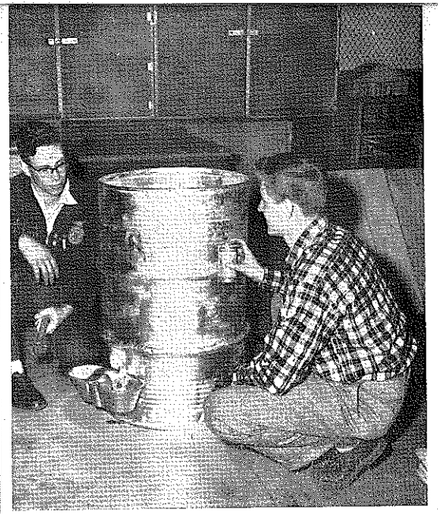
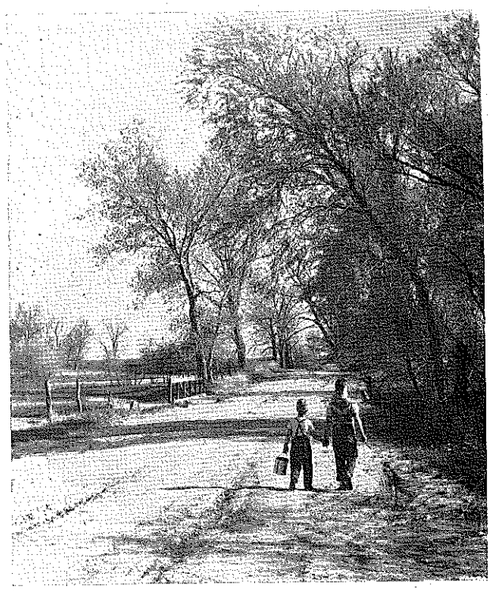


WATERER FOR SWINE
(Klipstein)

"IT'S SPRING AGAIN"
W. A. Rawson, Teacher
Concordia, Kansas



WHIRL-WIND TERRACING
(Klipstein)

Pictures
of the month . . .

A contest open to all teachers of Vocational Agriculture and farm veterans

FIRST PLACE

TAKE NO CHANCES
John H. Klipstein
Teacher of Vocational Agriculture
Wausau, Wisconsin
Camera: 2¼ x 3¼ Speed Graphic f11 1/100
Film: Super XX

WHO GETS THE BLUE RIBBON?
Robert F. Taylor, Teacher, Columbia City, Indiana

The AGRICULTURAL EDUCATION *Magazine*

APRIL 1952 NUMBER 10

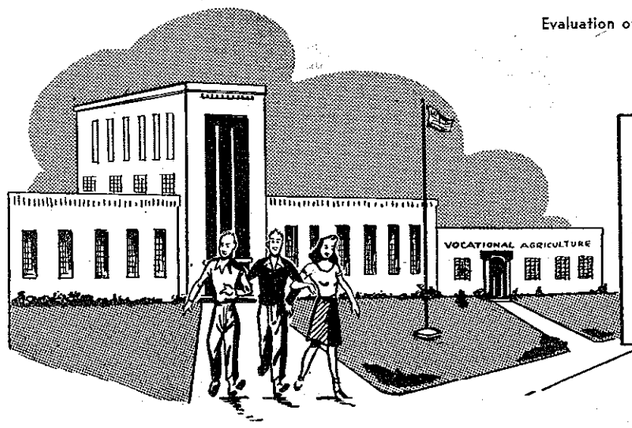
Reynolds, Vice President and
President at Denton, Texas

FEATURES ARTICLES ON
EDUCATION

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 Interstate Printers and Publishers, Danville, Illinois.

INTERSTATE PRINTERS & PUBLISHERS DANVILLE, ILL.



Contents

Subscription price, $1.50 per year, payable at the office of the Interstate Printers and Publishers, 19-27 N. Jackson St., Danville, Illinois. Foreign subscriptions, $1.75. Single copies, 15 cents. In submitting subscriptions, designate by appropriate symbols new subscribers, renewals and changes in address. Contributions should be sent to the Special Editors or to the Editor. No advertising is accepted.
Entered as second-class matter under Act of Congress, March 3, 1879, at the post office in Danville, Illinois.

Editorials

Channelling research into action

G. P. Deyoe

TEACHERS, teacher trainers, supervisors, and others are interested in developing the best possible program in agricultural education. Although we have come a long way in agricultural education in the public schools of America, there is still room for improvement in the years ahead. In this program of continued improvement, research is a valuable tool.

We have a creditable record of accomplishment in the amount of research completed in agricultural education. To date, a total of 1,459 studies has been reported through summaries already published or now in press. While we need more and better research in the years ahead, we also should give attention to finding the "pay dirt" in the research already completed and using wisely these findings in the improvement of agricultural education. In short, we should be constantly alert to the possibilities of channelling research into action.

Just as the findings of research in agriculture may be applied in ways that will improve farming, we may apply the findings of research in agricultural education in ways that will improve various phases of our field. By this means, research will help us to make our efforts count for more. By the intelligent use of the findings, we can avoid much of the long and painful process of finding out things the "hard way," and thus move to higher levels of efficiency in a shortened period of time.

Need to Use Research in Problem Solving

The completion of research studies does not automatically insure the improvement of any program. As is true of much research in agriculture, many of the research findings in agricultural education lie buried or for other reasons fail to see the light of day in terms of an improved program. One of the reasons why this is true is that we are not "research conscious" to the extent that in seeking solutions for various problems we consider the potential contributions of related research studies. Of considerable help are the reports of individual research projects which appear as articles in *Agricultural Education Magazine* and the summaries of completed studies compiled by the A.V.A. Research Committee in Agricultural Education which in recent years are being published at yearly intervals by the Agricultural Education Service of the U. S. Office of Education.[1]

To aid further in making use of the findings of research in agricultural education, a special series of articles is appearing in current issues of the *Agricultural Education Magazine*. The unique feature of these articles is that each one of them consolidates the findings of many recent research studies in a given phase of agricultural education and shows how the results seem to "add up." By comparing and integrating the findings, many important implications for action become apparent. This "funnelling process" helps materially in determining the significant contributions of research and saves considerable time for persons who wish to use the results of research. Thus, it is believed that these articles will aid greatly in channelling research into action. This series was initiated by the A.V.A. Committee on Research in Agricultural Education and planned with the cooperation of the Editor and the Editing-Managing Board of the *Agricultural Education Magazine*. Recently, the Editing-Managing Board of this magazine has made plans for publishing a special bulletin which will include the entire series of articles after they have appeared in the magazine. This publication will probably be available in the latter part of 1952.

We commend to our readers the series of articles which will continue for several more issues, and we suggest that readers make every effort to use wisely the results of research which are revealed in this and other ways.

—GEORGE P. DEYOE
University of Illinois

[1] *Summaries of Studies in Agricultural Education.* Vocational Bulletin No. 180; Supplements No. 1, 2, 3, and 4. Supplement No. 5 is now in press. Supplement No. 1 was published by Interstate Printers, Danville, Illinois. All others were published by the U. S. Office of Education.

Rewarding merit

CAN WE REWARD the Superior teacher of agriculture? To make substantial progress in this direction, it is believed, would do much to raise the general level of excellence in teaching. Many teachers would be stimulated. Outstanding teachers would be less likely to leave the profession. There would be less concern for minimum achievements to win a $100 raise and more concern for real accomplishments. A system of providing substantial recognition for teachers of agriculture of high excellence would result in real professional gain.

We have no commonly accepted reliable measure of quality. Kitts, in this issue, discusses some of the progress—and lack of progress—in our attempts to identify outstanding teachers, as a phase of measurement and evaluation. There has been sufficient work done to indicate that it is an extremely difficult problem. The development and testing of an evaluative instrument for such purposes is a problem which could have its first developments on a state basis. It is one with which State Associations might properly be concerned.

Kitts reviews approaches which have been used. Whether any of these, singly or in combination, should be used, is unimportant but, those seeking answers will find it profitable to review the findings of earlier studies. For ourselves we would like to propose that various approaches be tried in which teachers participate with others as evaluators. It is probable that concentrated effort would produce an instrument with which evaluating teams could consistently arrive at comparable judgments of excellency in teaching vocational agriculture.

Merit may be its own reward. However, in our society, a teacher feels that it should bring other rewards, also. Teachers of agriculture can provide the initial impetus to launch research projects which will advance our ability to identify merit.

Our cover

The photograph was taken at Denison Iowa. Seated left to right are: Mr. K. B. Koch, Superintendent of Schools, Curtis Steuder, F.F.A. Chapter President and Rex E. Ruch, Vocational Agriculture Instructor. They are discussing the Annual F.F.A. Chapter Program of Work for the year and noting accomplishments to date, and projects yet to be undertaken.

H. T. Hall, Supervisor, secured this photograph for our use.

Student rating scale
for the supervised farming program

GEORGE MAKEL, Teacher, Blanchard, Michigan

George Makel

IF education is a democratic process, then students should share in the responsibility of evaluating the progress that they are making in their learning activities. It is through the supervised farming program of students of vocational agriculture, that many of the objectives of vocational agriculture are being realized.

Since "Supervised Farming" is now generally accepted as the heart of the program in vocational agriculture, it is necessary that an appraisal device of some kind be developed by pupils and teachers for the projects which the students are carrying. In so doing, a student can observe, measure, compare and evaluate the progress made toward goals set up in the various phases of the student's supervised farming program each year and over a period of years.

If the school is to bring about certain kinds of changes in the behavior patterns of its students, depending upon its educational objectives, then it is our duty as teachers of vocational agriculture to aid young men in developing abilities needed to become established in farming. The major objective in vocational agriculture is to develop abilities of present and prospective farmers for *proficiency* in farming. In planning an appraisal device for supervised farming programs, specific objectives of all types of supervised practice should be formulated. These objectives should be stated in terms of student achievement, and should be related to the measures which may be obtained from supervised farming programs. These measures of efficiency should be considered only as indicators of the degree to which abilities have been mastered. It should be recognized that such things as weather and chance influence the results of projects.

What Should Be Evaluated in Relation to Supervised Farming Programs

Any appraisal device which attempts to measure a student's progress or the outcomes of his supervised farming program should include a wide range of evidences such as the following:

1. *Scope*: A common measure of scope of projects is the number of animals and the number of acres. The scope of the total supervised farming program may be stated in terms of productive man work units, labor income from the supervised farming program, investment of earnings in farming and/or savings accounts, and the number of one-year projects and continuation projects.
2. *Growth*: An evaluative device which allows the student to see an indication of his growth in improvement will aid in giving the student incentives for more growth in improvement.
3. *Production Records*: A student needs to know how the production of his projects compares with that obtained by other students and adult farmers. If data are available before a project has been undertaken, goals may be set up that are possible of achievement.
4. *Other Phases*: The student should realize that his supervised farming program is not just limited to raising crops and livestock. He must know the importance of his improvement projects, supplementary farm practices and activities in community affairs toward developing a well rounded program. Standards can be set for the different levels of achievement with other forms of supervised farm practice that do not differ greatly from productive projects.
5. *Long Time Planning and Records*: Only by looking ahead and making plans for the future can be a student make satisfactory progress. Of course alterations may have to be made occasionally in his plans, but this is to be expected. However, the vital link in these future plans are the records of each project which will show whether progress is being made or that changes are needed. Characteristics for the different levels of performance in making plans and keeping records can be set up. Ratings based on definite stated characteristics tend to make the evaluation more objective.

Table I
Scope and Growth of the Farming Program

	Productive man-work units				Income from supervised farming programs				Investments in farming or savings				Productive Projects		Improvement projects	Supplementary farm practice
													In one year	Continuation projects		
	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up				
Superior	24	40	80	120	200	300	400	500	200	400	800	1000	5 completed	4 or more running 2 or more years	4	9
Excellent	12	20	40	60	100	200	300	400	100	200	400	500	4 completed	3 running 2 or more years	3	7
Good	6	10	20	30	50	100	200	300	50	100	200	250	3 completed	2 running 2 or more years	2	5
Fair	3	5	10	15	25	50	100	200	25	50	100	125	2 completed	1 running 2 or more years	1	3
Poor	0	0	0	0	0	0	0	0	0	0	0	0	1 completed	None running in consecutive years	0	1
	9th	10	11	12	9th	10	11	12	9th	10	11	12		11th and 12th grade students		

Design of Tables

In Michigan a so-called "barometer chart"[1] is used for adult farmers. An adaptation of this process was developed for students in all-day classes of vocational agriculture, and some of the standards used in developing production achievements in crops and livestock for this rating scale in supervised farming programs were taken from this "barometer chart."

In each of the five tables are five levels of performances. They are Superior, Excellent, Good, Fair and Poor. All of the items in this rating scale have standards for each level of performance.

Methods of Arriving at Standards Used in the Two Tables

The Scope and Growth of the Farming Program: The standards for productive man work units for a student's supervised farming program in the freshman, sophomore, junior and senior years were obtained through class discussion, and from the previous year's state reports. Other sources of information relative to setting up productive man work unit goals are "Analyzing and Planning the Farm Business"[2] and the "Farm Business Analysis."[3]

The income from supervised farming program and the investment of income from supervised farming program in farming or savings was the result of class discussion of farming programs, the department's reports of supervised farm practice of previous years, and "A Guide for Evaluating the Supervised Farming Program Report of Applicants for the State Farmer Degree."[4]

The goals for the number of projects and of continuation projects were developed by the same methods and from the same sources which are stated above.

Production Records for Enterprise Projects: Table 2 shows production standards for livestock, dairy and poultry enterprise projects which can be used to evaluate the level of efficiency of projects carried by students. A similar table should be made for crop projects which are common to the community and yields set up which are possible for achievement in each local community. The methods used in setting up standards for livestock projects is reviewed in detail to suggest procedures useful in setting up standards in the local department.

The standards for dairy which gives the average pounds of butterfat per cow-years were obtained from a summary of production data for improvement projects in dairy kept by students in 1948 and 1949 in Michigan.[5] These data were obtained from ten departments of vocational agriculture in Michigan which had a total of 179 dairy herds.

Standards for the 56 day weight of pigs and the number of pigs raised per litter to 56 days were obtained from litter data furnished by students of vocational agriculture over a six year period.[6]

The standards for beef steers were obtained from Future Farmers who fed steers in 1950 and 1951[7] and marketed them at the State Fat Stock Show and Sale held at St. Johns, Michigan and at other fairs. For the most part the steers were purchased weighing around 400 pounds and were fed from 10 to 12 months.

The number of eggs per hen was derived from the "Farm Business analysis."[8]

Broiler standards which includes the pounds of feed per pounds of gain and the pounds of meat per chick started, came from the data obtained by Future Farmer Chapters in broiler project contest conducted in cooperation with the poultry extension service of Michigan State College in Michigan in 1950 and 1951. Production standards for poultry egg production were furnished by the poultry department of Michigan State College.

Table II
Levels of Production for Livestock Projects

	Hens		Broilers (12 wks.)			Swine			Steers 300-500#			Dairy
	Eggs per hen	Feed/ dozen eggs	Feed per lb. gain	Mortality	Weight	Weight per pig 56 days		Pigs per litter	Gain per day	Concentrate per lb. gain	Total feed per pound gain	B. F. per Cow
						Sow	Gilt		3.00			
Superior	250	4.5	3.2	2%	4.00#	50	45	10	2.20	6.2	7.2	350
Excellent	200	5.5	3.6	5%	3.75	45	40	9	1.90	7.5	8.5	300
Good	150	6.5	4.0	10%	3.50	40	35	8	1.60	9.5	10.5	250
Fair	100	7.5	4.4	15%	3.00	35	30	7	1.30	11.5	12.0	200
Poor	50	8.5	4.8	20%	2.50	15	10	0	.50	15.0		

[1] *Farm Business Analysis, Area 5, Dairy and General Farming*, Agriculture Economics Department, Michigan State College, East Lansing, Michigan, p. 8-9.

[2] May, Clyde O., *Analyzing and Planning the Farm Business*, Farm Management Department, Michigan State College, East Lansing, Michigan.

[3] *Farm Business Analysis*, loc. cit.

[4] *A Guide for Evaluating the Supervised Farming Program Report of Applicants for the State Farmers Degree*, Vocational Agricultural Education Department, State Board of Control for Vocational Education, East Lansing, Michigan.

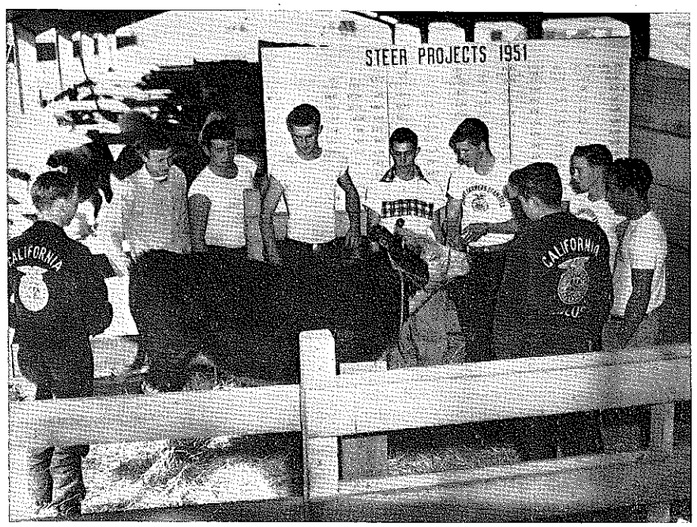
[5] Sweany, H. P. *Summary of Production Data for Improvement Projects in Dairy Conducted by Michigan Students of Vocational Agriculture in Michigan for 1947-1948 and 1948-1949*. Mimeographed. Michigan State College, East Lansing, Michigan.

[6] Sweany, H. P. *Summary of Data for Sow-and-Litter Projects Produced by Certain Students of Vocational Agriculture from 1944-1949*, inclusive. Mimeographed. Michigan State College, East Lansing, Michigan.

[7] Sweany, H. P. *Summary of Gains and Feeding Efficiencies of Michigan Fat Steer Projects in 1950*, conducted by students of vocational agriculture. June 1951.

[8] *Op. cit.*

(Continued on Page 226)



Evaluating Efficiency of Enterprises is an Important Part of the Learning Experience

How about the city boys?

HERSCHEL M. COLLINS, Cadet Teacher, Colusa, California

THE primary value in a steer feeding project is not the value received from fattening the animal, but the record keeping and effort put into the project to make it successful.

For the past four years the Colusa Future Farmers of America have been carrying on a steer feeding project. We think it is a very practical method of teaching.

Ninety per cent of the Future Farmers in the chapter live in town, but are farm boys. Colusa is strictly an agricultural community. A majority of the farmers, however, live in town and farm in the surrounding areas. Home farm project facilities are not conveniently available to the boys. As a result, chapter members make use of the 44th District agricultural fair grounds and facilities. The fair grounds, being only one block from school, enables the students to keep a very close check on their projects, and allows even closer project supervision by the department instructor.

Steers are purchased about the first of September of each year. Weaner calves, weighing about 525 pounds, are selected from a grade herd in the community. The junior and senior members of the chapter, along with the advisor, select all of the steers which members wish to purchase. Steers are then weighed and sold to chapter members at the purchase price. The order of selection is determined by drawing numbers out of a hat. Each member has to select his own steer without aid from anyone else. Those members who want two or more steers still have to draw for the choice of each animal. Thus a desire is created on the part of the student to learn more about the selection of feeder steers.

Each boy feeds his own animal, or animals, in separate pens and has the responsibility of care and management until the steer is sold. An effort is made to fatten all steers out in time for the Junior Grand National Livestock Show, which is held in San Francisco during Easter week. If the steers are not in condition for this show, they are sold at a later fair, or on the local market.

Arranging Finances

Each student finances his own project. The steers are paid for at the time they are purchased by those boys who have the money. For those who are unable to pay immediately for their steers but want to begin a project, there is the Bank of America, and the Production Credit Association, to which they may turn for a loan. The responsibility for arranging a loan with either of these organizations is taken by the student. The boy has an opportunity to learn just when and how farm loans are made. Many students have taken advantage of the opportunity and have benefited by their association with these organizations.

Students who buy their steers outright generally have sufficient capital reserve to pay for feed as it is needed. Those who must borrow money for their steers generally borrow also from the F.F.A. chapter cooperative feed store to purchase needed feeds. All such steer feed is purchased and mixed by the cooperative, and each student may purchase all his feed through the cooperative. Those who borrow from the cooperative to buy feed pay off their loans, plus interest, at the time their steer is marketed. This, in our opinion, is another method of teaching students to work together, and increases student desire to maintain accurate records.

Making Analysis of Efficiency

We have already stated that fattening of animals is not where the student obtains his most gainful experience. It is primarily in the keeping of records. At the time of year when the steers are marketed each student must go through his project record book and arrive at the final figures as reproduced in the accompanying chart. Only if accurate, up-to-date records are maintained can these figures be computed. The data which the boys obtain are facts and figures which every farmer, be he livestock man, or truck crops producer, should know about his enterprise. These facts and figures are then printed and used the following year by the next class in arriving at a suitable ration and budget to be used for their livestock enterprise.

Students work cooperatively to maintain neat and clean pens for their projects. Specific committees are assigned certain duties and have the responsibility to see that their jobs are done. Any problem which may develop for one student becomes the problem of the entire group. The system then, in addition to teaching students to maintain accuracy and completeness of record books, and to work together cooperatively, presents opportunities for management and leadership.

The members of the Colusa Chapter of the Future Farmers of America are proud of their livestock projects. This method of handling what may seem to be an abnormal situation in vocational agriculture is not only education, it is practical. ●

Inaction is the symbol of death, if it is not death itself.—Stephens

Steer Projects 1951*

Name	Head	Weight at Start	Gain	Lbs. Mix Consumed	Cost of Feed per Lb. Gain	Steer Feed Days	Av. Gain per Day Fed
Nagai	2	1045	675	4440	.191	298	2.24
Davis	3	1500	1005	5832	.171	490	2.05
Moore	1	540	240	1489	.179	120	2.0
Bailey	2	1005	845	5211	.180	356	2.40
Zoller	1	535	385	2403	.183	178	2.2
Sartain	2	1140	620	3564	.181	308	2.4
Garcia	2	1020	465	2737	.183	251	1.8
Elkins	1	560	350	2186	.184	178	2.0
Erickson	1	750	295	2079	.226	178	1.6
Average per Head		539⅝	325⅛	1996	.186	157	2.07⅞

*It was possible to include only a portion of the chart submitted.—*Editor*

Securing good farming programs

H. W. DEEMS, Teacher Education, University of Nebraska

developing farming programs that provide adequately for both earning and learning. Last summer 57 Nebraska vocational agriculture instructors, attending the summer session at the Nebraska College of Agriculture, summarized and evaluated the activities. Here they are. Score yourself.

H. W. Deems

IT takes careful planning and hard work to secure good farming programs. It is, however, something that every well trained instructor can do.

It is easy to explain to a student that in order to farm successfully, he must acquire earnings. Project profits make ideal motivation for big farming programs. Profits aid in increasing the size of the program each year. The difficult phase of the supervised farming program is showing the student and his parents that in order to farm successfully, learning must be acquired. It is most important that both the boy and the parents understand that vocational agriculture teachers are primarily human engineers. The wise teacher is one that can arrange and manipulate the boy's environment so that it inspires and leads to learning. The farming programs are the source of problems through which students are taught. They must include the areas of learning most needed by the students. Since a person learns by doing, adequate farming programs are necessary for satisfactory learning.

For over a quarter of a century good "Ag" teachers have been "trying out" activities and procedures that aid in

SCORE CARD

Activity or Procedure	*Perfect Score*	*Instructions*	*Your Score*
1. Have vo-ag bulletins explaining S.F.P.	5	Score 5 points if distributed	
2. Make summer visits	15	Score 5 points for 1 visit, 10 points for 2 visits, 15 points for 3 visits or more average per boy	
3. Spend ample time on special supervised farming problems during Sept., Oct., and May (selecting, planning, budgeting, etc.) in the classroom	15	Score 1 point for each hour of classroom time devoted to S.F.P. up to 15 points	
4. Have special day each month for project records and problems	5	Score 1 point for each day up to 5 points	
5. Have parent and son meeting early in fall	10	Score 10 points if S.F.P. is explained and meeting is successfully conducted	
6. Make on-farm visits during fall (Sept., Oct., Nov.)	10	Score 5 points for 1 visit, 10 points for 2 or more visits per boy	
7. Send news letter to parents.	5	Score 5 points if part or all of letter discussed S.F.P.	
8. Utilize F.F.A. activities	10	Score 2 points for each F.F.A. activity that encourages better farming program, up to 10 points. (Example, prize for heaviest litter at 56 days.)	
9. Have conference period with each boy during September	5	Score 5 points if conference included all vo-ag boys score 4 points if it included 80% of the group, etc.	
10. Conduct a project tour or visit five good projects	5	Score 5 points if completed	
11. Go with groups or individuals to buy projects	5	Score 1 point for each four boys assisted, up to 5 points	
12. Assist students with project budgets	5	Score 5 points if all students have completed budgets by November 1	
13. Develop definite business agreements between parents and sons	10	Score 10 points if all students have definite agreements	
14. Make survey of home farm	5	Score 5 points if completed	
15. Provide separate class for 9th grade	5	Score 5 points if completed	
16. Secure and put on bulletin board lists of places to buy livestock and certified seed	5	Score 5 points if completed	
17. Base students grade at least 50% on S.F.P.	5	Score 5 points if graded that way	
18. Take and show pictures of projects		Score 5 points if colored slides taken of all boys with projects, 4 points if black and white pictures taken of all boys with projects	
19. Submit project stories to papers	5	Score 2 points for each story, up to 5 points	
20. Make and post charts of S.F.P.	5	Score 1 point for each chart up to 5 points	
21. Sponsor Big Co-op activity as hog sale, Jr. Fair	10	Score 5 points for each big activity up to 10 points	

New movie available

"Farmers Working Together" is the name of a spanking new motion picture film just released by the U. S. Department of Agriculture. Vocational agriculture teachers will find this 20-minute color-and-sound film a valuable teaching aid.

The film describes the operation, organization and general activities of farmer cooperatives. It outlines the basic principles of cooperation. Scenes are portrayed illustrating how cooperatives help farmers to market and process their products, to purchase their farm supplies, and to procure for themselves and their families such business services as credit, insurance, electricity and rural telephones.

The scenes for the film are drawn from well established cooperatives in every part of the United States. Your agricultural classes will enjoy seeing this one.

The 16 mm film can be borrowed from the Farm Credit Administration, Washington, D. C. or from any of its district offices.

—By Oscar R. LeBeau

Egotism is an anaesthetic that deadens the pain of inferiority.

Strengthening Supervised Farming

Scorecards for supervised farming tours

DAVID HARTZOG, Teacher Education, State College of Washington

HOW are we actually teaching supervised farming? Is the supervised farming program of each individual tailored to his particular needs? Is the class attitude utilized to assist in teaching supervised farming? Are you satisfied with the supervised farming program of your students?

Many of us when introducing the subject of supervised farming to a beginning class attempt to do so by giving examples. Sometimes we give too few examples, or sometimes, we use wrong ones. As a result too many beginning students select as a "project" a pig, or a calf, with little thought of building a farming program that will help them become established in the farming business after leaving school. In many cases the students simply choose the most opportune project to fill the requirement and we, as teachers, too often are satisfied with it. How can we get the idea across that a carefully chosen start in a supervised farming program is the first step in establishment in farming? I think that we will agree that the supervised farming program should be presented to the students as a learning opportunity rather than as a requirement that must be met. This learning opportunity should be not only for the learning of approved practices but should also include as much of the management and business aspects as possible.

Building Background

One approach to this problem that has been used successfully is to thoroughly discuss in class the supervised farming program as a learning opportunity. A discussion involving several successive class periods probably is necessary to establish sufficient understanding and background for students to achieve as thorough knowledge of the subject as we want. Out of such a discussion will come a few specific questions such as "What kind of supervised farming program will enable me (the student) to learn the most?" Beginning from this basic question a series of questions which point specifically to the needs of the individual student may be framed. If these questions are developed sufficiently by the class, they may become a list of criteria which can be used by students and instructor in selecting the enterprises or projects which go to make a satisfactory farming program for the individual student.

In most situations it is preferable to develop this list of questions, or criteria, by means of class discussion. If they are developed by the class, the individual student, having had a part in developing them, is more apt to consider them as his own, while, if they are simply dictated to the class by the instructor the student is quite apt to feel that they are requirements personally established by the instructor and may not be particularly enthusiastic about using them. It would perhaps not be necessary for each class in a department to develop these criteria but if the instructor can honestly tell a freshman class that some previous class had developed these questions to help in selecting a supervised farming program they probably will be well accepted. However, it will be necessary to consider the objectives and the reasons for a supervised farming program with each class.

Class Developed Criteria

Following is a list of questions or criteria that was developed by a vocational agriculture class. The numbered, italicized questions are the statements as submitted by a class of vocational agriculture, which they worked out to help them in selecting their projects and in designing their supervised farming program. These questions were developed so that the instructor, or an advanced student, could counsel with a beginning student who was working on the problem of his supervised farming program and the questions could be considered by that individual in making decisions pertaining to the design of his farming program.

1. *What type of farming do you ultimately want to do?* This is probably the most important question of the series. A student's long range, or life time goal, should certainly be considered in the selection of his supervised farming program. In most cases his choice probably will be compatible with the type of farming found in the area, and probably also, with that found on his own home farm. If not, some discussion should take place at this point to determine what adjustments need to be made.

2. *Is this type of farming adapted to this community?* While this question is rather important, many communities are in an area where there is considerable diversity and perhaps the type of farming being suited to the area is more important than its being suited to that of the immediate community.

3. *Is this type of farming adapted to your home farm?* The answer to this question may pose some other problems, but if the type of farming selected is not adapted to the home farm, the student must realize that facilities for the type of farming he anticipates must be secured.

4. *What enterprise should you choose to begin?* In many, if not most cases, the logical enterprise for a student to begin with is a major enterprise of the system of farming which he plans to enter.

5. *What project, or combination of projects, would be of sufficient size or scope for your age, ability, and year in school?* Before a thorough discussion of this particular question may be completed with an individual student, some stepping ahead into the following questions will probably be necessary. However, the instructor's thinking and attitudes may serve at this point to establish an ideal which may have to be scaled down to be practical for the student. At any rate a tentative decision as to the design of the farming program should be made at this point and the subsequent questions could be considered in the light of a specific list of projects.

6. *Are sufficient equipment facilities and funds available for you to complete a production cycle?* Here is a logical place for a brief discussion of credit and rental agreements.

7. *Does this program have an opportunity to show a profit?* At this point a little discussion of the profit motive in free enterprise and the principle that long range investments are built on profits may be in order.

8. *Can you really own this project or project program either alone or in partnership?* A student should realize that ownership involves and implies both the freedom and responsibility to make decisions pertaining to his farming program.

9. *Can this program be organized so that it may be expanded each year to help establish you in farming?* This last question is probably the second most important of the group. Unless this one point is kept in mind while considering the other questions, a supervised farming program may fail in its ultimate purpose.

While these criteria are important to the beginner so that he intelligently selects the design of his farming program, it is equally important that they be kept in the mind of the agriculture student throughout his career in vocational agricultural training. One means of keeping these fresh in the minds of students is that of conducting project tours. A project tour may be a rather pointless skylark or it may be a genuine learning device, depending upon the preparation and the attitude of the class toward the supervised farming tour. One means of making farming tours meaningful to the class are to have the class, or a committee, hear a report of the plans, inspect the budget and records, and then actually go out and visit the farming program. A scorecard which each student fills out on the farming programs visited will direct the attention of the class to those features of the program which might otherwise be overlooked. The scorecard should be developed by students either in a class or by a committee of the class. Actually the points to be considered in such a scorecard are very closely related to the questions or criteria that we have already discussed. Some of the questions important in selection of a project program

(Continued on Page 239)

Determining the farm . . . job experiences

E. E. CLANIN, Teacher Education, Purdue University

E. E. Clanin

ONE OF THE author's primary problems as a teacher of vocational agriculture a few years ago was that of determining the current status of the student's learning regarding various important operative skills and managerial jobs. It was his desire to individualize instruction in accordance with the students' previous experiences and their needs for additional learning opportunities. This practical teaching problem situation eventually led into a research study to develop a device which could be used to determine the current status of a student's farm-job experience.*

Two major problems were involved in the development of such a device. First, who might be expected to participate in determining the level of a student's farm-job experience and second, what device could be used with both reliability and validity in the determination of the nature and extent of the student's experience?

The Development of the Device

A careful analysis of the types of experience which a person might have with any farm job led to the descriptive statement of eight levels of experience. The levels of experience were revised several times according to suggestions made by the author's colleagues in teacher-training and according to comments made by teachers of vocational agriculture and their students from four departments of high school vocational agriculture where tentative forms of the statements were used. The statements of levels of experience were arranged in a logical order and constituted a basis for checking or taking inventory of any student's level of experience with any farm job. The final statement of levels of experience used in the development of the device for the research study was as follows:

1. I have had no experience with this job and have no knowledge regarding how the job is done.

2. I have never done this job but I have seen it done as a part of the farm work or I have realized when a decision was being made regarding how to do this job.

3. I have never done this job alone but I have helped someone else do part or all of this job without knowing whether it was being done according to the best method.

4. I have never done this job but I have read how to do, or have seen someone demonstrate how to do, or have been told the factors to consider in deciding how to do this job.

5. I have not actually done this job but I have described how to use practices or have explained how to follow rules of proved value for doing this job in a particular farm situation.

6. I have done this job *at least once,* using practices or following rules of proved value, *with* helpful suggestions or directions from someone else.

7. I have done this job *at least once,* using practices or following rules of proved value, *without* helpful suggestions or directions from anyone else.

8. I have done this job *several times,* using practices or following rules of proved value, *without* helpful suggestions or directions from anyone else.

The concensus of teachers of vocational agriculture and teacher-trainers was that students could rate their experiences with farm jobs by using this descriptive statement of levels of experience. However, it was decided to check the validity and the reliability of student self-ratings by comparing these ratings with ratings made by the students' parents and the teachers of vocational agriculture.

These descriptive statements of levels of experiences were used in preparing job-experience rating devices for the dairy, poultry and swine enterprises. Lists of farm jobs for each of these enterprises were stated in such a manner that each job statement included within it an improved farm practice of that job.

The Use and Scoring of the Device

The completed rating device consisted of the lists of farm-job statements, descriptions of levels of farm-job experience and a form for collecting information regarding the student's opportunity to obtain experience. This device was administered to more than 900 students, parents of the students and teachers of the students in vocational agriculture in 51 school communities in the general farming area of central and northeastern Indiana.

The ratings of student experience were secured from the students, the students' parents, and the teachers for each job on each enterprise list. These results were scored by using the number of the level of experience chosen for each job by the student, parent or teacher as the score for that job. Each student's total score for each enterprise was obtained by summing the job scores for that enterprise.

Testing the Device by Statistical Methods

The reliability of the device was determined by calculating the co-efficients of correlation between the totals of odd-item and even-item scores (for each enterprise and each rater separately) and correcting the results by the use of the Spearman-Brown formula. The coefficients of reliability thus obtained were found to be .97 or above. These coefficients of reliability are high and therefore the reliability of the device was considered to be adequate.

The validity of the device was also believed to be adequate because of (1) "face validity" obtained by the careful method of preparing the device, (2) the size of the validity coefficients determined by calculating the coefficients of correlation between student self-ratings and others-rating of the students' experiences with each enterprise farm-job list (these coefficients of correlation ranged between .50 and .65), and (3) the power of the device to discriminate between groups of students known to differ in their opportunities to obtain farm-job experience.

The more technical elements of the statistical report of the research have been omitted in this article. It is believed, however, that it will be of general interest to point out by a table and further discussion some of the evidences of the discriminative power of the device.

The first test of discrimination was one in which comparisons were made between the total enterprise scores given by the three types of raters to groups of students who were enrolled in vocational agriculture for different numbers of years. The results of this comparison for the dairy enterprise are shown in Table I.

It is evident that all three groups of raters agreed that the students' experiences with dairy enterprise farm jobs differed significantly according to the number of years of vocational agriculture which the students had completed. This conclusion is indicated because the critical ratios vary in size from 2.32 to 6.56. Even the smallest critical ratio represents a difference which would happen by chance only twice out of a hundred times. It can be said, therefore, that the device did discriminate between the groups rated according to the amount of experience they had obtained.

Similar tables were set up in the report of the research which indicated a positive relationship between several other factors and the reported amounts of experience possessed by the students. These tables in the complete report of the research possessed data which indicated (1) differences between groups of students having varying years of project experience with the selected livestock enterprises, (2) differences between groups of students having had varying years of ownership of their vocational agriculture projects, (3) differences between groups of students who reported various places at which they had the opportunity to obtain direct experience with the selected livestock enterprises and those who reported no place for opportunity to obtain direct experience, (4) differences between groups of students who had lived varying lengths of time on a farm, and (5) differences between groups of students

* This article is based upon the author's research study to meet part of the requirements for the Ph.D. degree awarded at Purdue University in January 1951.

Table I.
Analysis of the Differences Between Mean Total Enterprise Scores of Groups of Students Who Have Had Varying Years of Vocational Agricultural Instruction.

	Years of Vocational Agriculture Completed	Dairy Enterprise			
		Number of Students	Student Ratings	Parent Ratings	Teacher Ratings
Mean total enterprise scores according to years of vocational agricultural instruction	3	109	230.43	227.81	240.05
	2	195	205.69	207.57	211.32
	1	259	194.73	186.37	196.56
	0	345	165.48	163.26	169.37
Differences between mean total enterprise scores according to varying years of vocational agricultural instruction.	3-2		24.74	20.23	28.72
	2-1		10.96	21.21	14.76
	1-0		29.25	23.11	27.19
Standard errors of differences between mean total enterprise scores (see differences above)	3-2		5.54	6.56	5.36
	2-1		4.72	5.37	4.60
	1-0		4.46	4.91	4.31
Critical ratio:* Differences divided by standard errors of the differences (see above)	3-2		4.46	3.08	5.36
	2-1		2.32	3.95	3.21
	1-0		6.56	4.70	6.31

* A critical ratio of 2.32 indicates a difference which would occur by chance only twice in a hundred times. A ratio of 3.00 or larger represents a difference which would occur by chance less than twice per thousand chances.

who expressed varying attitudes toward working with the selected livestock enterprises.

The data collected by the use of the device, therefore, possessed evidences of the raters' ability to use the device to discriminate between groups of students known to be different in ways which were believed to be related to the opportunity for obtaining farm-job experience.

Implications for the Educational Use of the Device

The next question which now confronts us is "What use can be made of this technique and device in practical teaching situations?" Briefly, it seems to the author that the following represent real educational implications for teaching and for further study:

1. The current status of your students' farm-job experience and learning may be used to plan more adequate individualized types of courses of study. The device could be administered and the results be used by the teacher to individualize the course of study early in the first year of the students' work. There should be increased student interest and response to the fulfillment of each student's felt needs following the instruction given using such courses of study.

2. The supervised farm practice portion of vocational agricultural instruction may be most effectively developed when the teacher, the parent and the student possess information concerning the current status of the student's farm-job experience. The use of the device developed in the author's research provides such information to all three of the individuals mentioned. Under such a condition as described, cooperative student guidance concerning the organization of the supervised farm practice program may be facilitated.

3. The device of this reported study or any similar type of device may be used as a means of realistic self-evaluation by the student. The results of such self-appraisal may help the student to select new goals for attainment in the future.

4. Teachers may use such a device to evaluate the progress of their students. The device might be used at intervals during the program of vocational agricultural instruction to appraise the progress being made by the students in the attainment of farm-job experience and the development of the desired abilities with the selected livestock enterprise farm jobs.

5. Other job lists representing the farmers' jobs in additional enterprises could be developed by individual teachers who are interested in inventorying their students' farm-job experiences. The precise statement of each of these jobs to include the improved farm practice of each job as it relates to the specific community will, of course, vary from community to community and from one geographic area to another. It seems, however, that the statements of levels of experience developed for the author's device could be used in any community.

It is recognized that the device and technique reported in the author's study is perhaps inadequate in itself. In a beginning manner, however, it may assist in solving the problems of course of study building and in adjusting instruction to individual differences. It should be our constant challenge to find more and better techniques for this and other areas of our professional teaching preparation. May this report of one effort be an indication to other persons of additional studies which should be made. This device and technique as reported and other techniques yet to be developed may all help us to our major professional educational goal—improved proficiency as teachers of vocational agriculture. ●

Student rating scale

(Continued from Page 221)

How to Use This Rating Scale

When the results of the farming program have been summarized, the student should draw a line across the column at the point on the scale which suggests their level of production for each measure represented.

1. Summarize the farming program for each measure of efficiency possible for a student's farming program.
2. Record the data for each measure of efficiency in the appropriate column by drawing a line at the scale point corresponding to the results obtained. In the case of the number of productive man-work units and others for which columns are provided for different years in schools, the column in which the result would be recorded would be that one in which the farming program was started and carried for the most part.
3. Read the evaluation in the left-hand column of results obtained. Those which rate "fair" or "poor" are the phases of the farming program which should be improved.
4. Keep the charts in order to make comparisons from year to year. If improvements are shown the student will probably be partly responsible for this favorable change.

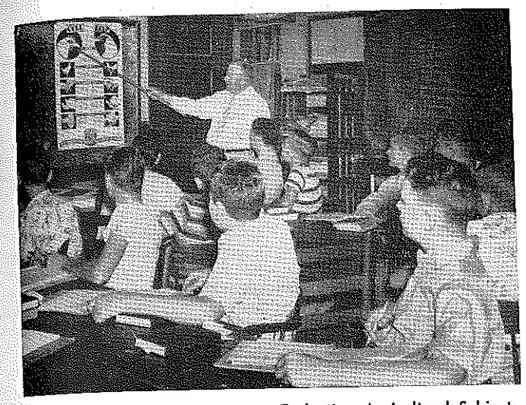
Limitations of This Rating Scale

This rating scale is designed to fill the needs for this school service area. Teachers in other areas or departments of vocational agriculture may need to adjust these various standards to meet their particular requirements. Perhaps they will need to omit some of these productive projects and substitute the projects found in their own area.

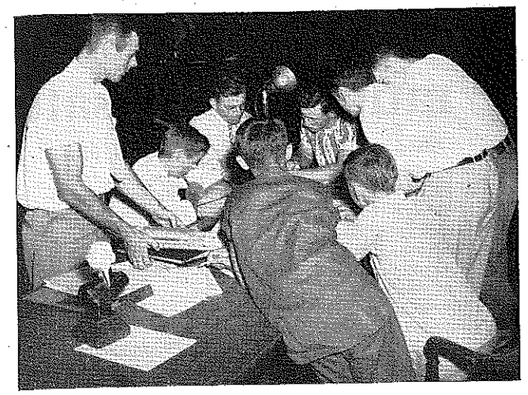
The standards or goals developed for items of evaluation in one department, may not be applicable to other situations because of various factors involved:

1. Economic values vary from one locality to another because of climate, location, and soil types.
2. Economic trends fluctuate because of surpluses in production, demands for farm commodities due to national emergencies or depressions. ●

Youth is not a time of life—it is a state of mind. You are as young as your faith, as old as your doubt; as young as your self-confidence; as old as your fear; as young as your hope, and as old as your despair.—ANON.



Boys Receive Much Instruction in Evaluating Agricultural Subjects. They Can Help the Teacher Evaluate the Curriculum.



A Committee of Boys May Be Used to Summarize and Interpret Opinions of the Program Expressed by Class Members.

Let them evaluate . . . . .

LLOYD J. PHIPPS, Teacher Education, University of Illinois

L. J. Phipps

A baseball player has immediate and constant knowledge of his success or failure, and a businessman usually knows how his business is progressing. A teacher, however, has few immediate ways of measuring his success or failure. He often does not discover his most glaring faults until it is too late. Even his best friends will not tell him.

Results in the form of changes in the behavior of people indicate teaching success or failure. Changes in behavior, however, are often not apparent at first, and it may be several years before an important change in behavior is measurable.

One possible "short-cut" in the evaluation of teaching success is systematic and organized teacher evaluation by students. A teacher who evaluates himself by asking his students to evaluate his teaching may benefit in many ways. This type of evaluation usually improves teacher-student relationships. It exposes idiosyncracies that will not be exposed in other ways. It is an example to the students of the value of evaluation. If a teacher is willing to allow his students an opportunity to formally evaluate him, they may be more willing to cooperate in teacher-student planning to devise instruments for evaluating their progress. Results of an evaluation of a teacher by his students also have some predictive value regarding his teaching ability as measured by the permanent changes in behavior which he produces in his students.

Types of Evaluation Forms

There are two principal types of evaluation forms which teachers use in obtaining the opinions of their students regarding their teaching. One is the open-end questionnaire form and the other is the "scale" form. Each type has some advantages and some disadvantages. A "scale" form may suggest a possible answer. Also, in a "scale" form all of the possible answers may not be anticipated. Its principal advantage is that it is easily summarized. It also may be an aid to students who have difficulty indicating their opinions in writing.

An open-end questionnaire form may uncover situations and idiosyncracies that are not anticipated. Original ideas are obtained on an open-end questionnaire. Its principal disadvantage is that results are difficult to summarize. Probably the best type of form to use is one which contains both open-end and scale-type questions.

(Continued on Page 234)

Examples of Evaluation Forms

A "Scale" Form—Following is a sample of a portion of a "scale" evaluation form that would be simple enough to use with high school boys.

Instructions: Please indicate your opinion on the following scale

yes	partial or some	no

Check the scale at the point that indicates your opinion. Thank you for your cooperation. Do not sign your name.

	yes	partial or some	no
1. Are the purposes of the course clear?			
2. Does the course stimulate you to think?			
3. Are the presentations of the instructor clear?			
4. Do you feel free to express your opinions in class?			
5. Is enough material covered in the course?			
6. Are discussions in the course too difficult for you?			
7. Are you interested in the discussions in the course?			
8. Are you satisfied with the course?			
9. Are you satisfied with the instructor of the course?			
10. Does the instructor treat all students fairly?			
11. Does the instructor help students willingly?			
12. Is the instructor biased?			
13. Is the instructor a good friend and counselor?			
14. Is the instructor considerate and courteous?			
15. Does the instructor have a sense of humor?			
16. Does the instructor dress correctly?			
17. Do you feel that you can go to your instructor for help?			
18. Is your instructor the kind of a person you like for a teacher?			
19. Are the examinations in the course fair?			

An Open-end Questionnaire Form—Following is a sample open-end questionnaire form useable with high school pupils in evaluating their teacher.

Instructions: Please indicate your opinion regarding the following questions. Do not sign the form.

1. What do you like about your *agriculture* course?
2. What do you dislike about your *agriculture* course?
3. What do you like about your teacher?
4. What do you dislike about your teacher?
5. What changes would you like to see made in your agriculture course?
6. What parts of your agriculture course should be retained and be given more emphasis?
7. What changes would you like to see made in the teaching procedures used in your agriculture course?

Can you prove you have taught shop safety?

DWIGHT L. KINDSCHY, Teacher Education, University of Idaho

"MR. BROWN, Tom caught his hand in the power saw!" Words that form icicles in a shop teacher's heart! With increasing enrollments in vocational agriculture and crowded shop conditions in many of our schools, the possibility of a serious accident lurks always around the corner. It is a nightmare in the shop teacher's dreams even after hours spent in making his students safety conscious and other hours spent in teaching safety methods. You teach, preach, and plead; and the possibility is still there—It *can* happen. Every good teacher is careful that his tools and equipment are in good condition and that every safety measure is put into operation every day. It isn't often that the parents of a student who has been the victim of a school accident will bring suit against the school district and shop instructor, but it is possible; and, if negligence can be proved, it can wreck the career of an agricultural instructor.

A teacher recently related an incident in which a student using a power grinder received a serious eye injury. Although the school carried insurance that covered the cost of the necessary medical care, there was no insurance to compensate for the loss of an eye. Parents of the student brought suit against the school district and shop instructor, and the school board was forced to hire an attorney to fight the action. The attorney visited the agricultural shop as his first step in the case. There he found a sign displayed above the grinder forbidding the use of the machine without protective goggles. A pair of goggles was hanging on a pin under the sign. The attorney pointed out to the parents and their lawyer that it was impossible to prove negligence as the student has disobeyed written orders. The case was promptly dropped.

It is important for a teacher to have proof of safety instruction given before he allows his students to use the shop tools and equipment. When a student is injured and a lawyer can prove that no instruction has been given to prevent such injury, the situation can have serious results. Keeping filed proof of such instruction is insurance both to the instructor and the school district. A simple method of doing this is a written test covering safety practices that have been taught. The teacher may then keep the student's signed test on file as proof of instruction given. Unless he does, the accident can come; and there can be repercussions serious enough to handicap financially both the teacher and the school district.

This, by no means, ends the teacher's responsibility to the students. Safety to the last degree must always be the first consideration. Building up legal immunity, although it is protection against the student's carelessness and the lack of scruples in the occasional parent, will never let the teacher forget that greater vigilance on his part might have prevented permanent injury to a student.

The Idaho teachers of vocational agriculture asked the Department of Agricultural Education to furnish them with a suggestive safety test covering six of the major areas of farm mechanics instruction. The resulting test may often need some revision to meet local needs, but that could easily be accomplished by those wishing to use it. The questions were so devised that they could also be used as an instructional stratagem and a basis for study or discussion. The test was not meant to be difficult; in fact, some of the questions are quite obvious. In compiling the questions, the multiple choice type was chosen because this method provides an opportunity to emphasize poor practices and impress good practices upon the students. Foolish practices could be suggested as a means of increasing interest.

The test as used by the Idaho teachers follows:

Suggested Safety Test for Students Enrolled in Farm Mechanics

This test is a multiple choice type. Pick out the answer best suited to make the statement logical and correct. Sign this test with your signature as it will be kept on file as proof of instruction given.

A. Woodworking Tools:

( ) 1. Use care and caution when starting a handsaw, especially when sawing on a (1) square, (2) diagonal, (3) table.
( ) 2. Be sure the heads of all hammers are securely (1) glued, (2) nailed, (3) wedged.
( ) 3. Never stand (1) in front, (2) behind, (3) to the side of anyone using a hammer.
( ) 4. Be sure nails are well (1) pointed, (2) straightened, (3) started with light strokes before heavy blows are struck.
( ) 5. Always work away from (1) the grain of the wood, (2) your hand or body, (3) the wood vice, when using a wood chisel.
( ) 6. Keep hands away from the (1) bit, (2) handle, (3) cap, when using a Yankee drill.
( ) 7. Use care to avoid (1) finger marks, (2) slivers, (3) cuts, when sliding the bare hands over a board.
( ) 8. Do not leave (1) nails, (2) knots, (3) splinters projecting from boards, when tearing down a project or building.
( ) 9. All (1) saws, (2) bits, (3) scaffolding should be tested carefully when working on a building or roof.
( ) 10. Before you try to remove small pieces of wood from the blade of a power saw, the saw should be (1) turned below the table, (2) stopped, (3) cleaned with compressed air.
( ) 11. Never use the power saw unless the (1) room is empty, (2) shop is warm, (3) guard is in place.
( ) 12. Don't try to (1) force, (2) sharpen, (3) oil a dull power saw.
( ) 13. Always use a (1) steel rod, (2) wood pusher, (3) pair of gloves when sawing small pieces on a power saw.
( ) 14. Try not to stand directly (1) to the side, (2) in the light, (3) in line with the blade, when ripping with a power saw.
( ) 15. When sawing a large piece of material with a power saw, such as a 4' x 8' piece of plywood, always (1) clean off the table, (2) get someone to help, (3) have the saw projecting only one-half inch.
( ) 16. Keep the floor around the saw always clean of (1) sawdust, (2) wood shavings, (3) wood scraps.
( ) 17. Never adjust a power saw while (1) the saw guard is in place, (2) the saw is projecting above the table, (3) the saw is running.
( ) 18. When using a radial arm saw for ripping, always be sure the (1) kickback guard, (2) the saw clamp, (3) pusher stick is in place.
( ) 19. Always use (1) gasoline, (2) kerosene, (3) a non-in-flammable solvent when cleaning paint brushes.
( ) 20. Always wear (1) a mask, (2) a respirator, (3) goggles when operating a paint gun.

B. Soldering and Sheet Metal:

( ) 1. Do not light a blowtorch that (1) leaks, (2) is plugged, (3) has no soldering iron rest.
( ) 2. If a blowtorch is plugged, don't continue to (1) knock it against the table, (2) pump air into it, (3) heat the burner.
( ) 3. Lighted blowtorches can be dangerous (1) if turned down very low, (2) if pointed near wooden cabinets or walls, (3) if turned open as far as possible.
( ) 4. The valve of a cold blowtorch should be opened only to (1) fill the priming cup, (2) squirt at someone across the room, (3) wash grease off the soldering iron.
( ) 5. Hot soldering irons should be (1) tinned, (2) cooled, (3) polished before storing or placing them where someone else can touch them.
( ) 6. When cutting out irregular shapes from sheet metal, always (1) bend over, (2) twist off, (3) trim off the sharp corners from the remaining stock before storing.
( ) 7. Remove sharp points from a freshly cut sheet metal project with a (1) hammer, (2) tin snips, (3) file to avoid injury to the hands.
( ) 8. If soldering acid is spilled on the hands or splashed into the eye, the best procedure is to (1) go to a doctor, (2) wash immediately with plenty of water, (3) dump on baking soda.
( ) 9. Don't use an electric soldering iron or any other electrical piece of equipment when standing on (1) a concrete floor, (2) a wood floor, (3) any floor that is wet or damp.
( ) 10. Don't use an electric soldering iron that (1) heats slowly, (2) has a damaged cord, (3) has a wooden handle.

C. Hot and Cold Metal Work:

( ) 1. Before using any metal-working hammer, you should check it for (1) trade mark, (2) loose head, (3) crooked handle.
( ) 2. The only hammer to use while working on an anvil is a (1) straight claw hammer, (2) ripping hammer, (3) blacksmith or ball pein hammer.
( ) 3. Never leave a hot iron where (1) it will chill too fast, (2) someone may touch or step on it, (3) it is in contact with ashes.
( ) 4. Be sure the blacksmith tong you are using (1) has a handle 3 feet long, (2) has a handle 1 foot long, (3) fits the iron you are trying to work.
( ) 5. Never hit directly with any hammer the (1) anvil face, (2) the head of a hot cutter, (3) the head of a cold cutter.
( ) 6. Keep the forge fire burning properly to avoid (1) soot, (2) ashes, (3) explosions, in the fire or blower pipe.
( ) 7. Always use (1) gasoline, (2) used crankcase oil, (3) shavings, to start a forge fine.
( ) 8. Never use a chisel with a (1) round, (2) mushroom, (3) flat head.
( ) 9. When chiseling metal, wear goggles and caution nearby students against flying (1) metal chips, (2) sparks, (3) glass.
( ) 10. When using a drill press, grip all large pieces with (1) a pliers, (2) your bare hand, (3) your hand with a glove on it.
( ) 11. When using a drill press, all small pieces should be gripped with (1) your gloved hand, (2) a pliers or drill press vise, (3) a monkey-wrench.
( ) 12. While drilling, do not leave the chuck-wrench of the drill press (1) in the chuck-wrench holder, (2) in the chuck, (3) on the drill press stand.
( ) 13. Wear (1) a mask, (2) an apron, (3) goggles, when using a grinder unless the grinder is equipped with transparent shields.
( ) 14. Hold small pieces with a (1) pliers, (2) gloves, (3) piece of wood when grinding them on a power grinder.
( ) 15. Keep the tool rest or support (1) at right angles, (2) at a 45 degree angle, (3) close to the grinding wheel.

D. Oxyacetylene Welding:

( ) 1. Always protect your eyes with the proper (1) sun glasses, (2) transparent shields, (3) welding goggles.
( ) 2. Never light the torch until you are actually ready to (1) line up the metal to be welded, (2) clean the tip, (3) weld.
( ) 3. Always (1) hang up, (2) turn down, (3) put out the torch when it becomes necessary to readjust the work.
( ) 4. In using the torch the flame should never be directed (1) directly on the metal, (2) against cast iron, (3) towards anyone who is near enough to be burned.
( ) 5. If possible, always weld away from your body because of the danger of (1) fire to your clothing, (2) torch pops, (3) burning the hose.
( ) 6. The acetylene pressure should not be regulated higher than (1) 9 lbs., (2) 14 lbs., (3) 18 lbs., as the gas can be ignited by friction above that pressure.
( ) 7. If gas leaks can be detected or smelled at any time, (1) stop welding and tell your instructor, (2) tell your instructor after class, (3) look for the leak and stop it.
( ) 8. Never weld on a closed gas tank or empty oil barrel unless it is (1) cooled to 70 degrees, (2) taken outside, (3) filled with water.
( ) 9. If an acetylene generator is being used and it fails to generate gas when the carbide feeder is open, (1) tap the feeder with a hammer, (2) get everyone out of the building and get out yourself, (3) quickly shut it off and tell the instructor.
( ) 10. An acetylene generator should never be used after the (1) generator has just been charged, (2) when the temperature in the shop has dropped below freezing, (3) when it is out of carbide.

E. Arc Welding:

( ) 1. One of the most serious dangers in arc welding is (1) getting electrical shocks, (2) flash burns to the eyes, (3) getting burned from hot metal.
( ) 2. T-shirts are not recommended for welding because of (1) sunburn caused by the arc, (2) fire danger, (3) danger of burns from hot iron.
( ) 3. An arc welder should be used with caution around little children because (1) it will frighten them, (2) they will look directly at the arc, (3) they may get too close and be burned.
( ) 4. Never weld on a car where there is danger of (1) an overheated motor, (2) a tire blowing out, (3) a grease fire or gas explosion.
( ) 5. Always protect the eyes in a recommended way when (1) hooking on the ground clamp, (2) rolling up the cable, (3) chipping slag.
( ) 6. When arc welding always wear trousers with (1) heavy cuffs, (2) with no cuffs, (3) with no pockets.
( ) 7. Always pick up the electrode holder (1) before you stop the welder, (2) when adjusting metal, (3) by the insulated handle.
( ) 8. A big help to a welding operation is (1) rubber-soled shoes, (2) good leather gloves, (3) an air-cooled straw hat.
( ) 9. Avoid breathing the fumes (1) when welding in a forge, (2) from the cooling device in a direct current welder, (3) given off from the arc in arc welding.
( ) 10. Do not adjust the welding machine (1) when it is hot, (2) before it warms up, (3) when it is in operation.

F. Farm Machinery Repair:

( ) 1. Never clean equipment with an inflammable solvent unless (1) you use a brush, (2) you use a pressure spray, (3) you are outside.
( ) 2. Never get under a piece of equipment being repaired unless (1) it is held by a chain hoist, (2) it is held by a jack, (3) it is blocked securely with wood blocks or specially constructed horses.
( ) 3. Never operate a motor in a closed shop without (1) filling the gas tank, (2) checking the water, (3) providing proper ventilation.
( ) 4. Never crank a motor unless (1) your thumb is on the same side of the crank as your fingers, (2) the motor is cool, (3) the motor has a magneto.
( ) 5. Never start a tractor unless (1) the owner has given you his consent, (2) someone is sitting in the seat, (3) you are sure it is out of gear and the breaks are set.
( ) 6. Rags with grease or oil on them should be (1) stored in a metal container, (2) put out of sight in a drawer, (3) hung outside to dry.
( ) 7. Do not test a spark plug with a screwdriver unless (1) the screwdriver is at least 10 inches long, (2) you are standing on wood, (3) the screwdriver has an insulated handle.
( ) 8. Never use wrenches that (1) are in poor condition or have rounded corners, (2) have an open end, (3) have a box end.
( ) 9. When working on machinery repair, (1) follow instructions in a book, (2) keep the floor clean from grease and oil, (3) keep a record of everything you do.
( ) 10. Do not use the mouth to (1) blow dirt from machines, (2) moisten glued back tape, (3) siphon gasoline that contains tetraethyl lead.

.....

Signature of Student

Key to Farm Mechanics Safety Test

A. Woodworking Tools:

1.	(2)	5.	(2)	9.	(3)	13.	(2)	17.	(3)
2.	(3)	6.	(1)	10.	(2)	14.	(3)	18.	(1)
3.	(1)	7.	(2)	11.	(3)	15.	(2)	19.	(3)
4.	(3)	8.	(1)	12.	(1)	16.	(3)	20.	(2)

B. Soldering and Sheet Metal:

1.	(1)	3.	(2)	5.	(2)	7.	(3)	9.	(3)
2.	(2)	4.	(1)	6.	(3)	8.	(2)	10.	(2)

C. Hot and Cold Metal Work:

1.	(2)	4.	(3)	7.	(3)	10.	(3)	13.	(3)
2.	(3)	5.	(1)	8.	(2)	11.	(2)	14.	(1)
3.	(2)	6.	(3)	9.	(1)	12.	(2)	15.	(3)

D. Oxyacetylene Welding:

1.	(3)	3.	(3)	5.	(1)	7.	(1)	9.	(3)
2.	(3)	4.	(3)	6.	(2)	8.	(3)	10.	(2)

E. Arc Welding:

1.	(2)	3.	(2)	5.	(3)	7.	(3)	9.	(3)
2.	(1)	4.	(3)	6.	(2)	8.	(2)	10.	(3)

F. Farm Machinery Repair:

1.	(3)	3.	(3)	5.	(3)	7.	(3)	9.	(2)
2.	(3)	4.	(1)	6.	(1)	8.	(1)	10.	(3)

F.F.A. chapter check-up

JOE DUCK, Teacher Education, Missouri

Joe Duck

THE score card shown on page 231 was devised as a tool by which the officers and the adviser of an F.F.A. chapter can measure its organization and operations. It was *not* designed to measure chapter activity, nor chapter accomplishment. It can be used to find how a chapter is organized and how it carries on its activities. Through the use of the score card the chapter officers and the adviser can find its weak points. After the weak points have been located, steps can be taken to eliminate them.

Basis of the Score Card

The score card is based on "Fourteen Points on Chapter Operation" given in *Official Manual, Future Farmers of America* and was developed by a class enrolled in *Supervising F.F.A. Activities* under the guidance of the writer at Colorado Agricultural and Mechanical College in the 1951 summer session. The reader will observe that the fourteen points given in the manual were stretched to twenty points on the score card. This was done because some of the original fourteen points contain more than one idea, which had to be separated in order to be measured. There is only one point on the score card that is not found in the manual. It is number 20, "Does the chapter participate in F.F.A. activities above the chapter level?" The class decided that a well-organized chapter would provide for participation in district, state, and national activities.

The class used the fourteen points given in the Official Manual as a basis because they represent what our leadership believes to be sound practices in chapter organization and operation. These practices have come out of the fire of experience from the beginning of the F.F.A. up to the present. Some readers may not agree with every point on the score card. They may have found practices that work better than some of the twenty given herewith. If so, they should use them. The score card is not represented as a perfect instrument.

How to Use the Score Card

The adviser who wishes to use the score card should place the responsibility for its application on the active membership, not on himself. The executive committee should as a rule apply the score card, since it is largely responsible for chapter organization and operation. The executive committee is usually composed of the officers and a few other members. The *other members* may be representatives of the various vocational agriculture classes, chairman of certain designated committees, or elected by the vote of the membership. Some chapters limit the executive committee to the officers elected by popular vote, but others include in addition to the officers a few additional members to make the committee more representative. The committee should not be made so large as to become cumbersome.

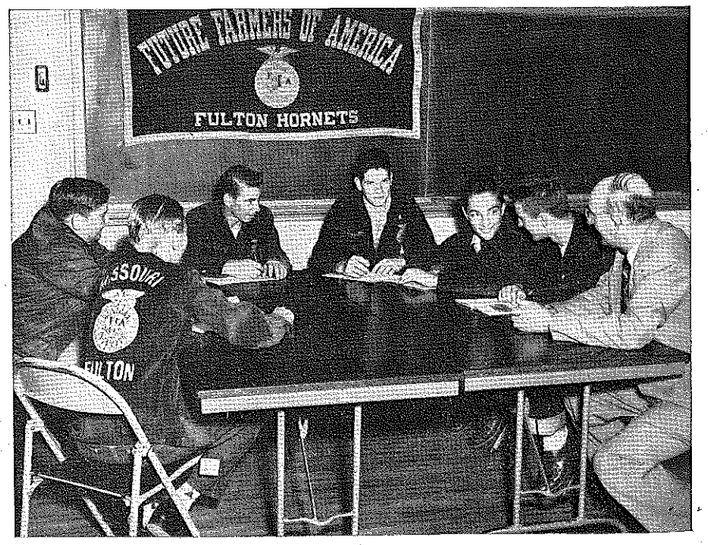
Each member of the committee should have a copy of the score card for reference during the scoring, or the score card should be copied on the chalkboard where all can see it. The chairman of the committee should tell the group what the score card is and why it is being used. Unless it is understood that the purpose of the score card is to locate weak points in chapter organization and operation, if any, the member cannot do a good job of scoring. Each point should be gone over carefully, one at a time, until its meaning is clear to all. Each member should then place his evaluation on the point under consideration, writing it on paper. Fairer results will be obtained if the scorer does not look at the two columns containing the scores made by 51 chapters. A sheet of paper may be used to cover these two columns while the scoring is being done. The chairman should then call for the scores given by each member of the committee. Discussion should be allowed, if necessary in order to reach a definite agreement as to the score the chapter should have on the point under consideration.

Interpreting Scores

The score that a chapter makes through the use of the score card is not the important thing. The important thing is the detection of weak points in chapter organization and operation. If the twenty points given on the score card are accepted as standards, 100 would be a perfect score and every chapter should adjust its organization and operations until it scores 100. However, in actual practice few, if any, chapters will score 100 because of points 5, 13, 17, 18, and 20. Very few chapters can make perfect scores on any of these five points.

The reader may ask "what is a good score?" The answer is that there are two standards by which to measure attainment. One of these standards is 100, or a perfect score. This is the one that should probably be the goal of a live-wire chapter. There is no reason why an active chapter with aggressive leadership cannot score above 90.

The other standard that can be used to measure chapter organization and operations is the attainment of a number of other chapters. Scores are available on fifty-one chapters that were represented by advisers during the first period of the 1951 summer session at Colorado Agricultural and Mechanical College. The first column, "Number of chapters out of 51 scoring in each category," will help the scoring committee to determine how their chapter compares with 51 chapters whose scores are known. For example, this column shows that 44 chapters of the 51 make use of a nominating committee in selecting officers and that seven chapters do not use this method. Moving to item 2 we see that 19 chapters of the 51 "Always or almost always" have an officers meeting before each regular meeting at which the adviser is present. Thirty-one chapters have such meetings "Some of the time," and one chapter has this kind of meeting "Rarely or not at all." The third column also contains data that will help the committee to compare its score with that of the 51 chapters on any one item. For example, the average score on item 2 is 3. On item 4 the average score is 4 out of a possible score of 7. The average total score is 77.4. ●



Fulton, Missouri Officers and Adviser K. M. Craghead, in Executive Meeting.

A Score Card for Evaluating Chapter Organization and Operation[1]

Directions: Check the answer under each item that best describes your chapter operation. Enter score in the column to the right.

Practice or item	Number of chapters out of 51 scoring in each category	Perfect score	Average score of 51 chapters	Score of my chapter
1. Are the officers selected through a nominating committee on the basis of special qualifications?				
Yes—7	40	7	6.3	
No—0	11			
2. Do the officers meet and receive assistance prior to each regular meeting?				
Always or almost always—4 to 5	19	5	3.3	
Some of the time —2 to 3	31			
Rarely or not at all —0 to 1	1			
3. Is the school administration consulted and kept informed on activities of the chapter?				
Always 5 to —7	31	7	3.4	
Sometimes —3 to 4	20			
Rarely or not at all —0 to 1	0			
4. Does the chapter have a functional program of work (written and formulated by the members)?				
Highly functional —5 to 7	24	7	4.5	
Somewhat functional —3 to 4	23			
Little or not functional —0 to 2	4			
5. What percentage of last year's program of work was completed. Percent completed x $^{5}/_{100}$				
100%	6	5	3.6	
80—99%	22			
60—79%	16			
Below 60%	7			
6. Does the chapter have a written budget based primarily on the program of work and a sound plan developed for securing the necessary funds with which to operate?				
Written budget and a sound plan 7	11	7	4.7	
No written budget and a sound plan 5	28			
Written budget and no plan 4	6			
No written budget and no plan 0	6			
7. How well is the expenditure of chapter funds safeguarded?				
Funds deposited in a bank[2]; checks signed by treasurer and co-signed by advisor or other school authority and accounts audited by a committee —4	41	4	3.7	
Funds deposited in a bank; checks co-signed by one in authority; accounts incomplete, or not audited. —2	10			
Funds deposited in a bank, no accounts kept, or checks not signed by one in authority. —0	0			
8. What percent of members get experience in the work of the chapter and have definite responsibilities that contribute to its success or failure? Percent x $^{6}/_{100}$				
100%	23	6	4.6	
83⅓—99%	12			
80—83%	8			
Below 80	8			
9. Does the chapter possess standard meeting equipment and is it properly mounted and safeguarded?				
Standard equipment owned properly mounted, and safeguarded —3	38	3	2.7	
Standard equipment owned but not properly mounted and safeguarded —2	12			
Equipment incomplete —0	1			
10. How complete and useable are your chapter records?				
Records complete and readily accessible (filed) —5	17	5	3.6	
Records nearly complete and readily accessible (filed) —3 to 4	26			
Some records kept but not filed systematically 1 to 2—	7			
No records, or some records not readily accessible. —0	1			
11. Is at least one meeting held each month when sufficient time is available to take care of all chapter business?				
Twelve or more regular meetings —5	27	5	4.3	
Nine to eleven meetings —3 to 4	23			
Less than nine meetings —0 to 2	1			
12. Is the program for each meeting posted in advance?				
Always —3	11	3	1.8	
Usually —2	24			
Sometimes —0 to 1	6			
13. Is accepted parliamentary procedure followed?				
Almost always —5	36	5	4.5	
Usually —3 to 4	15			
Sometimes or not at all —0 to 2	0			
14. Does the executive committee have power to act in emergency?				
Yes —3	45	3	2.6	
No —0	6			
15. Do 100% of boys enrolled in vocational agriculture belong to the chapter?				
Percent enrolled x $^{6}/_{100}$				
100%	35	6	5.6	
90—99%	12			
Below 90%	4			
16. Were the qualified members advanced systematically to higher degrees of membership through the recommendation of a candidate reviewing committee?				
Yes —4	32	4	2.6	
No —0	19			
17. What average percentage attendance do you have at your chapter meeting?				
Percent attendance x $^{5}/_{100}$				
100%	4	5	3.7	
50 to 99%	31			
Below 50%	16			
18. How much do your members know about the F. F. A.?				
Considerable —4 to 5	23	5	3.5	
Some —2 to 3	28			
Little or none —0 to 1	0			
19. How much systematic and continuous leadership training is given to members starting from the time they enroll in vocational agriculture?				
Considerable —5 to 6	21	6	4.2	
Some —3 to 4	29			
Little or none —0 to 1	1			
20. Does the chapter participate in F. F. A. activities above the chapter level?				
Participation on all levels —5	22	5	4.2	
Participation on some levels —2 to 4	28			
No participation above chapter —0	1			
Total		100	77.4	

[1] Developed by a group of teachers of vocational agriculture enrolled in VEd 233 at Colorado A. & M. College, Summer of 1951, under the guidance of Joe Duck, Assistant Professor of Agricultural Education, University of Missouri and based on "Fourteen Points of Chapter Operation" in *Official Manual, Future Farmers of America.* Kenneth G. Nelson, Assistant Professor, Institute of Counseling, Testing and Guidance, Michigan State College, aided in preparing the form.

[2] May be deposited with general school funds.

The careful selection and encouragement of teacher candidates of superior promise go hand-in-hand with the discouragement of those who manifestly are ill fitted for the social task of teaching. The identification of qualities related to success in teaching is not an impossible task. The problem must be courageously faced at all levels by all members of the profession. Anything less than such aggressive action is to shun a responsibility of first magnitude and to undermine the entire educational system of the United States.

—Ray C. Maul

Measurement and Evaluation

HARRY W. KITTS, Teacher Education, University of Minnesota

Harry W. Kitts

ALMOST everyday, the classroom teacher and supervisor evaluates either a student, another teacher, himself or his program. Measurement is based on a standard. It may be in terms of distance, quality, quantity or degree of achievement, but there has to be some "yardstick" used as a basis for measurement. In vocational agriculture we use measures such as IQ, standard scores, gain per hundred pounds of feed, increase in net worth plus many other units for our measurement.

In 1927, an AVA Committee on Measuring Results in Agricultural Education (30) planned to measure accomplishments in three areas:

1. The extent to which former students entered and remained in agricultural work.
2. The immediate effect the teacher's efforts have upon the pupil's learning and earning in agriculture.
3. The relative efficiency of trained and untrained farmers.

Many of the studies cited in this article follow one or more of these proposals. It is interesting to note the lag between the recommendations of this committee and concerted action. It was not until 1940 that the national study for evaluation of programs in vocational agriculture developed (46).

The emphasis in early studies of measurement and evaluation in the field of agricultural education was largely on the achievement of all-day students. A common basis for evaluation has been in terms of progress attained toward establishment in farming. Certainly, that is a defensible basis for measurement for the all-day pupil's development. Some studies have been made in other areas in recent years. However, there still is need for research in many fields of vocational agriculture. Studies in measurement and evaluation might be classified under the following headings:

1. Instructional methods for
   (a) the high school group
   (b) the young farmer
   (c) the adult farmer
2. Occupational status
3. Tests
4. Rating of
   (a) students
   (b) teachers
   (c) departments or programs

It is difficult in many studies to determine what is an opinion and what is a summary of data. Writers so often mix this information in their concluding statements that the author makes little attempt to quote conclusions in this article. He will not make any comparison of results between similar studies because of the element of error in interpreting the data available.

Byram (4) pointed out the research being conducted to evaluate the program of vocational education in agriculture in the secondary schools. He listed the following areas:

1. Studies of products of departments and their careers.
2. Factors associated with vocational success.
3. Evaluation of supervised farming programs.
4. Techniques of measuring achievement.
5. Teacher activities.
6. Characteristics of programs.

He indicated a need for "improved and better ways to detect outcomes and for measuring against valid objectives."

Hamlin and Deyoe (22) made a comprehensive review of many evaluation studies in the areas of instruction, occupational distribution, progress in farming, college achievement, tests and rating of teachers and departments. They refer to earlier writings by Hamlin (17, 18) in which he concluded:

1. No satisfactory achievement tests for classroom use had been developed.
2. Rather satisfactory methods and devices for surveying community situations had been developed, and the important techniques for summarizing and interpreting survey data had been devised.
3. Certain issues had been settled rather conclusively through measurement studies and needed little further work.
4. A promising technique had been developed for studying the accomplishments in farming of vocational agriculture graduates in comparison with other persons.
5. Outcomes of adult education had as yet been measured almost exclusively in terms of changed farm practices.
6. The means thus far available for rating teachers and departments were little, if any, better than none at all.

Hamlin indicated that too much emphasis had been given in some cases to the survey method of collecting data. He warned that this technique is only a partial measure and does not touch some of the important outcomes of instruction. Deyoe (9) urged teachers to broaden their concept of teaching beyond making appraisals as a basis for assigning class grades. He further indicated a need for comprehensive objectives and evaluation by devices designed to measure the desired outcomes in terms of the established objectives. His plea strengthens one made earlier by Gentry (16). Deyoe (11) suggested fourteen problems which needed study. He, too, emphasized the necessity for formulation and refinement of desirable objectives and the construction of tests or tools for measuring the progress toward the established objectives.

Methods of Instruction

1. *For the high school group*

Sweany (42) used a research procedure frequently employed by agricultural education men. He attempted to determine educational needs of students through analysis of project records by the survey method.

Deyoe (13) presented a form for evaluating a field trip. The effectiveness of this measuring device is in the selection of the items and the determination of the purposes of the field trip. The mechanics of application consisted mainly of checking the degree of accomplishment of the desired goal in the appropriate space provided on a standard form.

2. *For the young farmer group*

Although his study is not evaluative in the sense that it measures achievement of the individual young farmer or groups of young farmers, Naugher (31) traced the enrollment trends in both adult and young farmer classes in the United States. Such studies are useful to a supervisor for comparing his state program with those of other states if he is interested in numbers enrolled, number of classes and trends. Such data are also used by the teacher trainer to point out the need for the program and to show the development of the work to trainees.

To some individuals, the veterans' program is a separate program as much apart from the vocational agriculture department as the Soil Conservation Service or the Extension Service. Fortunately, those individuals are in the minority. However, there are also differences of opinion as to whether the veteran is an adult farmer, partly because of his age and partly because he is becoming progressively established in farming. There is an extensive national study of this program now in progress and summary data should be available within the next few months. This study incorporates many factors similar to those used by Kaufmann (25). The veteran's progress is measured in terms of such factors as financial assets and advancement in farming status. Swanson (41) suggested additional factors as criteria on which to measure progress of veterans. They are: Approved practices adopted; farm business organization or adjustments; production levels; efficiency factors; and level of living.

3. *For the adult farmer*

Much of the literature in this area deals with techniques of instruction, conduct of specific classes or adoption of approved practices for adult farmers with little or no emphasis on the measurement or evaluation of the program.

Tests

Deyoe (8) stated in 1935:

> "It may be that problems of a pencil and paper type can be found which correlate sufficiently high with actual situations, and accurate predictive instruments for use in testing may thereby be evolved; but we are a long way from such devices as yet. Until this time comes, we must continue to rely on first-hand observation of each pupil's performance when he is placed on his own responsibility, and note thereby his ability to solve the problems which arise. In other words, we must measure *doing ability*, and the testing ground must approximate as nearly as possible the actual farm situation. We can utilize to a certain extent the pencil and paper types of tests for measuring the ability to solve such problems as can be reduced to this basis. However, to confine our testing primarily to responses on written items gives undue emphasis to those aspects of our instruction. It may result, and undoubtedly does result in many cases, in over-emphasis on subject matter for subject-matter's sake, which has long been the evil of teaching in the academic subjects."

That statement does not condemn written tests if they are used for the purposes for which they were designed. It points out the desirability of the tests being only a part of the total measurement program. Later, Deyoe (10) indicated some of the weaknesses of written tests and listed guiding measures for constructing and effectively using written tests. Sutherland (40) urged teachers to construct tests to measure the materials taught. He emphasized the need for evaluation of progress at the "doing" stage since the vocational agriculture program is based on "earning by doing." There is always the problem of establishing satisfactory goals or objectives as a basis for measurement, especially in the area of instruction of mechanized farming. Cook (6), in his article on farm mechanics, discussed what should be evaluated, how it could be measured and why it should be measured.

Occupational Status

For the most part, tests in the area of vocational agriculture are constructed by the individual teacher for his local situation. There have been attempts to construct and standardize written test units, each generally limited to a specific farm enterprise or even a specific phase of some enterprise (such as dairy feeding). A few of these written tests have been published but have not been widely accepted.

The ultimate goal or objective for every student should be proficiency in farming. Most studies in this area follow closely the pattern of tracing the progress of the individual up the agricultural ladder to farm operator and owner. Clark (5) studied fifty young men, comparing the farm status of fathers, the influence of the parents, the education of the young man, his age when he became established, his prior occupational pattern and present financial status. There are many similar studies. Lathrop (27) pointed out that the length of time over which a study of the establishment of young men in farming extends is an important factor in its reliability. Sweany (43) indicated that every student of vocational agriculture is so different in opportunities and abilities that his advancement up the agricultural ladder may differ from all others. However, the student's farming program in high school and after he leaves high school and actively enters farming must be fitted to existing farm conditions and be planned and executed jointly by the student, his parents and the teacher.

Evaluation

1. *Evaluation of Students*

Deyoe (12) recommended a careful analysis of the project records and the use of summary data as a basis for establishing new goals on which to base progress in future years. Hoskins (24) proposed that the summary of supervised farming programs for a department for an extended number of years serve as the indication of conditions as they exist in that community and thus be guideposts in establishing sound objectives.

Marks have been, and probably will continue to be, a source of concern to teachers in many secondary schools. Rhoad (35) had a plan for measuring pupil achievement in terms of pupil accomplishment. However, his sliding scale of values for each item still offers the teacher of agriculture the opportunity to determine the value he will assign each student largely on personal opinion. Schulte (36) believed pupils could rate themselves with his scale. However, he did not explain any scientific basis for the values assigned to various activities on his score card. Raine (33) described the scorecard he used with his students when he had them determine their own grades. His procedure is well-fitted to his method of individualized instruction. However, the point-scale self-evaluation scorecard of this type is largely used as a device for a teacher to arrive at a grade to place on a student's report card. The scale is not a tool for measuring progress toward the established goal of the student nor does it measure variation in the quality of work with any high degree of validity, if at all.

Hitchcock and Howard (23) studied teaching methods with adult farmers, young farmers, advanced high school boys, first year farm boys and town boys. They concluded that the use of methods which were adapted to the instructed group and which the teacher could use made the possibility of efficient instruction materially higher. Several teaching devices were suggested for use with each type of group. The proper selection of appropriate methods and the personal characteristics, experiences and abilities of the teacher influenced the success of the class.

2. *Evaluation of Teachers*

When is a teacher doing a superior job of "teaching?" Should his achievement be measured in terms of growth in all-day enrollment, number of productive projects or percentage of completion of project records (37)? Or, can an outsider observe a teacher for one day and accurately determine whether or not the teacher is doing a satisfactory job (21)? Perhaps measurement of teachers should begin when they enter training and be a continuous procedure. Brunner and Humphreys (3) used the "jury technique" to evaluate programs for the preparation of teachers at the college level.

Many self-evaluation scales have been developed. Sutherland (39) designed one for vocational agriculture teachers. There may be no scientific basis for the four-point scale he used. However, a conscientious teacher should be able to pick out his weak points by self-administering the test and, on the basis of his own analysis, take steps toward self-improvement. Anderson (2) used thirty traits in his rating scale of teachers. Individuals will differ in their interpretation of values along a five-point scale with four divisions between each point. Anderson's scale had value for individual analysis just as does the instrument developed by Sutherland. Perhaps studies should be undertaken to scientifically determine what values should be assigned to each item on rating scales such as those already devised.

Field (15) pointed out that a good teacher "will not measure his success in terms of the increased number of purebred pigs, acres of alfalfa or high producing cows in the community, but in terms of the improvement and changes that are made in the students or the people of the community." His statement, along with that of Parson's (32) "that the achievement of agriculture pupils should be measured in the light of the aims and purposes which the teaching is intended to realize" indicate the necessity of well-defined objectives as a starting point of any evaluation program.

Another approach to teacher evaluation has been the work with student teaching experiences. Wilson (44, 45) approached the work by studying the curriculum, the teaching experiences, the physical facilities of the teaching centers and the supervision given trainees. The teacher-trainers and supervisers, together with the supervising teachers, in the North Atlantic region have devoted considerable time to the study of this problem since 1947. They identified fourteen areas in which they believe a trainee should have experiences. Ex-

(Continued on Page 236)

What do studies show?

This contribution is one in a series of twelve planned for the current volume. Each will review and interpret studies in a phase of the program in agricultural education. Each will provide the reader with an overview of the research and point up applications in a particular phase. The phases to be covered and the selection of possible contributors were planned with the A.V.A. Research Committee for Agriculture.

Evaluation of a program of vocational agriculture

D. R. PURKEY, Supervisor, Ohio

D. R. Purkey

WHILE a teacher of vocational agriculture the most valuable help I received from supervisors or teacher-trainers was a written report on my program as observed by these men. Dr. Rhoad developed a form which, in my opinion, was a satisfactory way to express the composite opinion of me, the teacher, and himself as the supervisor.

Following my appointment as supervisor, this situation was discussed at the joint teacher training and supervisory staff meeting. A committee was appointed to further develop this device for use in making supervisory reports. The results of our efforts are contained in Exhibit A.

This evaluation sheet is completed (as much as possible) following a visit. Supervisor, or teacher-trainer, local teacher, and, if possible, local school head, discuss the program and evaluate the points as observed. This not only makes a permanent record but, in the opinion of the author, brings about a better understanding between operation standards and policy. Many times items are discussed that do not appear on the evaluation sheet. If they do, notes are made on the reverse side and additional sheets used.

Following the visit and conference, several copies are made. One for the state office file (as a supervisory report), one for the local school head, and one for the county superintendent of schools. The most important one, however, is received by the teacher who is reminded of his weaknesses, complimented on his good points, and becomes part of the department file. From year to year progress can be noted on any point covered by the evaluation sheet. ●

EXHIBIT A.

An Evaluation of a Program of Vocational Agriculture

School_____ Teacher_____

Supervisor or Teacher Trainer_____ Date_____ County_____

Superior	Adequate	Needs Attention	
	. . .		1. The teacher has a long-time plan and effectively pursues the plan.
	. . .		2. Enrollment in vocational agriculture is satisfactory. H.S. boys living on farms_____. Agr. 1 & 2_____. Agr. 3 & 4_____. Young Farmers_____. Adult Farmers_____. Total_____.
	. . .		3. Farming program scope and size. Number of projects per student. Production_____. Improvement_____.
	. . .		4. Farm visits are made to homes of high school and out-of-school students. Number of visits per month_____. (From mileage reports).
	. . .		5. Farm program record books are accurate and up to date. (Survey of ten books at random.)
	. . .		6. Record books show good practices in effect on farming programs.
	. . .		7. Project summary and analysis data are available and are used in teaching. Number available_____.
	. . .		8. Farming programs show production efficiency.
	. . .		9. Course of study outlines are used effectively in Agr. 1 & 2_____. Shop_____. Adult Farmer_____. Agr. 3 & 4_____. Young Farmer_____.
	. . .		10. The problems studied are based on farming program needs. (Notebooks or other evidence.)
	. . .		11. Teacher preparation is in evidence. Problems_____.
	. . .		12. Students are challenged to seek information to solve their problems.
	. . .		13. Community resources are being utilized in teaching. Number of field trips_____. Other resources_____.
	. . .		14. Classes are well disciplined. 1 & 2_____. 3 & 4_____. Shop_____.
	. . .		15. Teaching aids are available and effectively used.
	. . .		16. Decisions are reached after all available information has been studied and considered, and are written in terms of the students farm situations.
	. . .		17. Farm shop projects are based on needs as indicated on individual survey of farm shop needs.
	. . .		18. Shop class workmanship shows quality. Projects in shop_____.
	. . .		19. The use of student evaluation and teaching in shop is in evidence.
	. . .		20. The F.F.A. program is well planned and executed, including committees and a written program.
	. . .		21. Officers are well trained and assume responsibility in carrying out an effective program.
	. . .		22. The vo-ag program includes a Young Farmer and/or Adult Farmer program.
	. . .		23. A Planning Council/Advisory Council is functioning. (Cross out one or both.)
	. . .		24. A cooperative relationship with other organizations and agencies in the county is maintained.
	. . .		25. The community is well informed on the program of vocational agriculture. Newspaper articles written per month_____. Radio programs_____. Etc._____.
	. . .		26. Demonstrations on work of the department are conducted for farmers in the community.
	. . .		27. A good working relationship exists between the teacher, superintendent, and other faculty members.
	. . .		28. Filing system for records, subject matter and bulletins is complete.
	. . .		29. Sufficient space is available for classroom_____. Shop_____.
	. . .		30. Classroom and shop are neatly kept and efficiently arranged.
	. . .		31. Books, tools, equipment and supplies are provided. (Items needed)_____.

Let them evaluate

(Continued from Page 227)

Preparing Students for Evaluating a Course and an Instructor

Students, high school boys, young farmers, or older adults, must be prepared to evaluate a course and an instructor or results may be disappointing. In preparation, a discussion might be held regarding the purposes and advantages of evaluations of a course and an instructor by the students. Students must understand the evaluation form they will use. One way of creating understanding of an evaluation form is to allow the students to construct the form they use. In order to obtain honest opinions, the evaluation forms should not be signed. Students should understand in advance that they are not to sign their names. Every assurance should be given to the students that the identity of their comments and opinions will be protected. One way of assuring them that their opinions will not become known is to have a committee of students collect and summarize the evaluation forms. The opinions expressed on the evaluation forms used may be summarized and typed by the committee and the summary only given to the teacher. The evaluation forms may then be destroyed by the committee.

The summary of the evaluation should be analyzed with the students for maximum benefits to the instructor and to the students who participated in giving their opinions on the evaluation form. ●

Wood burns because it has the proper stuff in it; and a man becomes famous because he has the proper stuff in him.

Future Farmers exhibited nearly 1,000 entries at the annual Washington Junior Poultry Exposition.

An appraisal of teaching methods

LEO L. KNUTI, Teacher Education, Montana State College

THE purpose of this discussion is to point up possible areas in which our practices of teaching methods might be improved. The emphasis in this discussion is placed upon the role of objectives and evaluation in more effective teaching. Assuming that objectives should be the focal point of teaching and learning, more study needs to be devoted to their effective identification, validation and analysis.

Objectives are based upon student needs. When effectively stated, objectives are expressions of student needs. Associating needs with a particular lesson or area of study involves one of the important steps in the educational experience. The identification of need for a particular kind of learning is the foundation of genuine interest and motivation on the part of the learner.

Agricultural Education Objectives

The close relationship of agriculture and agricultural education makes it difficult for teachers and students to distinguish between agricultural objectives and educational objectives. Agricultural objectives are designed to improve agriculture and educational objectives are those which improve the student. Agricultural education objectives express the kinds of information, skills, abilities, understandings, attitudes, and appreciations in agriculture which the student is expected to achieve.

Teaching for Application

One of the major aims of our teaching in agriculture is to secure application of what it taught in the classroom. The formulation of approved practices is a step in determining what needs to be done. Statements of approved practices involved in a unit might be made a part of the lesson plan or may be developed as a part of the lesson. How to get students to adopt approved practices is a challenge and a point for study. It is reasonable to assume that students fail to adopt approved practices because they can't fully appreciate their significance.

Needs, Interest and Motivation

Motivation or interest is recognized as the catalytic agent of successful teaching and learning. Motivation or interest needs to be kept at an optimum level throughout the teaching and learning process.

Basically all needs of students may be classified as those (1) concerning the student as an individual, (2) those related to his family or social group as his home, (3) his class, his school subject-matter group, and (4) his community, state or nation.

Interest or motivation is developed in agricultural classes by such means as:

1. Determining the efficiency of production of livestock or crops as compared to community and other averages.
2. Determining possible income as budget analysis in supervised farming enterprises.
3. Analyzing and comparing costs of production.

Less use is probably made of some psychological approaches to needs such as (1) new experiences, (2) parental and other student approval and (3) doing something for others as for the F.F.A. chapter, school or community.

Identifying needs may be made a problem of major study by the class as a while or as a special study by individuals or groups of students. The preliminary class discussion to identify the worth of a lesson or unit may or may not be sufficient.

Other kinds of studies designed to identify needs are:

1. Community or individual farm surveys.
2. Special enterprise surveys as a farm mechanics survey.
3. Use of student questionnaire forms or personal data sheets.

A study of needs is closely associated with a program of pupil guidance. This illustrates one of many tie-ins that a lesson or unit may have as with the supervised farming program, with parent understanding and cooperation, and with school policies. A student's plans for after graduation or what he expects or might get out of the study of agriculture is another fruitful area in which to discover and identify individual needs.

Evaluation as an Aid to Teaching and Learning

In education our appraisal tools are class discussion, written and oral tests, self appraisal, observation, surveys, analysis of records, and the like.

Evaluation aids in teaching and learning to let us know (1) where to start, (2) what progress we are making or difficulties being encountered during the teaching and learning process, and (3) to test the final results of a unit of teaching and activity.

Having the students actively and intelligently share in the evaluation process is an approved practice. Evaluation is an interesting part of the learning process. It adds variety to the learning experience.

Evaluation takes many forms. Evaluation skills need to be developed. Evaluation is useful in other phases of teaching as determining pupil needs by evaluating their present proficiency in farming, evaluating classroom facilities, and evaluating the total educational program of a department.

Lesson Planning

The nature and extent of formal lesson plans is a practice of wide variation among teachers. Lesson plans may take the form of written and mental planning. Some teachers have a practice of developing fairly complete lesson plans. Their merit lies in their possible use in future years or with other classes.

Lesson plans have been developed to fit a particular type or kind of lesson as (1) operative, (2) managerial, (3) informational, and (4) conference. Such classifications are helpful but a difficulty arises in classifying a unit in any one of these categories when all types of learning may be involved. A lesson emphasizing doing alone may fall short of developing understandings, interests, attitudes and appreciations.

A generalized approach to lesson planning might be based upon the objectives or purposes of the unit. Emphasizing objectives will insure that all kinds of educational outcomes involved will be stressed as (1) facts and information, (2) understandings, (3) skills and abilities, and (4) interests, and attitudes.

Assuming that the lesson plan will emphasize objectives, the following considerations might be included:

1. Introduction—identifying the problem or the job to be studied.
2. Teaching unit—statement of problems, jobs, or areas of study.
3. Objective—statement of objectives or kinds of learning involved.
4. Validation of objectives—identifying objectives with student needs, interests, and abilities.
5. Analysis of objectives—kinds of facts and information, understandings, skills and abilities, interests, attitudes and appreciations involved.
6. Evaluation—procedures and practices to determine (1) present levels of learning, (2) progress being made during the lesson or unit, and (3) the end results.
7. Assignment and directed study.
8. Teaching and learning aids—reading references, visual aids, equipment and facilities, and doing activities.
9. Discussion following assignment and directed activities.
10. Application — formulation and plans for application of approved practices.
11. Possible relearning.

When a lesson is based upon objectives, motivation for learning is sought through identifying needs implied in the objectives. The validation of the objectives is intended to establish the desirability of the objectives and its possibility for accomplishment. The analysis of the objective places emphasis on the methods of science in problem solving.

Statements of objectives and evidences of their accomplishments sets up a basis for evaluation. A thorough study of objectives and their identification with student needs encourages greater student participation in planning, executing, and evaluating the educational experience. The test of good teaching is application or whether students accept and practice what is to be learned. ●

Measurement and education

(Continued from Page 233)

amples of desirable experiences are listed under each of the fourteen headings. In 1949, a progress report (49) was in the form of a rating scale which could be used by first-year teachers in self-evaluating their progress.

3. *Evaluation of Departments or Programs*

Hamlin (20, 21) believed local representatives could best determine whether a department of vocational agriculture is fulfilling the educational needs of the community. This local advisory council is closer to the situation and should know what program is best adapted to existing conditions. Because of their proximity, local representatives are in a better position to analyze the program than workers who attempt to compare the program with standards established for national application or outside "experts" who superficially examine the program during short periods of visitation, observation and questioning. Decker and Brunner (7) developed criteria for evaluating programs of supervisors in agricultural education. Their five-point scale for each item is another evidence of the increasing use of self-rating scales, whether they are used by the student in relation to his farming program, the teacher in rating his student or himself, or the supervisor in rating the department or the teacher. Anderson (1) measured the efficiency of a program in a department of vocational agriculture on the basis of a ten-point scale applied to many factors such as teaching techniques, physical facilities, organization of classes and qualification of teachers.

There are many studies which deal with the F.F.A. accomplishments in their program of work. Largely, these studies are based on number of accomplishments in such areas as cooperative efforts, leadership, recreation, thrift or other points of their program.

The Situation in 1952

The author considered his job as twofold: First, to assemble, review and summarize the literature listed in the bibliography; second, to raise questions in the field of measurement and evaluation which may not be answered at the present, or if they have been studied in the past, may need further analysis. Some of these questions follow:

What is farm practice? Does it go on in the classroom, the school shop, the laboratory, or only on the home farm? Is keeping farm accounts farm practice with as much a learning value as rearing a calf? When does something cease to be a supplementary farm practice?

What is the purpose of a farming program? Is it to functionalize all types of learning? Is it to stimulate motor learning?

How can we measure success with the individual who wants to become a farmer and is unable to accomplish his goal? What is our responsibility with the individual who would become established in farming in the community without guidance from any agency?

How can we accurately measure proficiency of a teacher of vocational agriculture? Of a department in a specific community?

What attitude should we take toward research? Can we rule any specific types out for the immediate future as having been proven or solved? Do studies have any value outside of earning degrees? Can future research by graduate students be made more realistic and contribute more to the individual's growth as well as to the profession?

At one time individual measurement was viewed with skepticism. Today, there are many tests which do measure with a high degree of validity and reliability those items for which the tests were designed. As a result of progress, most people now readily accept testing as a valid part of an evaluating program. There is much to be done, however, in improving existing tests and developing new tools and techniques of measurement, especially in the field of vocational education in agriculture.

Today, just as Hamlin (19) indicated in 1941, program planning and evaluation are crucial and basic issues in agricultural education. Much more work is needed to establish objectives that are clear and well understood and develop tools of measurement that determine the extent to which these goals are approached. Again, research in the field of vocational education in agriculture has apparently been slow to develop and we continue to find ourselves, as Kenestrick (26) said "in a relatively undeveloped state." In the absence of data based on scientific research, we tend to act too often on the basis of *hunches* and *opinions*. Further research is needed in even the simple techniques of collection of materials and data. Which group is correct—when the soil deperament instructs farmers to collect soil samples from twelve sections of an acre or the agronomist who tells the farmers to take tissue tests in only eight areas? Or, are both recommendations based on opinion as to the desired method to obtain a "representative" sample? If so, a scientific basis for the number of samples to collect should be determined.

Ekstrom (14) stated that some of the weaknesses in research in agricultural education could be attributed to:

1. The lack of objectivity of investigations of a statistical nature so the studies do not yield factual evidence as found in other types of studies.
2. The degree with which objectives should be defined.
3. The lack of instruments available for evaluation.
4. Variation in personnel of any appraisal committee.

One criticism of research in the field of agriculture education is the failure to apply statistical analysis to the data to test the validity, reliability, objectivity and practicability of the material or procedure. The critical ratio (CR) was a tool used by some researchers as a measure of predictability. Starrak (38) presented one of the first studies in agricultural education in the field of evaluation using any advanced statistical tool. He found that only three of the items used were of a high degree of predictability; and that according to his data, the correlation between many of his items was so low that they were of little or no value for comparative purposes.

In recent years, many workers in the field of educational research have shifted their emphasis to the use of the Chi-square as a measure of reliability. The CR method assumes a normal distribution. Most frequently this assumption remains untested. The CR, as a measure of item discriminating power does indicate the *likeness* but not the *amount* for comparison of two or more samples. Chi-square (χ^2) test is used frequently to measure item discrimination by comparing expected results with actual results. Rhea (34) correlated test scores in mechanical comprehension with final grades received in a college course in farm mechanics. He found the test scores for the Owens-Bennett Mechanical Comprehension test much better for predictive value of farm shop manipulative achievement than high school marks or the A.C.E. psychological examination score.

Educational Measurement (29), a recently published book, devotes four introductory chapters to the functions of measurement in the areas of facilitation of learning, improving instruction, counseling and educational placement. Other important chapters are devoted to reliability, validity and the determination of units, scores and norms. The material is interesting reading for any research worker in agricultural education.

When a research worker compiles and analyzes his data, he should make an unbiased summary of the results. If the findings are unfavorable, they should be critically studied to determine their influence on future programs. There is little solace in the fact that achievement in agricultural education is better than that in another phase of vocational education as suggested by Lathrop (28). If the findings are unfavorable, they should be considered so and measures taken to improve the conditions. Vocational education in agriculture has been under federal support for thirty-five years. There have been various research studies, all sincerely undertaken, to attempt to measure and evaluate the program. In the future, new studies will be needed, many in areas not previously explored, or old areas examined with new techniques, but research is an indication of progress and always will be continued.

References Cited

1. Anderson, C. S., "Measuring efficiency of programs in vocational education in agriculture." *Agricultural Education Magazine*, Vol. VIII, No. 10, April 1936, p. 154.
2. ———, "A rating scale to determine a man's worth as a teacher of vocational agriculture." *Agricultural Education Magazine*, Vol. X, No. 12, June 1938, p. 234.
3. Brunner, H. S. and Humphreys, L. H., "Criteria for evaluating programs of preparation for vocational agriculture teachers." *Agricultural Education Magazine*, Vol. XVII, No. 3, September 1944, p. 54.
4. Byram, H. M., "Some directions research is taking in determining how agricultural education in secondary schools measures up." *Agricultural Education Magazine*, Vol. XIII, No. 10, April 1941, p. 194.
5. Clark, L. T., "How fifty young men became established in farming." *Agricultural Education Magazine*, Vol. XII, No. 7, January 1940, p. 132.
6. Cook, G. C., "Evaluating outcomes of instruction in farm mechanics." *Agricultural Education Magazine*, Vol. XIII, No. 2, August 1940, p. 32.
7. Decker, B. E. and Brunner, H. S., "Criteria for evaluating programs of area supervisors in vocational education in Agriculture." *Agricultural Education Magazine*, Vol. XXI, No. 4, October 1948, p. 90.
8. Deyoe, G. P., "Pencil and paper tests for measuring achievement in vocational agriculture." *Agricultural Education Magazine*, Vol. VIII, No. 6, December 1935, pp. 90-1.
9. ———, "The measurement program in agricultural education." *Agricultural Education Magazine*, Vol. XI, No. 4, October 1938, p. 74.
10. ———, "Tests in agricultural education." *Agricultural Education Magazine*, Vol. XI, No. 5, November 1938, p. 94.
11. ———, "The evaluation of outcomes in agricultural education." *Agricultural Education Magazine*, Vol. XI, No. 6, December 1938, p. 114.
12. ———, "Measuring efficiency in sow and litter projects." *Agricultural Education Magazine*, Vol. XVIII, No. 11, May 1946, p. 208.
13. ———, "Evaluating field trips in vocational agriculture." *Agricultural Education Magazine*, Vol. XIX, No. 6, December 1946, p. 108.
14. Ekstrom, G. F., "The organization of techniques for evaluating programs of vocational education in agriculture." *Agricultural Education Magazine*, Vol. XI, No. 9, March 1939, p. 172.
15. Field, A. M., "Whither agricultural education in the course of study." *Agricultural Education Magazine*, Vol. IX, No. 4, October 1936, p. 51.
16. Gentry, C. B., "Whither agricultural education in measuring and evaluating pupil growth." *Agricultural Education Magazine*, Vol. IX, No. 9, March 1937, p. 131.
17. Hamlin, H. M., "Summary of measurement studies in agricultural education." *Agricultural Education Magazine*, Vol. VI, No. 5, November 1933, pp. 74-7; 80.
18. ———, "Summary of measurement studies in agricultural education." *Agricultural Education Magazine*, Vol. VI, No. 6, December 1933, pp. 90-3; 96.
19. ———, "Planning and evaluating in agricultural education." *Agricultural Education Magazine*, Vol. XIII, No. 11, May 1941, p. 204.
20. ———, "One year of program-planning and evaluating." *Agricultural Education Magazine*, Vol. XVI, No. 3, September 1943, p. 54.
21. ———, "Three years of program-planning and evaluation." *Agricultural Education Magazine*, Vol. XVIII, No. 3, September 1945, p. 36.
22. Hamlin, H. M. and Deyoe, G. P., Agricultural section of *Encyclopedia of Educational Research*, W. S. Monroe, editor. The MacMillan Co., N. Y. 1950. pp. 35-44.
23. Hitchcock, Sam and Howard, Carl, "A comparison of methods in vocational agriculture with varying instructional groups." *Agricultural Education Magazine*, Vol. X, No. 11, May 1938, p. 214.
24. Hoskins, E. R., "Let's look at the records." *Agricultural Education Magazine*, Vol. XIII, No. 1, July 1940, p. 5.
25. Kaufmann, B. J., "An evaluation of farm veterans training." *Agricultural Education Magazine*, Vol. XXI, No. 10, April 1949, p. 226.
26. Kenestrick, H. G., "Dare we face the findings of research?" *Agricultural Education Magazine*, Vol. XI, No. 7, January 1939, p. 134.
27. Lathrop, F. W., "Recent studies in vocational agriculture related to the establishment of young men in farming." *Agricultural Education Magazine*, Vol. X, No. 9, March 1938, p. 174.
28. ———, "A reply." *Agricultural Education Magazine*, Vol. XI, No. 8, February 1939, p. 154.
29. Lindquist, E. F., (Editor), *Educational Measurements*. American Council on Education, Washington, D. C. 1951, pp. 819.
30. Myers, C. E., "Measuring results in agricultural education." *Agricultural Education Magazine*, Vol. I, No. 4, April 1929, p. 13.
31. Naugher, R. E., "Present status of young and adult farmer programs." *Agricultural Education Magazine*, Vol. XXI, No. 12, June 1949, p. 281.
32. Parsons, D. W., "Measuring the pupil's progress." *Agricultural Education Magazine*, Vol. VII, No. 5, November 1934, p. 72.
33. Raine, T. W., "A Minnesota plan of individualized learning." *Agricultural Education Magazine*, Vol. XII, No. 1, July 1939, p. 8.
34. Rhea, Mark B., "Suitability of the Owens-Bennett Mechanical Comprehension test for predicting farm shop manipulative achievement of college students." M.S. Thesis, 1947. Iowa State College. 56 p. Library, Iowa State College, Ames.
35. Rhoad, C. E., "A plan for evaluating student effort in vocational agriculture." *Agricultural Education Magazine*, Vol. XVII, No. 5, November 1944, p. 86.
36. Schulte, R. J., "Pupils can rate themselves." *Agricultural Education Magazine*, Vol. XIII, No. 7, January 1941, p. 129.
37. Seymour, O. J., "Evaluating the work of teachers of agriculture." *Agricultural Education Magazine*, Vol. XVIII, No. 1, July 1945, p. 15.
38. Starrak, J. A., "Some differences between farmers with and without instruction in vocational agriculture." *Agricultural Education Magazine*, Vol. XVI, No. 12, June 1944, p. 234.
39. Sutherland, S. S., "How good a classroom teacher are you?" *Agricultural Education Magazine*, Vol. IX, No. 10, April 1937, p. 152.
40. ———, "Tests that measure what we teach." *Agricultural Education Magazine*, Vol. XIII, No. 11, May 1941, p. 208.
41. Swanson, G. I., "Developing criteria to evaluate progress made by veterans." *Agricultural Education Magazine*, Vol. XXI, No. 7, January 1949, p. 156.
42. Sweany, H. P., "Determining educational needs of students through analysis of project records." *Agricultural Education Magazine*, Vol. XVII, No. 3, September 1944, p. 48.
43. ———, "Paths to farm operatorship." *Agricultural Education Magazine*, Vol. XXIV, No. 7, January 1952, p. 148.
44. Wilson, B. S., "Evaluation and improvement of student teaching." *Agricultural Education Magazine*, Vol. XXIII, No. 6, December 1950, p. 137.
45. ———, "Evaluation and improvement of student teaching." *Agricultural Education Magazine*, Vol. XXIII, No. 7, January 1951, p. 159.
46. U. S. Office of Education, "An evaluation of local programs of vocational education in agriculture." Vocational Division Bulletin No. 240, Agricultural Series No. 58, Federal Security Agency. Washington, D. C. 1949. 75 pp.
47. U. S. Office of Education, "Summaries of studies in agricultural education." Vocational Division Bulletin No. 242, Agricultural Series No. 59, Supplement No. 3 to Vocational Division Bulletin No. 180, Federal Security Agency. Washington, D. C. 1950. 61 pp.
48. U. S. Office of Education, "Summaries of studies in agricultural education." Vocational Division Bulletin No. 246, Agricultural Series No. 61, Supplement No. 4 to Vocational Division Bulletin No. 180, Federal Security Agency. Washington, D. C. 1951. 48 pp.
49. Committee on Teacher-Education and Research, "Teacher Education in Agriculture." Progress Report No. 18, North Atlantic Regional Conference in cooperation with The School of Agriculture, Pennsylvania State College, State College, Pennsylvania. November 1949. Mimeographed, 13 pp.

THE AGRICULTURAL EDUCATION MAGAZINE, April, 1952

The F.F.A. Advisory Committee

GEORGE C. WILLARDSEN, Teacher, Ephraim, Utah

RECENTLY I was in an area buying calves for F.F.A. boys. While talking with one ranch owner, he related that he was a member of the local advisory committee and had been for two or more years. He went on to say that he didn't know what he was supposed to do. I have often wondered if my own committee felt the same way.

In my opinion the selection of that committee should be done with much study. *First,* you want men who have exhibited interest in boys and in farming. In a committee that functions, much of the member's time is required without pay so he must be interested. *Second,* you want men who have demonstrated leadership in various ways in the community. The following incident illustrates this need.

Our F.F.A. chapter was trying to raise money to finance our Chapter Sweetheart's trip to the State Convention. After an agreement among the advisory committee, three members agreed to present our financial problem to the Lion's Club. This they did and we obtained a contribution toward the support of this activity. In the same way we were able to get support from the Lions and other civic clubs in the furnishing of free tickets for junior exhibitors to the Sanpete Rambouillet and Junior Livestock Show Banquet.

Third, you want men with a wide variety of experiences. For example, my present committee is composed of the following men, cashier of the local bank, manager of a local farm implement company, local veterinarian and school board member, superintendent of schools, a turkey grower and a sheep owner and myself. Thus various interests of the community are represented.

Fourth, the length of service for which these men are called to act can well start with one year. After that I like to stagger the length of service time so that there are always some experienced men on the committee, yet there is opportunity to weed out inactive members. These members should be appointed officially by the school office as it gives dignity to the appointment.

Fifth, a clear understanding of what is expected should be given prospective members before they are expected to accept the appointment. This can be done by a little planning on the part of the teacher and the school office as to the time of sending out the appointments. I think it is the duty of the agricultural teacher to contact the prospective committee members the day or two after he has received his appointment to the committee and explain in detail what is expected of him if he chooses to act.

Sixth, when you call the committee together be sure you have something to have them help with. For example a good fall meeting is to have them help you with the planning of the type and scope of projects boys will be encouraged to carry. In case of market setbacks during the year or death losses, at least you have support for your planning.

Each area will have different problems as far as advisory committees are concerned and each teacher will receive more or less help from that committee depending on the extent to which he uses it. If it functions, you will find it a support to your full program of Future Farmers, Young Farmers and Adult Farmers. The advisory committee acts as a nucleus for the starring and smooth operation of your complete vocational agricultural program.

Evaluation of pre-service curriculum

In agricultural education at the Ohio State University

RALPH J. WOODIN, Teacher Education, The Ohio State University

Part I
Participation Experience Secured Through One and Through Two Quarters of Student Teaching

Ralph J. Woodin

LEARNING to teach by teaching is an effective educational experience according to students of agricultural education, local school administrators, and beginning teachers of Ohio who were a part of a study[1] of the agricultural education curriculum at The Ohio State University which was completed last March and which was conducted by the writer.

Two full quarters of student teaching has been provided in the Ohio curriculum for majors in agricultural education since 1948. The professional pre-service curriculum provided eight credit hours of work in teaching methods which were offered during the sophomore year. During the students' junior and senior years, one quarter each year was spent in student teaching in one of the 25 selected training centers located in various parts of Ohio. During each quarter of student teaching an intensive five-hour course in the problems of teaching vocational agriculture as encountered by student teachers was presented by staff members of the Agricultural Education Department.

Four types of investigation were used in making the study. They were as follows:

1. The development of a statement of competency for teachers of vocational agriculture which might serve as a guide for evaluation.
2. A survey of the participation experiences secured by four groups of students enrolled in four different aspects of the curriculum.
3. An evaluation of the competency of individual student teachers at the close of one and of two quarters of student teaching. This evaluation was made by the supervising teachers, school administrators of training centers, staff members of the Department of Agricultural Education, and by the student teachers themselves.
4. An informal evaluation in terms of strengths and weaknesses in the curriculum as noted by graduates and by beginning teachers.

To determine the number and distribution of professional participation experiences secured by these students, a check list of 162 representative experiences was developed. Each student was asked to submit this check list at the close of a quarter of work. To evaluate the competency of student teachers, each student teacher evaluated himself and was evaluated by his supervising teacher, the school administrator of his school, and by the staff member who supervised his student teaching. The evaluative instrument was developed in terms of the factors of competency and a composite evaluation of each student's competency was developed by averaging the scores of the four evaluations.

An informal evaluation of the curriculum in terms of its most helpful features together with suggestions for its improvement was also made. This evaluation was secured from graduating seniors and from beginning teachers. A total of 241 respondents participated in the study.

Although the pre-service courses offered in this curriculum prior to student teaching were studied, this report will deal particularly with the evaluation of first and second quarter student teachers. The following statements represent a brief summary of the findings of the study in regard to two quarters of student teaching and are presented together with certain data obtained through the study.

Two quarters of student teaching for students in agricultural education at Ohio State University seemed to have given the following results when evaluated in terms of the factors of competency for teaching vocational agriculture.

1. Two quarters of student teacher more than doubled the number of professional participation experiences secured per student up to graduation. Table 1 shows that most of these students' professional experience was secured during student teaching. The table also show that second quarter student teachers secure more professional experiences per quarter than do first quarter student teachers.
2. Two quarters of student teaching results in student teachers beginning their first year of teaching with a higher degree of confidence in their own ability to do the job. These data were obtained through compiling the percentage of student teachers who indicated whether or not additional experience was necessary in 162 representative activities of teaching in which they engaged. It should be noted that these students who had completed two quarters of student teaching felt less need for additional experience in each area of the program.
3. The 106 student teachers in the study made a significant gain in competency during their second quarter of student teaching. The mean gain in competency was from a rating of "average" at the close of one quarter of student teaching to a rating of "good" at the close of two quarters. The data which supports this conclusion is shown in Table 3.
4. A great majority of student teachers consider their student teaching to be the most valuable quarter's work which they receive in college.
5. About the same gains in competency are made by the less competent students as by the more competent students. In other words, a second quarter of student teaching permits the most competent student teacher to become still more competent while it also permits the less competent student teacher to make significant gains in competency.
6. Student teachers believe that each quarter of student teaching should be scheduled at a different time of the year in order to secure a wider pattern of professional experience.
7. The problem of duplication of experiences in two quarters of student teaching is not a serious one in the judgment of students.

The development of a statement of competency for teachers of vocational agriculture will be discussed in a second article which will appear in a future issue.

Table I
Professional Participation Experiences Secured by Students at Various Stages of Their Professional Preparation

Course	Average Number of Experiences Secured Per Student	Total Number of Experiences Secured Per Student at the End of the Course
Agricultural Education 500	3.2	3.2
Agricultural Education 501	8.2	11.4
First Quarter Student Teaching	344.5	355.9
Second Quarter Student Teaching	456.2	812.1

Table II
A Comparison of First and Second Quarter Student Teachers' Opinions of the Need for Additional Experience

Area	Percent of Student Teachers Stating that More Experience is Needed	
	First Quarter	Second Quarter
Farming program	70	32.8
Classroom teaching	75.1	24.3
Future Farmers of America	83.2	39.2
Young Farmer program	84.1	45.8
Adult Farmer program	88.9	47.6
Veterans' program	80.4	41.3
General School activities	57.3	19.8
Community and public relations	79.8	42.0
Physical facilities	64.4	21.7
Long-time program	96.4	62.5
Guidance and Counselling	84.6	45.7

[1] Ralph J. Woodin, *An Evaluation of Selected Aspects of the Professional Pre-Service Curriculum of the Department of Agricultural Education of the Ohio State University*: Doctoral Dissertation, The Ohio State University, 1951.

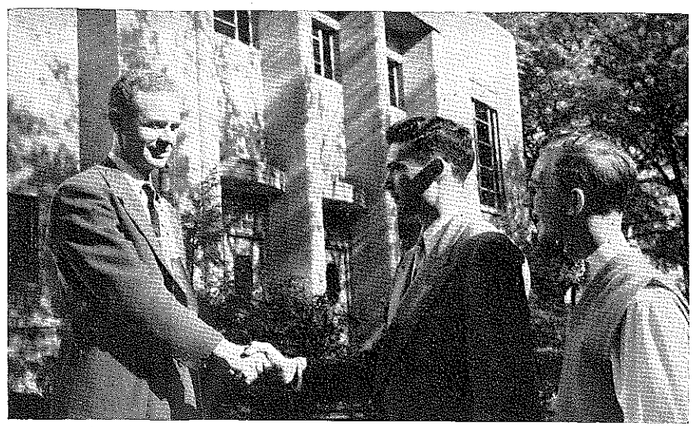


Table 3
A Comparison of First and Second Quarter Student Teachers on the Basis of Composite Evaluation Scores

Classification	First Quarter Student Teachers		Second Quarter Student Teachers	
	Number	Percent of Total	Number	Percent of Total
Superior	0	0	1	1.6
Good	9	20.0	40	65.5
Average	34	75.6	20	32.9
Fair	2	4.4	0	0
Poor	0	0	0	0

Strengthening supervised farming programs

(Continued from Page 224)

may be consolidated with others when the list is being revised as points in a scorecard for evaluating a farming program. Some factors which are of interest in a supervised farming tour for example, the condition of the records, are not a factor in the original selection of a project. For these reasons the points on a scorecard for evaluating farming programs might vary from the criteria used for designing a farming program. Using students in group discussion to design a scorecard again has the advantage of the students feeling that it is their scorecard and that its use in studying each others farming programs is worthwhile. While a specific scale of points assigning a numerical value for each of the factors shown on the scorecard may not be necessary, it sometimes is helpful to students in considering various farming programs.

Student No. 1, Joe Beldon, was the name of a hypothetical agricultural student whose records were used as a practice record study for the class that designed the scorecard. In assigning a point value to the farming program of this student with whose records they were all familiar, the students in the class were better enabled to accurately place their own score on their own supervised farming program.

Tours of the farming programs of students in an agricultural department are rather widely used in some states and many valuable things can be learned by the students of a class in examining and evaluating each others supervised farming programs. A scorecard which has been developed by the class serves the purpose of focusing the attention of the class upon the important aspects of the individual farming programs studied, and thereby makes possible maximum learning opportunities. With this approach to planning supervised farming, the farming program of a department and of a community can be materially strengthened if practiced over a period of years.

PROJECT EVALUATION SHEET

1. Adaptation of project to the community.
2. Adaptation of project to the farm.
3. Does student have sufficient equipment, facilities and capital to carry through?
4. Does operator really own the project?
5. Does project have an opportunity to show a profit?
6. Is project large enough for owners age, ability and year in school?
7. Is it organized so it can be increased or expanded?
8. Is planning clear, complete and accurate?
9. Is budget based on common sense accurate figures?
10. Are record well kept, properly entered and summarized?

Student	Total	1. Adapt. to Com.	2. Adapt. to Farm	3. Equip. & Facilities	4. Ownership	5. Profit	6. Size or Scope	7. Expandability	8. Plans	9. Budget	10. Records
Value of points	100	5	5	5	7	10	15	15	15	10	18
Joe Beldon	81	3	4	5	7	7	9	7	13	8	17
Bob Jacobson	76	5	5	4	7	8	11	13	10	8	5
M. Jensen	72	4	4	4	7	6	10	8	9	7	13
Bob Mohr	64	3	3	3	5	6	10	8	10	6	10
N. Lucci	60	5	5	3	2	4	11	13	6	6	5

Pictures
of the month . . .

A contest open to all teachers of Vocational Agriculture and farm veterans

"TON LITTER"
Photo by: J. E. Nowels,
Hayesville High School, Hayesville, Ohio.
Argus C-3.
35 mm. Plus X
Shutter Speed: 1/100 second.

"DOCKING LAMBS"
Photo by: John H. Klipstein,
Wausau Vocational School,
Wausau, Wisconsin
4 x 5 Speed Graphic Super XX
Lens Opening: F.16; Shutter Speed 1/100.

FIRST PLACE:

"IT'S MORE THAN HAY—IT'S GRASS SILAGE"
Photo by: Robert F. Taylor,
R. R. No. 5, Columbia City, Indiana.
School: Coesse, Indiana.
Camera Used: Brownie Flash—flash attachment used.
Camera has a fixed lens and only one shutter speed.

"WARMING UP FOR TRACTOR OPERATORS' CONTEST"
Photo by: Leon D. Harding,
Danville, Virginia, Southside High School.
Kodak Tourist.
620 Super XX
Lens Opening: 8; Shutter Speed: 1/50.

The AGRICULTURAL EDUCATION *Magazine*