

Hall, Budd L. and J. Roby Kidd (Editors). 1978. **Adult learning: a design for action: A comprehensive international survey.** Pergamon Press Ltd. Oxford. 337 pp.

Kimmel, D. C. 1982. Impact of international perspectives on American agriculture in the 80's. **NACTA Journal** 26(3): 14-19.

Love, Gene M. 1982. Securing America's food and agricultural resource base. Paper prepared for the Northeast Higher Education Committee, a subcommittee of the Northeast Regional Council on Food and Agricultural Science, USDA. 22 pp.

Malassis, Louis. 1975. **Agriculture and the development process: Tentative guidelines for teaching.** The UNESCO Press. Paris. 284 pp.

Moock, Peter R. 1981. Education and technical efficiency in small-farm production. **Economic Development and Cultural Change** 29(4): 723-739.

Mosher, Arthur T. 1966. **Getting agriculture moving. Essentials for development and modernization.** Fredrick A. Praeger, Publishers. New York. 190 pp.

Presidential Mission on Agricultural Development in Central America and the Caribbean. 1980. **Agricultural development and economic progress in the Caribbean basin.** Tallahassee, Florida. 137 pp.

Roberts, N. Keith. 1980. The population-food squeeze: Education for survival. 62nd Faculty Honor Lecture. Utah State University. Logan, Utah.

Rockefeller Foundation. 1974. **Strategies for agricultural education in developing countries.** The Rockefeller Foundation. New York. 444 pp.

Rockefeller Foundation. 1976. **Strategies for agricultural education in developing countries.** Second Bellagio conference, 1975. The Rockefeller Foundation. New York. 98 pp.

Rojko, Anthony, et al. 1978. **Alternative futures for world food in 1985.** U.S. Department of Agriculture, Foreign Agriculture Economic Report No. 146.

Ruttan, Vernon W. 1973. **Induced technical and institutional change and the future of agriculture.** The Agricultural Development Council, Inc., New York. 11 pp.

Ryan, James G. and Hans P. Binswanger. 1979. Socioeconomic constraints to agricultural development in the semi-arid tropics and ICRISAT's approach. Pages 57-67 in Vrinda Kumble, ed. **Proceedings of the international symposium on development and transfer of technology for rainfed agriculture and the SAT farmer.** ICRSAT, Andhra Pradesh, India.

Shukla, V.P. 1971. Interaction of technological change and irrigation in determining farm resource use, Jabalpur District, India 1967-1968. **Cornell International Agricultural Development Bulletin** 20. Cornell University. Ithaca, New York. 73 pp.

Tinnermeier, Ronald L. 1974. Credit for small farmers. Pages 97-116 in H.H. Biggs and R.L. Tinnermeier, eds. **Small farm agricultural development problems.** Colorado State University. Fort Collins, Colorado.

The "World Food Situation" As an Initial Lesson Theme In Introductory Poultry Science

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Abstract

The "world food situation" was developed as the theme for a three day lesson entitled "Introduction to Poultry Science" in Poultry Science 202 at the University of Georgia. The objectives were: 1) to understand the magnitude of the world food situation 2) to understand the involvement of public policy in this issue and 3) to understand the role of the development of poultry science and the poultry industry in providing high quality low cost food for the world. On the first day a slide tape was presented that described the problem of world hunger and discussed the involvement of public policy in this issue. This was followed by a discussion of the involvement of public policy in the development of the Land Grant College System. The second day continued with a discussion of how Poultry Science Departments function in this system and the contribution made by scientists in these departments. On the final day, there was a discussion of the economic importance of the poultry industry to Georgia and the United States. A slide-tape program presented at the end of the third day demonstrated the involvement of the poultry industry in feeding the world. A quiz was given on the fourth class day. Verbal response of the class at the end of the lesson and written evaluation at the end of the course indicated that the objectives of the lesson were met. Analysis of grades indicated that this lesson had little effect on the final course grade.

One of the major issues confronting present day agriculturists is the growing problem of world hunger. This problem is magnified by the increasing opposition of developing world countries to settle for poor nutrition in their human populations. Even though it is an issue important to all of agriculture, few Poultry Science students at the University of Georgia considered this issue in their coursework. For example, the Introductory Poultry Science course (PS 202) encompasses subject areas ranging from endocrinology to management.

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Students are introduced to Poultry Science by a series of "Introduction to Poultry Science" lectures. These concern the economic impact of the Poultry industry in Georgia and the United States, the history of the Poultry Industry, and specific definitions of common terms used by poultrymen.

These introductory lectures were revised to include information regarding the world food situation. The lesson objectives were 1) to understand the magnitude of the world food situation 2) to understand the involvement of public policy in the world food situation, and 3) to understand the importance of the development of poultry science and the poultry industry in providing high quality low cost food for the human population. We hoped the information would cause students to discuss candidly and inquisitively among themselves the relationship of poultry science to the world food situation. A favorable attitude change would be that the students would develop a sense of purpose for studying poultry science.

Materials and Methods

The course in which this lesson was employed was "Introductory Poultry Science", Poultry Science 202, at the University of Georgia, Athens, Georgia. It is a five quarter hour course consisting of four 50 minute lectures and one two hour laboratory period weekly (Table 1). The course is briefly described as "an introductory course designed to cover the biology of the domestic fowl with emphasis on its application to poultry production" (University of Georgia Bulletin, 1982).

The introductory lesson consisted of three sessions to cover the lesson objectives given above. The first session consisted of the presentation of a slide tape entitled "Bread for the World" (1979) and a discussion of the contribution of the Land Grant College System to food production. This slide tape consisted of 112 frames and was of 20 minutes in duration.

A discussion of the contribution of the Land Grant College to food production around the world was used because the system clearly came from changes in public policy as three laws. This close connection between change in public policy and an increase in food production was used to show the students that this relationship can exist. A useful description of the legislation that brought about the Land Grant System and the development of this system is given by Thomas et al. (1976). Class discussion centered around the Morrill Land Grant Act, the Hatch Act, and the Smith-Lever Act.

The second session of the introductory lesson was a lecture on the functioning of Poultry Science Departments within Land Grant Colleges. The Poultry Science Division at the University of Georgia, a typical department, was used as an example. In this division the Teaching and Research Department is primarily responsible for generating knowledge and educating stu-

dents. The Extension Department disseminates knowledge and solves problems for the poultry industry in Georgia. The value of the Land Grant College System was discussed in three areas: 1) the influence of specific knowledge gained in Agricultural Experiment Stations on the poultry industry; 2) contributions made by agricultural college graduates to food production; 3) the effectiveness of the Cooperative Extension Service in farm and industry development in the United States. Attention was also given to the fact that the Poultry Science Division consists of groups of scientists each specializing in a basic science but with a central interest in poultry. Thomas et al. (1976) was used as a resource for this discussion.

On the final session was a brief discussion of the history and economic importance of the poultry industry in Georgia and the United States. A discussion of the history of the Poultry Industry is given by Hanke et al. (1973), and data on the economic importance of the industry are available from **Georgia Poultry Facts** (1982).

To review the lesson, a slide tape entitled "Feeding a Hungry World" (1982) was presented. The slide tape presentation contains information on the world food issue, a review of the poultry industry, and changes that have occurred to make poultry and eggs higher quality, lower cost food for a protein-deficient world.

After the slide tape review, a period of time was allocated for students to discuss among themselves the material that had been covered. Attention was given to the questions raised as a means of determining if the lesson objectives were met. A short quiz concerning this introductory unit was given at the beginning of the next class day.

The effectiveness of the lesson was evaluated. Correlation coefficients between the quiz on the lesson discussed and all other grades given in the course were calculated and analysis of variance was conducted to determine if there was a significant difference in the quiz grades in the course. The statistics were conducted using the procedures of SAS (Barr et al., 1979).

At the end of the course, students were asked to evaluate the course. They were asked to answer questions with a number from one to five, with one being excellent and five being poor. Two of the questions pertinent to the first lesson were "The clearness of the course objectives is" and "How well does the course material stimulate your interest in the subject?"

Results and Discussion

When students were allowed to discuss freely among themselves anything pertinent to the first lesson a series of questions were generated from the group. Some of these questions raised were "What can be done to change public policy on this issue?", "Can agriculturists really feed a hungry world if given sufficient support and how?", "Can we and will we always be able to justify feeding high quality feedstuffs to

chickens?". "Should we ship grain or meat to developing countries or should we teach them to produce their own food?" Input was only given by the instructors to help students express their questions more clearly. Very few strong opinions or simple answers to questions were raised in the discussion. It was concluded that the behavioral objective of the lesson had been met since students discussed candidly and inquisitively among themselves the relationship of poultry science to the world food situation. The lack of expressions of strong opinions or simple answers indicated also that the students had gained an appreciation for the complexity of this issue.

The grades on the first quiz ranged from five to ten out of a possible ten points with a mean of 7.87 and a standard deviation of 1.58 which was not significantly different from grades on other quizzes given in the course.

When students were asked at the end of the course to evaluate the clearness of the course objective, 71.5% of the students answered with a one or two. On the one to five scale the mean response was 1.9 with a standard deviation of 1.0. When asked how well the course material stimulated interest in the subject 85.7% of students responded with a one or two, with the mean response of 1.7 and a standard deviation of 0.9. These responses indicate that a clear and stimulating stage was set for an introductory course in poultry science.

References

- Barr, A.J., J.H. Goodnight, J.P. Sall and J.J. Helwig. 1976. *A user's guide to SAS 76*. SAS Institute, Inc., Raleigh, NC.
- Bread for the World*. 1979. Bread for the World, 6411 Chillum Place NW, Washington, DC 20012.
- Feeding a Hungry World*. 1982. Southeastern Poultry and Egg Association, 1456 Church Street, Decatur, GA 30030.
- Georgia Poultry Facts*. 1982. Georgia Crop Reporting Service, Stephens Federal Building, Athens, GA 30603.
- Hanke, O.A., J.L. Skinner, J.H. Floria. 1973. *American Poultry History 1823-1973*. American Printing and Publishing, Inc., Madison, WI.
- Thomas, G.W., S.E. Curl and W.F. Bennett, Sr. 1976. *Food and Fiber for a Changing World*. The Interstate, Danville, IL.
- The University of Georgia Bulletin, 1982-1983: Undergraduate Study*. 1982. The University of Georgia, Athens, GA.

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Landscape Design Students To Use Computer Software

Bradley W. Pedersen

Faculty members at the University of Minnesota Technical College, Waseca (UMW) are just completing work on a three year grant from the Fund for Improvement on Post Secondary Education (FIPSE).

The primary purpose of the grant is the creation of about 50 modules in various educational formats to be used as reinforcement units for the non-traditional agriculture student at UMW. A possible definition of non-traditional could be non-agricultural but in our sense it also more broadly refers to students having limited background in the biological sciences.

The methods by which the reinforcement units are implemented vary depending on the particular abilities of the students involved, the faculty member's philosophy of instruction, and the time restraints involved with the presentation of that particular subject area.

One of the modules developed in the landscape design area within the horticulture division, particularly the landscape design emphasis, was a reinforcement unit entitled **Design Characteristics of Woody Plants**. This particular module was developed to support the course sequence UMW offers in woody plant identification. In most colleges and universities, the plant materials course sequence could be from one to three separate courses depending on the number of plants to be covered and the room available in the curriculum to handle the credit requirements. At Waseca, one three-credit course and two one-credit courses are offered as the woody plants sequence. The curriculum change which expanded from one course to three has been too recent to evaluate its effects. However, indications are that this change will greatly increase the fundamental knowledge a student has when entering his or her first landscape design course. Also, the primary thrust of the plant materials sequence offered at most colleges and universities is toward identification and nomenclature of woody plants. The correct application of these materials in the landscape setting is usually only a secondary objective. Secondly, analysis of the specific plants studied in these courses indicates a decreased emphasis on the application of specific cultivars derived from parent species. Yet in many cases, it is the cultivars and their specific uses that are of major concern in the landscape design industry today.

The position in which the horticulture department at UMW found itself was much like that described above. Students enrolled in the landscape design

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