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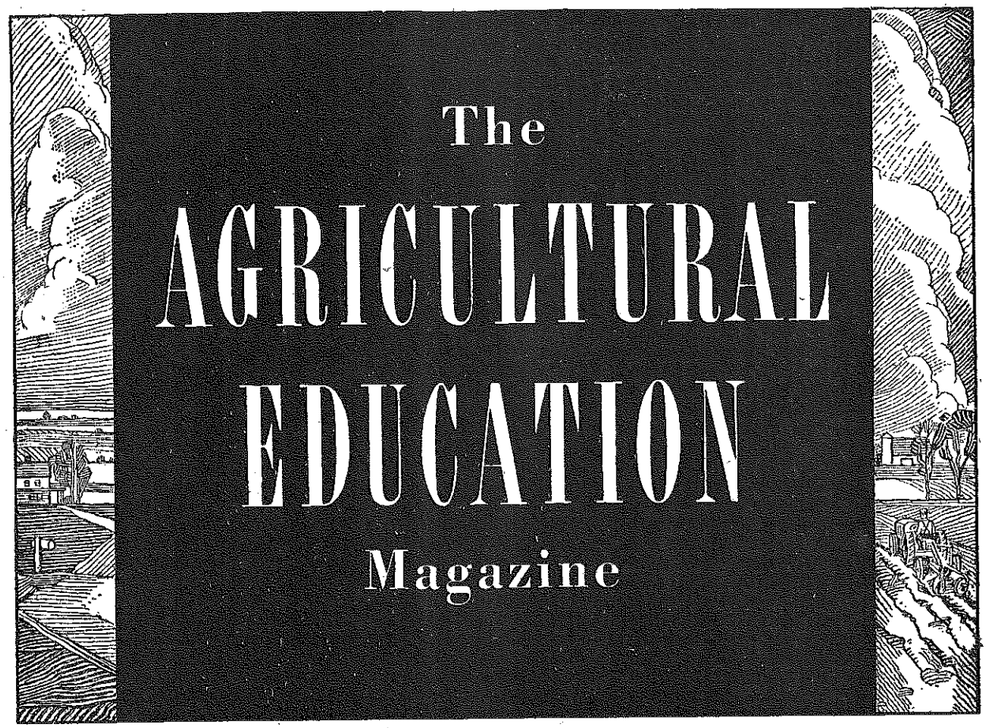

The AGRICULTURAL EDUCATION Magazine

Teaching, today, is war work.

Paul V. McNutt

VOCATIONAL AGRICULTURE
For
TEACHERS
Teacher-Educators
And Supervisors
OFFICIAL PUBLICATION

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

The High-School Victory Corps

MOBILIZATION of volunteers among the 6,500,000 students in 28,000 public and private secondary schools for their more effective participation in the war is ready to start thruout the United States.

Organization of a "High-School Victory Corps" has just been announced as a wartime youth activity in our American high schools. Its purpose is to provide active participation for youth in the community's war effort while still in school, and to provide co-ordinated instruction and training for youth for war services after they leave school. The U. S. Office of Education will assist state departments of education in its operation at state and local levels. Full recognition will be given efforts already started in any secondary school.

The Victory Corps is the answer to a nationwide demand by schools and students that maximum war participation be made possible for them. It means an immediate revision of secondary school curricular objectives. John W. Studebaker, U. S. Commissioner of Education, says the Victory Corps advocates "the organization of a high-school youth sector in the all-out effort of our total war, a sector manned by youth who . . . earnestly seek preparation for greater opportunities for service to come."

Students may volunteer for the Victory Corps "General Membership." During the last year or two of schooling each participant may join one of five Special Service Divisions: Air, Land, Sea, Production, or Community Services. Special armband insignia and service caps may be worn by all members. Provision is made for voluntary military drill and for student, faculty, and community advisory groups. Members must carry two or more assigned wartime service activities plus a program for physical fitness.

The recommendation was originally made to and approved by the Wartime Commission of the U. S. Office of Education. Paul V. McNutt, Federal Security Administrator and Chairman, War Manpower Commission, appointed a National Policy Committee of 10 persons to make definite plans. This committee includes representatives of the War and Navy Departments, the Civil Aeronautics Administration, civilian aviation, and four members of the Wartime Commission, including L. H. Dennis, Executive Secretary of the A. V. A.

Vocational and industrial arts students and teachers are destined to play a prominent part in the Victory Corps; each service division will require instruction in certain vocational skills. The Air, Land, and Sea Service groups will include boys who desire to prepare for eventual service with the armed forces.

Both girls and boys may enter the Production Service unit, by preparing for war industrial, agricultural, or other essential civilian production; and in the Community Service unit, by taking courses preparing for college, or for commercial, distributive, or service occupations.

"Even the smallest high schools, rural and urban, may participate," Secretary Dennis points out. "The plan presents great opportunity for the further expansion of all vocational education. It has been approved by the National Council of Chief State School Officers and each will appoint a State Victory Corps Council and Director."

A Victory Corps manual is being distributed by the Office of Education to all school superintendents and secondary school principals—public, private, and parochial.

A. V. A. Journal

High-School Students Want Jobs

STUDENTS in the Manitowoc, Wisconsin, High School were recently requested to state in the order of their importance the three problems about which they were most concerned. The result of the inquiry, as reported by Hugh S. Bonar, Superintendent, in the September, 1942, issue of the *School Review* indicated that the seniors were most concerned with getting a job, preparing for a vocation, and understanding war problems. The study was made in March, 1941, or nine months

The Present Challenge to Agricultural Teachers

THE fate of Americans and of all other free peoples of the world will depend greatly upon the demonstrated efficiency of the American farmer. No one will question the fact that the progress of the present war will affect the destiny of the human race. If we are to win in this race of war, we must place as much emphasis upon farm production as upon industrial production.

In order for us in America to have sufficient food and clothing during peace times, the task of the farmer is rather simple. The farm family has to produce enough food for itself and for four nonfarm families. The task today, however, is far greater. It is true that the farm family in America is already producing several hundred percent more food than the average farm family in Europe, but the need of the United States calls for more than average effort. The labor situation is becoming acute in many of our communities. Farmers, however, must increase production. Many of them are beginning to ask this question: How can this task be done? The solution of the problem is a challenge to teachers of vocational agriculture. The production and repair of farm machinery courses as provided for under the OSY-A(3) program should do much in helping to solve the problem. These courses should help farmers to increase their production in the following ways:

1. By using more labor-saving machinery.
2. By reducing farm losses due to insects or diseases.
3. By following improved practices of feeding farm animals, fertilizing crops, cultivating crops, etc.
4. By changing the crop and animal program for the farm if necessary.

Agricultural teachers must use every minute of their available time to help farmers in this emergency. Let us adapt this statement for our slogan: "Only our best is good enough."

E. W. G.

Ten Percent of Missouri Teachers in 20-Year Club

TWENTY-THREE Missouri teachers have completed 20 or more years of service as teachers of vocational agriculture. Since there are 221 teachers in the state, 10 percent have been in the field for two decades or more. Of this group, five have taught 23 years, eight have taught 22 years, and seven have taught 21 years.

Teachers, Location, and Years of Service

Name	Years in Teaching	Present Location
Sherman Dickinson	28	Teacher-trainer, U. of M.
A. Gorrell	23	Mexico
W. L. Magruder	23	Macon
F. C. Wilkins	23	Rolla
M. D. Thomas	23	State Dept. Ed.
G. J. Dippold	23	Teacher-trainer, U. of M.
J. A. Wisdom	22	Galt
Guy E. James	22	Glasgow
W. L. Barrett	22	Boonville
Glenn Hillhouse	22	Republic
T. C. Wright	22	Tuscumbia
J. R. Whitman	22	Centralia
H. J. Deppe	22	Lebanon
L. E. Morris	22	Marshall
W. W. Hoy	21	Cabool
R. P. McWilliams	21	Gallatin
J. C. Wolfe	21	Leeton
C. D. Thorp	21	New London
Ira E. Kunkel	21	West Plains
Carl Gross (deceased)	21	Cameron
Floyd Barnhart	20	Caruthersville
G. K. Arney	20	Princeton
J. T. Gibbs	20	Washington

A. K. GETMAN

Professional

R. W. GREGORY

Census Facts in War and Peace

Z. R. PETTET, Chief Statistician for Agriculture, Bureau of the Census
F. W. LATHROP, Specialist in Agricultural Education (Research), U. S. Office of Education
E. J. JOHNSON, Regional Agent, Western Region, U. S. Office of Education

WITH war requirements crowding everday needs into the background, there is a tendency to overlook the important peacetime essentials. A little analysis will show that basic information obtained from the Census Bureau often is of paramount importance in making wartime plans and decisions. Now it so happens that a great deal of agricultural and other census information which has been tabulated, designed for peacetime activities of the governmental agencies, for school use, and for citizens at large, often fits exactly into war needs.

Census Data and the War Effort

With the universal interest in war work, it may be interesting to describe how some of these needs are met by the data of the Census Division of Agriculture. Everybody is concerned with the rubber situation, and one of the possible solutions of rubber production is that of guayule rubber. Guayule is a desert shrub which grows wild, but which responds very quickly and readily to irrigation. The consulting engineer working on this problem found it essential to have the latest irrigation maps showing where crops were grown in five of the irrigation states. Such maps were made possible and were prepared because the data in the Agricultural Census are obtained by minor civil divisions and the location of the areas could be platted properly. These same maps were requested, for other purposes, by the Chief Engineer of the War Department and by the Army Air Force for technical uses which cannot be here described. The maps were also reproduced for the consultant of a military subcommittee of the Congress. These are four examples of wartime use of material prepared for peacetime use.

Another good example of the utility of adequate basic statistics may be found in the movement of the Japanese population on the Pacific Coast and the adjustments which were necessary because of the loss of Japanese labor on truck and other farms. The Census of Agriculture data by small geographic units furnished exactly the information needed. Much of this was in shape for immediate use from minor civil division transcriptions, and other material was in shape so that it could be tabulated quickly and readily by machines at a minimum cost.

Data by Minor Civil Divisions

Another use was the furnishing of tabulations by minor civil divisions of land values in order to expedite the purchase of farm land around military posts. In a slightly different class were the tabulations by magnitude of agricultural operations which were needed to throw light on the food situation both for local needs and in planning the export of dairy and poultry products. Two special tabulations were made for this purpose—poultry by size of flock, and milk and dairy products by size of herd. These were made upon the requests of the Interdepartmental Conference Committee on National Food Resources and of the Secretary of Agriculture, respectively.

As the adjustment to war conditions becomes more and more necessary, data regarding the location and production of crops become more and more essential in order that acreages may be expanded to meet the needs when import crops are cut off. Statistics for even such minor crops as aromatic and seasoning herbs are required. The Agricultural Census has these data for very small areas.

Agricultural data for counties or comparable units of area have a limited value because agricultural conditions frequently vary within a county. The data for the next smaller unit of area, the minor civil division, is more significant. By adding the data of the minor civil divisions (for example, townships, towns, etc.) which comprise the service area of a school, it is possible to limit consideration to the area where the students live.

Specific Uses of Minor Civil Division Tables

The data for the minor civil divisions of a school area constitute a survey of that area insofar as the tables relate to the crop and livestock enterprises which are important in that community. This information has many of the uses of a farm survey made by a teacher of agriculture. However, the census data cover all the farms in the community whereas the teacher's farm survey would usually be a sampling of the farms in the community.

These tables might serve as a basis for the study of such production changes as are needed in relation to wartime needs. A study of the acreages and yields of crops and the number of livestock and the amounts of livestock products important in the war effort might show how certain essential foods might be increased. The amount of pasture land which is tillable is quite significant in this connection.

In revising courses of study, these tables will be valuable because they will indicate whether crop and livestock enterprises should receive more or less emphasis than they do at present and sometimes whether they should be included at all. If corresponding data from the 1935 Agricultural Census are available, some indication of trends may appear. Some enterprises will appear to be growing in importance, other enterprises will appear to be declining.

The minor civil division data are invaluable in the study of *farm management*. This will shed light on such questions as:

1. What are the types of farming?
2. Is there a good balance between livestock and crop production?
3. How can land use be made more effective? (The data would be of value in connection with the land use survey of a minor civil division.)
4. How well balanced is the investment in land, buildings, and equipment?
5. How do individual farms compare with minor civil division averages?
6. How widely diversified is the farming of the area?
7. What kinds and amounts of farm products are marketed?
8. What are the seasonal demands for farm labor and equipment?
9. What are the causes and extent of crop failure?

The information on number of farms in the different minor civil divisions will help school administrators and teachers to determine to what extent schools are reaching the farms in their service area.

Several teachers of agriculture located in the same county or in near-by counties, who have the minor civil division tables for their area, may well use this information as the basis of an informal co-operative study in relation to annual programs of work and course-of-study revision.

Following the 1935 Agriculture Census, the Bureau of the Census made photostatic copies of certain minor civil division tables. Many thousands of these copies were sent to schools and especially to teachers of vocational agriculture. The same plan will be followed with relation to the 1940 Census. *Photostatic copies of the six tables, headings of which are shown in the folded insert of this publication*, are available. There are six sheets (18″ x 24″) which can be obtained for $.35 per sheet. Half-size sheets containing the same amount of data cost $.17½ per sheet. If a school service area is in parts of two counties, two sets will be required. When ordering, persons should state in what county or counties the school service area is included. Persons desiring to purchase a set of photostats should make their checks or money orders payable to the Photostat Corporation and mail the same to the Bureau of the Census for handling.

The Bureau of the Census is now working on Minor Civil Division Tables, Second Series. The availability and time of availability of these tables are subject

Census Publications Available

From—BUREAU OF THE CENSUS, DEPARTMENT OF COMMERCE, WASHINGTON, D. C.

	Cost
Heading Facsimile M. C. D. Tabulation Sheet, 1935 Census of Agriculture	Free
Heading Facsimile M. C. D. Tabulation Sheet, First Series, 1940 Census of Agriculture	Free
Duplicate Photostats—1940 Minor Civil Division Figures—County—6 sheets (35c per sheet). By Money Order—Payable to Photostat Corporation (via the Census)	$2.10
Sample Farm Census Schedule—1940	Free
Sample Dot Maps	Free
Reprints of Magazine Articles on the Census	Free
Bulletin Price Lists	Free

From
SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C.

Minor Civil Division Maps—Each State	.10
State Bulletins, 1940 Census of Agriculture (see price lists.)	
First Series—10–	.35
Second Series—10–	.35
Third Series—10–	.30
United States Summaries	
First Series—$	.15
Second Series	.20
Third Series (Chapter X, Volume III)	.35
Volume I. First and Second Series State Reports	
Part 1. New England, Middle Atlantic, East North Central	2.75
2. West North Central	2.50
3. South Atlantic	2.25
4. East South Central	1.50
5. West South Central	2.25
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Volume II. Third Series State Reports	
Part 1. New England, Middle Atlantic, East North Central, and West North Central	2.75
2. South Atlantic, East South Central, and West South Central	2.75
3. Mountain and Pacific	1.50
Volume III General Report—Statistics by Subjects for the United States. Ten chapters to be published separately as outlined below, and later bound in one volume—Estimated	2.75

Chapters Now Available

Chapter VII. Livestock and Livestock Products	.30
IX. Fruits and Nuts and Horticultural Specialties	.15
X. Value of Agricultural Production and Farm Income	.35

Chapters Available Before January 1, 1943

Chapter I. Farms and Farm Property—Estimated	.30
II. Size of Farms—Estimated	.30
III. Color, Tenure, and Race of Farm Operator—Estimated	.30
IV. Farm Mortgages and Farm Taxes—Estimated	.30
V. Work off Farm, Age, and Years on Farm—Estimated	.30
VI. Co-operation, Labor, Expenditures, Machinery Facilities, and Residence—Estimated	.30
VIII. Field Crops and Vegetables—Estimated	.30
Special Poultry Report (paper bound)	1.50
Irrigation Bulletins for 18 States—1940—10–	.15
Irrigation Maps—Two-Color	.15
Except California and Texas—Two Parts—Each	.15

The Bureau of the Census has also issued a descriptive pamphlet explaining the use of these minor civil division photostated tables. In this publication the data have been assembled and interpreted for a service area of an actual vocational agriculture department. Copies of this pamphlet, "Uses of 1940 Census Data in Schools," are being sent to teachers of vocational agriculture. Free copies can be obtained by writing to the Bureau of the Census, Department

Using Feed Price Information

HERMAN M. HAAG, Associate Professor of Agricultural Economics
University of Missouri

THE war effort calls for increased production of foodstuffs including meats, eggs, and dairy products during 1942 and 1943. Emphasis is being placed on getting much of this increase by better feeding of livestock and poultry and less from an increase in numbers. To be effective, this program requires that livestock, dairy cows, and poultry not only be fed proper rations but that these rations be developed to provide nutrients at the lowest possible cost. If this latter objective is attained, the program then will have an economic as well as a patriotic appeal to farmers and will be that much easier to fulfill.

Economical Feeding Necessary

Economical feeding is always important if satisfactory returns are to be obtained from meat animal, dairy, and poultry enterprises, but the emphasis which producers give to feed costs changes with the feed price situation. During the past year, producers of animals and animal products have been favored with relatively cheap feed grains and feeding practices. Feed grain prices, however, already have been rising relative to prices of animals and animal products, and are expected to continue this trend during the next year. Hence farmers may be faced with normal or even some subnormal product-feed price ratios by this time next year. Under such conditions economy in feeding will again receive major consideration from producers.

Choice of Feed

Economical feeding involves the choice of the feedstuff or ration which will provide the required quantity and quality of nutrients at the lowest possible cost, as well as the purchase of such feedstuffs at the proper time to take advantage of seasonal price movements and price level trends. This sounds simple but the job is really complex because a ration which is the cheapest source of nutrients at one time of the year may be expensive in some other season due to fluctuations in prices.

Seasonal Prices

Producers can either buy their feed supplies as needed or they can take advantage of the seasonal low in prices of each feedstuff to buy enough supplies to carry thru the season of higher prices. Which policy will prove most economical depends upon the seasonal variation in prices of the feed and its cost of storage. The seasonal fluctuation in prices of shorts, for example, does not appear great enough under normal conditions to warrant their purchase and storage at the season of lowest prices. On the other hand, the seasonal movement in bran prices usually is sufficient to justify the purchase of a six- to eight-months' supply in August or September. In fact, during the 18 years from 1924-1941, inclusive, Missouri producers who bought their September-April requirements as needed paid at least $1.75 per ton more for bran than those who bought their eight-months' requirements in August. Altho the August price was higher than the average for the succeeding eight months in three years, price savings from the purchase of bran in August for fall and winter needs apparently were in excess of storage costs in 13 of the 18 years and were several times storage costs in six years. The seasonal variation in bran prices is greater than that for most feeds, but prices of many feeds do fluctuate from seasonal influences sufficiently to warrant purchase and storage in the period of seasonally low prices.

Altho seasonal changes in prices have been worked out on the basis of average farm prices or near-by wholesale market prices, teachers of vocational agriculture can be of worth-while service to farmers in their communities by noting any peculiarities of local prices. In some areas, grain prices are below near-by wholesale market prices at harvest time and above central market prices at other seasons, which make for rather sharp seasonal changes in local prices. In such areas, purchase and storage of grain usually is a highly desirable practice.

Seasonal Prices and General Price Level

Another influence affecting seasonal changes in prices is the direction in which the general price level is moving. When the general price level is advancing, the advantage of buying and storing in the period of seasonally low prices is enhanced greatly. This has been apparent to those who have watched feed prices closely since early 1939. On the other hand, the effects of conditions causing a falling general price level may be great enough to offset the effect of normal seasonal movements. For example, a gradual decline of 15 to 20 percent in the general price level from August to April will wipe out completely the normal seasonal increase in bran prices. It is extremely important, then, that teachers of vocational agriculture use not only normal seasonal price movements for their locality, but also their knowledge of expected general price movements during the next year in arriving at the answer to "when to buy a certain feed most economically."

Total Cost of Ration

The second phase of the problem of economical feeding is that of determining which feeds to buy under current price conditions in order to obtain needed nutrients at the lowest possible cost. Since each feedstuff contains both protein and carbohydrates and since a pound of protein usually is several times more valuable than a pound of carbo-

Facsimile, M.C.D.
Reading Set, First Series
Tabulation Sheets

DEPARTMENT OF COMMERCE
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WASHINGTON

TABLE 1.—NUMBER OF FARMS, LAND IN FARMS CLASSIFIED ACCORDING TO USE, AND VALUE OF LAND AND BUILDINGS, BUILDINGS, AND IMPLEMENTS AND MACHINERY; BY COUNTIES AND MINOR CIVIL DIVISIONS: FEDERAL FARM CENSUS, APR. 1, 1940

(No farms were reported in 1940 for Minor Civil Divisions not shown in either stub or notes)

COUNTY AND MINOR CIVIL DIVISION	Code	Number of farms	LAND IN FARMS, APR. 1, 1940, CLASSIFIED ACCORDING TO USE IN 1939																	FARM VALUES						
			All land in farms (acres)		Cropland Harvested		Crop Failure		Cropland idle or fallow		Plowable pasture		Woodland		All other land in farms		Land used for crops [1]		Farms reporting land available for crops [2]	Land and buildings			Buildings		Implements and machinery	
			Total	Av. per farm	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres		Amount (dollars)	Average per farm	Average per acre	Farms reporting	Amount (dollars)	Farms reporting	Amount (dollars)

[1] Cropland harvested and crop failure
[2] Cropland harvested, crop failure, idle or fallow cropland, and plowable pasture.

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TABLE 2.—HORSES, MULES, HOGS, AND CATTLE, ON FARMS AND RANCHES, APR. 1, 1940; AND COWS MILKED, PRODUCTION OF MILK AND BUTTER, AND SALES OF MILK, CREAM, AND BUTTER, 1939; BY COUNTIES AND MINOR CIVIL DIVISIONS: FEDERAL FARM CENSUS, APR. 1, 1940

(No farms were reported in 1940 for Minor Civil Divisions not shown in either stub or notes)

COUNTY AND MINOR CIVIL DIVISION	Code	Farms reporting horses and/or mules	HORSES AND COLTS OVER 3 MO. OLD				MULES AND MULE COLTS OVER 3 MO. OLD				HOGS AND PIGS OVER 4 MO. OLD				CATTLE AND CALVES OVER 3 MO. OLD				COWS MILKED AND DAIRY PRODUCTS, 1939									
			Total		Colts 3 to 27 mo. old		Total		Colts 3 to 27 mo. old		Total		Sows and gilts to farrow [1]		Total		Cows and heifers 2 yr. old and over Jan.1,1940		Cows and heifers milked		Milk produced (gallons)	Butter churned		Whole milk sold		Cream sold		Butter sold	
			Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number kept for milk	Farms reporting	Number		Farms reporting	Pounds	Farms reporting	Gallons	Farms reporting	Pounds of butterfat	Farms reporting	Pounds

[1] Sows and gilts that farrowed since Dec. 1, 1939 or to farrow before June 1, 1940.

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TABLE 3.—SHEEP ON FARMS AND RANCHES, WOOL SHORN, AND SPECIFIED CLASSES OF POULTRY ON HAND, RAISED, AND SOLD, BY COUNTIES AND MINOR CIVIL DIVISIONS: FEDERAL FARM CENSUS, APR. 1, 1940

(No farms were reported in 1940 for Minor Civil Divisions not shown in either stub or notes)

COUNTY AND MINOR CIVIL DIVISION	Code	SHEEP AND LAMBS OVER 6 MO. OLD						SHEEP AND LAMBS SHORN			ANY POULTRY		CHICKENS						TURKEYS				DUCKS			
		Total		Ewes									On hand over 4 mo. old		Raised		Sold		On hand over 4 mo. old		Raised		On hand over 4 mo. old		Raised	
		Farms reporting	Number	Farms reporting	Number	Yearling ewes [1]	Other ewes	Farms reporting	Number shorn	Wool shorn (pounds)	On hand, farms reporting	Raised, farms reporting	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number	Farms reporting	Number

[1] Between 6 and 18 mo. of age.

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WASHINGTON

TABLE 4.—CORN, SORGHUMS, MIXED GRAINS, AND WHEAT; BY COUNTIES AND MINOR CIVIL DIVISIONS: FEDERAL FARM CENSUS, APR. 1, 1940

(No farms were reported in 1940 for Minor Civil Divisions not shown in either stub or notes)

COUNTY AND MINOR CIVIL DIVISION	Code	CORN								SORGHUMS					MIXED GRAINS THRESHED [1]			WHEAT THRESHED					
		Harvested for all purposes		Harvested for grain			Cut for silage			Hogged or grazed or cut for fodder		Harvested for all purposes except sirup		Harvested for grain			Cut for hay or fodder			Farms reporting	Acres	Bushels	Farms reporting any wheat threshed	Winter Wheat			Spring Wheat		
		Farms reporting	Acres	Farms reporting	Acres	Bushels	Farms reporting	Acres	Tons	Farms reporting	Acres	Farms reporting	Acres	Farms reporting	Acres	Bushels	Farms reporting	Acres	Tons					Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels

[1] Other than a flax and wheat mixture.

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TABLE 5.—OATS AND HAYS; BY COUNTIES AND MINOR CIVIL DIVISIONS: FEDERAL FARM CENSUS, APR. 1, 1940

(No farms were reported in 1940 for Minor Civil Divisions not shown in either stub or notes)

COUNTY AND MINOR CIVIL DIVISION	Code	OATS					ALL HAY, EXCLUSIVE OF SORGHUMS																					
		Farms reporting any oats [1]	Threshed for grain			Cut and fed unthreshed		Farms reporting any hay	Annual legumes saved for hay			Alfalfa hay			Sweetclover hay			Lespedeza hay			Clover or timothy hay, alone or mixed			Small grain hay			All other tame hay			Wild hay		
			Farms reporting	Acres	Bushels	Farms reporting	Acres		Farms reporting	Acres	Tons	Farms reporting	Acres	Tons	Farms reporting	Acres	Tons	Farms reporting	Acres	Tons	Farms reporting	Acres	Tons	Farms reporting	Acres	Tons	Farms reporting	Acres	Tons	Farms reporting	Acres	Tons

[1] Includes oats threshed for grain and oats cut for grain when ripe or nearly ripe and fed unthreshed but does not include oats cut for hay.

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TABLE 6.—BARLEY, RYE, FLAX, BUCKWHEAT, RICE; AND IRISH POTATOES, SWEETPOTATOES AND YAMS, TOBACCO, AND SUGAR BEETS FOR SUGAR; BY COUNTIES AND MINOR CIVIL DIVISIONS: FEDERAL FARM CENSUS, APR. 1, 1940

(No farms were reported in 1940 for Minor Civil Divisions not shown in either stub or notes)

COUNTY AND MINOR CIVIL DIVISION	Code	BARLEY THRESHED			RYE THRESHED			FLAX THRESHED			BUCKWHEAT THRESHED			RICE THRESHED			IRISH POTATOES			SWEETPOTATOES AND YAMS			TOBACCO			SUGAR BEETS FOR SUGAR		
		Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels	Farms reporting	Acres	162-lb bbl. 100-lb bags	Farms reporting	Acres	Bushels	Farms reporting	Acres	Bushels	Farms reporting	Acres	Pounds	Farms reporting	Acres	Tons

A. K. GETMAN

Professional

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Census Facts in War and Peace

Z. R. PETTET, Chief Statistician for Agriculture, Bureau of the Census
F. W. LATHROP, Specialist in Agricultural Education (Research), U. S. Office of Education
E. J. JOHNSON, Regional Agent, Western Region, U. S. Office of Education

WITH war requirements crowding everday needs into the background, there is a tendency to overlook the important peacetime essentials. A little analysis will show that basic information obtained from the Census Bureau often is of paramount importance in making wartime plans and decisions. Now it so happens that a great deal of agricultural and other census information which has been tabulated, designed for peacetime activities of the governmental agencies, for school use, and for citizens at large, often fits exactly into war needs.

Census Data and the War Effort

With the universal interest in war work, it may be interesting to describe how some of these needs are met by the data of the Census Division of Agriculture. Everybody is concerned with the rubber situation, and one of the possible solutions of rubber production is that of guayule rubber. Guayule is a desert shrub which grows wild, but which responds very quickly and readily to irrigation. The consulting engineer working on this problem found it essential to have the latest irrigation maps showing where crops were grown in five of the irrigation states. Such maps were made possible and were prepared because the data in the Agricultural Census are obtained by minor civil divisions and the location of the areas could be platted properly. These same maps were requested, for other purposes, by the Chief Engineer of the War Department and by the Army Air Force for technical uses which cannot be here described. The maps were also reproduced for the consultant of a military subcommittee of the Congress. These are four examples of wartime use of material prepared for peacetime use.

Another good example of the utility of adequate basic statistics may be found in the movement of the Japanese population on the Pacific Coast and the adjustments which were necessary because of the loss of Japanese labor on truck and other farms. The Census of Agriculture data by small geographic units furnished exactly the information needed. Much of this was in shape for immediate use from minor civil division transcriptions, and other material was in shape so that it could be tabulated quickly and readily by machines at a minimum cost.

Data by Minor Civil Divisions

Another use was the furnishing of tabulations by minor civil divisions of land values in order to expedite the purchase of farm land around military posts. In a slightly different class were the tabulations by magnitude of agricultural operations which were needed to throw light on the food situation both for local needs and in planning the export of dairy and poultry products. Two special tabulations were made for this purpose—poultry by size of flock, and milk and dairy products by size of herd. These were made upon the requests of the Interdepartmental Conference Committee on National Food Resources and of the Secretary of Agriculture, respectively.

As the adjustment to war conditions becomes more and more necessary, data regarding the location and production of crops become more and more essential in order that acreages may be expanded to meet the needs when import crops are cut off. Statistics for even such minor crops as aromatic and seasoning herbs are required. The Agricultural Census has these data for very small areas.

Agricultural data for counties or comparable units of area have a limited value because agricultural conditions frequently vary within a county. The data for the next smaller unit of area, the minor civil division, is more significant. By adding the data of the minor civil divisions (for example, townships, towns, etc.) which comprise the service area of a school, it is possible to limit consideration to the area where the students live.

Specific Uses of Minor Civil Division Tables

The data for the minor civil divisions of a school area constitute a survey of that area insofar as the tables relate to the crop and livestock enterprises which are important in that community. This information has many of the uses of a farm survey made by a teacher of agriculture. However, the census data cover all the farms in the community whereas the teacher's farm survey would usually be a sampling of the farms in the community.

These tables might serve as a basis for the study of such production changes as are needed in relation to wartime needs. A study of the acreages and yields of crops and the number of livestock and the amounts of livestock products important in the war effort might show how certain essential foods might be increased. The amount of pasture land which is tillable is quite significant in this connection.

In revising courses of study, these tables will be valuable because they will indicate whether crop and livestock enterprises should receive more or less emphasis than they do at present and sometimes whether they should be included at all. If corresponding data from the 1935 Agricultural Census are available, some indication of trends may appear. Some enterprises will appear to be growing in importance, other enterprises will appear to be declining.

The minor civil division data are invaluable in the study of *farm management*. This will shed light on such questions as:

1. What are the types of farming?
2. Is there a good balance between livestock and crop production?
3. How can land use be made more effective? (The data would be of value in connection with the land use survey of a minor civil division.)
4. How well balanced is the investment in land, buildings, and equipment?
5. How do individual farms compare with minor civil division averages?
6. How widely diversified is the farming of the area?
7. What kinds and amounts of farm products are marketed?
8. What are the seasonal demands for farm labor and equipment?
9. What are the causes and extent of crop failure?

The information on number of farms in the different minor civil divisions will help school administrators and teachers to determine to what extent schools are reaching the farms in their service area.

Several teachers of agriculture located in the same county or in near-by counties, who have the minor civil division tables for their area, may well use this information as the basis of an informal co-operative study in relation to annual programs of work and course-of-study revision.

Following the 1935 Agriculture Census, the Bureau of the Census made photostatic copies of certain minor civil division tables. Many thousands of these copies were sent to schools and especially to teachers of vocational agriculture. The same plan will be followed with relation to the 1940 Census. *Photostatic copies of the six tables, headings of which are shown in the folded insert of this publication*, are available. There are six sheets (18″ x 24″) which can be obtained for $.35 per sheet. Half-size sheets containing the same amount of data cost $.17½ per sheet. If a school service area is in parts of two counties, two sets will be required. When ordering, persons should state in what county or counties the school service area is included. Persons desiring to purchase a set of photostats should make their checks or money orders payable to the Photostat Corporation and mail the same to the Bureau of the Census for handling.

The Bureau of the Census is now working on Minor Civil Division Tables, Second Series. The availability and time of availability of these tables are subject

Census Publications Available

From—BUREAU OF THE CENSUS, DEPARTMENT OF COMMERCE, WASHINGTON, D. C.

	Cost
Heading Facsimile M. C. D. Tabulation Sheet, 1935 Census of Agriculture	Free
Heading Facsimile M. C. D. Tabulation Sheet, First Series, 1940 Census of Agriculture	Free
Duplicate Photostats—1940 Minor Civil Division Figures—County—6 sheets (35c per sheet). By Money Order—Payable to Photostat Corporation (via the Census)	$2.10
Sample Farm Census Schedule—1940	Free
Sample Dot Maps	Free
Reprints of Magazine Articles on the Census	Free
Bulletin Price Lists	Free

From
SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C.

Minor Civil Division Maps—Each State	.10
State Bulletins, 1940 Census of Agriculture (see price lists.)	
First Series.....10–	.35
Second Series.....10–	.35
Third Series.....10–	.30
United States Summaries	
First Series	$ .15
Second Series	.20
Third Series (Chapter X, Volume III)	.35
Volume I. First and Second Series State Reports	
Part 1. New England, Middle Atlantic, East North Central	2.75
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4. East South Central	1.50
5. West South Central	2.25
6. Mountain and Pacific	2.25
Volume II. Third Series State Reports	
Part 1. New England, Middle Atlantic, East North Central, and West North Central	2.75
2. South Atlantic, East South Central, and West South Central	2.75
3. Mountain and Pacific	1.50
Volume III General Report—Statistics by Subjects for the United States. Ten chapters to be published separately as outlined below, and later bound in one volume.....Estimated	2.75

Chapters Now Available

Chapter VII. Livestock and Livestock Products	.30
IX. Fruits and Nuts and Horticultural Specialties	.15
X. Value of Agricultural Production and Farm Income	.35

Chapters Available Before January 1, 1943

Chapter I. Farms and Farm Property.....Estimated	.30
II. Size of Farms.....Estimated	.30
III. Color, Tenure, and Race of Farm Operator.....Estimated	.30
IV. Farm Mortgages and Farm Taxes.....Estimated	.30
V. Work off Farm, Age, and Years on Farm.....Estimated	.30
VI. Co-operation, Labor, Expenditures, Machinery Facilities, and Residence.....Estimated	.30
VIII. Field Crops and Vegetables.....Estimated	.30
Special Poultry Report (paper bound)	1.50
Irrigation Bulletins for 18 States—1940.....10–	.15
Irrigation Maps—Two-Color	.15
Except California and Texas—Two Parts.....Each	.15

Using Feed Price Information

HERMAN M. HAAG, Associate Professor of Agricultural Economics
University of Missouri

THE war effort calls for increased production of foodstuffs including meats, eggs, and dairy products during 1942 and 1943. Emphasis is being placed on getting much of this increase by better feeding of livestock and poultry and less from an increase in numbers. To be effective, this program requires that livestock, dairy cows, and poultry not only be fed proper rations but that these rations be developed to provide nutrients at the lowest possible cost. If this latter objective is attained, the program then will have an economic as well as a patriotic appeal to farmers and will be that much easier to fulfill.

Economical Feeding Necessary

Economical feeding is always important if satisfactory returns are to be obtained from meat animal, dairy, and poultry enterprises, but the emphasis which producers give to feed costs changes with the feed price situation. During the past year, producers of animals and animal products have been favored with relatively cheap feed grains and feeding practices. Feed grain prices, however, already have been rising relative to prices of animals and animal products, and are expected to continue this trend during the next year. Hence farmers may be faced with normal or even some subnormal product-feed price ratios by this time next year. Under such conditions economy in feeding will again receive major consideration from producers.

Choice of Feed

Economical feeding involves the choice of the feedstuff or ration which will provide the required quantity and quality of nutrients at the lowest possible cost, as well as the purchase of such feedstuffs at the proper time to take advantage of seasonal price movements and price level trends. This sounds simple but the job is really complex because a ration which is the cheapest source of nutrients at one time of the year may be expensive in some other season due to fluctuations in prices.

Seasonal Prices

Producers can either buy their feed supplies as needed or they can take advantage of the seasonal low in prices of each feedstuff to buy enough supplies to carry thru the season of higher prices. Which policy will prove most economical depends upon the seasonal variation in prices of the feed and its cost of storage. The seasonal fluctuation in prices of shorts, for example, does not appear great enough under normal conditions to warrant their purchase and storage at the season of lowest prices. On the other hand, the seasonal movement in bran prices usually is sufficient to justify the purchase of a six- to eight-months' supply in August or September. In fact, during the 18 years from 1924-1941, inclusive, Missouri producers who bought their September-April requirements as needed paid at least $1.75 per ton more for bran than those who bought their eight-months' requirements in August. Altho the August price was higher than the average for the succeeding eight months in three years, price savings from the purchase of bran in August for fall and winter needs apparently were in excess of storage costs in 13 of the 18 years and were several times storage costs in six years. The seasonal variation in bran prices is greater than that for most feeds, but prices of many feeds do fluctuate from seasonal influences sufficiently to warrant purchase and storage in the period of seasonally low prices.

Altho seasonal changes in prices have been worked out on the basis of average farm prices or near-by wholesale market prices, teachers of vocational agriculture can be of worth-while service to farmers in their communities by noting any peculiarities of local prices. In some areas, grain prices are below near-by wholesale market prices at harvest time and above central market prices at other seasons, which make for rather sharp seasonal changes in local prices. In such areas, purchase and storage of grain usually is a highly desirable practice.

Seasonal Prices and General Price Level

Another influence affecting seasonal changes in prices is the direction in which the general price level is moving. When the general price level is advancing, the advantage of buying and storing in the period of seasonally low prices is enhanced greatly. This has been apparent to those who have watched feed prices closely since early 1939. On the other hand, the effects of conditions causing a falling general price level may be great enough to offset the effect of normal seasonal movements. For example, a gradual decline of 15 to 20 percent in the general price level from August to April will wipe out completely the normal seasonal increase in bran prices. It is extremely important, then, that teachers of vocational agriculture use not only normal seasonal price movements for their locality, but also their knowledge of expected general price movements during the next year in arriving at the answer to "when to buy a certain feed most economically."

Total Cost of Ration

The second phase of the problem of economical feeding is that of determining which feeds to buy under current price conditions in order to obtain needed nutrients at the lowest possible cost. Since each feedstuff contains both protein and carbohydrates and since a pound of protein usually is several times more valuable than a pound of carbo-

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The Bureau of the Census has also issued a descriptive pamphlet explaining the use of these minor civil division photostated tables. In this publication the data have been assembled and interpreted for a service area of an actual vocational agriculture department. Copies of this pamphlet, "Uses of 1940 Census Data in Schools," are being sent to teachers of vocational agriculture. Free copies can be obtained by writing to the Bureau of the Census, Department

Methods

A. M. FIELD

The Importance of Vocational Agriculture Students' Keeping Accurate Farm Records

SELMER A. ENGENE, Assistant Professor, University of Minnesota

THE keeping of farm records by students can serve as a valuable aid in the teaching of agriculture in high schools. It will help to teach the students the techniques of keeping and analyzing farm records—a part of the farm chores that is becoming increasingly important each year. It can help in teaching the student the sound principles of farm organization and farm practices, it can help to adapt teaching methods to the needs and interests of the individual student.

Importance of Records

Records and farm business analyses based upon them are rapidly becoming an important part of sound farm management. Thousands of farmers are demonstrating the truth of this statement by keeping and analyzing records. Almost 700 farm records covering the year 1941 are being summarized at the University of Minnesota; equal or larger numbers are being summarized in Illinois, Iowa, and other states. The fact that a large proportion of these farmers have continued this work for years indicates that it has been of value to them. The information gained from records can aid the farmer in many ways.

Records are necessary in order to measure accurately the financial success of the year's operations. Changes in cash on hand and in the bank can give only a general measure of the earnings. One farmer in southern Minnesota increased his cash in the bank by almost $1,000 from January 1 to December 31, 1941, in addition to maintaining a good standard of living. This would indicate a high level of earnings and his records showed that they were high.

Records Provide Facts

Another farmer in the same community was disturbed by the fact that he had been unable to increase his cash savings even tho he had paid very little on his debts. His records showed earnings, over farm operating expenses and interest payments, of $4100, *but* $2025 of these earnings were tied up in increased investments in his business. The value of hogs on hand was $533 on January 1 and $1640 on December 31, an increase of $1107. This represented production which had not been marketed and consequently did not appear in his bank account. He also increased his reserves of feed and purchased a combine harvester and hay stacker. The records showed that this man had made very satisfactory earnings during the year.

Another farmer in the same com-

from $8,000 to $7,000 during 1941. Since he was operating a very small business this seemed to indicate satisfactory earnings. But his records showed that he had sold several cows to pay a lumber bill, the reserves of feed had been depleted, and no repairs or replacements of machinery or buildings had been made. Six hundred dollars in debts had been paid by reducing the value of the farm assets; only $400 had been paid out of earnings. The record showed that his financial progress had been small.

Records Necessary for Financial Progress

Situations similar to these have been experienced by numerous farmers, and it is reasonable that they should occur in an industry where the farm capital is large relative to the annual income. Records kept by a group of 150 successful dairy farmers in southeastern Minnesota for the last 14 years show an average farm investment of $22,000. During this same period the farm sales averaged $4900 and farm expenses (not including interest payments and living expenses) averaged $2900, leaving $2000 for paying interest, living expenses, and for savings. With such a large investment relative to net income it is necessary for the farmer to study carefully increases or decreases in the value of his assets in order to measure and plan his financial progress.

Analyzing Records

The farmer can gain the greatest value from the records by analyzing the efficiency of the year's operation. What were the weak spots, and the strong? Were some enterprises more profitable than he thought and did some fail to contribute to his earnings? Was he as efficient in his operations as he could have been? These questions must be asked and answered before he can effectively plan improvements for the future. The analysis should cover at least the following points: size of business, quality of the crop rotation, efficiency of crop production, kinds and number of livestock, efficiency of livestock production, efficiency in the use of labor, efficiency in the use of power and machinery, and efficiency in marketing.

Records and Planning

In addition to providing the basis for analyzing the business, the records will provide valuable data needed for planning improvements in the farming program. For example, records of crop yields will help to select crops or practices

individual farm. Data concerning the feed requirements for livestock will help to plan for adequate feed supplies and for efficient utilization of the feeds available. With information gained from the records, the farmer can make specific and practical plans.

At the present time a discussion of records is not complete without a mention of their value in the preparation of income tax statements. The records can save time, and they can save money by providing an accurate and complete record of the many small expenses that are so easily forgotten.

It must be recognized, however, that farm records are of value only as a source of information. They can help guide the farmer to more successful operation of his farm only if he will summarize the record at frequent intervals during the year and will study those summaries. It is relatively easy for a farmer to keep a good record. It requires more training and experience to analyze it effectively.

Teaching Record Keeping

Records are a valuable part of a farmer's work. He can use them most effectively if he can learn the value and techniques of farm accounting while still a student. He can learn this job, as well as any other, most easily and effectively by actually doing the work, with the instruction and supervision of a trained and experienced person. The high-school student can learn his farm accounting most effectively if he can keep and analyze records of actual farm operations with the help and guidance of his instructor.

Students can gain valuable experience by carefully keeping and analyzing the records that are usually a part of home projects. The amount of information involved in such a project is usually sufficiently small so that the record keeping is not an unduly large chore. The student should not be asked to record information that will be of no value in analyzing the record; and the analysis of the record to evaluate the success of the project, to locate good judgments and errors in conducting the project, and to lay plans for future improvements should be a major part of the project.

Learning to Keep Records on Farm Business

The keeping of a record of the business on the home farm for a full year can well be a part of the work for most students of agriculture. Lack of co-operation by the parents may prevent this in some cases. Such a record should be started by January 1 of the junior year in order that it may be finished by the middle of the senior year, providing half a year in which to analyze the record and gain information from it. In many cases this record can be started, in a simple way at least, during the sophomore or even the freshman year. The keeping and analyzing of the records of a complete farm

Farm Machinery Clinics for Instructors in Agriculture

LOUIS M. SASMAN, Agricultural Supervisor, Wisconsin

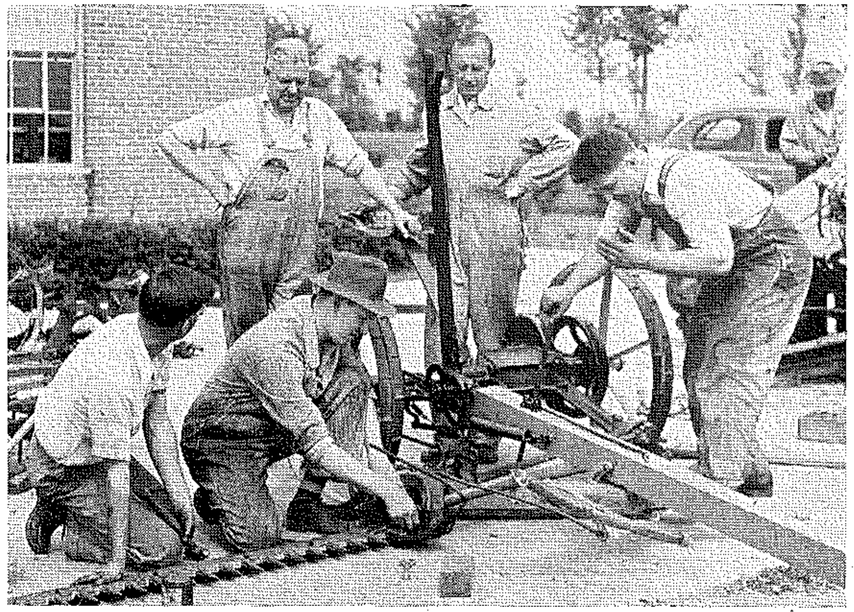
L. M. Sasman

FARM machinery clinics for instructors in vocational agriculture in Wisconsin were held this summer in seven centers over the State and at the College of Agriculture.

The first two of these clinics were held at the Department of Agricultural Engineering at the College of Agriculture, each for one week—the first, preceding, and the second, following, the annual conference of instructors in vocational agriculture.

Contacts were then made with farm machinery companies and farm implement dealers over the state, and clinics were arranged with representatives of the companies or servicemen of the dealers acting as instructors.

Clinics were held for the most part at school shops, altho some were held at the farm implement dealers' places of business. Machinery was furnished either by the instructor in agriculture at the center where the school was held or by local farm implement companies. There was no great amount of theory presented, but a great deal of actual training in the care and repair of farm machinery. The clinics were held at Eau Claire, Janesville, Portage, Marshfield, Seymour, Platteville, and Rice Lake.



Members of a farm machinery repair clinic for instructors in vocational agriculture held at Marshfield, Wisconsin

At the summer conference interest was expressed in having other clinics of a similar nature, a majority of the instructors indicating that they would attend one-week clinics if they were organized.

John F. Jones, assistant supervisor, Rural War Production Training Program, arranged the clinics which were conducted by Mr. Jones, M. W. Cooper, Assistant Supervisor Rural War Production Training Program, and teacher-trainers on the regular program, C. H. Bonsack and I. G. Fay. Boards of Education were advised that these clinics would take the place of district conferences normally held in the winter and that reimbursement would be provided from teacher-training funds not to exceed 50 percent of the expense of the instructor in agriculture.

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with all of the problems involved in farm operation. A large proportion of farm boys of high-school age are not familiar with all of the detailed problems and costs of farm operation. Knowledge of the expenses involved in farm operation may cause many students to use better judgment in spending.

The knowledge of the interest and problems of the student which the instructor gains while helping the student with the records will help to adapt the teaching techniques to the individual case. Information and problems gleaned from the records can frequently be used as a basis for interesting discussions by the class as a whole. The records can be used as a means for co-ordinating the en-

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We are founded as a nation of farmers and in spite of the great growth of our industrial life, it still remains true that our whole system rests upon the farm; that the welfare of the whole community depends upon the welfare of the farmer; the strengthening of country life is the strengthening of the nation.—Theodore

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Obtaining and Holding Attendance at Evening Classes

JAMES B. McINNIS, Teacher,
Lauderdale, Mississippi

MANY vocational instructors can testify that it is sometimes difficult to get wholehearted attention on the part of all the farmers attending an evening class. Especially is this true where all farmers in the evening class center are urged to attend all meetings. The writer has been in the middle of a meeting on soil conservation and had two or three farmers go into a huddle on some phase of poultry production. I noticed the people who were not interested in soil conservation were the men who owned only two or three acres of land.

Organization

I ran into similar difficulties when other subjects were being taught so I decided to experiment. At the next poultry meeting that was held in the community, I steered the farmers into organizing a community poultry association with its own officers and board of directors. There was created an immediate interest that I had not obtained before. The charter members of the organization put on a membership drive and enrolled all the farmers in the community who were interested in poultry production. In this association, co-operative buying and selling were coupled with the educational program. Since its organization it has not been necessary to spend any time in stimulating evening-class meetings and attendance on poultry production. In fact as vocational instructor, I have found it necessary at times to request the officers for a longer interval between meetings.

After this initial success, a community cotton association, peanut producers association, and a beef cattle association were formed. A horse and mule association is now in the formative stages.

Place of Meetings

Evening-class students, at the present time, meet at the vocational building regardless of the center in which they may live. The term "evening class" has disappeared from the community and instead these meetings are referred to as the "cotton meeting" or the "poultry club."

Of course there are a few meetings held during the year at the community centers but the main objectives of the evening-class program are accomplished thru the community associations.

This system of evening-class instruction has saved the vocational instructor many hours of time in creating interest in evening classes, and at the same time, the total enrollment in evening classes has increased more than 25 percent.

The volume of changed practices increased more than 200 percent the first year, and it is still growing.

Full control of these organizations is vested in the farmers, and everyone present is vitally interested in the subject being taught because his farming operations include that particular en-

Supervised Practice

C. L. ANGERER

Florida's Farm Forestry Program

WILLIAM F. JACOBS, Assistant State Forester, Tallahassee, Florida

DEEP in the wooded wilds of central Florida, on the banks of a stream that the Indians called the Santaffee and white men know as the Santa Fe, is nestled a group of 28 rustic buildings. Built by the Florida Forest and Park Service and designed to accommodate 140 people, Camp O'Leno was conceived and constructed as a place to provide practical forestry instruction and field training for the Future Farmers of Florida.

For eight years now, the representatives from Florida chapters have assembled in midsummer for two weeks' free and intensive forestry study under ideal conditions. Each week day, five hours are devoted to some particular phase of the subject, and each trainee is taken on three all-day field trips that include private, State, and Federal forest properties. The trainees, one from each Future Farmer Chapter, are selected by their vocational agriculture teachers for their interest and accomplishments in forestry during the school term.

Beginning of Program

Future Farmer forestry in Florida began in 1929. In its beginning, it was promulgated strictly from a forester's viewpoint. While it presented a well-rounded picture of forestry, with special emphasis on fire control and reforestation, it gave little thought to the farmer or his farm program.

From the beginning, participation by any given school was entirely voluntary and depended upon the interest of the individual teacher. In order to encourage general participation, the forestry instruction was put on a competitive basis; the prizes, at first, being awarded by the American Forestry Association. For the outstanding student, this prize consisted of a trip to the National Future Farmer Convention at Kansas City and, for the outstanding teacher, $100 in cash.

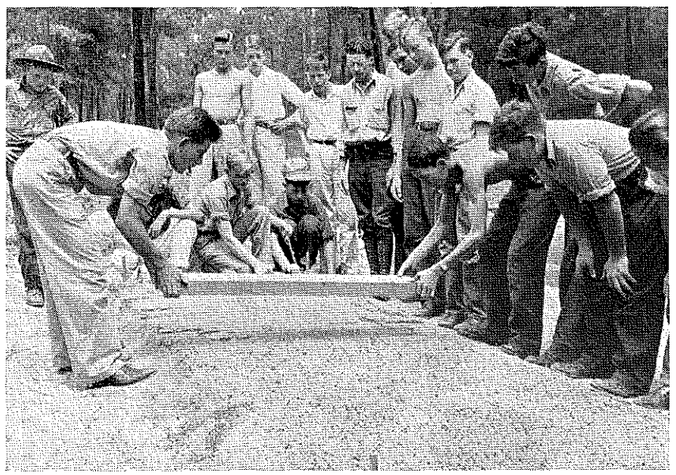
In the spring of 1932, and with the crystallization of Florida's forestry organization, the supervision of the program was delegated to the Branch of Publicity, Information and Education, of which Assistant State Forester A. D. Folweiler was then the chief. Folweiler's first act was to attend the 1932 summer conference of the agricultural teachers and invite their criticisms and suggestions for making the program as practical and effective as possible.

Forestry Curriculum

As a result, the forestry curriculum was reorganized on a two-year basis, with tentative plans for a third year, in the form of practical management plans for students' own farm woodlands. While form basis for the whole state, the field activities suggested were made flexible enough to be adapted to the extreme forestry conditions that exist between north and south Florida. Finally, it was agreed that the forest service should assign a technical forester almost full time as an itinerant instructor.

The curriculum, as reorganized, was comprised of five first-year subjects, namely: An Introduction to Forestry, Seed Collection, Forest Protection, Planting, and Nursery Practices, and four second-year subjects, namely: Silviculture, Mensuration, Wood Technology, and Timber Utilization.

This revised program was launched in the fall of 1932. Since seed collecting needed to be done immediately upon the opening of the school and before the itinerant forestry instructor could possibly make the rounds, this job was delegated to the agriculture teachers themselves. By contacting each school four times, it was possible for the traveling forester to provide the instruction in the other four first-year subjects and all second-year subjects where second-year study groups existed.



Future Farmers preparing a pine seed bed

Program on Voluntary Basis

Participation was still on a voluntary basis but all of the agricultural high schools took part. Adjusted to revisions in the program, the award for outstanding work was now to recognize a teacher and a student from both the northern and the southern part of the state. Furtwo-weeks conducted tour of forestry and conservation properties lying between Florida and Washington, D. C.

The 1932-33 school term proved most successful with some 47 schools and more than 1,000 farm boys participating. There was some embarrassment at the end of the year with respect to financing the promised tour. This was solved by the generosity of Charles Lathrop Pack, and the tour was made in August, 1933. G. H. Collingwood, then forester for the American Forestry Association, served as host to the group during its brief stop-over in the nation's capital. Probably the high spot of the visit was an audience with Chief Forester Bob Stewart.

Agriculture Teachers Give Some Instruction

The initiation of the Civilian Conservation Corps that same year created such a demand for technical men that it was not possible to assign a forester to the agricultural forestry work during the school term of 1933-34, but teaching outlines covering each of the nine subjects were printed and placed in the hands of the agriculture teachers. An inspection trip was made in the spring of 1934, and it was found that a surprisingly good job had been done, particularly in the first-year subjects.

This was partly due to the fact that teachers had absorbed much of the information and many of the techniques employed by the forester the year before and partly due to the fact that the material presented in the teaching outlines was not prepared strictly from a forester's viewpoint but was adapted to farm forestry, which these non-technical instructors could better grasp.

Another innovation was the elimina-

ed recipients in favor of a two weeks' forestry training camp to which one outstanding student from each Future Farmer Chapter was eligible and all teachers were invited. The first camp was held during the summer of 1933 at Camp Echockotee at Orange Park and was attended by 60 boys and five teachers.

From that time on, the forestry program has become increasingly practical and valued in the Florida Smith-Hughes agricultural program. While a technical instructor was lacking only two years, the number of schools to adopt agricultural departments increased so greatly that it would have taken two or more men to cover the state as effectively as was done by the first ranger.

Program Grows

While this fact was soon apparent, the funds for increasing the teaching personnel were not available. The problem was placed before the teachers at their 1938 summer conference. A special committee was appointed to study the matter, and the suggestions made by it were unanimously adopted. These were:

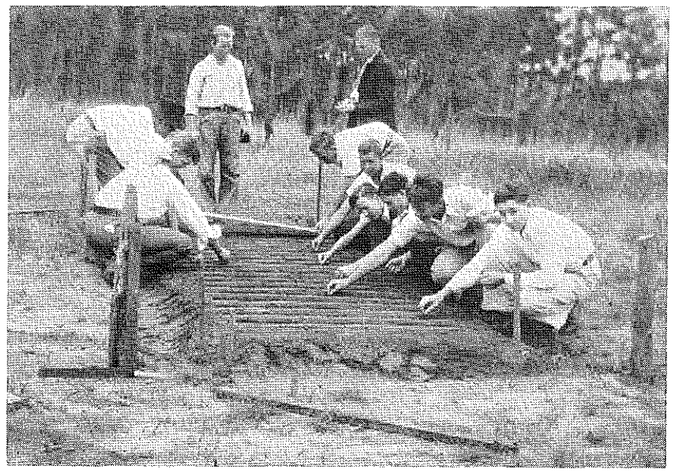
1. That the forest service continue to keep one full-time forester on the job as an itinerant supervisor of farm forestry teaching.
2. That the nine subject outlines being used in the forestry teaching be broken down into a series of job teaching units.
3. That a special summer training camp be conducted for the teachers.

Accordingly, the department has kept a forester assigned to the job except for brief intervals when personnel changes made the assignment of a new man necessary. The special summer camp was held in 1939 in co-operation with the summer school of the University of Florida and was attended by almost all the teachers and several trainees not at that time assigned to schools. The assistant state forester in charge of the educational work was listed on the University Summer School staff and those attending were given college credit for a course in Methods in Farm Forestry Teaching.

Out of the camp came the realization the 1938 summer teachers' conference. The nine forestry subject outlines were tentatively broken down into almost 20 job teaching units. Thirteen of these have now been put in final form, printed, and put into use by the teachers. Four more are still in process of preparation but will eventually be available.

These job teaching units, designed after the Smith-Hughes technique, permit complete flexibility of the forestry program and its adaptation by the teacher to the particular community. The degree to which teaching is done and its effectiveness are still largely determined by the community's needs and the teacher's interest.

The forest service still provides the Future Farmer Chapters with free seed and seedling trees for planting, but an increasing number of chapters are collecting their own seed and raising their own trees. Last season, the Florida chapters planted almost ½ million trees. While their requests for pine seed totaled more than 100 pounds, some of the chapters collected all they needed and had surpluses to sell to the state tree nursery.



Future Farmers planting pine seed

School Forests

Several of the chapters have secured a piece of land for a school forest. More have carried on their forestry activity either on farms of landowners in the vicinity of the school or on the farms of members of the chapter. These areas serve as local demonstrations in the community.

Usually, the chapters' forestry field program includes fire control, planting, thinning, and other cultural practices. In south Florida, several of the chapters are co-operating with the Florida Forest and Park Service in experimental planting of exotic trees in an effort to find new, desirable species for reforesting the waste lands in that part of the state. County forest fire control in Dade County has been undertaken largely as the result of the pioneer fire control efforts of the Future Farmer chapters in that county.

Home Forestry Projects

been outstanding might be cited. One south Florida boy established a seed bed for windbreak planting stock that proved so profitable that he continued the enterprise for the next two years. By the time he graduated from high school he had bought up the mortgage on his father's farm, his funds being largely derived from the sale of these windbreak trees to truck farmers and grove owners in his community. A north Florida boy, with a pine gum farming project, was so successful that he expanded his operation by leasing trees in his neighbor's woods. After three years, he sold a half interest in the enterprise to his brother and is now attending college on the proceeds from his gum farming. Several of the Future Farmers became so interested in forestry that they made it their college major and are now in the forestry profession.

The annual summer training camp continues to exist, and the teaching program is continuously improved. It was originally believed that the boys selected to attend this training should be first-year boys so that they could be of assistance to the teacher in the local chapter during the ensuing year. In many cases, either the boy was reluctant to assist in the classroom program or the teacher failed to take advantage of the boy's training. Also, since the instruction received by the boy was of a more intensive type than was ordinarily provided in the local school, the classroom forestry sometimes proved boring to the boy subsequent to his attendance at camp; or the teacher, knowing his own lack of forestry training, was embarrassed in the presence of the boy who had attended camp. At the suggestion of the teachers, it was decided that the better procedure was to select a second-year agricultural student and do so on the basis of two years' interest and work. Ordinarily, the student would not be in the agricultural classes another year, but should he continue in agriculture a third year, his forestry work would be carried on in terms of practical projects on his home farm.

Camp Has Many Uses

In the meantime, Camp O'Leno has come to mean more than just the site for forestry training. It has always been available to the individual chapters for camping trips. It is near enough to Gainesville where the annual F.F.A. Convention is held that one day can be spent at the camp by the delegates to the annual meeting. Last year, the Leadership Training Conference was conducted there. Camp O'Leno has become Florida F.F.A. tradition, and to the credit of the Smith-Hughes program is the fact that it pioneered farm forestry in Florida and to the present time has been the most effective channel for arousing the interest of the rural population in timber as a farm crop.

Rubber

About 10 million seeds of the Hevea rubber tree have been planted in a dozen Central and South American republics, and research aimed at control of disease and improving yields is under way by the United States Department of Agriculture in co-operation with these

Farmer Classes

J. B. McCLELLAND W. H. MARTIN

Factors Contributing to the Popularity of Rural Defense Training Classes

E. B. KNIGHT, Associate Professor Agricultural Education, University of Tennessee

E. B. Knight

WHY did out-of-school rural young men receive Pre-employment (General) Defense Training Classes so enthusiastically? Why did students enroll without intensive solicitation? What caused class attendance to be so regular? What kept student interest at such a high level? What youth needs did these classes serve? What lessons can be learned from defense training groups by rural vocational educators?

Answers to the above and numerous other questions were sought in a study made co-operatively by the Department of Agricultural Education and the State Division of Vocational Education of Tennessee. Included in this research were data from 650 rural young men who for some weeks had been attending 62 defense training classes sponsored by 41 Tennessee teachers of vocational agriculture. The individuals surveyed lived in communities well distributed thruout the state. Each of the four types of courses was adequately represented.

Some Personal Factors

Sixty-eight percent of the participants had not reached their twenty-second birthday. Therefore, they were still rather school-minded, conscious of their proximity to the mystic age of 21, and cognizant that as adults they must earn a living. Ninety-five percent still resided at home; hence the young men were semi-dependent on their parents. As a consequence, undoubtedly, many were ambitions for some form of training which would permit them to be occupationally and financially self-sufficient. Only one-fifth were married; so a large majority did not have immediate family responsibilities—which necessitated that they proceed cautiously with their vocational plans.

Home Situations

Data regarding the home situations show that two-thirds of the defense training class members had at least one brother and one sister residing at home. The median size of the home farm was 81.8 acres while the average size for the 50 percent reporting family-owned land was 93.8 acres. Thirty-two and nine-tenths acres was the median amount of land in crop. The students generally came from small farms which called for ly the father-operator. The presence of at-home brothers and sisters, the limited family income, and the absence of opportunity for permanent home employment were all factors which caused youths to grasp avidly at what appeared to be a chance to help themselves.

Educational Considerations

A majority, 61.0 percent, of these Tennessee defense training class students had received some high-school training. However, 37 percent had never attended secondary institutions so that the educational median for all participating in the study was 9.8 grades. Many individuals were handicapped by being automatically unqualified for work requiring a high-school diploma. Incidentally, 17.3 years was the mean (average) age at which, taken as a whole, the young men had terminated their respective school careers. Some 45 percent stated they had stopped attending school either in order to go to work or to help at home while 15.1 percent named graduation as the cause, and 9.5 percent indicated they disliked school or were disinterested.

From the standpoint of vocational education, 37.4 percent had been members of Smith-Hughes high-school agricultural classes with 24.3 percent indicating two or more years of this form of instruction. Less than nine percent had been affiliated with agricultural part-time classes. All in all, these youths seemingly recognized the inadequacy of their educational and vocational preparation and thru the medium of the local defense training class program were making a determined effort to surmount such obstacles.

Occupational Influences

Just one-half of the 650 participating youths named farming as their current occupation, while 22.6 percent were employed in industries. Somewhat more of the associated fathers, 55.8 percent, were farmers while considerably fewer fathers, 15.1 percent, were engaged in industrial pursuits. The adult occupational selections of the respondents were tabulated and these tabulations showed that 22.1 percent planned to farm and 51.7 percent selected industrial fields. It is possible that the tremendous impetus industry has received due to wartime conditions and the very nature of the defense training class offering, strongly influenced the replies received. Despite this, it is clear that numerous rural young men have little desire to follow in their fathers' occupational footsteps and are on the lookout for favorable prospects in other vocational areas.

ployment General Training groups were told that the training they received would be elementary in nature and would not be designed to produce expert mechanics. Announcement was made concerning advanced courses which might be taken at near-by centers following completion of the local class. As a routine procedure each student was also placed on the register of the Tennessee State Employment Service, but none was assured of a job as a result of his class attendance.

In view of these precautions, it is interesting to note the three major ways the 650 defense training class members felt such work would help them personally. These are as follows:

1. Train for a trade . . . . . 29.1 percent
2. Lead to or provide jobs . 27.4 percent
3. Teach skills for home use . 21.8 percent

Apparently, these out-of-school rural young men were expecting direct benefits from class training, especially those of the type which would enable them to secure employment in non-farming fields. By their attendance they tacitly admitted both their present lack of skills in the area covered by the local class and their desire to try themselves out in work differing materially from their current occupation. The answers received gave evidence of a fervent wish to develop sufficient proficiency in a given field to warrant being publicly recognized because of that ability. Closely associated with this ambition is the need for some kind of employment which will insure the youth's independence and enable him to become soundly established as a worth-while member of society.

Implications for Rural Vocational Educators

Many implications may be evolved from a study of this nature. Among those which seem to be of moment to persons responsible for the vocational training of out-of-school rural young men are the following:

1. Many out-of-school rural young men crave occupational and financial self-sufficiency.
2. Home farm opportunities are not sufficient to care for a large proportion of youths ambitious for permanent, full-time employment.
3. The majority of out-of-school rural youth, at best, have limited educational and vocational training. Consequently they are seriously handicapped for many types of work.
4. Farming is viewed as a temporary pursuit by numerous farm youths who are on the lookout for opportunities in other vocations.
5. Rural young men are especially eager to undergo a type of training which will teach them skills leading both to jobs and to personal recognition as worth-while members of the community.
6. Directly usable materials, such as skills which are closely associated with the doing phases of vocational life, might well be utilized to promote student appreciation of the more abstract aspects of

Factors Which Contribute Toward Regular Attendance in the Comprehensive Adult Schools

R. L. AMSBERRY, Instructor, Harlan, Iowa

IN A survey conducted by the writer in co-operation with Mr. R. C. Lorenz, Superintendent of Schools, Lohrville, Iowa, we tried to find the characteristics of the teacher and of the procedures used which might encourage and stimulate regular attendance in comprehensive adult schools. We were not satisfied with the reasons usually given for attendance, such as desire for advancement, cultural improvement, development of better use of leisure time, etc.

We prepared a table of 24 factors which we thought would tend to affect the regularity of attendance of an adult pupil. Each pupil was asked to check each factor as to its influence upon his attendance. The 24 factors listed were divided into two groups. The first group of seven referred to the teacher and his presentation of the subject matter. The second group of 17 factors pertained more specifically to the adult and his attendance at school. The directors of the schools were also asked to rank the same factors. Four comprehensive adult schools were studied—Marengo, Lake City, Lohrville, and Rockwell City, Iowa.

Factors Used in Study

Below is listed in order of importance a composite ranking of the factors as marked by the students and the directors of the four schools, with regard to the seven traits of the teacher and his presentation of the subject matter and how these affect the pupil's regular attendance at the adult schools.

1. Knowledge of subject matter.
2. Personality of the teacher.
3. Presentation of the lesson.
4. Organization of the lesson material.
5. Preparation of the lesson material.
6. Use of general topics in the course.
7. Use of unit topics in the course.

We must keep in mind that the adult is not compelled to attend classes as is the day-school student. The adult wants to make sure that he will learn something, and he wants an instructor who has a knowledge of the subject matter being taught. Ranking a close second to the knowledge of the subject matter is the personality of the teacher.

The presentation of the lesson material and the organization of the materials are of about the same importance in the eyes of the adult students. They are a little more interested in the way the material is presented than they are in the organization of the materials. The adults ranked the preparation of the lesson in fifth place. One would conclude that they reason that if the lesson is well presented the instructor has the lesson well prepared.

It has long been a matter for discussion among the instructors of adult classes as to whether one should teach a series of topics on one unit or whether he should use a series of topics of a general nature, even if the topics were unrelated. The survey clearly brought out the fact that the general topic method is preferable. Perhaps, as will be shown later, since the students select the subjects which have topic plan gives them an opportunity to select those topics which are of current interest to the greatest number of pupils. The use of the unit topic methods, while it no doubt allows for a more thoro teaching job, does not interest as large a percentage of the students in the class. The adult will often stay away when topics in which he is not interested are discussed.

Apparently it is not the big publicity campaign put on for the adult school, nor the time of the year the school is held, nor the popularity of the courses offered that cause the adults to attend the comprehensive adult school regularly, but it is the student's personal interest in the subject being taught. At least, that is the opinion of the students surveyed. Listed below in the order of importance are the 17 factors mentioned above which influence regular attendance in the comprehensive adult schools, according to the survey.

1. Personal interest in the subject.
2. The open forum.
3. Practicability of the course.
4. Practicability of the speakers used.
5. Time of the year the school is held.
6. Health.
7. Class loyalty.
8. Popularity of the course.
9. Personal pride in maintaining attendance.
10. Weather.
11. Other social activities.
12. Special work, as corn picking.
13. Publicity campaign.
14. Rewards of attendance.
15. Children at home.
16. Lesson preparation required.
17. Regular seats assigned.

The open forum plays such an important part in the keeping of a regular attendance that the rural people of three of the schools were of the opinion that it should be in first place. But in the composite ranking, personal interest in the subject was first and the open forum was second.

Course Must be Practical

The adult student wants the courses offered to be practical. He also wants outside speakers to be practical in the presentation of the materials they bring to the classes. The students placed these two demands in third and fourth place in the rank of factors which influence regular attendance. When a teacher or a speaker can keep his materials on a practical basis, he usually has a well-grounded knowledge of the subject matter, and knowledge of subject matter is paramount in the thinking of the adult. As will be recalled it stood at the top of the preceding list.

The adult schools of Iowa have two rather definite times of the year of starting the course series; namely, in September and after corn picking in November or December. The interference of corn picking has usually been held as an obstacle for securing a regular attendance in the adult schools. This is the reason that a majority of the schools be-

The success of the Lohrville and Marengo schools has proved rather conclusively that corn picking is not an insurmountable obstacle. The results of this survey show that the time of the year the school is held has significance, being ranked fifth, but the item "Special work, such as corn picking" ranked down to twelfth place. Apparently, the people will attend the classes if the subject matter is to their liking, is presented well, and is practical. The time when the material is presented is of little importance. A previous survey of the Lohrville community showed that 70 percent of the farmers wished to have the adult school start in September.

The urban people believed that class loyalty was an important factor in regular attendance, but the rural people did not consider it so important. Class loyalty occupied seventh place. Personal pride in maintaining regular attendance ranked next to class loyalty or in the median position of the factors. The weather, other social activity, and special work, such as corn picking, have some effect upon regular attendance, but not as much as is often predicted.

The publicity campaign is thought by the students to have very little effect on their attendance. The directors, on the other hand, ranked this item as a tie for first place. It is possible that there is a difference of opinion as to what is considered a publicity campaign.

According to this survey, rewards for attendance are not needed to get the people to come to the schools. Nor do children in the home prevent attendance because the well-conducted nurseries of the schools solve the children problem fairly well for those who cannot secure someone to stay with the children in the homes. Whether or not lesson assignments and preparation are given does not seem to affect the attendance. This item placed next to the last of the list.

We realize that this study shows the results of the thinking of only those pupils who attended the comprehensive adult schools the night the survey was made. For this reason, it probably does not show a true picture of the cause for irregular attendance because it is highly probable that those persons surveyed are the ones who attend the adult schools most regularly. However, since the whole population of those attending that night was surveyed, and since our records show that those who attend most irregularly are not all absent from school the same night, but that the attendance is staggered, we believe that the results of this survey should be significant.

Summary

This survey indicates that the adults will attend the comprehensive adult school regularly if they are interested in the subjects offered. The material must be presented in a practical way by an instructor who is well acquainted with his subject matter.

Contrary to past beliefs, the time of the year the school is held and the weather do not play a very important part in regular attendance.

The study has also proved that the open forum has an important part in securing regular attendance of these schools. So important was this factor that we would assume that it should always be considered in the organization of a

Farm Mechanics

L. B. POLLOM

Rural War Production Training and the War Effort

G. C. COOK, Special Representative Rural War Production Training,
U. S. Office of Education

G. C. Cook

Schools cannot function as usual in trying times such as we are experiencing at present. Many changes in school curriculums and teacher schedules can and should be made. Teachers of vocational agriculture are expected to assist in the war effort by offering courses which will meet the need of local farmers. They should be relieved of a portion of their regular teaching loads, extra-curricular activities, and other duties not specifically or directly connected with the war effort, in order to permit them to have time to do an effective job of teaching and supervising courses in adult education in agriculture, including the Rural War Production Training courses.

Responsibility of Schools

The chief function of the public school is to provide a community center which will best meet the needs and interests of the persons served by it. This year more than ever before, with the increased emphasis on commodity production in order to produce sufficient *food for victory*, it becomes increasingly important for secondary schools thruout the country to provide intensive courses of systematic instruction for farmers. State and local administrators and teachers of vocational agriculture have a definite responsibility for providing courses which will best meet the needs of farmers in their particular communities. Adult education offers the public schools one of the finest opportunities to be of service to individuals in the respective communities. The teacher of vocational agriculture is in a strategic position in the community to develop a complete program in adult education in agriculture that will contribute to the war effort.

Scope of Program

It is estimated that the $15,000,000 made available thru Public Law 647, Subdivision 3, for the fiscal year, 1942-43, will provide the necessary funds for sponsoring 60,000 training courses. Since there are approximately 10,000 departments of vocational agriculture in the United States, it will be possible to have an average of six of these courses sponsored by each department of vocational agriculture. Since it will be impossible for the teacher of vocational agriculture will be necessary to secure other qualified persons to teach a number of these courses. Local tradesmen will be employed to teach many of the mechanical courses, with farmers and other qualified persons employed to teach the commodity courses. An extensive program of this type will meet the needs of a large number of individuals thruout a community.

Course Content

The teacher of vocational agriculture should contact the farmers in his community to determine their needs for commodity courses and make a list of the approved practices which should be put into action. This list should be reviewed with an advisory committee and their suggestions noted. A part of the first meeting of the course should be devoted to discussing with the group the jobs and problems which should be included. These jobs and problems agreed upon by the group and the teacher should be listed on the blackboard. The group should then decide on the day and hour for each meeting and also the dates that each job or problem will be discussed. In this way the farmers will have a definite part in deciding on the course, the content of material, and the date on which it will be discussed.

First consideration in the commodity courses should be given to immediate problems of farmers which will aid them in meeting the commodity production goals. Some farmers will need to improve their feeding practices, some will need to improve sanitation practices, while others will desire to improve a number of operations in efficient production. The courses should include those approved practices which the farmers can and will adopt as a result of the instruction.

The course in the repair, operation, and construction of farm machinery and equipment should provide opportunity for those enrolled to develop abilities in the skills necessary in performing the jobs essential to putting their farm machinery and equipment in proper condition. Some farmers will have need for systematic instruction in the construction of farm equipment such as feeders, individual hog houses, portable brooder houses, and trailers which they will need in order to save labor on the farm, to aid them in meeting their war production goals, as well as for more efficient production.

Suggested outlines—namely, Misc. 2613, 2614, 2615, and 2616—have been provided for the first four mechanical courses by the U. S. Office of Education. In deciding which of these courses are to be offered, first consideration should be

Teaching Procedure

Teachers of the commodity courses have found that the conference procedure which consists of systematic group discussion, participated in by persons who have had experience in the area being discussed and directed by a competent leader, is one of the best procedures. Under this procedure the following plan may be followed:

1. Introduce the job or problem
2. Analyze the job or problem
3. Call for experiences of the group
4. Present scientific data
5. Evaluate the experiences and facts in terms of local needs
6. Decide on the best conclusions
7. Decide on a plan of action listing the approved practices
8. Decide on a plan of follow-up

The physical facilities of the room should provide a desirable place for the discussion. Several tables and chairs should be provided and arranged so that all members can face the leader and be at ease. A blackboard should be provided and placed where all can see it. The room should be well lighted, heated, and ventilated.

Near the close of each meeting the teacher should ask the group to suggest the approved practices which they can and will adopt as a result of the instruction. A record of the approved practices each enrollee plans to adopt should be kept by the teacher. These should be kept for use in follow-up of the instruction.

It is also desirable for the teacher, near the close of the meeting, to ask the group to suggest the problems they would like to have discussed in connection with the job to be taken up at the next meeting. This will give the teacher an opportunity to organize the needed information and teaching aids to cover these problems before the next meeting. It also helps the farmers to know what will be discussed at the next meeting and will stimulate them to attend.

In conducting the mechanical courses, the teacher or local supervisor should see that sufficient jobs and projects are on hand before each class period. It is important that there be a sufficient number of jobs to enable all enrollees to participate in worth-while activities at all times. Provision should also be made to enable all enrollees to develop a variety of needed abilities and skills before completion of the course. It is essential that the teacher give frequent demonstrations on the jobs which are to be done and see that all understand and know how to perform the essential operations. This should be followed by the individual's participation in the doing of the job under the supervision of the instructor. Considerable teaching is necessary with the supervision in order that the work of the individuals may be carefully observed and their performance noted. There will be many opportunities for the teacher to observe individual members in their selection of plans, materials, supplies, and

enrollees use the tools correctly to perform the different operations as demonstrated and that satisfactory workmanship is accomplished in the job done.

The appropriation provides for five shop courses and, in addition, commodity courses which are designed to meet the needs of farmers in obtaining the production goals of those farm commodities designated from time to time in the farm defense program and promulgated by the Secretary of Agriculture. The courses which have been approved by the Chairman of the War Manpower Commission to be offered under Public Law 647, Subdivision 3, are as follows:

1. Operation, care, and repair of tractors, trucks, and automobiles (including both gas and Diesel engines)
2. Metalwork, including welding, tempering, drilling, shaping, and machinery repair
3. Woodworking. This course must not include furniture making, cabinet work, or model making
4. Elementary electricity, including operation, care, and repair of electrical equipment, and wiring for light and power
5. Repair, operation, and construction of farm machinery and equipment
6. Increasing milk production
7. Increasing poultry production (meats)
8. Increasing egg production
9. Increasing pork production
10. Increasing beef production
11. Increasing mutton, lamb, and wool production
12. Increasing soybean production
13. Increasing peanut production
14. Increasing vegetable production (commercial)

Additional information concerning these courses can be found in Misc. 2600 (revised July, 1942), U. S. Office of Education.

Determining Courses to Teach

Before courses are organized, a careful study should be made of the needs of out-of-school persons for mechanical training, production goals, and the farm machinery situation on the individual farms to determine the character and extent of the local needs. In many communities the teacher of vocational agriculture will have made previous studies which will be valuable to him in determining the needs of the individual farmers. Teachers who have been located in their communities for a period of years will have made sufficient contacts with farmers to know which crops and livestock are being produced, which practices are being followed, and which recognized approved practices should be stressed. An advisory committee can also render valuable assistance in helping the teacher to decide what courses should be taught. Many teachers of vocational agriculture have courses planned as a part of long-time program in adult education in agriculture. These and many other courses should be offered.

There are several commodity courses which will aid farmers thru systematic instruction in making and carrying out their plans to attain the commodity goals designated by the Secretary of Agriculture. The teacher of vocational agriculture should make a thoro study of his community to determine which of these courses should be given primary con-

Due to the shortage of new farm machinery and new materials, it is important that courses in the repair, operation, and construction of farm machinery and equipment be offered. Farmers should be given an opportunity thru systematic instruction to develop abilities in the repair of farm machinery, and as a result of this training get their farm machinery repaired so as to have it in the best possible operating condition. Individuals who can profit by the first four courses should have an opportunity to enroll for this type of instruction.

Where to Hold Courses

The first five courses may be held in such places as school farm shops, blacksmith shops, general repair shops, county or state repair shops, implement dealers' warehouses or shops, local garages, or other trade shops. The commodity courses may be held in such places as the classroom of the department of vocational agriculture, one-room rural schools, farm homes, village schools, country churches, farm organization halls, and other centers where it is convenient for farmers to meet. Many courses should be held in rural centers thruout the community since most farmers prefer to attend a meeting at a central point in their immediate area rather than to come to the local high school. The rural one-room school has proved to be one of the best places to hold courses in adult education. Such centers are especially important under the present rationing of tires in order that farmers will not have far to travel to attend such courses.

Selecting Enrollees

Every effort should be made to enroll farmers who need to develop the effective ability to repair farm machinery and to enroll farmers who have immediate problems in commodity production. Out-of-school persons who can profit by the instruction should be encouraged to enroll in the first four mechanical courses. In other words, individuals who can profit by the experience should be enrolled in courses which will best meet their particular needs. Farmers who will adopt recognized approved practices as a result of the systematic instruction offered should be given first consideration in the commodity courses. Young men can profit greatly by enrolling in one of the first four shop courses. Many young men will no doubt become a part of the armed forces and should find the mechanical training received in these courses valuable to them while in the service. A number of methods may be used in securing and maintaining enrollment, some of which are as follows:

1. Frequent visits by the teacher of vocational agriculture to the homes of farmers and other interested individuals
2. Announcement of meetings to parents and others by boys enrolled in all-day classes
3. Announcements by news items, telephone, postal cards, circular letters, posters, radio, and screen
4. Invitations from former evening-school members to others to attend
5. Organization of an attendance committee to invite members to attend
6. Discussion in the meetings of worth-
7. Notices to farmers thru the rural schools

Follow-up: Teaching on the Job

In order that the instruction may be effective, it is the responsibility of the teacher of vocational agriculture to follow up the instruction in the commodity courses with thoro teaching on the job. He can be of assistance to farmers by visiting them just previous to or at the time of performing the various jobs in order to assist them thru the giving of information and demonstrations on the doing of these jobs. He should make frequent visits to the farmers' homes and give them assistance, not only with the immediate jobs and problems included in the course, but with others in which the farmers need help. The teacher of vocational agriculture should also keep a definite record of those approved practices which the farmers have adopted as a result of the instruction. The results obtained thru the use of these practices are invaluable for use in future evening schools in agriculture.

Evaluation

Some criteria should be outlined for evaluating the program in terms of the objectives set up. It is important to do this in order that the teacher may find out the strong points and weaknesses of the program so that he may improve the instruction in the future. Some of the criteria which may be considered are:

1. Were objectives outlined for the course in terms of individual needs?
2. Was the course content based on immediate farm problems?
3. Did the instruction assist the enrollees to meet the objectives outlined for the course?
4. Was the course sufficiently limited in scope to be thoroly covered?
5. Was the center well located with desirable facilities?
6. Was an advisory committee used?
7. Was a desirable publicity program used?
8. Was the conference procedure used in conducting discussions?
9. Were worth-while projects and jobs included in the instruction?
10. Was careful planning done by the teacher?
11. Was effective teaching done while supervising in the shop?
12. Were the abilities of the enrollees developed?
13. Were a variety of approved practices adopted as a result of the instruction?
14. Was a long-time program planned?
15. Was a strong follow-up program used?

There may be numerous other criteria which the local instructor will desire to use in evaluating his program to determine whether he did the best possible job of meeting the needs of the community.

At the head of all science and arts, at the head of all civilization and progress, stands not militarism, the science that kills, not commerce, the art that accumulates wealth; but agriculture, the mother of all industry, and the maintainer of life.

Studies and Investigations

C. S. ANDERSON

An Evaluation of the Participating Experiences in the Pre-Service Professional Training Program of Teachers of Vocational Agriculture at Ohio State University

RALPH E. BENDER, Instructor in Agricultural Education, Ohio State University

R. E. Bender

IN THE opening sentence of the famous "House Divided" speech, Abraham Lincoln said, "If we could first know where we are and whither we are tending, we could better judge what to do and how to do it." This statement is applicable to a program of teacher-training in vocational education in agriculture. Many changes have been made in the teacher-training program in recent years, most of which, it is assumed, have been for improvement. It is natural to think that other changes will be made. What will be the basis for such changes? It seems wise that an evaluation be made to determine what we have done and how well it has been done before we decide to make changes in the practices or policies.

Purpose of the Study

The primary aim of this study is to determine how well prospective teachers of vocational agriculture believe they are being trained in order to serve as a basis for making suggestions concerning the improvement of the training program.

The underlying and basic purposes prompting this study and contributing to the primary aim are implied in the following questions:

1. What phases of the training program are deemed most satisfactory by the selected teachers? What phases are least satisfactory?
2. What is the relative importance of the many experiences in which trainees participate as determined by the selected teachers?
3. To what extent have all trainees participated in the various training experiences?
4. What improvement, if any, has been made in the training program by years? In other words, are the trainees being better trained than they were three years ago?
5. What is the relative value of the autumn, winter, and spring quarters as the time for the practice teaching

Brief Description of Practice Teaching Program

During the practice teaching period, which consists of one quarter, the trainee resides in one of five communities where training centers are located. The centers are located where there are high schools with departments of vocational agriculture and are in charge of instructors of the agricultural education department who direct the practice teaching activities. During this practice teaching quarter the students are enrolled for agricultural education only. Normally, only two class sessions per week are held at the University, which is located 10 to 19 miles from the centers. These sessions on special methods and problems are normally held on Wednesday evening and Saturday morning and are in charge of the supervising teacher-trainer at the University. Such a plan permits the trainee almost full time in the training center communities. Usually every two trainees have a car, which is used for travel in the community as well as for going to and from the University. Pay is provided for the travel from teacher-training funds.

Ordinarily, each training center has from two to four trainees each quarter, which makes approximately 50 young men trained each year. The plan of having the trainees live in the communities has been followed since its adoption during the 1938-39 school year. The trainees participate in all phases of school and community activities in addition to their primary duties in vocational agriculture. They have an opportunity to spend at least one day in observation at each of the other training centers and frequently visit other neighboring schools.

Procedure Used

This study is limited to an evaluation of the participating experiences in the pre-service professional training phase of the program. The evaluation consisted of making a rating on the importance, satisfactoriness, responsibility, and extent of the experiences on each of the 114 participating experiences that were classified into nine areas. The areas and experiences, which were suggested by the author, were criticized by a committee of teacher-trainers and then used in survey form by four selected teachers before being adopted. The nine areas consisted of supervised farm practice, all-day teaching, Future Farmers of America, Young Farmers, adult farmers, physical facilities, school relationship, community relationship, and records and reports. Rating scales, which were similarly prepared, are as follows:

Importance of Experience

Numerical Value	Rating	
3	A	—Very important—every trainee should be provided some participating experience.
2	B	—Important—experience is desirable, but not always necessary.
1	C	—Relatively unimportant—experience could be omitted without affecting the quality of program to any great extent—observation experience would suffice.
0	D	—Unnecessary—should not be included.

Satisfactoriness of Experience—(Individual Items)

Numerical Value	Rating	
3	++	—Experience was very satisfactory.
2	+	—Fairly well satisfied with the experience.
1	O	—Experience was unsatisfactory.
0	N	—Did not have any experience.

Responsibility of Trainee in Conducting Experience

Numerical Value	Rating	
4	a	—Trainee has actual responsibility (under advice).
3	b	—Trainee assists, not directly responsible.
2	c	—Trainee observes, does not participate actively.
1	d	—Trainee gets practice on case material (not real).

Evaluation of Area of Experiences

Numerical Value	Rating	
5	5	—Very good
4	4	—Good
3	3	—Fairly good
2	2	—Poor
1	1	—Very poor

The 68 teachers who made the evaluations were selected from the 114 teachers who were trained during the years of 1937-38, 1938-39, and 1939-40, and have continued in teaching. Factors considered in making the selection were: year of training, the quarter and training school in which they had their practice teaching, the rating on probable success by the training teachers, and the geographical location of the school in which they teach. An explanation of the purposes of the study and survey was made at nine district teachers' meetings, from which district teachers were selected. All of the selected teachers responded to the survey and were included in the study.

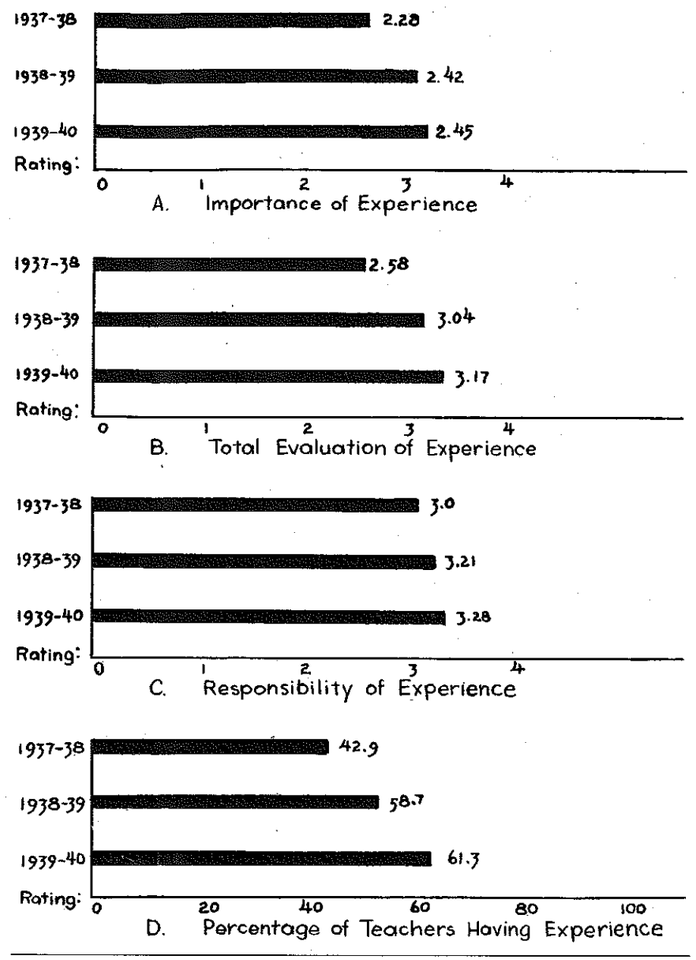
Analysis of Total Evaluation

The average evaluation for all areas of the teacher-training program is 2.9, which according to the rating scale, is about high enough to be called fairly good. The range in the evaluation of areas was from 1.63 to 3.77. An examination of Table I indicates that the highest ratings are for the areas involving

Table I. Evaluation of All Areas of the Teacher-Training Program by the Entire Group of Teachers

Area of Experience	Importance of the Experience	Responsibility of the Experience	Percentage of Teachers Having Experience	Total Evaluation of the Experience
Supervised practice				
Initiating the program	2.39	2.91	48	2.76
Supervising the program	2.66	3.56	83	3.71
Planning and recording	2.77	3.34	80	3.56
All-day teaching planning	2.59	3.37	78	3.63
Practice teaching	2.72	3.67	82	3.77
Future Farmers of America	2.36	3.00	46	2.58
Young farmers	2.35	3.18	43	2.32
Adult farmers	2.08	2.61	16	1.63
Physical facilities	2.31	3.25	56	3.26
School relationships	1.94	3.36	39	2.44
Community relationships	2.24	3.22	49	2.62
Records and reports	2.19	2.99	34	2.53
Average for all areas	2.38	3.21	54.5	2.90

FIGURE I. AVERAGE EVALUATION OF THE ENTIRE TEACHER-TRAINING PROGRAM, BY TEACHERS CLASSIFIED BY YEAR OF COMPLETING TRAINING.



supervised farm practice program. The lowest evaluation ratings by the 68 teachers were for the young farmer and adult farmer areas.

A partial explanation for the evaluation ratings is offered when the percentage of teachers having experience, and the responsibility of the experience are observed and compared with the ratings. There seems to be some positive correlation among the total evaluation, the importance of the experience, the percentage of teachers participating, and the responsibility of the experience. As the importance, responsibility, and percentage of participation increases in an area, the evaluation for that area increases. The correlations by areas determined by the rank-difference method are sufficiently high to be significant. They are shown in Table II.

For the most part it can be said that the teacher-training department is emphasizing the areas of experience which have been rated as most important by the teachers. The author admits that some teachers may have thought the experiences were important because they were provided in the teacher-training program. On the other hand, it must be kept in mind that all of the teachers had some experience in departments of their own and that they were asked to evaluate the importance of the experience in terms of meeting their needs as teachers.

(Continued on page 137)

Table II. Relationship of Total Evaluation, Percentage of Teachers Having Experience, Importance of Experience, and Responsibility of Experience

Items Correlated	Coefficient of Correlation	Probable Error
Total evaluation—percentage of teachers having experience	+ .95	.019
Total evaluation—importance of experience	+ .88	.044
Total evaluation—responsibility of experience	+ .74	.088

Future Farmers of America

A. W. TENNEY

Mississippi F.F.A. in War Work

A. E. STRAIN, Executive Secretary, State College, Mississippi

THE 239 chapters and over 7,000 Future Farmers in Mississippi are buying War Stamps and Bonds. The following chapters at present are taking the lead in this phase of the war program.

Ethel. Ten boys purchased $1,289.40 war bonds and stamps. Sixteen boys are saving $1,500 to invest in bonds.

Houlka. This chapter has bought a $25 bond while 44 boys have either purchased a bond or are saving money to do so.

Sixteen boys of Mendenhall chapter are investing $168 in bonds and stamps.

Jett. The home chapter of Foster Van Cleave, State President of F.F.A., will buy a war bond and 41 boys have invested $75.65 in war bonds and stamps.

Quitman. Five boys have purchased $80 worth of war bonds and stamps while 18 are saving money to invest in bonds.

Taylor. Forty boys have purchased $120 worth of war stamps and bonds and plan to purchase $500 more.

Fulton. This chapter with 126 members is the largest chapter in the state. Every boy in the chapter is saving money to buy a bond.

Lambert. Twenty-six boys have bought $324.50 worth of war bonds and stamps while 14 boys are saving $200 for this purpose.

Lauderdale. Eight chapter members have invested $700 in war bonds and stamps while the chapter is saving money to invest $300 more in bonds.

The chapters mentioned are representative of what all the 239 chapters in Mississippi are doing to "Keep 'em flying." The State F.F.A. bought $3,000 worth of bonds last summer and its delegates pledged that every chapter in the state would buy a bond.

Food-Production Program

Also the members of every chapter are taking part in increased production as requested by our government.

Forty boys in the Tremont chapter will increase production of peanuts and soybeans 25 and 50 percent respectively.

Pontotoc. From 40 to 50 boys are increasing production of corn, oats, peanuts, soybeans, cover crop seed, milk, meat, and poultry.

Liberty. Thirteen boys have bought 14 head of beef cattle and 20 are helping to can and dry food.

Scrap Metal and Rubber

Mississippi Future Farmers are not forgetting to save vital war materials such as rubber, scrap iron, aluminum, and paper. The members of Spring Hill chapter have 25 Future Farmers collecting aluminum, paper, rubber, rags, pendence chapter helped to gather scrap iron, while 17 boys of the Alva F.F.A. are collecting scrap iron and saving rubber by reducing car travel. All members of the Isola chapter are helping to save rubber.

Future Farmer chapters of Mississippi can be depended on when a Red Cross drive is on. Red Cross funds were raised by Barnes chapter. Porterville chapter helped to raise $8 for the Red Cross, Tremont, $27.60, and Pontotoc, $29.10.

Other Activities

Our Future Farmers are in the front line of the fighting front as well as the farming front. Hundreds of our boys have joined the armed forces.

Others are digging in on the farming front. Twenty-eight members of Camp Ground chapter are helping care for and repair farm buildings and machinery, dry food, and store seed. Twenty-two boys of the Hamilton chapter are doing the same thing. In the Woolmarket chapter down on the Gulf Coast, twenty boys are conserving soil, canning and drying food, and will care for and repair farm machinery. At Bogue Chitto five boys will take care of 875 baby chicks and 14 will harvest and protect timber. At Thyatira 25 boys are helping to repair farm buildings and machinery. Sellers F.F.A. will increase milk production.

Mississippi F.F.A. is all out for the war program. Every member and every chapter are at present engaging in the activities mentioned or soon will be.

Future Farmers Improve Livestock

W. B. MAYFIELD, Teacher,
East Tupelo, Mississippi

THE East Tupelo Future Farmers of America Jersey Calf and Chain Pig Clubs are part of a co-operative community effort for livestock promotion. They represent the junior groups of the Lee County Jersey Cattle Club and the North Mississippi Duroc Swine Breeders Association. They form part of the Tupelo Area Artificial Insemination Association as individual members. They represent part of the membership of the Carnation Cow Club. Their ownership of registered Jerseys entitles them to participation in the Lee County Jersey Cattle Club as associate members. Their organization of the North Mississippi Junior Duroc Swine Breeders Association as charter members entitles them to the same privileges and benefits as the members of the senior organization.

The purposes of these clubs are: (1) the development of vocational students in the agricultural pursuits, (2) making practical applications of improved methods of farm management conducive to a higher standard of living and to rural prosperity, and (3) encouraging the most energetic and ambitious of our farm boys to remain in the communities which nurtured them so they may be a factor in the rebuilding of Southern agriculture.

Instruction is given with work experience outside of class for individual students, with field trips and tours for groups, combined with classroom studies.

The scope of the work extends beyond the home district thru co-operative activities with adjoining vocational schools. The influence of the training program is evident in community meetings, both at school and in outlying centers. It involves participation in showing volves the local banks, the Tupelo Production Credit Association, the Farm Security Administration, the Rotary and Kiwanis Clubs.

Starting with 12 head in 1940, 52 head of registered Jerseys have been added in the junior and adult groups. The Auburn Jersey Cattle Club, an adult group, was organized, and worked with the Future Farmers on a planned community Jersey breeding program. The Future Farmers secured a $600 Jersey sire and the Auburn Jersey Cattle Club secured a $400 animal.

The North Mississippi Junior Duroc Association was organized by the East Tupelo Future Farmers of America as the junior organization to the North Mississippi Duroc Breeders Association, for the purpose of developing the swine industry. It followed the organization of the East Tupelo F.F.A. Chain Pig Club, which was sponsored by the Tupelo Kiwanis Club. This organization extends into each of the adjoining counties.

Eight head of the highest quality and most popular blood lines of the Duroc breed were the foundation from which have grown 28 head in the district and 25 head in adjoining districts. Every member of the association has the membership privileges of the National Duroc Association.

Facts From the 1940 Census

There were only 67 mules in New Hampshire.

Of the 1,904,000,000 acres of land in continental United States, 1,060,507,355 acres were in farms. Crops were harvested from 321,757,900 acres.

Altho the area in farms was greater than ever before, the number of farms declined 3.1 percent since 1930. The 1940 total was 6,096,789, compared to 6,812,350 in 1935, and 6,288,648 in

An Evaluation

(Continued from page 135)

The experiences involving managerial decisions were rated as being more important in teacher-training than experiences of an operative or manipulative nature. It seems to take more responsibility and participation for the managerial experiences to be rated as satisfactory than it does for the manipulative experiences.

Analysis by Years

An examination of Figure 1 indicates that definite improvement has been made over the period of years included in the study. The total evaluation rating of all areas has increased from 2.58 for 1937-38 to 3.04 for 1938-39 and to 3.17 for 1939-40. In all of the 12 areas of experiences increases were made. It is assumed that this represents improvement, rather than the possible fact that the more experience a teacher had, the more inadequate he rated his training.

A very significant fact is that there was a much larger increase in the rating from 1937-38 to 1938-39 than from 1938-39 to 1939-40. The author attributed this to the fact that 1938-39 was the first year in which the trainees resided in the community during their practice teaching period. A further examination of Figure 1 indicated that the responsibility and percentage of teachers having experience increased in a manner similar to the total evaluation. Evidently, the opportunities for participation experience, and responsibility are much better when a trainee resides in the community.

It is interesting to know that the areas showing the greatest increase are school relationship and community relationship. Undoubtedly, this is due to having the trainees live in the training school communities.

Analysis by Quarters

The quarter in which a trainee had his practice teaching seemed to have a marked effect upon the evaluation rating of the teacher-training program. The autumn quarter rating was by far the highest, with a rating of 3.30 as compared with a rating of 2.83 for the winter quarter and 2.56 for the spring quarter. The autumn quarter rating was the highest for every area. The chief advantage of the autumn quarter seems to be the opportunity to participate in the organization of the various phases of the year's work. Teachers seem to secure much more help from that type of experience than from conducting a program after it has been started. A good example of this is the young and adult farmer activities.

Another definite advantage of the autumn quarter at Ohio State is that it is longer; therefore, more participation and responsibility for the trainee is possible. According to Figure 2 it can be noted that the percentage of teachers having experience in the autumn quarter is 62 percent as compared with 55.6 percent for the winter quarter and 42.9 percent for the spring quarter. Likewise, the rating of 3.34 on responsibility for the autumn quarter is the highest. The winter quarter rating is 3.13 and a rating of 3.06 was made by the spring quarter group.

Recommendations for Changes in the Teacher-Training Program

The study indicates that changes in the agricultural education teacher-training program at Ohio State University would be desirable in order to provide the following:

a. More participating experience and responsibility for the trainee.

b. A better balance of participation in activities thruout the year, and especially in the organizational activities that take place during the first few weeks of school.

c. An earlier contact for the trainee with the professional training program in agricultural education, and particularly with real vocational activities in a vocational agricultural department in a school.

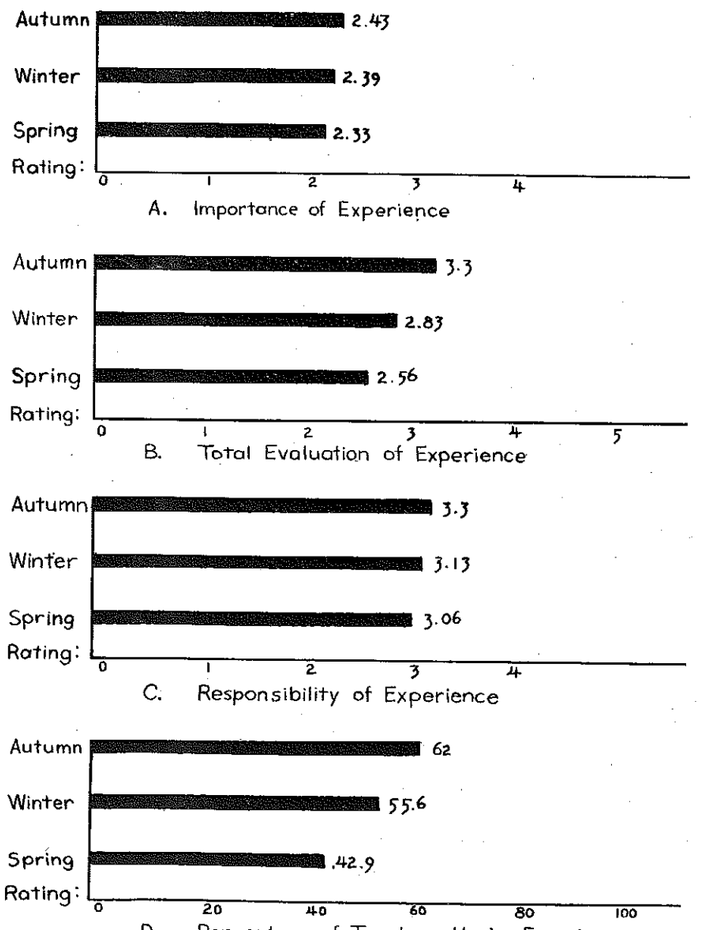
The above listed provisions may be facilitated by the addition of the following ways and means:

1. Have a basic course in agricultural education offered to college students during their sophomore year. Such a course should be organized to provide guidance, and it should involve some participating experiences on at least an observation level in a vocational agricultural department.

2. Each student preparing to become a teacher of vocational agriculture should participate in the activities of a department of vocational agriculture during the first three or four weeks of the high-school year, prior to the beginning of the college, during his junior year. The schools selected and the program followed should be determined by the teacher-training department and the co-operating agencies. Practically every area evaluated indicated that the organizational experiences at the beginning of the school year are very important.

3. More participation experience and responsibility should be provided in the training schools thruout the year. If this does not seem advisable then the provision of more schools in which trainees would be given opportunity to participate should be considered. Eventually this may involve participating experience beyond the present four-year course.

FIGURE 2. AVERAGE EVALUATION OF THE ENTIRE TEACHER-TRAINING PROGRAM, BY TEACHERS CLASSIFIED BY QUARTER OF PRACTICE TEACHING.



Using Feed Price Information

(Continued from page 125)

hydrates, this problem is not a simple one. One method of comparing the relative costs of feedstuffs as sources of digestible protein and non-protein digestible nutrients has been worked out by Dr. W. E. Peterson of the University of Minnesota and reported in *Journal of Dairy Science*, (Volume 15, 1932, pp. 293-297). This method uses prices of two feeds—the protein supplement which normally is the cheapest source of digestible protein, and the grain which usually is the cheapest source of non-protein digestible nutrients—as bases for determining the cost per pound of protein and non-protein nutrients in these feeds. This is an algebraic process because corn, which normally is the cheapest source of carbohydrates, also contains some protein. Also cottonseed meal and soybean meal, usually cheapest sources of protein, contain non-protein nutrients of considerable value. Once the costs of protein and non-protein nutrients have been determined from the two basic feeds, the monetary value of the digestible protein and non-protein nutrient in any other feedstuff can be determined. Finally, the process can be carried a step further by comparing the total monetary feeding value of the nutrients in the feed with its price. Such comparisons between feeding values and prices were worked out for certain basic grains, by-product feeds, and hays for each month from 1924 to 1940 and reported in Missouri Agricultural Experiment Station Bulletin 422. The percentages which actual prices were of feeding values were termed "indexes of economy" in this publication. Corn and cottonseed meal were the basic feeds used to determine the cost of digestible protein and non-protein nutrients.

Relative Cost of Feeds

This was a historical study of the economy of feeds since it showed what the relative economy of each feedstuff as a source of nutrients had been during the past 17 years. Altho the current situation is greatly different from that of the period studied, several important facts were disclosed. One of the most important is the variation in the economy of feeds as sources of nutrients. Past price relationships have often become so imbedded in feeding plans that some producers fail to consider feeds other than the ones traditionally fed. Corn is so consistently the cheapest source of non-protein nutrients that wheat and oats may not receive proper consideration; yet, on the basis of St. Louis wholesale prices, wheat was a cheaper source of carbohydrates than corn in 27 of the 192 months covered by this study, and oats were cheaper in 55 months. Bran, shorts, and gluten feed were also relatively cheap and, altho higher in protein, would have been economical substitutes for a limited amount of the feed grains in the ration during more than three-fourths of the months of the study.

On the protein side of the ration, soybean meal at St. Louis wholesale price in late years has been a consistently cheaper source of digestible protein than cottonseed meal. This fact is well known, and meat scraps have been, for limited periods, cheaper sources of digestible protein than cottonseed meal is not common knowledge. Furthermore, high-quality alfalfa hay was, in most years, a very economical source of protein.

Teachers' Responsibility

These historical facts for the St. Louis market cannot serve as a basis for determining feed-buying programs in any locality at present, but they point out emphatically the need for current knowledge of feed prices and values. The teacher of vocational agriculture can be of great service to his community if he will keep informed on feed prices and construct current "indexes of economy" of feeds as outlined in Missouri Bulletin 422. These indexes should be based on the feed which usually is the cheapest source of digestible protein and the feed which normally is the cheapest source of digestible non-protein nutrients. In some areas these will be cottonseed meal and corn as used in the Missouri publication, but soybean meal and corn probably will be the most common combination in most localities of the Cornbelt. After local "indexes of economy" have been constructed, the teacher should also assume the responsibility for determining how individual feeding programs can be modified to take advantages of any changes in the economy of feedstuffs. Some feeds provide essential vitamins and minerals which substitute feeds lack. The quality of proteins varies from feed to feed. Animal proteins may be utilized more efficiently than vegetable proteins. For example, the "index of economy" for tankage may be 130 (with corn and soybean meal as 100) which means that tankage is 30 percent more expensive than soybean meal. The teacher with his knowledge of nutrition must be able to help his students and the farmers in his community decide how far they may go in substituting soybean meal for tankage in the hog ration without materially reducing the effectiveness of the ration.

In preparing this article, the writer has tried to point out some of the practical applications of information about seasonal price movements and economy of feeds. The objective has been to point out the facts which teachers of vocational agriculture must constantly keep in mind when working out feed-buying programs. Especially in this period of war emergency, with scarcities looming in some feeds and transportation threatening others, knowledge of the basic facts is necessary. These facts are:

1. Feed prices change materially from season to season and the amount of the seasonal movement is modified by the trend in the general price level, local conditions, and other influences.
2. Relationships between prices of feeds change. This makes it necessary to keep currently informed as to changes in the relative cost of nutrients in each feed.
3. Knowledge of the relative economy of feeds must be supplemented with a basic knowledge of nutrition, so that any changes made in feeding programs resulting from feed-price changes will not seriously disrupt the adequacy of the ration from the standpoint of minerals, vitamin content, quality of proteins, and

F.F.A. Does the Job

C. O. EVANS, Jr., Teacher
Centertown, Kentucky

AT THE beginning of the year members of the Centertown Future Farmers realized that they were in need of many things for the chapter and the department of vocational agriculture, such as books, equipment for the chapter room, telephone, and a building for an adequate shop for agriculture and defense classes. Chapter members knew the state officials in vocational education were expecting them to do the job. The Future Farmers believed that by co-operating one hundred percent they could achieve many of their immediate objectives.

Program of Work

The boys realized that in order to put over their program it would be necessary for the chapter to earn a considerable amount of money. In order to do this they sold school supplies and candy. The boys worked in pairs and rotated every other week thruout the year. Later the boys started selling fertilizer and seeds, such as hybrid corn and garden seeds. Near the end of the year the chapter decided to purchase a 16 mm. motion picture machine so that picture shows might be provided for the community during the summer. This project has proved very successful.

The organization has been successful this year in many ways. The chapter won in the district F.F.A. contests held in Owensboro. The chapter has two State Farmer candidates. One of the outstanding services the chapter has offered to the community has been that of assisting chapter members and farmers in the financing of their farming programs. This activity has brought much favorable comment from the public. The chapter ran a poultry demonstration which was educational, interesting, and profitable financially.

Results

At the present time the chapter has $249.74 in the bank. The chapter has purchased and paid for five new sets of books, 12 subscriptions to agricultural magazines, equipment for the chapter room, and a motion picture projector. A desirable school shop for farm shop work has also been obtained. Plans are now being made to purchase War Bonds for the chapter.

By working together, chapter members feel that they have accomplished many worth-while things that they could not have achieved individually. They feel it is their duty to help the school serve the community, and as American citizens, they believe they should put forth extra effort and serve wherever needed so that the freedom Americans enjoy so much may be preserved.

My name will be remembered with more pleasure and gratitude by those who know me, for my devotion to agriculture and mechanic arts, than all my long life spent in politics. (In a private letter, published in New England Farmer; May, 1871.) Henry Clay

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rs—T. L. Faulkner
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t—George T. Sargent, Auburn
t—W. R. Montgomery, Auburn
rt—A. L. Morrison, Auburn

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t—R. W. Cline, Tucson
t—J. R. Cullison, Tucson

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s—H. L. Cochran
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rs—O. J. Seymour, Arkadelphia
rs—S. D. Mitchell, Russellville
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t—Roy W. Roberts, Fayetteville
ct—R. L. Reynolds, Pine Bluff

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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

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

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s—R. L. Hahn, Hartford
t—C. B. Gentry, Storrs
t—P. Roy Brammell, Storrs
t—J. Raymond Gerberich, Storrs

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s—P. M. Hodgson, Dover

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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

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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
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t—F. E. Armstrong, Honolulu, T. H.
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it—H. W. Leonard, Lafayette
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it—W. A. Williams, Lafayette

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s—H. T. Hall, Des Moines
s—W. M. Westcott, 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

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s—L. B. Pollom, Topeka
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it—L. F. Hall, Manhattan
it—H. H. Brown, Manhattan

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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—G. 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

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s—John G. Glavin, Boston
t—F. E. Heald, Amherst
t—W. S. Wells, Amherst

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s—Luke H. Kelley, Lansing
s—Raymond M. Clark, Lansing
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t—G. P. Deyoe, East Lansing
t—G. C. Cook, East Lansing

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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

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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
s—Joe Duck, Jefferson City
t—William A. Broyles, State College
t—C. S. Anderson, State College
t—William A. Hall, State College
it—Russell B. Dickerson, State College
it—D. C. Sprague, State College

MONTANA
d—Ralph Kenck, Bozeman
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

NEVADA
d-t—R. B. Jeppson, Carson City
t—W. C. Higgins, Reno

NEW HAMPSHIRE
d—Walter M. May, Concord
s-t—Earl H. Little, Concord

NEW JERSEY
d—John A. McCarthey, Trenton
s-t—H. O. Sampson, New Brunswick
s-t—E. V. Bearer, New Brunswick
s-t—O. E. Kiser, New Brunswick

NEW MEXICO
s—Frank E. Winberly, State College
t—Carl G. Howard, State College

NEW YORK
d—L. A. Wilson, Albany
s—A. K. Getman, Albany
s—W. J. Weaver, Albany
s—R. C. S. Sutliff, Albany
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

NORTH CAROLINA
d—T. E. Browne, Raleigh
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

NORTH DAKOTA
d—Edward Erickson, Grand Forks
s-t—Ernest L. DeAlton, Fargo
s-t—Shubel D. Owen, Fargo

OHIO
s—Ralph A. Howard, Columbus
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

OKLAHOMA
ds—J. B. Perky, Stillwater
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
s-t—D. C. Jones, Langston

OREGON
d—O. I. Paulson, Salem
s—Earl R. Cooley, Salem
s—Ralph L. Morgan, Salem
t—H. H. Gibson

PENNSYLVANIA
d—Paul L. Cressman, Harrisburg
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
rs—A. V. Townsend, Bedford
rs—E. W. Wood, Towanda
rs—W. J. Tucker, Bellefonte
rs—Norman Rachford, West Chester
rs—J. Rex Haver, Lock Haven
rs—Harry Everett, Bloomsburg
rs—D. L. Cram, Meadville
rs—Harold Park, Carlisle
rs—C. J. Kell, Hazleburg
rs—B. E. Decker, Erie
rs—J. D. Martz, Jr., Indiana
rs—F. C. Bunnell, Brookville
rs—H. E. Newcomer, Scranton
rs—L. H. Lebo, Lebanon
rs—C. D. Carey, Williamsport
rs—E. C. Wiggins, New Castle
rs—A. C. Sproat, Mercer
rs—W. B. Frisbie, Stroudsburg
rs—S. L. Horst, Norristown
rs—Derl Hess, Sunbury
rs—H. W. Staiger, Coudersport
rs—G. F. Dye, Somerset
rs—G. D. Deer, Montrose
rs—T. W. Crittenden, Wellsboro
rs—C. F. H. Wuesthoff, Warren
rs—J. B. Park, Honesdale
rs—R. E. Seamens, Greensburg
rs—S. G. Hulslander, Tunkhannock
t—E. J. 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. Gale, 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. Hansucker, Charleston
t—M. C. 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
d-s—Sam Hitchcock, Cheyenne