NEWS TO ME

Dr. A. Webster Tennyson, former National FFA Executive Secretary from 1943-1957 and National FFA Adviser from 1961 to 1965, has taken an assignment in Jamaica with the International Labor Office. He will work with five international experts from ILO to help develop vocational and technical education programs, development and supervision of preschool and in-service teacher education programs and work with business, industry and the Jamaican ministries of education and labor.

* * * * * *

The Kansas Agri-business Students Association will provide the staff for an exhibit at the Agricultural Career Show at the 1971 National FFA Convention in Kansas City. States have been requested to supply brochures by September 1 describing available post-secondary education agri-business courses. Encourage your delegates to visit the exhibit.

* * * * * *

We anticipate or remember but never are.
—W. H. Oden

* * * * * *

Agriculture has long served as a classroom example of pure competition. If the industry is composed of millions of small firms.
—Earl O. Heady in FARMERS IN THE MARKET ECONOMY.

* * * * * *

Few of us ever stop to think about how much food we eat in a year. You may find it hard to believe, yet each of us eats nearly three-quarters of a ton every 360 days! This amounts to nearly 3 tons a year for a family of four and a whopping 150 million tons to feed us all.

Donald D. Duret in FOOD FOR US ALL.

* * * * * *

Despite all the research on creativity currently under way in many places, it does not appear likely that there will ever be a single, widely accepted test for creativity. What is more probable is that we will become much more sensitive to aspects of students and their environments that have previously been overlooked. Once the characteristics of creative people have been defined more clearly, research will probably place major emphasis on investigating those conditions or methods of instruction that increase the creative capabilities of students.

* * * * * *

In 1950 a farmer had to have a gross income of $20,000 to net $8,000. Because of a combination of inflation and a diminishing margin of profit, the average farmer now needs a gross income of $45,000 to have the equivalent of $8,000 net income.

G. T. Ward, McGill University, Montreal, Canada, speaking at the 1970 meeting of the American Society of Agricultural Engineers in Minneapolis, Minnesota, predicted a source of electricity in the future is from the collection of concentrated solar radiation using satellites in space and transmitting it to earth in high-density beams of selected wave lengths.

* * * * * *

There are no reports of individualized instruction programs (independent study, self-directed etc.) resulting in less achievement. Individualized instruction may not help but it won't hurt, either.

Feeding ground newspapers blended with molasses to farm animals may be one way to reduce their competition with man for cropland that supplies direct human needs. Scientists at Beltsville Experiment Station found that newspapers could reduce 8 to 24 per cent of the roughage in a ration. It was part of a study to make ruminant animals more efficient users of materials that man can't eat and which may pose potential pollution problems. Newspaper may be good for the digestion — how about the circulation?
—Agricultural Research, February 1971

* * * * * *

Maybe it is time for ecologists and other well-meaning individuals to pause in their efforts to bring changes for environmental improvement to consider whether their actions could change our food balance from one of bountiful plenty to one of abject famine. Dr. N. G. Brady, Cornell University, estimated that all of the food stored in U.S. warehouses and government surplus storage would feed our population for only 50 days if all food production was stopped.
—Land O'Lakes Mirror, February 1971.

* * * * * *

Farmers are faced with the reality that today they must deal with city Congregation who are not opposed to them but who are a lot more concerned with other masters. Only 83 of 457 seats in the House of Representatives are filled by individuals with more than 15% of their constituents living in rural areas.

Senator Ted Kennedy, in a most beautiful elegy of his brother, asked that the late President be remembered simply as "A good and decent man who saw wrong and tried to right it, saw suffering and tried to heal it, saw war and tried to stop it." He quoted his brother as saying, "Some men do things as they are and say why? I dream things that never were and say why not?" What a wonderful world this would be if we each adopted that philosophy.

* * * * * *

Featuring — INSTRUCTIONAL MATERIALS
TABLE OF CONTENTS

THE AGRICULTURAL EDUCATION MAGAZINE is the monthly professional journal of agricultural education. The publication is managed by an Editorial-Managing Board and printed at The Loomis Press,Inc., 199 East Street, Athens, Ohio 45701.

SUBSCRIPTION PRICE: $6 per year. Foreign subscription $8.00. Student subscription is $4.00 per year. Single copies $2.00 each. In submitting subscription orders, please enclose remittance. Send orders to: Farm Journal, P.O. Box 16071, Athens, Ohio 45701.

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Cover Photo
Franklin Jones (left) and Richard Hofstadter, doctoral students, University of Illinois, at Urbana, receive instructions on the Illinois Agriculture Occupations Teachers' Conference held at the University of Illinois in August 1971. (Photo by David Calleico, Graduate student, University of Illinois)

Vocational education in agriculture has an important part of public education for more than half a century. Throughout this period teachers in that discipline have been confronted with a multitude of complex, frustrating problems influencing both teaching and learning.

One of their greatest problems has been that of determining what the local instructional program should be. Evolving from this is one of the most baffling problems in educational teaching - what learning objectives are most desirable, the most worth. And this involves, among other things, selecting, procuring, and effectively using adequate instructional media.

Teachers have also fought their desire for some systematic development of high quality teaching material, directly related to their curriculum objectives.

During the early years of vocational education became a reality, the Federal Board for Vocational Education attempted to help provide teachers and high quality reference materials, organized in a manner cohesive to effective use in teaching - learning situations. The Board, however, found it impossible to produce all of the material needed. Great emphasis was then placed upon teaching Instructors to use the job analysis technique. This involved the teachers and eventually their students, in analyzing each instructional job or unit (1) informational questions to be answered, (2) managerial decisions to be made, and (3) step-by-step procedure for putting the decisions into practice.

The present writer was then involved in preparing supplemental teaching techniques in preparing what was to be taught, using whatever subject matter materials were available. Thus, during the early years, many vocational teachers have been largely responsible for preparing their own instructional materials.

Many educators have subscribed to the concept of teachers developing their own instructional materials, but this has been proved inefficient. The vast majority of them have had little training in developing such materials and have an inadequate background in the various subject matter groups evolved in their instructional programs. Furthermore, the student should have at least some basic background in preparing and using instructional materials.

With the passage of the 1963 and 1966 Vocational Education Acts, the stage was set for effecting great improvements in providing high quality vocational education that has yielded many needed materials of instruction. Curriculum manuals, laboratory manuals, and instructional media have been published in many states University of Illinois, St. Paul, Minn.

SEPT...
PERFORMANCE OBJECTIVES — MIRACLE OR MIRAGE

Billy J. Wise
Assistant Professor
University of Kentucky
Department of Agricultural Education
Lexington, Kentucky

Stating objectives in behavioral or performance terms is in vogue in educational circles today. The reasons for doing so seem to be a demand for more on sound evaluation assumption that sound educational principles of developing valid outcomes.

Due to the risk of misinterpretation of personal convictions, a few basic premises will be listed. First, objectives should be stated — based on the needs, interests, experiences, functions, abilities, and disabilities of those involved. Differences in individuals imply valid objectives can focus only on one person, but the behavioral approach suggests conformity or an environmental viewpoint. Second, evaluative criteria should be determined at the end of the instructional process. "What can students do at the end of the instructional process?" A third basic premise is that learning which is most susceptible to behavioral quantification is of least importance. Seventh, behavioral objectives have made a contribution to the educational process. Probably not all, but the system must be directed as well as goal-oriented. Goals themselves must create information which is used to direct the behavior of the system. Still unanswered is the question of how to provide information that can be provided by a "motion picture" methodology.

M Miracle for Evaluation

Some educators suggest behavioral objectives are a "miracle" or "magic" at the end of the instructional process. Some critics agree with this idea, but are a slightly different interpretation. Extreme critics declare such an approach is an end to creative instruction, a "cookbook" type of teaching. Paradoxical as it may seem, both views seem to be based on the same assumption. What is implied that actual doing or use of knowledge is the only result of learning. Does this result mean not only the improvement or increase of student variables but also on personal characteristics? The criterion is a true approach to evaluation. Through the approach, the behavioral approach can be used to both of these tasks. The criterion of "good" behavior of the student for himself may vary widely in different situations, but the criterion of the degree of specificity has long been an issue in behavioral objectives. Assuming performance is the ultimate end of learning, behavioral objectives tend to be more specific. The reason for this is the approach to identifying objectives are statements which, 1) specify the activity, 2) specify the circumstances, and 3) to what level of performance. The statement an action verb to specify behavior of the student and indicates the conditions under which the performance is expected. However, not all objectives are associated with the behavior.

Perhaps, the best advantage in terms of behavioral objectives is that they facilitate evaluation. The basic rationale for this premise is that compliance with the intended ends will achieve actual ends measure success. This requires identifying the desired outcome of the instructional process before designing the ways and means. Essentially, a behavioral objective has been identified in a planned evaluation, but a behavior which is true because of the evaluation or of the validity of the evaluative criteria. Knowledge is going and knowing one should go may be two different types of devices. Measurement is only a part of this evaluation.

Another advantage attributed to performance objectives is that they deal with the ends of the educational process and the real end of teaching-learning? When is the end reached? The behavioral approach suggests immediate ends. If this is so, vocational educators need to define meaningful employment and specify what it means at each stage of preparation or not always state this vague concept as an objective. The problem in behavioral objectives is that it implies that actual doing or use of knowledge is the only result of learning. Does this mean not only the improvement of student variables but also on personal characteristics? The criterion is a true approach to evaluation. Through the approach, the behavioral approach can be used to both of these tasks. The criterion of "good" behavior of the student for himself may vary widely in different situations, but the criterion of the degree of specificity has long been an issue in behavioral objectives. Assuming performance is the ultimate end of learning, behavioral objectives tend to be more specific. The reason for this is the approach to identifying objectives are statements which, 1) specify the activity, 2) specify the circumstances, and 3) to what level of performance.

Mirage for Planning

Should objectives be made for planning purposes? The answer is yes. The rationale for this is the approach to identifying objectives are statements which 1) specify the activity, 2) specify the circumstances, and 3) to what level of performance.

The statement an action verb to specify behavior of the student and indicates the conditions under which the performance is expected. However, not all objectives are associated with the behavior.

Performance objectives should serve more as a standard of student performance. Objectives provide criteria by which content is selected, materials developed, and instructional procedures are outlined. Evaluation itself is a means to an end rather than an end in itself, and it needs to be a continuous process rather than a backward orientation. Looking at objectives from a planning view, both a beginning point and ending point are needed — both realistic and realistic dimensions. The student may be measured on such student capacities as reading ability of its students, but students themselves are probably more critical of methods and means used to teach reading. Perhaps the reason for poor reading by many students is not the lack of a very explicit objective for the reading level, but the fact that alternative approaches to teaching them have been limited. Planning eventually requires some type of design looking at the interaction of the ideals and the realities of the situation.

Teaching — Testing

Theoretically at least, one difference in the vocational approach to educating students is the use of inductive techniques such as occupational experiences in addition to deductive procedures. However, the fact that both inductive and deductive approaches are necessary is a basic and general component of the educational process allow the hypothesized approach. The best method in use, the scientific approach, utilizes both deductive and inductive procedures and it weaves back and forth between theory and the real situation. Performance or behavioral objectives tend to be more particular than general, so both specific ends and means may not allow us to "reach" the same educational outcomes at the same time. Validation of concepts must be assured, but the more complex the desired outcomes the less the chance to validate them in the real world.

Evaluation must be a function of good teaching, but its purpose in education should be considered primary to efficiency as a diagnostic one. Performance of a student is only part of the educational process. Deliberate learning can be simply setting goals as well as reaching them. Let us not assume that good teaching can assure good learning by simply "ending" ends. Evaluation is not a miracle drug for effective learning; as efficient as deliberative planning is not always a mirage that cannot be attained. Based on learning theory, student needs and interests, educational performances cannot be simplified to a single static system of ends in themselves. Perhaps we need to design a moving picture or a complex system of goals and means, but it is because it seems to have a lot of still pictures that are impossible to fit into a functional system.

TESTING FOR PSYCHO-MOTOR LEARNING

Frederick E. T. Tom
Agricultural Education Division
Ithaca College
Ithaca, New York

Teaching may be defined as the process of bringing about changes in people: namely, cognitive, affective, or psychomotor activity. Teaching can be longitudinal or transversal. Longitudinal teaching occurs during the course of study in agriculture and is measured with the magnitude of time that teachers spend on developing psychomotor skills. We may argue as to which is more important in the development of psychomotor skills, and whether the two are independent of one another. However, for the purpose of this paper, we shall assume that teaching for cognitive outcomes and not for psychomotor ones were unambiguously unambiguous; we shall ignore the importance of the role of the cognitive aspects of the teaching-learning process. As a result, the cognitive processes are not emphasized in the theoretical framework presented in this paper. However, we shall consider the effects on cognitive outcomes of teaching for psychomotor outcomes.
LIVING MATERIALS FOR CONSERVATION AND NATURAL RESOURCE INSTRUCTION

W. J. Kostelnick, Minnesota Department of Education

Vocational Programs Supervisor

Year 1934

Minnesota FFA chapters have been doing their own thing in improving natural resources for 20 years, starting in 1914. The chapter delegates to attend- ing that year at their state conven- tion resolved that "FFA should promote the conserva- tion of natural resources and wildlife." The conservation projects for the next 30 years were only limited by what the students themselves did. You can learn how to do a conservation project yourself with individual members doing what comes naturally with help from the best conservation minded chapter advisor.

Year 1964

In 1964, Minnesota FFA chapters launched statewide wildlife conservation pro- grams with the help of representatives from the State Natural Resources Depart- ment, U.S. Bureau of Sports Fish- eries and Wildlife, local sportmen's clubs and conservancy groups and other agencies. Meetings involving representa- tives from these groups were held to develop the raising and releasing of water fowl and game bird projects into a statewide FFA program. The resulting seven purposes of the FFA involvement in wildlife education are summarized at these meetings. Seven objectives in order of importance were:

1. To assist in introducing the study of conservation into the vocational agriculture high school curriculum;
2. To provide career opportunities for wildlife management and natural resource conservation;
3. To make members and parents aware of wildlife needs;
4. To provide an opportunity to make future landowners (FFA'ers) more aware of wildlife habitat;
5. To provide a common ground for game and fish personnel to work with FFA chapters;
6. To improve relationships between farmers and city hunters; and
7. To attempt to increase wild fowl and game bird populations.

The AGRICULTURAL EDUCATION MAGAZINE
HONORED BY WISCONSIN VOCATIONAL EDUCATORS

Mildred (Mick) Gundlach (left) and Don McDowell were honored for their work toward improvement in agriculture education throughout Wisconsin. Gundlach also has been named the Outstanding Vocational Agriculture Instructor for 1971 in the United States by the National Vocational Agriculture Teachers Association (NVATA) and has accepted the "Aggie" award during an awards banquet at Burbank, Calif., May 22.

Gundlach, of Montevideo, Wisconsin, is a veteran 50-year instructor program supervisor for the Wisconsin Vocational Technical and Adult Education District 3, headquartered at Farmington, Wis. She is immediate past president of NVATA.

McDowell, former director of the Wisconsin Department of Agriculture, is a member of the National Vocational Education Advisory Committee and is executive director of the National FFA Foundation sponsoring committees, Madison, Wis.

The teacher of vocational education has many responsibilities, but he is a teacher. A good teacher must have the abilities and qualities which will enable him to teach effectively. His teaching should be based on sound educational philosophy and should reflect good teaching methods. Last, he must have adequate instructional materials and use them correctly. However, no amount of instructional materials will make a poor teacher of agriculture into a good teacher if his fundamental ideas about teaching are wrong.

Instructional materials should be recognized as an important help to the better understand what is being taught. There is little demand of instructional aids replacing the teacher.

Use of Instructional Materials

There is the possibility of improving instruction and increasing the influence of good teachers for both present and future generations if teaching aids are properly related and used. The following materials can be used:

a. Textbooks:
   - Programmed instructional materials
   - Inexpensive supplementary materials
   - Instructional materials for specific purposes of teaching
   - Graphical materials
   - Still pictures
   - Film or filmstrips
   - Recorded material
   - Real life materials
   - Displays, bulletin boards
   - Multi-media
   - Unins, guides and course outlines

People to Involve

Useful materials must be relevant. One way to have relevant materials is to have a cooperative approach of committees to involve people in its development. Local teachers, administrators, instructional materials specialists, representatives from industry and business, and content specialists from colleges and universities should be involved in work groups to develop and provide usable materials. By using a team approach, research and technical areas of developing instructional materials will be useful.

Dr. Robert Wambold stated in an editorial in the May 1968 issue of the Agricultural Education Magazine, “The plan is simply this—that in the development and use of instructional materials we not confuse means with ends. The end sought is not to teach the content of an instructional material packet. Our first concern is the student and an effective approach to teaching and learning from these materials. Instructional materials are developed to enhance the teaching-learning process.”

Dissemination and Use of the Material

When materials are developed by and for a group of teachers, they should be properly disseminated. Probably the ideal way is for the material to be given to teachers in a group meeting and explanation on its use made at that time.

This kind of help may cause teachers to make rational decisions as to using the materials. Every teacher should decide how to integrate the use of the material into his course of study, how to use the material in preparing to teach, and finally how to use it in teaching.

When this approach is used the teachers have an opportunity to react to the material. This kind of reaction to revising the material which builds makes it more usable for the students and teachers and provides a sound base for evaluating the material.

Evaluation

If instructional materials are to be of maximum value to teachers of agriculture, it is essential that they be made in terms of student need and purpose for which they are intended. Teachers of agriculture must be concerned about whether instructional materials are needed for use in instructional materials to improve the teaching-learning process. In addition, they must select the right kind of materials for a particular situation. They should involve competent people in developing relevant materials, properly disseminate materials developed, and evaluate them so that revisions and improvements can be made.
TEACHING WITH TRANSPARENCIES

B. H. Clanton
Vocational Agriculture Teacher
Jill Davis High School
Hazelhurst, Georgia

We are living in a period of time when change is very apparent. Teaching methods and approaches have changed considerably and will continue to do so.

We are using means of presenting "mental material" never used before.

The farm of yesterday consisting of a few acres of corn, half a dozen brood sows and perhaps a few steers has all but disappeared. These changes have made new demands on the traditional agriculture teacher. Teaching production agriculture has been supplemented with instruction in agricultural mechanics, off-farm agricultural occupations, ornamental horticulture and many others.

Because of this rapid change, if our students are to have access to vocational education that is purposeful, continuing and practical and achievable, the approach will have to be attained by a student centered course of study.

Last fall a group of teachers in Southeast Georgia and discussed ways of formulating lesson plans to help teachers do a more effective job of teaching. A steering committee was appointed and a representative from the teacher training department of University of Georgia was asked to serve as consultant. Areas of concern were listed and sub-committees of members were chosen.

Each teacher in the area was put on one of the 21-sub-committees according to his interests. Restating that all pupils should be taught and not just the hands-on ones should not be used, each committee chose to select the more pertinent jobs of the given area they wished to work with and were asked to make lesson plans which would be used in making transparencies for teaching.

The subjects areas chosen were corn, feedlot, crop production, feedlot science, engine, organization of adult classes and advisory committee, soils, electrical wiring, farm management, horticulture, tobacco, beef cattle improvement, arc and arc oxyacetylene welding, dairying, concrete, cluster skilts in farm mechanics, pulpwood harvesting, farm power and equipment, crop education, permanent pasture, cotton and peanuts.

There are many ways by which one may create a transparency. You may create your own original or restroom and with a thermal copying machine you can reproduce your transparency. You may purchase ready made transparencies from commercial firms. You should keep in mind, however, that ready made transparencies are very expensive. Perhaps that is a reason why the area of scope is very limited.

Things that lend themselves for overhead transparencies are those things which can be reduced to outline with good enough detail. Good examples are parts of animals, plants, electrical wiring, machinery, etc. Along with a transparency one can make use of an overlay, which is a sheet of acetate attached over the first sheet to form a multi-depiction sheet.

Preparing an Original Transparency:

1. You need only a pencil and paper. (2) Use a graphite pencil or pen with black carbons-based ink. (3) Plan the transparency as completely as possible. (4) Use letters, words and illustrations from newspapers, magazines, church bulletins, etc. (5) In using pictures, graphs, slides, charts, drawings, etc. from books, magazines or text books, the drawings must be either made or the original tracing must be made and the original tracing must be mounted where the transparency will be placed. The teacher must be assured that the transparency is the work of the student and not the work of the instructor. The student should be able to reproduce the original or the transparency must be given to the teacher for his approval. (6) The use of illustrations from published sources must be labeled with the name of the source. (7) The use of photographs must be obtained from the original. (8) The use of personal items must be obtained from the person. (9) The use of personal items must be obtained from the person. (10) The use of personal items must be obtained from the person.

Simulations are used to analyze present situations and to design new ones, in the development of a new product or the design of a chemical plant. It is also used by educators to provide learning situations; specifically, to make the abstract concrete. What is not used in a management type setting, the simula- tion is modified to permit students to make business decisions at logical intervals. Results of decisions are calculated and the information is returned to the student. At this point the student may choose to modify previous decisions and continue the cycle. When used in this manner, simulation is often called a game. "The term 'game' might suggest that the subject is narrow and frivolous, but this is far from the case." Business games are the most common type employed, but career and school administration games are also widely used. The list below are a few of the school administration games available.

1. Simulation (gaming) is useful for teaching management concepts to high school and adult students in agriculture.
2. Student interest is high and remains high during the use of the gaming materials.
3. Team size, number of simulation periods, and use of present data or actual data from a local farm is superior to using hypothetical data from a small dairy farm.
4. There were no differences in student performance between those who worked in teams and those who prepared the decision making sessions, the students worked as individuals in the classroom.

In this experiment with relatively simple models the payoff for additional simulations beyond three was slight. The students who did not have sufficient time to work through the entire number of decision periods needed for maximum learning probably depends on the complexity of the model.

Apparent hypothetical farm data is sufficiently realistic and interesting to the students that they learn equally as much from managing this farm as from managing the local farm situation simulated. This is an important finding because costs can be considerably reduced where a few models can be used rather than many.

Student Motivation is High.

"The enthusiasm and interest shown by students and the positive comments by teachers in whose classrooms the materials were presented was reported in school after school." If there is a universal conclusion about simulation, it is that it creates student interest. This interest extends to all aspects of the simulation from the desire to learn more about the time investment, to the desire to learn more about the time investment, to the desire to learn more about the time investment. This is an important finding because costs can be considerably reduced where a few models can be used rather than many.

THE AGRICULTURAL EDUCATION MAGAZINE

September, 1971
INSTRUCTIONAL RESOURCES IN AGRICULTURAL EDUCATION

Charles G. Downbaugh
Department of Vocational Technical Education
 Rutgers University
 New Brunswick, New Jersey

Table 2. Percentage of Kinds of Instructional Resources in Agricultural Education Disseminated from the North Atlantic States

<table>
<thead>
<tr>
<th>Kind</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students' Manuals or Handbooks</td>
<td>45</td>
<td>55.77</td>
</tr>
<tr>
<td>Teachers' Guides</td>
<td>43</td>
<td>54.96</td>
</tr>
<tr>
<td>Sets of Job Sheets or Workbooks</td>
<td>12</td>
<td>9.76</td>
</tr>
<tr>
<td>Sets of 25 or Colored Slides</td>
<td>38</td>
<td>49.37</td>
</tr>
<tr>
<td>Sets of Overhead Transparencies</td>
<td>3</td>
<td>2.44</td>
</tr>
<tr>
<td>Other (e.g., Tests, Films, Scripts, Manuals, Books, etc.)</td>
<td>10</td>
<td>8.13</td>
</tr>
<tr>
<td>TOTAL</td>
<td>123*</td>
<td>100.00</td>
</tr>
</tbody>
</table>

*The 123 materials were disseminated as ninety-five instructional resources. Several kinds of instructional materials may be grouped to form an instructional unit or package.

Table 1. Authors and Creators of 123 Instructional Resources in Agricultural Education Disseminated from the North Atlantic States

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authors or Creators</td>
<td>87</td>
</tr>
<tr>
<td>Consultants</td>
<td>30</td>
</tr>
<tr>
<td>Other (e.g., editors, series editors, etc.)</td>
<td>6</td>
</tr>
</tbody>
</table>

Projections

Teacher educators and state supervisors who were in charge of instructional resources for their own state were asked to anticipate the needs for the immediate future. They responded that a few specific items were needed, the occupational areas in agricultural education in most need of materials, and the approaches to teaching and learning in need of strengthening through instructional resources.

The kinds of instructional resources needed most are those which have not been disseminated in the past. The need for (1) concept books, (2) overhead transparencies, and (3) demonstrations and experiments (See Table 1).

Occupational areas in agricultural education in need of instructional resources are (1) agricultural supplies and services, (2) ornamental horticultur-
Table 3. Kinds of Instructional Resources Needed in Agricultural Education for the North Atlantic States.

<table>
<thead>
<tr>
<th>Kinds of Instructional Resources</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Concept Film Loops</td>
<td>1</td>
</tr>
<tr>
<td>Overhead Transparencies and Originals</td>
<td>2</td>
</tr>
<tr>
<td>Demonstrations and Experiments</td>
<td>3</td>
</tr>
<tr>
<td>Slide Sets and Film Strips</td>
<td>4</td>
</tr>
<tr>
<td>Programmed Instructional Materials</td>
<td>5</td>
</tr>
<tr>
<td>Television Tapes</td>
<td>6</td>
</tr>
<tr>
<td>Audio Tapes</td>
<td>7</td>
</tr>
<tr>
<td>Workbooks and Manuals</td>
<td>8</td>
</tr>
<tr>
<td>Contests</td>
<td>9</td>
</tr>
</tbody>
</table>

*Rank of 1 indicates the kind of instructional resource which is needed most. Rank of 9 indicates the kind of instructional resource which is needed least.

true and fencericulture, and (5) resources. Seventy-five percent of the priorities listed were in the occupational areas of agricultural education and ornamental horticulture. Needs for instructional resources related to approaches to teaching and learning were seen as greatest for superintendents, county agents, and county agents were also rated for the combined areas of guidance, counseling, placement, and follow-up.

It was estimated from the titles for should be given priority that approximately three-fourths of the materials would tend toward instructional skills and the remainder in the direction of other nonagricultural matters such as human relations, human resources, and job orientation. Most of the titles that appeared to lend themselves to the printed page for publication.

In conclusion, the production and distribution of instructional resources is proposed instructional resources which is a continuous, full-time task not easily conducted as a part-time task by the leadership in either teacher education or state supervision. Many, because other educational activities have been given higher priority and, in all probability, rightly so. The result is an unsystematic approach to making available materials which is at frequent intervals. Gaps and overlaps in the production of instructional resources are occurring and for deficiencies to both the users and the producers.

The question raised from the study is this, "Why not give consideration to the establishment of Regional Instructional Resource Centers with staff to promote and coordinate production activities, to manage production processes, and to advertise and distribute instructional resources more widely and, thereby, elevate this important educational service?" What has been good in the past can be made better in the future.

TEST PLOTS AS TOOLS OF EDUCATION

Kenneth P. Redemann, Sr.
Yu. Ag. Instructor
Pekin Community School
Pekin, Pennsylvania

All form help between the ages of 14 and 16 should hold a certificate of tractor driver training before they can work for any farmer or use these skills. This is a hard lesson to the conscientious farmers, was passed in 1966. This requirement has been necessary because of accidents. If all vocational agriculture departments would have a number of acres of farm land where these young people could learn tractor driving skills, this law would be unnecessary. This is one advantage that a vocational agriculture department has over the school, a number of members in the community.

At Pekin the FFA Chapter farms 56 acres. Each year the chapter grows ten one-acre plots of oaks. This means that we have ten plots with different varieties of oaks. The farmers of our area visit these plots each summer, and many of them decide, from information gained here, which variety of oaks they wish to plant in their groves. Farmers in the area can purchase a one-acre plot of oaks from the Chapter for their own use for next season. By purchasing seed oaks from the Chapter, many farmers are able to obtain a new variety and good seed for themselves.

The chapter members also have an opportunity to study cropping practices firsthand because they perform these practices on the test plots. Some of these practices are college-plowing, controlling a tractor during the plowing operation, diskage, herbicide spraying, seed bed preparation, and insecticide selection and use, cultivation, and harvesting skills. These experiences are available to all of the chapter members. Test plots give an opportunity to teach these skills and do plowing. The test plots also give Chapter members a chance to do the work, as run tests on fertilizer variables, varietal corn and bean planting dates and set minimum tillage and weed population effects without an investment of their own. This pattern of section full part of the FFA motto of learning by doing. Adults and students alike observe and follow many of the practices developed by FFA members on these test plots.

The test plots also provide a source of income for our Chapter. With the making a great deal easier and holds the students' interest better.

TO BUILD A GREENHOUSE

Robert R. Gambino
Housatonic Valley Regional High School
Falls Village, Connecticut

At the Housatonic Valley Regional High School, vocational agriculture students interested in growing plants built their own temporary greenhouses. The boys, all students at the school, were taught by the instruction of Robert R. Gambino, and most plants were raised from industry and college sources. The hands were constructed from 16' insulated electrical conduit, 20' of glass, 4' drilled to fit the tube at 24" centers. The ends of the series of arches were framed and doors hung. The whole structure was covered with a single sheet of 1/4" 30' wide polyethylene plastic. The boys used various sources of heat and ventilation. Some had kerosene pot burners, while others had vented kerosene stoves or electric heaters. Ventilation was obtained by merely opening the doors or by using the heat. The greenhouse was used as a temporary structure to produce bedding and vegetable plants for sale to local customers. A more sophisticated heating system would be needed to grow plants the year round.

The actual cost for the 16' greenhouse, including the materials for the second-hand stove and blower and a new thermometer, a total of $300, was easily offset by adding additional arches. The students involved were able to obtain various items at cost or grade, depending upon their individual situation.

The object of this project was to familiarize the students with greenhouse construction and give them first-hand experience in heating, watering, and ventilating, for the greenhouse.
Stories in Pictures

Robert W. Walker
University of Illinois

Robert D. Von Hagen, agricultural economics instructor, Wightstown High School, Wisconsin, enjoys working at the Pennsylvania agricultural summer school at the University of Minnesota. (Photo by Marvin McMillan, University of Minnesota).

Robert W. Walker, University of Illinois

Practically all farmers knowledge can be found in books and libraries. Unlike other animals that must start anew with each generation, man builds upon the accumulated and recorded knowledge of the past. This constant adding to the vast store of knowledge makes possible progress in agriculture. Agricultural educators interested in a research topic should examine related knowledge from previous studies. Extensive use of the library and thorough investigation of related literature are time-consuming but fruitful in discovering what is already known, what others have attempted to find out, what methods of attack have been promising or disappointing, and what problems remain to be solved.

Various information systems, indexes, and abstracts have been developed which are useful to agricultural educators who are conducting research projects.

The Card Catalog

The card catalog, an alphabetical listing of the contents of all publications found in the library, with the exception of serially published periodicals and microforms, provides a quick and convenient way to find all of the book, book chapters, and monographs or pamphlets found on the library shelves.

J. David McCracken
The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

WHERE TO FIND RESEARCH AND INSTRUCTIONAL MATERIALS

Instructional Materials

Abstracts of Instructional Materials in Vocational and Technical Education (AMT) is a quarterly abstract journal reporting information useful to a wide audience of vocational-technical educators. AMT is published by the ERIC Clearinghouse on Vocational and Technical Education, The Ohio State University, Columbus, Ohio. Subscription price is $11.00 per year.

Research in Education (RIE) is a monthly abstract journal of recently completed research reports, descriptions of exemplary programs, and other documents of interest in the educational community. Copies of the complete text of articles announced in RIE may be purchased on microfiche or hard copy. Subscription price is $23.00 per year from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

Summaries of Studies in Agriculture, by region, are compiled annually. These summaries contain staff studies, doctoral dissertations, and masters theses completed in agricultural education in the Mid-South, northeast, southern, and Pacific regions. Copies may be found in teacher education departments or state departments of education. These summaries are also announced in RIE and are available in microfiche and hard copy.

Obtaining Assistance

Over forty states have established Research Cooperative Units (RCU's) for co-executive-technical education. Many RCU's have been able to answer individual requests for information from vocational educators in their state.
INSTRUCTIONAL MATERIALS?

Mr. Teacher, how are you fix-
ed with instruc-
tional materials? Instructional materials? Man-
don't come at me with that kind of question! Look at this - these cabi-
net are full of ma-
terial that I have collected and used since I began teach-
ing and that ain't been studied, either. All these new fangled visual aids and stuff - that's for those birds just out of college - but I'm an old dog and you know it's difficult to teach old dogs new tricks.

Mr. Teacher, what kind of auto-
mobials are you driving to school?

Mish? Oh, the latest and finest that money can buy. Got two four-barrel carburetors, four-on-the-floor got to keep in pace you know. Wouldn't do for the Vo-Ag teacher to be seen driv-
ing an out-of-date vehicle. Ah, you know what I mean. Students would think I'm old fashioned or something.

How about these old slides and filmstrips, Mr. Teacher?

Well, let's see. You mean this one showing the mule drawn cultivator dated 1938, or this one of some adult farmers posed by a 'Model A' I still use them - principles are the same.

And so I want on - charts, les-
sos plans, bulletins, books - old as the bills!

Now look here young fellow, if all my stuff is so antiqued - I can't throw it away - what would I use? Where can I get all this latest material you speak of?

Okay, Mr. Teacher, you asked for it! There is such an abundance of instructional material available today that it isn't a matter of find-
ing anything to use, it's deciding what to use.

Types of materials? You name it - it's almost sure to be available. Charts, slides, filmstrips, trans-
parencies, tapes, books, specimen - we could go on and on.

Wait a minute - you mean audio visual equipment? Sure, al-
most every department in this state has an overhead projector, a slide projector, tape re-
corder, ditto machine, opaque pro-
ector - some have a new 16mm film projec-
tor.

Your department doesn't have that kind of money? Mr. Teacher, many instructors have been able to equip their departments with instructional materials selected through some of the federal teacher programs - Title II for example. Might check with your principal or superintendent about that. Where there's a will, there's a way.

Good teaching materials are also available free from com-
mercial companies. Watch your mail closely. Such items come across my desk almost every day. Many teachers make their own visual aids - charts, slides, etc. Students enjoy helping, too. Seems like a good idea - let students make 'em, then study 'em. Many good bulletins and pamphlets are available from the state agricul-
tural experiment station and the coope-
rative extension service. Many Vo-Ag departments are get-
ing several sets of good reference books through free textbook pro-
grams or other sources.

Say, you heard that several states have been bombing the FFA with scholarships with instructional materials? Well, you heard right. Take Alabama for an example. Their teachers have recently re-
ceived instructional units with text sites as Salts, Plant Food and For-
tilizers, Personal Development, Sugges-
ted Course Outlines for grades 7-12, Vo-Ag Shop Guides for First and Second Year Students (work-
book type), originals for making transparencies - just to mention a few.

For the third and fourth year students enrolled or studying in specialized courses (occupational objectives), fourteen individual stu-
dent study guides have been de-
veloped specifically for their use.

Art materials for adult work? You bet! For example, every Vo-Ag teacher in Alabama received a publication containing the contents of ten ETV programs for adults. Prior to each telecast, teachers also received suggested outlines for that lesson - interest-getting statements and questions for possi-
ble discussion before and after each telecast.

Spoon feeding teachers too much? Teachers of Vo-Ag are busy as bees developing instructional materials is time consuming. Are they receiving more "stuff" than they can possibly use, Well, that's a matter of opinion. Wouldn't you much rather have some left-over material than to place in the refrigerator at night? How's it go to bed hungry?

"Yes sir, sure glad you dropped by my department. But I could have saved you a trip. You see, I'm retching som-
time now."

MORRIS FFA SCHOOL FARM PROVIDES CHALLENGE

A long time used in other states, but fall when the Morris FFA chapter with financial help from the local School Board and the Fed-
eral Government, obtained 10 acres of land just south of the voca-
tional agriculture building.

A $2000.00 matching grant from the Fed-
eral Government was designed to help 
members of the Morris Vocational Agri-
cultural Chapter. The money was to be used for a supervised farming program, the Plant Board and J. C. Wilson, Morris Superintendent of Schools, im-
mediately approved $1000.00 to go to-
ward construction of facilities for the farm.

As many patrons have listed the lay-
er follow with 700 students, the teachers 
decided to hold participation in the Good Health, FFA chapter. Will Whitehead, sub-
mitted the winning entry and received the $1000 first prize. His name was: "Macon FFA School Farm." He started in his entry as he felt this name should be selected because this project was a joint effort between the Morris FFA chapter and the school district. In 1973 and 1974, both teachers, Mr. Ruck and FFA School should be included. Money used for first prize came from donations.

SKILLS DEVELOPED

The list of skills developed in this project includes the following: Two concrete slabs were poured to serve as a base for the watering tank and a large self feed.

The task of boulders hugging a lot of underbrush and small trees was made easier by Roy Callaway, an honorary member. Mr. Callaway furnished the tractor and brush hog and Wayne Cal-

bell, a member of the Morris Chapter, did the actual clearing.

Fencing was done as a class project with each of 92 members enrolled play-
ing an important part.

Probably the biggest single project was the construction of a 15x60' call 
h barn. Members again put their skills to work and completed the task.

Co-op Formed

With practical facilities completed, a 23-member co-op was formed. Of-
fers were received and a $2000.00 loan was received at the Morris State Bank through H. K. Greer, Morris State Bank President, another honorary chap-
ter member of the Morris Chapter and a state honorary farmer of the Okla-
oma FFA Association.

Fifteen head of swine were fattened out with 25 of them competing in the annual Okalona County Livestock Show.

Everything Not Easy

Members of the co-op group got a lesson on the hard side of livestock farming as a mysterious disease killed the herd and killed two of the larger animals. It also slowed the rate of gain on the entire group and with the possibility of some of this disease appearing. A veterinarian by the local veterinarian got the problem solved with a loss of profit, but a good lesson in treating the disease, analyzed as necrotic enteritis.

When the animals were sold, mem-
ers paid off the loan, interest, and divided over $2000.00 in profit on the project.

Water was hauled in a 500 gallon water tank through the winter by the no
covant inventors have been es-
tablished sites. The but Okalona sun beamed down, the need for a con-
venient water system was evident. A 50' deep well was drilled at a reduced price by a local well driller. Chapter members helped and quickly hit a good well of water. Complete installation of a water system, including a pump, pres-
sure tank and over 300 feet of water line, was completed by chapter mem-
bers. Running water is now available to every pen.

The farm will have six individual calf pens with sheds and sheds in each pen will handle the hog layout. A large pen is also on hand for group feeding projects that will handle 100 head of swine.

So far, 23 boys have utilized the school farm. The problem of not having a place to keep an animal project no longer exists in the Morris community.

The agricultural education magazine
IDEAS FOR EFFECTIVE TEACHING

Willie J. Walls, Program Consultant
State Department of Public Instruction
Greensboro, North Carolina

Today's complex and diversified educational systems are designed to prepare students with varied educational backgrounds and aptitudes for life's challenges and the world of work. These educational systems should be able to meet the needs of all of the students — superior, average, and below average. To effectively meet the needs of these widely varied aptitudes and interests, the teacher will need to learn and effectively use many teaching techniques. Three techniques must include: (1) good teacher-student relationships, (2) good personal qualities, and (3) a well-prepared and presented lesson program which is being carried out, evaluated, and improved by the students.

One of the practical ways of showing an individual student that you are interested in him is by knowing and calling him by his first name rather than referring to him by "the student in the last row" or by a nickname. An instructor should know what is going on in the life of each student before other students. A student should be judged by his present performance and not on his past record. Whenever a student makes progress, the instructor should readily commend him. The commendation will serve as a stimulus for the student to achieve greater things. The instructor should periodically ask the students to give candid and frank reactions and remarks of their feelings about an instructor. The students should be assured by the instructor that their remarks will not in any way affect their grades. The instructor, by evaluating these remarks made by his students, will be able to discover some of his assets as well as his many different weaknesses. Some of the remarks by the students may hurt, but the instructor can use them to his advantage if he really wants to do a better job.

Due to continual personal contact with students, an instructor should have good personal qualities. Paramount of all of the needed personal qualities is honesty. An instructor should have accurate records of all funds, equipment, and supplies. An instructor should always know his subject matter and possess the ability to relate his knowledge to his students. The curriculum and its content must contain courses which are relevant to the today's demands and the students' current interests and demands. School officials and instructors must continue to evaluate the curriculum and make the necessary adjustments. An instructor must keep the content in tune with the times.

The instructor must keep in mind that in his class there are many types of students, including those with special needs — those students who cannot learn at the same rate as others. Also those students who are average mental and social achievers. Much effort is being put forth to provide students with special needs with the type of training which will allow them to achieve at their own level. The Congress of the United States has appropriated large amounts of money to be used in the training for students who are disadvantaged and handicapped. Teachers of agriculture, as well as other teachers, are attempting to use many methods and techniques in teaching those students who fall in the classification of the disadvantaged and/or handicapped.

Textbooks are one way of obtaining information. Despite its many advantages, a textbook can be a bad substitute for the teacher. An instructor should never leave a student to the textbook without proper guidance and assistance. The textbook is a poor substitute for a teacher. The textbook does not provide for individual differences, nor can it be relied upon to present the material in the order that is needed.

In teaching the various subject areas, the teacher must always be aware of the various student abilities and interests. The student's abilities and interests are often best determined by means of some type of diagnostic test or by the teacher's observation. The teacher should be able to classify the students in such a manner that every student feels that he can give his best to the subject he is studying.

The textbook is one of the great educational aids — a Laboratory. The textbook is not a substitute for the teacher. The teacher should be able to use the textbook as an aid to teaching rather than a substitute. The student should be encouraged to use the textbook as a tool to help him. The student should not be allowed to learn from the textbook alone. The teacher should have the initiative in leading the student to learn from the textbook. The teacher should never be afraid of using the textbook as an aid to teaching. The teacher should use the textbook to teach the student, not to allow the student to teach himself.

In teaching students in shop activities, another technique by which students may learn useful skills and projects for a major part of vocational instruction, students learn by actually doing the job. The instructor should select projects which are practical to the objectives of the class. Whenever possible, projects should be planned which the students can complete themselves. This is to be encouraged by the teacher. The teacher should make certain that the projects are practical to the objectives of the class. This is to be encouraged by the teacher.
UTILIZING LAND-LIVESTOCK LABORATORIES

School land-livestock laboratories have been used many years for the purpose of providing vocational agriculture students with a variety of agricultural educational activities and the concept “Learn by doing.” A school operated laboratory can provide the facilities for demonstrating teaching and practical agricultural experiences for students and concentrate in positive student motivation and interest. Studies indicate that school land-livestock laboratories have disadvantages which have caused vocational agriculture teachers to discontinue use and discouraged others from initiating their operation. Too much teacher time, cooperation of student labor, training of essential operators, and excessive financial investment were found to be the most serious disadvantages.

An investigation was conducted in Arizona for the purpose of utilizing land-livestock laboratories based upon one model concept. The concept, as proposed, was identified as an organizational plan which demands the involvement of all students in a specific organized class-laboratory activity of production agriculture. Within a department of vocational agriculture, a model for land-livestock laboratory utilization purposes structuring the various classes into various different production agriculture activities. These activities were identified as modular operating within the framework of the model concept. Each module was further identified as including the necessary instructional units specific to the production activities selected, an organizational plan for coordinating classroom instruction and laboratory activity, and stated requirements for necessary physical facilities to operate the modules.

The coordinated organizational plan the model concept also recognizes that there are specific elements of agricultural science and business management practices which are common to all modules. Guidelines, policies, and procedures which direct, provide continuity and organizational stability were included in the study. The coordinated core of practices which are essential to successful laboratory utilization are:

1. To illustrate the principles of teaching and learning. The module concept is illustrated in the design for any given program and is not limited to the same concept.
2. The laboratory provides a core of instruction and practice with approved practices in agriculture.
3. The physical facilities and conditions for teaching by the “hands-on” concept.
4. Material conditions to teach procedure by the “demonstration” method and to apply approved practices.
5. Conditions for decision making which have real life characteristics.
6. Opportunities for students to experience ownership, responsibility, and cooperative endeavors and a sense of accomplishment.

It is recommended that before implementing the model concept the philosophy of group (class) participation be completely understood, the modules identified and the organizational plan approved by the advisory committee and school officials.

THE FFA AS A TEACHING RESOURCE

Page Beckarich
Willcox Public Schools
Willcox, Arizona

Born in depression and nurtured in adversity, no effective teaching tool from the Future Farmers of America has ever been devised. As versatile as the imagination, powerfully motivating and not above all, a common bond among boys that transcends background, goals and challenges. The only limits are the mind and vision and imagination of the advisor.

The first step in using the FFA as a teaching tool is to “think big.” Accept only quality leadership and adapt the program to the local situation. Above all, the program must challenge and excite. Micky Mouse and McDonald situations are the antithesis of good education.

The possibilities are infinite. With color, color, color, emphasis and organization, there is an opportunity to develop pride in the organization and a challenge for every activity. The first step is to develop pride in the organization, and, in turn, the individual. The advisor must have a willingness to explore and accept new problems and situations.

The FFA is itself developing a compact, close-knit organization that can identify with community problems. If the advisor is a long-term teacher, his continuity of leadership continuous and implements service projects. In the community this is a valuable asset and develops leadership, community pride, and an awareness on the part of the boy that he is an important part of the community development process.

The potential motivation provided by the FFA Foundation, various awards, and awards is something to say the least. A case in point is the Rotarian scholarship procedure. A context provides early motivation for excellence and challenges meetings provide opportunities for continued improvement and reinforcement.

With numerous judging contests in the state field trials, almost every event taught has some applications in at least one of these contests. This causes boys to give whole-hearted attention, speculation, and a little bit harder to select each particle of information. The Foundation awards and advanced degrees cause boys to reach a little further and become better men. Minimum course requirements are easy to meet, but the goal of becoming a State bachelor of education is just one more step.
THE "PLANT OF THE MONTH" AIDS IN PUBLIC RELATIONS

Vocational horticulture teachers occasionally find it difficult to keep students busy at certain times of the year. If they fail to provide a variety of projects and activities, the students may feel that there is nothing going on in their school. To solve this problem, we have developed a "Plant of the Month" program. This program has been in operation for several years and has proved to be very popular with both teachers and students.

The "Plant of the Month" is chosen by the horticulture teacher and is announced at the beginning of the month. The plant is then grown in the school's greenhouse or garden and is showcased during the month. Students are encouraged to participate in various activities related to the plant, such as taking care of it, giving presentations, and writing reports.

For example, last month's plant was the rose. Students were given the opportunity to study the different types of roses, their history, and their cultivation. They also learned how to prune and care for the plants.

This program not only helps to keep students interested in horticulture but also provides an opportunity for them to learn more about the subject. It is a great way to encourage students to be more active in their learning and to develop a deeper appreciation for the beauty and diversity of plants.
Horticulture Field Trip

Richard S. Lindstrom
Virginia Polytechnic Institute
Blacksburg, Virginia

The subject of horticulture has become an increasingly popular aspect of rural agricultural education in recent years in Virginia. However, many agriculture instructors find themselves teaching horticulture with an inadequate background. Several agriculture instructors presented their problems to the Horticulture Department at Virginia Tech; and, as a result, a summer program was initiated to develop a broader background for them. College courses were developed by the Horticulture Department to help agriculture instructors assimilate basic information in the field of ornamental horticulture.

Under the direction of Dr. Richard S. Lindstrom, Department of Horticulture, and Professor G. S. McLearen, Department of Agricultural Education, a one-week field trip was planned for the last week of June 1969. The objectives of this field trip were:
1. To view the operations of the various areas of ornamental horticulture, and
2. To communicate findings to students in the agriculture programs of Virginia.

A special study course entitled, "New Techniques in Ornamental Horticulture Management," was offered. The instructors were asked to write a report in which they would evaluate and determine the relative importance of these three operations and the seven areas of horticulture courses offered in high schools.

At the first stop, the faculty field trip went to Deer Run, a suburb of Akron. Yoder Brothers, Inc., produces more greenhouse and hanging chrysanthemum cuttings than any other company in the world. In addition to producing greenhouse cuttings, they have developed new varieties for the bedding stock. They have 25 acres of a variety of cuttings varieties for the greenhouse and indoor planters. They are also a leader in developing new varieties for the greenhouse industry, and new lines of greenhouse snapdragons. At present, they are兴趣 in developing new varieties of poinsettias for the floriculture market. At Barberton, they have 3 greenhouses that are 3/4 acres of glass. Yoder personnel met with the instructors and spent two hours answering questions. The questions included inquiries about the possibility of producing different plants within high, medium and low greenhouses in Virginia and ways of producing cuttings, bulv, and equipment for high school crop production.

The next morning the teachers stopped at Mercer Greenhouses, Inc., at Mercer, Pennsylvania. There are approximately five acres of glass in the Mercer greenhouse. Some of the newest automatic equipment and growing innovations have been incorporated in the greenhouse. From the marketing angle, it is unique in that their products can be marketed anywhere from Chicago to New York overnight; therefore, they are very flexible as to their markets.

From Mercer, we traveled to Ashtabula, Ohio, where the Dunbar-Hopkins Company produces about 3 acres of greenhouse plants in which are grown only standard and potted chrysanthemums. They have a 2,000-acre outdoor market in the New York-Pennsylvania area. This operation allows profitable propagation of chrysanthemums, where smaller greenhouse operators do not try to propagate, but buy their cuttings.

The chrysanthemum propagation greenhouse at the Dunbar-Hopkins greenhouse range at Ashtabula, Ohio.

On Wednesday morning, the group went to Lake County, Ohio, one of the larger greenhouse areas in the United States. At the time of our visit, it was probably the largest producer of nursery and greenhouse interests. Approximately 62 percent of the county's population is employed in the nursery and greenhouse interests. This is a very active industry, with a large number of employees being involved in the various phases of production. The group visited several nurseries, including the Pioneer Products Company, which produces the well-known "Vandy" and "Bates" varieties of poinsettias. These nurseries are located in Ohio and produce large quantities of greenhouse plants for the floriculture market.

The southwest section of Cleveland, Ohio, produces approximately 2 acres. When the greenhouses were built, production was established at this area around 1930's. The greenhouses have been moved and relocated in the same area since that time. The change to row production about three years ago has been very successful.

After Buckeye Knoll, the instructors went to Mill Gardens, where two brothers operate four acres of year-round chrysanthemum greenhouse area. They ship several truckloads of chrysanthemums to the Pittsburgh market every week in addition to their own orders. The greenhouse was built in 1954.

The next stop was at the Cleveland Vegetable Packing Company in Berea, Ohio. Approximately 620 acres of tomato greenhouses are located in and around the southwestern portion of Cleveland. As many as 500,000 of these greenhouse produce tomatoes that have been packaged and shipped through this cooperative.

With the Ohio agricultural education people, the Virginia group returned to Blacksburg, Virginia, a tired, but well-informed group.

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**BOOK REVIEWS**

**DOTTON INSECT CONTROL** by David E. Askew, C. Jones, and T. C. Jacobs, Alabama, Orange House, 1967, $7.95

This book is an excellent reference for anyone interested in the control of insects. It covers insects likely to be encountered in greenhouses and cold frames, with special emphasis on the development and use of insecticides. The book includes information on the life history and biology of the insects, identification, and methods of control. It is divided into three main sections: greenhouse insecticides, greenhouse insect management, and greenhouse insect pests. Each section is further divided into chapters that cover specific insects and their control. The book is well-organized and easy to read, with clear illustrations and tables. It is a valuable resource for greenhouse growers, entomologists, and pest control professionals.

**CONTURS OF CHANGE** by The Yearbook of Fish and Wildlife Reform, U.S. Government Printing Office, 1970

The 1970 Yearbook of Fish and Wildlife Reform is a valuable resource for anyone interested in wildlife and wetland management. It provides an overview of the current state of wildlife and wetland conservation efforts, with a focus on the challenges and opportunities facing these resources. The book includes chapters on the history and development of wildlife and wetland management, the current state of wildlife and wetland conservation, and the future of wildlife and wetland management. It is a comprehensive and well-organized resource that provides valuable insights and information on this important topic.
News to me

The fifth National Young Farmer Educational Institute will be held November 28-December 1 at Greenville, South Carolina. The Jack Tar Poinsett Hotel will be the site of the Institute.

Soil is now known to be, not a substance, or a mixture of useful chemicals, but a phenomenon of the utmost complexity, whose delicate balance is easily disturbed and whose complete interpretation is yet far off.
—Paul B. Stare, DESERTS ON THE MARCH

The farmer can be proud of his record of productivity. As a result of his efforts, the average American family spends only about 16.5% if its take home pay for food today, compared to 17% last year, and 22% twenty years ago.
Agriculture’s ability to feed and clothe the 300 million people expected to inhabit the United States by the year 2000 can be assured only if the farmer receives an adequate income for the use of modern equipment and technology while meeting his labor costs.
—New Holland News, Vol. 17, No. 1

Food is one of the urban consumer’s biggest bargains. Those of us in agriculture need to help get the story told. To understand agricultural problems in relation to their own, urban neighbors need to look beyond the price of food, to learn where food came from before it was placed in a can, and the how and why of its production.

Cow business is the biggest piece of American agriculture. It uses more land, requires more feed, produces more market value of product, and is front and center at more American meals than any other livestock or crop.
—Herrell DeGraff in BREED PRODUCTION AND DISTRIBUTION

Almost every ‘economy drive’ concentrates upon the ‘high costs’ of the farm program in the Federal budget, and totally overlooks the devastating impact of what is happening to farmers and their incomes upon unemployment and inadequate growth throughout the whole U.S. economy.
—Leon H. Keyes in AGRICULTURE AND THE PUBLIC INTEREST