Analysis of Needs: Educational Programs for Young and Adult Farmers

Robert A. Martin, Assistant Professor
Agricultural Education
Iowa State University

Accepted for Publication September 1986

American agriculture has always been on the cutting edge of change. Keeping up with change is becoming increasingly challenging to the American farmer as well as all those individuals who may assist the American agricultural industry to be the major industry that it is today. Education has and still is a key element in helping agriculturalists meet the challenges of agriculture. Predictions are that education will be the critical element in the coming agricultural revolution in the United States and the world (Crom, 1985). Adult and young farmers continually seek solutions to complex problems.

Adult and young farmer educational programs have always been an important part of agricultural education (Kahler, Morgan, Holmes & Bundy, 1985). However, in recent years, many questions have been raised regarding the need for adult education delivered through vocational agriculture departments as well as concerns about the focus of these programs. Woodin (1967), in a national study of vocational agriculture teaching activities, found that 51.6% of the teachers reported that they taught adult farmers. In 1974, Schuman and Webb found that both teachers and high school principals in Texas agreed that adult instruction should be included in vocational agriculture programs.

There appears to be a considerable difference in perception as to the role of adult education in vocational agriculture, judging by recent related research. Pfister (1983) stated that vocational agriculture teachers in Ohio do not involve student teachers in adult education activities to any great extent, and teacher educators do not emphasize adult education to the extent that they expect it to be conducted. Miller, Scheid and Pilgrim (1983) found that conducting adult educational programs presented the greatest challenge to vocational agriculture teachers regardless of the number of years of experience. However, there are indications adult education may be needed now more than ever.

What types of educational programs are currently being offered? How important are these programs to young and adult farmers? What is the quality of these programs? How effective have these programs been in assisting farmers to adopt new technology? What are the current educational interests of young and adult farmers and where do farmers get their most useful information?

Purpose and Objectives

The main purpose of this study was to assess the current educational programming being offered to young and adult farmers in Iowa. This assessment centered on what program areas were being offered, the degree of importance, and the quality of these programs as perceived by young and adult farmers in Iowa. Additionally, the study was conducted to determine areas of interest for further education and to determine the source of information most used by young and adult farmers.

Journal of the American Association of Teacher Educators in Agriculture
Volume 28, Number 1, pp.56-64
DOI: 10.5032/jaatea.1987.01056

Procedures

The study was Phase I of a five-phase project to review various aspects of agricultural education for adults in Iowa. The study was designed to collect descriptive data to assess the current status of adult education in agriculture and to identify future program development needs.

Data were collected by self-administered mailed questionnaires sent to a randomly selected group of young and adult farmers who had attended adult education programs during the 1983-1984 program year. Three hundred young and adult farmers were randomly selected from the lists of participants in adult agricultural education classes or programs.

The participants were selected from mailing lists provided by vocational agriculture teachers in Iowa having reported that they had conducted regular adult education programs during this period. Fifty-two percent of the potential participants in the study responded to the questionnaire. This response was considered to be adequate given the fact that, traditionally, farmers do not respond well to surveys (Howe, 1977; Laskey, 1985). Follow-up letters and questionnaires were sent approximately two weeks after the initial mailing. Follow-up phone calls were made to approximately 20 adult and young farmers to assess any differences in responses compared to the individuals originally responding. There were no significant differences in these responses from those of the original respondents.

The questionnaire was developed utilizing the assistance of a panel of experts in the Department of Agricultural Education at Iowa State University and selected agricultural extension personnel. A list of potential program topics was generated and refined. These topics were classified as to livestock production (LP), crop production (CP), agricultural mechanics (AM), horticulture (HT) and general agriculture (GA). Each respondent was to rate (using a five-point Likert-type scale) the degree of importance, quality and interest regarding each topic. Respondents were also asked to rate their primary sources of new information and give selected biographical data.

Analysis of Data

The data were analyzed using means, standard deviations, frequencies and percentages. Cronbach's alpha reliability coefficients were determined for each of the major interest scales as follows: LP = .91; CP = .88; AM = .91; HT = .88; GA = .90.

Results

The findings of this study indicated that a large percentage of the respondents rated the programs high on the quality scale (3.00 or higher). Educational programs rating fair or low on quality were surveying, vegetable production, and government regulations. The highest composite quality scores were assessed programs on facilities construction, safety, and taxes (Tables 1, 2, 3, 4, 5).

The programs of the greatest importance (4.00 or higher) to farmers responding to the questionnaire were livestock marketing (4.12), crop marketing (4.26), agricultural credit (4.12) and financial planning (4.23). The programs of perceived lesser importance (3.00 or lower) were surveying, vegetable production, and turf management (Tables 1, 2, 3, 4, 5).

Table 1

Importance and Quality of Educational Programs Offered in Livestock Production as Rated by Young and Adult Farmers in Iowa

Educational Programs	Programs Offered	Importance		Quality	
		Mean	S.D.	Mean	S.D.
Health & Diseases	45	3.91	1.05	3.28	.96
Marketing	67	4.12	1.16	3.30	.89
Feeds & Feeding	41	3.66	.99	3.27	.90
Production Management	54	3.82	.99	3.20	.79
Production Records	45	3.80	1.16	3.23	.94
Herd Records	28	3.42	1.10	3.31	1.05
Breeding & Reproduction	29	3.52	1.09	3.31	1.04
Use of Computer	43	3.28	.96	3.38	.96
Group Summary		3.85	.82	3.31	.64

Table 2

Importance and Quality of Educational Programs Offered in Crop Production as Rated by Young and Adult Farmers in Iowa

Educational Programs	Programs Offered	Importance		Quality	
		Mean	S.D.	Mean	S.D.
Pests & Diseases	59	3.73	1.11	3.40	.94
Crop Pesticides	64	3.67	1.13	3.33	.86
Soil Fertility	67	3.87	1.11	3.55	1.06
Chemical Safety	59	3.92	1.18	3.29	1.13
New Crop Varieties	41	3.68	1.11	3.32	.88
Marketing	71	4.26	1.09	3.51	.96
Production Management	58	3.85	1.09	3.28	.85
Production Records	43	3.77	1.21	3.41	.94
Use of Computer	44	3.29	.94	3.37	.92
Group Summary		3.89	.88	3.35	.72

Table 3

Importance and Quality of Educational Programs Offered in Agricultural Mechanics as Rated by Young and Adult Farmers in Iowa

Educational Programs	Programs Offered	Importance		Quality	
		Mean	S.D.	Mean	S.D.
Machinery Calibration	35	3.83	1.18	3.37	1.09
Machinery Maintenance	32	3.97	1.18	3.41	1.01
Electric Power	16	3.44	.96	3.47	.99
Small Engine Repair	15	3.21	.58	3.21	.70
Facilities Construction	11	3.36	1.03	3.64	.92
Welding	18	3.17	1.15	3.22	1.11
Cutting	15	3.07	1.03	3.20	.94
Surveying	8	2.63	1.06	2.75	.89
Land Measurements	11	3.09	1.04	3.09	.94
Concrete	11	3.55	1.13	3.60	1.17
Masonry	7	3.43	.79	3.71	1.11
Safety	21	3.86	1.20	3.95	1.02
Group Summary		3.70	.98	3.42	.91

Table 4

Importance and Quality of Educational Programs Offered in Horticulture as Rated by Young and Adult Farmers in Iowa

Educational Programs	Programs Offered	Importance		Quality	
		Mean	S.D.	Mean	S.D.
Vegetable Production	7	2.67	.82	2.67	.82
Fruit Production	4	3.33	.58	3.00	1.00
Landscaping	13	3.25	1.22	3.09	1.04
Turf Management	4	3.00	.00	3.00	.00
Group Summary		3.16	1.12	3.08	.94

Table 5

Importance and Quality of Educational Programs Offered in General Agriculture as Rated by Young and Adult Farmers in Iowa

Educational Programs	Programs Offered	Importance		Quality	
		Mean	S.D.	Mean	S.D.
Financial Planning	61	4.23	1.07	3.57	.97
Taxes	47	3.98	1.07	3.77	1.05
Agriculture Credit	49	4.12	1.03	3.53	1.06
Government Programs	48	3.68	1.18	3.19	1.12
Government Regulations	28	3.26	1.35	2.89	.95
Computer Use	45	3.31	1.00	3.18	.82
Decision Marketing	32	3.26	1.15	3.07	1.09
Estate Planning	32	3.41	1.29	3.33	1.03
Water Quality	11	3.55	1.44	3.30	1.34
Air Quality	10	3.80	1.32	3.56	1.24
Wildlife Management	14	3.77	.93	3.58	.67
Natural Resources	13	3.50	1.00	3.55	1.13
Leadership in Agriculture	20	3.35	1.27	3.56	1.93
Human Relations in Agriculture	17	3.50	1.16	3.47	1.06
Group Summary		3.84	.89	3.33	.81

The program area of greatest interest for future delivery was crop marketing (4.13). No other program interest area came close to this rating. The lowest rated (below 3.00) interest areas included herd record keeping, breeding and reproduction, use of computers, electric power, small engine repair, facilities construction, surveying, land measurements, concrete and masonry, safety, vegetable production, fruit production, landscaping, and turf management (Tables 6, 7, 8, 9, 10).

Table 6

Level of Interest in Educational Programs Dealing with Topics in Livestock Production as Rated by Young and Adult Farmers in Iowa

Educational Programs	Valid Cases	Interest	
		Mean	S.D.
Health & Diseases	141	3.16	1.26
Marketing	141	3.62	1.38
Feeds & Feeding	141	3.07	1.27
Production Management	141	3.33	1.29
Production Records	141	3.21	1.34
Herd Records	141	2.81	1.31
Breeding & Reproduction	141	2.93	1.38
Use of Computer	141	2.86	1.39
Group Summary		3.12	1.04

Table 7

Level of Interest in Educational Programs Dealing with Topics in Crop Production as Rated by Young and Adult Farmers in Iowa

Educational Programs	Valid Cases	Interest	
		Mean	S.D.
Pests & Diseases	140	3.27	1.13
Crop Pesticides	140	3.27	1.22
Soil Fertility	141	3.86	1.11
Chemical Safety	141	3.50	1.18
New Crop Varieties	141	3.55	1.21
Marketing	141	4.13	1.17
Production Management	141	3.82	1.21
Production Records	141	3.61	1.20
Use of Computer	141	3.04	1.41
Group Summary		3.56	.86

Table 8

Level of Interest in Educational Programs Dealing with Topics in Agricultural Mechanics as Rated by Young and Adult Farmers in Iowa

Educational Programs	Valid Cases	Interest	
		Mean	S.D.
Machinery Calibration	140	3.21	1.30
Machinery Maintenance	140	3.25	1.26
Electric Power	139	2.89	1.17
Small Engine Repair	140	2.58	1.25
Facilities Construction	140	2.83	1.11
Welding	140	3.05	1.32
Cutting	140	2.86	1.28
Surveying	140	2.25	1.15
Land Measurements	140	2.48	1.25
Concrete	140	2.63	1.22
Masonry	140	2.22	1.14
Safety	140	2.81	1.32
Group Summary		2.76	.88

Table 9

Level of Interest in Educational Programs Dealing with Topics in Horticulture as Rated by Young and Adult Farmers in Iowa

Educational Programs	Valid Cases	Interest	
		Mean	S.D.
Vegetable Production	139	2.04	1.24
Fruit Production	139	2.02	1.26
Landscaping	140	2.49	1.37
Turf Management	140	1.97	1.25
Group Summary		2.14	1.10

Table 10

Level of Interest in Educational Programs Dealing with Topics in General Agriculture as Rated by Young and Adult Farmers in Iowa

Educational Programs	Valid Cases	Interest	
		Mean	S.D.
Financial Planning	140	3.73	1.19
Taxes	140	3.54	1.19
Agriculture Credit	140	3.56	1.25
Government Programs	140	3.37	1.18
Government Regulations	140	3.01	1.23
Computer Use	140	3.01	1.39
Decision Making	140	3.36	1.24
Estate Planning	140	3.22	1.18
Water Quality	140	2.79	1.20
Air Quality	140	2.68	1.19
Wildlife Management	140	2.81	1.26
Natural Resources	140	2.86	1.24
Leadership in Agriculture	140	2.90	1.31
Human Relations in Agriculture	137	2.89	1.29
Group Summary		3.12	.81

According to the respondents in this study, the following sources of information were the most important to them: magazines (3.91), friends, neighbors and other farmers (3.82), radio (3.74) and newspapers (3.48)(Table 11).

Table 11

Importance of Sources of New Information as Rated by Young and Adult Farmers in Iowa

Educational Programs	Valid Cases	Interest	
		Mean	S.D.
Newspaper	140	3.48	1.15
Radio	140	3.74	1.06
Television	139	3.40	1.11
Agri-Infodata Service (AIDS)	137	2.65	1.26
Extension Agent	139	2.96	1.23
Agri-Business Representative	139	3.27	1.01
Extension Service Publications	139	3.43	1.08
Magazines	137	3.91	.98
Friends, Neighbors, Other Farmers	138	3.82	1.05
Vocational Agriculture Teacher	138	2.99	1.14

Basic information gathered to describe the respondents indicated that more than 90% of the respondents were males; 90% were between the ages of 20 and 49; 80% were full-time farmers; 86% of the respondents lived on farms. In addition, 36% of the respondents had at least a high school education; 36% had some education beyond high school which included some college or technical schooling; 22% had attained a bachelor's degree; and 2% had a master's degree. Finally, 54% of the respondents had gross annual incomes from all sources of over $50,000, and 62% indicated that over 75% of their gross income was from farming.

Conclusions

Based on the findings of this study, the following conclusions can be made: (a) as a group, farmers participating in this study had a high degree of formal education and had interest in more education; (b) farmers rated their educational programs fairly high in quality; (c) farmers placed a very high priority on educational programs on marketing, credit and financial planning; (d) farmers primarily rely on magazines, friends, neighbors and other farmers, and radio for information.

Recommendations

Based on the findings of this study and the review of the literature, the following recommendations were made:

1. Adult education programs should focus more on planning, goal setting, financial analysis, and marketing and less on production.

2. Because farmers are becoming more educated and sophisticated, agricultural educators, at all levels, should learn to become more facilitators of the educational process by planning and conducting educational programs with farmers and not merely for farmers.

3. Agricultural educators need to recognize the importance of adult education and plan accordingly to meet adult needs.

4. Further studies should be conducted on the methodologies most appropriate for delivery of adult education to meet the needs of a rapidly changing agriculture.

Educational Implications

High priority ratings for educational programs on marketing and financial planning reflect the current situation in rural Iowa, in particular, and rural America, in general. This finding is not surprising, but it does underscore the great opportunity that professionals in agricultural education have for providing leadership in delivering education to those people who want and need it most. The information collected through this study also underscores a major shift in adult education from an emphasis on increasing production of crops and livestock to an emphasis on management, planning and marketing. This shift is significant because it represents a business and analytical approach to the agriculture industry at the farm level.

The data also indicate that some non-traditional educational programs are being delivered. This effort may be the start of some new trends in agriculture in Iowa.

Finally, the data indicate that young and adult farmers want more education and they will go to those educators most willing to offer it.

References

Crom, R. (1985). Summary of surveys on university extension. Iowa State University, Future directions Task Force, Ames.

Howe, J. J. (1977). Adult learning: Psychological research and applications. New York: John Wiley and Sons.

Kahler, A. A., Morgan, B., Holmes, G. E., & Bundy, C. E. (1985). Methods in adult education. Danville, IL: Interstate.

Lasley, P. (1985). Iowa farm poll. Ames: Iowa State University.

Miller, W. W., Scheid, C. L., Pilgrim, D. A. (1983). Organizational and instructional problems of beginning teachers of vocational agriculture in Iowa. Paper presented at the Central Region Agricultural Education Research Conference, St. Paul, MN.

Pfister, J. A. (1983). An evaluation of the student teaching program in agricultural education at The Ohio State University. Paper presented at the Central Region Agricultural Education Research Conference, St. Paul, MN.

Schuman, H. B., & Webb, E. S. (1974). Beliefs about vocational agriculture by teachers and principals. The Agricultural Education Magazine, 46(7), 154-155.

Woodin, R. (1967). National study of vocational agriculture teaching activities. Columbus: The Ohio State University.