow for the boys to use. We bought a new Model B. Allis Chalmers tractor. The shop boys built a spike-tooth harrow, and in the farm machinery course the boys rebuilt an old disk we bought. We had some $200 in the F.F.A. treasury and the rest of the money was borrowed. The tractor paid for itself the first two years. The F.F.A. hired a boy for one year to drive it. It is operated at cost for all F.F.A. members. This has worked out very successfully in helping the boys have better projects because they could get their work done when and how they wanted it done, and it has reduced the cost.

Other Services

We have also extended our service to the community in helping farmers and plowing gardens. Our work has so grown that we employ a boy full time.

Last fall we traded in the old tractor and bought a new one. The F.F.A. now owns a new 1941 Allis Chalmers tractor, plow, harrow, disk, cultivator, and trailer. We also own a 1939 one and one-half ton Chevrolet truck and grain binder. In the near future we hope to purchase a combine.

Investment

The amount of money we have invested in this equipment is approximately $1,650. We have loaned $300 to the boys and have cash on hand amounting to $365. This makes us a capital of $2,315.

By doing these things we feel that we have increased the interest of the boys in their work, helped in actual business, and developed a live chapter of the Future Farmers of America.

Teaching Soil Conservation

M. J. LANGFITT, Teacher, Shenandoah, Iowa

IN SOUTHWEST Iowa approximately 80 percent of the soil is subject to erosion. This does not necessarily mean that erosion has become one of our most serious problems, but it does mean that practices must be followed which will save our soil and prevent the serious losses which result from erosion thru neglect.

With this background in mind the six vocational agriculture instructors representing five vocational agriculture departments in these two southwest Iowa counties met with Mr. T. J. Powell, District Conservationist, in the Shenandoah Vocational Agriculture Department to formulate our plans.

Demonstrations

A series of demonstrations was mapped out for each Vocational Agriculture Department using soil conservation specialists to assist the boys in the proper procedure. Our main objective in the whole plan was to train the boys adequately for contouring their own and neighboring farms.

In the Shenandoah area the territory to be covered was quartered, using highways as the dividing lines. This being done we proceeded to locate our demonstration farms. The farm in each case was chosen as nearly as possible at a central location and was selected because it represented a typical situation. The boys living in each area attended only the demonstration in their area; thus the groups averaged approximately 15 boys for each demonstration.

This type of demonstration helped the boy in doing the job and also created an interest in better erosion control practices. At the end of a half day the boys had learned as much as is necessary for laying out their own contour lines, and at the same time had built up a degree of self-confidence in their own ability to decide where to start the first line, where to leave grass buffer strips, and where to locate the grassed waterways.

Contouring Home Farms

In following up these demonstrations, the boys have gone ahead and contoured their own farms and have promoted increased interest in the entire community in contouring for corn. We in southwest Iowa are sold on this method of erosion control.

Yields are increased where corn is planted on the contour. This is brought about by increased saving of moisture and less washing (which has been known to nearly wipe out cornfields not planted on the contour). In southwest Iowa moisture is a vital factor and nearly 100 percent of our corn is listed rather than checked. Listing in itself saves much moisture but listing on the contour saves nearly all of the moisture from rains except in case of very heavy rains at which time a certain amount of "breaking over" may occur. Even then the loss is not as great as in fields where contouring is not practiced.

Grass Buffer Strips

In this section of Iowa we are turning more to grass buffer strips as an added protection. These buffer strips may then be used for pasture when livestock are turned in after corn is harvested in the fall. Buffer strips used here are for the most part seedings of alfalfa and brome grass.

Another conclusive proof that contouring pays in Page and Fremont counties of Iowa is that operation costs are reduced to quite a striking degree. This is important especially when fuel is likely to become scarce. Some figures have shown fuel costs to be as much as 10 percent on contoured fields. In addition it is apparent that wear and tear on machinery can be reduced to a minimum when farming on the level.

We are encouraging contour farming because:

1. Contouring is a practical means of saving the soil
2. Contouring aids in preventing runoff of water needed for plant growth
3. Increased production as high as 10-12 percent results
4. Fuel and other operation costs are reduced
5. Machinery will last longer because of less wear and breakage

Approximately 300 boys and many interested farmers took part in the work this spring.

Methods of Sheep Improvement

(Continued from page 27)

grade, large variation in fleece weights within the same band was noted. In other words, feed is important; but in the same band, which means the sheep had the same feed and care, there are some ewes producing double the wool return in dollars and cents that the poorer ones are returning. This shows that the hereditary factors for production *do* vary and indicates the possibilities of making improvements by culling. Careful selection of the better producers and breeding to good bucks simply mean that the number of heavy producers in any band or herd can be increased.

Dean Hill began work with the Warren Livestock Company in 1929. Taking the average of the three years just previous to the initiation of this improvement program we get 8.32 pounds. The average of 1938-39-40 is 11.22 pounds, or an increase of very nearly three pounds. The clip is now all of long staple and more uniform in grade, commanding a higher price per pound. Warren's and Hill have been culling for a one-half blood staple. In 1940, wool from the mature ewes ran approximately 15 percent fine staple, 75 percent one-half staple, and 10 percent three-eighths staple. There is no short wool. Almost all will agree that an 11-pound average of uniform, not-heavy shrinkage wool (clip runs around 60 percent) is very good.

TABLE II

Results Obtained Over Short Periods

Name of Co-operator	Fleece Weights Selects	Those Marked Out
W. J. Peterson, Newcastle	9 lbs.	7 lbs.
Seaverson Bros., Rawlins		
Mature Ewes	10.8	8.74
Lembcke and Hermberg, Medicine Bow		
Yearlings.....1940	7.2	6.7
1941	6.49	6.02

TABLE III

Results Over a Long Period With One Flock

Average Net Weight Wool Per Fleece	
1927	7.95 lbs.
1928	8.59 lbs.
1929	8.43 lbs.
1930	8.92 lbs.
1931	9.89 lbs.
1932	9.75 lbs.
1933	10.19 lbs.
1934	9.50 lbs.
1935	9.67 lbs.
1936	10.40 lbs.
1937	10.25 lbs.
1938	11.05 lbs.
1939	11.40 lbs.
1940	11.16 lbs.

Schools Can Do the Job

I have previously declared myself before the American Vocational Association and in other public utterances to be in favor of liberal grants-in-aid to the states for educational purposes. I reaffirm those declarations. For I am convinced that the established educational agencies of the states can, if properly financed and administered, provide all necessary services for the education and preparatory training of youth and that they will do this more efficiently and adequately than can any other agency. In preparation for the critical postwar readjustment period it is imperative that we have these educational and training services unified and co-ordinated at all administrative levels in order that thru our system of organized education we may with economy and efficiency make the maximum contribution to needs of youth.—Paul V. McNutt

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d—director; s—supervisor; t—teacher-trainer; rs—regional supervisor; it—itinerant teacher-trainers; rt—research workers; cs—colored supervisors; ct—colored teacher-trainers

ALABAMA
d—J. B. Hobdy, Montgomery
s—R. E. Cammack, Montgomery
rs—J. C. Cannon, Auburn
rs—H. F. Gibson, Auburn
rs—L. L. Sellers, Auburn
rs—C. C. Scarborough
rs—T. L. Faulkner
t—S. L. Chesnutt, Auburn
t—George T. Sargent, Auburn
t—W. R. Montgomery, Auburn
rt—A. L. Morrison, Auburn

ARIZONA
d—E. D. Ring, Phoenix
s—L. D. Klemmedson, Phoenix
t—R. W. Cline, Tucson
t—J. R. Cullison, Tucson

ARKANSAS
d-s—Fred A. Smith, Little Rock
s—H. L. Cochran
rs—T. A. White, Wheatley
rs—O. J. Seymour, Arkadelphia
rs—S. D. Mitchell, Russellville
rs—Earl G. Landers, Batesville
t—Keith L. Holloway, Fayetteville
t—Roy W. Roberts, Fayetteville
ct—R. L. Reynolds, Pine Bluff

CALIFORNIA
d—Walter F. Dexter, Sacramento
s—Julian A. McPhee, San Luis Obispo
s—E. W. Everett, San Luis Obispo
rs—B. R. Denbigh, Los Angeles
rs—Howard F. Chappell, Sacramento
rs—B. J. McMahon, San Luis Obispo
rs—A. G. Rinn, San Luis Obispo
rs—Weir Fetters, San Luis Obispo
rs—Harold O. Wilson, San Luis Obispo
t—S. S. Sutherland, Sacramento
it—George P. Couper, San Luis Obispo
it—J. I. Thompson, San Luis Obispo
rt—C. O. McCorkle, San Luis Obispo

COLORADO
d—H. A. Tiemann, Denver
s—L. R. Davies, Denver
t—G. A. Schmidt, Fort Collins
rt—Gilbert Betts, Fort Collins

CONNECTICUT
d—A. S. Boynton, Hartford
s—R. L. Hahn, Hartford
t—C. B. Gentry, Storrs
t—P. Roy Brammell, Storrs
t—J. Raymond Gerberich, Storrs

DELAWARE
d-t—R. W. Heim, Newark
s—P. M. Hodgson, Dover

FLORIDA
d—Colin English, Tallahassee
s—J. F. Williams, Jr., Tallahassee
t—E. W. Garris, Gainesville
t—A. W. Tenney, Gainesville
it—H. E. Wood, Gainesville
it—W. T. Loften, Gainesville
ct—L. A. Marshall, Tallahassee
ct—C. W. Conoly, Tallahassee

GEORGIA
d—M. D. Mobley, Atlanta
s—L. M. Sheffer, Athens
s—George I. Martin, Tifton
s—T. G. Walters, Atlanta
s—J. N. Baker, Swainsboro
s—J. H. Mitchell, Athens
cs—Alva Tabor, Fort Valley
t—John T. Wheeler, Athens
t—O. C. Aderhold, Athens
t—A. O. Duncan, Athens
t—R. H. Tolbert, Athens

HAWAII
d-s—W. W. Beers, Honolulu, T. H.
t—F. E. Armstrong, Honolulu, T. H.
t—W. H. Coulter, Waipahu, Oahu, T. H.

IDAHO
d-s—William Kerr, Boise
s—Stanley S. Richardson, Boise
s—Elmer N. Belnap, Boise
t—H. E. Lattig, Moscow
t—H. A. Winner, Moscow

ILLINOIS
d—J. E. Hill, Springfield
s—L. C. Cannon, Springfield
s—B. A. Tomlin, Springfield
s—A. W. Nolan, Urbana
t—H. M. Hamlin, Urbana
t—Melvin Henderson, Urbana
t—J. N. Weiss, Urbana
t—B. C. Lawson, Lafayette
rt—S. S. Cromer, Lafayette
it—K. W. Kiltz, Lafayette
it—H. W. Leonard, Lafayette
it—I. G. Morrison, Lafayette
it—H. B. Taylor, Lafayette
it—W. A. Williams, Lafayette

IOWA
d—F. E. Moore, Des Moines
s—H. T. Hall, Des Moines
s—W. M. Westcoat, Des Moines
t—Barton Morgan, Ames
t—John B. McClelland, Ames
t—J. A. Starrak, Ames
t—T. E. Sexauer, Ames
t—A. H. Hausrath, Ames

KANSAS
d—C. M. Miller, Topeka
s—L. B. Pollom, Topeka
t—C. V. Williams, Manhattan
t—A. P. Davidson, Manhattan
t—M. R. Wilson, Manhattan
it—L. F. Hall, Manhattan
it—H. H. Brown, Manhattan

KENTUCKY
d-s—R. H. Woods, Frankfort
s—E. P. Hilton, Frankfort
t—Carsie Hammonds, Lexington
it—Watson Armstrong, Lexington
it—W. R. Tabb, Lexington
ct—J. J. Mark, Frankfort

LOUISIANA
d—John E. Coxe, Baton Rouge
s—S. M. Jackson, Baton Rouge
s—A. Larriviere, Baton Rouge
s—T. E. Kirklin, Baton Rouge
s—D. C. Lavergne, Baton Rouge
t—R. L. Davenport, University
t—J. C. Floyd, University
t—C. L. Mondart, University
rs—W. J. Parent, Baton Rouge
rs—Harold Montgomery, Baton Rouge
rs—C. P. McVea, Baton Rouge
rs—C. T. Thompson, Baton Rouge
rs—M. M. Parry, Baton Rouge
ct—M. J. Clark, Scotlandville
ct—E. C. Wright, Scotlandville

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s-t—Wallace H. Elliott, Orono

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s-t—H. F. Cotterman, College Park
ct—J. A. Oliver, Princess Anne

MASSACHUSETTS
d—Robert O. Small, Boston
s—John G. Glavin, Boston
t—F. E. Heald, Amherst
t—W. S. Wells, Amherst

MICHIGAN
d—George H. Fern, Lansing
s—Harry E. Nesman, Lansing
s—Luke H. Kelley, Lansing
s—Raymond M. Clark, Lansing
s—George D. Gilbert, Marquette
t—H. M. Byram, East Lansing
t—G. P. Deyoe, East Lansing
t—G. C. Cook, East Lansing

MINNESOTA
d—Harry C. Schmid
s—Leo L. Knuti, St. Paul
s—Harry J. Peterson, St. Paul
rs—Felix Nylund, Virginia
t—A. M. Field, St. Paul
t—G. F. Ekstrom, St. Paul

MISSISSIPPI
d—H. E. Mauldin, Jr., Jackson
s—A. P. Fatherree, Jackson
s—R. H. Fisackerly, Jackson
s—E. E. Gross, Hattiesburg
t—V. G. Martin, State College
t—N. E. Wilson, State College
t—D. W. Skelton, State College
t—A. E. Strain, State College
rt—H. O. West, State College
it—V. P. Winstead, State College
ct—W. A. Flowers, Alcorn
ct—A. D. Fobbs, Alcorn
ct—Robert Ross, Alcorn

MISSOURI
d—Lloyd W. King, Jefferson City
s—G. A. Woodruff, Jefferson City
s—M. D. Thomas, Jefferson City

MONTANA
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s—A. W. Johnson, Bozeman
s—D. L. MacDonald, Bozeman
t—R. H. Palmer, Bozeman

NEBRASKA
d—Sidney Owen, Lincoln
s—L. D. Clements, Lincoln
s—H. W. Deems, Lincoln
t—H. E. Bradford, Lincoln
t—C. C. Minteer, Lincoln

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t—W. C. Higgins, Reno

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s-t—Earl H. Little, Concord

NEW JERSEY
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s-t—H. O. Sampson, New Brunswick
s-t—E. V. Bearer, New Brunswick
s-t—O. E. Kiser, New Brunswick

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s—J. W. Hatch, Buffalo
t—R. M. Stewart, Ithaca
t—T. H. Eaton, Ithaca
t—E. R. Hoskins, Ithaca
t—W. A. Smith, Ithaca
t—Roy A. Olney, Ithaca

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s—Roy H. Thomas, Raleigh
s—R. J. Peeler, Raleigh
rs—N. B. Chesnutt, Whiteville
rs—E. N. Meekins, Raleigh
rs—J. M. Osteen, Rockingham
rs—T. H. Stafford, Asheville
rs—A. L. Teachey, Pleasant Garden
sc—S. B. Simmons, Greensboro
t—Leon E. Cook, Raleigh
t—L. O. Armstrong, Raleigh
t—J. K. Coggin, Raleigh

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s-t—Ernest L. DeAlton, Fargo
s-t—Shubel D. Owen, Fargo

OHIO
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s—W. G. Weiler, Columbus
s—Howard McClarren, Columbus
s—E. O. Bolender, Columbus
t—W. F. Stewart, Columbus
t—H. G. Kenestrick, Columbus
t—C. E. Rhoad, Columbus
rt—Ray Fife, Columbus

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s—Bonnie Nicholson, Stillwater
rs—W. R. Felton, Stillwater
rs—S. M. Crosnoe, Stillwater
rs—Roy Craig, Stillwater
rs—Edd Lemons, Stillwater
t—D. C. McIntosh, Stillwater
t—Don M. Orr, Stillwater
t—Chris White, Stillwater
it—C. L. Angerer, Stillwater
cs-t—D. C. Jones, Langston

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s—Earl R. Cooley, Salem
s—Ralph L. Morgan, Salem
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s—H. C. Fetterolf, Harrisburg
s—V. A. Martin, Harrisburg
rs—R. C. Lighter, Gettysburg
rs—J. S. Champion, Pittsburgh
rs—A. B. Young, Kittanning
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rs—J. B. Park, Honesdale
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t—C. S. Anderson, State College
t—William A. Hall, State College
it—Russell B. Dickerson, State College
it—D. C. Sprague, State College

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s—Nicolas Mendez, San Juan
t—Lorenzo Garcia Hernandez, San Juan
t—Ernesto Vazquez Torres, Mayaguez
rs—Juan Acosta Henriquez, Arecibo
rs—Juan Robles, Cayey
rs—Andres Ramirez, Mayaguez
rs—Samuel Molinary, San Juan

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s—W. C. James, Columbia
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cs—R. E. Naugher, Lovis
t—W. G. Crandall, Clemson
t—W. C. Bowen, Clemson
t—T. A. White, Clemson
t—J. B. Monroe, Clemson
ct—J. P. Burgess, Orangeburg
ct—Gabe Buckman, Orangeburg

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s—H. E. Urton, Pierre
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rs—G. B. Thackston, Gallatin
rs—J. W. Brimm, Jackson
rs—L. A. Carpenter, Knoxville
t—N. E. Fitzgerald, Knoxville
t—J. B. Kirkland, Knoxville
rt—A. J. Paulus, Knoxville
rt—E. B. Knight, Knoxville

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s—J. B. Rutland, Austin
rs—O. T. Ryan, Lubbock
rs—C. D. Parker, Kingsville
rs—C. B. Barclay, Commerce
s—B. G. Davis, Austin
t—Henry Ross, College Station
t—Malcolm Orchard, College Station
t—W. R. Sherrill, College Station
t—L. V. Halbrooks, College Station
t—J. L. Moses, Huntsville
t—W. E. Driskill, Huntsville
t—S. V. Burks, Kingsville
t—Ray L. Chappelle, Lubbock
it—T. L. Leach, Lubbock
it—F. D. Shackelford, Kingsville
cs—J. C. McAdams, Crockett
cs—Gus Jones, Caldwell
cs—S. E. Palmer, Tyler
cs—E. E. Collons, Texarkana
cs—B. S. Luter, Prairie View
ct—E. M. Norris, Prairie View

UTAH
d—Charles H. Skidmore, Salt Lake City
s—Mark Nichols, Salt Lake City
t—L. R. Humpherys, Logan

VERMONT
d—John E. Nelson, Montpelier
s-t—W. Howard Martin, Burlington
s-t—Charles L. Park, Jr., Burlington

VIRGINIA
d—Dabney S. Lancaster, Richmond
s—Walter S. Newman, Richmond
rs—F. B. Cale, Appomattox
rs—T. V. Downing, Ivor
rs—J. O. Hoge, Blacksburg
rs—D. J. Howard, Winchester
rt—Olive A. Salem, Blacksburg
t—Harry W. Sanders, Blacksburg
t—Henry C. Groseclose, Blacksburg
t—E. Y. Noblin, Blacksburg
t—C. E. Richard
ct—G. W. Owens, Petersburg
ct—J. R. Thomas, Petersburg
ct—Roscoe L. Lewis, Petersburg

WASHINGTON
s—J. A. Guitteau, Olympia
t-s—E. M. Webb, Pullman
t-s—Bert L. Brown, Pullman

WEST VIRGINIA
d—W. W. Trent, Charleston
s—John M. Lowe, Charleston
s—H. N. Hannucker, Charleston
t—M. G. Gaar, Morgantown
it—D. W. Parsons, Morgantown
it—A. D. Longhouse, Morgantown

WISCONSIN
d—George P. Hambrecht, Madison
s—Louis M. Sasman, Madison
t—J. A. James, Madison
t—V. E. Kivlin, Madison
t—V. E. Nylin, Platteville
t—J. M. May, River Falls
it—Ivan Fay, Madison
it—Clarence Bonsack, Madison

WYOMING