

**Professional Competencies Needed by Beginning Cooperative Extension  
Agricultural Agents in Minnesota, North Dakota, and South Dakota**

Dougou Keita, Graduate Student  
Vernon D. Luft, Professor  
Agricultural Education  
North Dakota State University

Accepted for Publication August 1987

County agricultural extension agents form the largest part of the total professional employees of the Cooperative Extension Services in Minnesota, North Dakota and South Dakota. It is also the major group that carries most of the agricultural education information from various agencies such as the land-grant universities and USDA to the public of Minnesota, North Dakota, and South Dakota and needs of this public to the agencies. Because of their visible position in the organization, agricultural agents must be very well prepared. The role of the Cooperative Extension Service has undergone considerable changes in the last ten years (Sappington et al., 1977). Considerable change continued to occur in the next 10 years also. The competencies needed in the past have changed and increased in number. The dynamics of the extension program make it imperative that the preparation and development of the agent be consistent with modern day programs.

Gonzalez (1982) stated that historically the educational philosophy has been to establish curricula which provide only for the acquisition of cognitive knowledge. He argued that the mastery of the knowledge alone does not insure that the individual can successfully apply what he has learned. It is therefore important that agricultural agents develop the proper skills, knowledge, abilities, and attitudes (competencies) necessary to effectively carry out their professional roles. Development of these competencies come as a result of either the pre-service and/or graduate program and work experience including inservice training. It is necessary, therefore, to identify competencies so existing educational programs can be modified and upgraded in order to provide present and future extension agents with the most critical competencies needed to perform their jobs.

Beeman, Cheek, McGhee, and Gregotis (1979) identified professional competencies needed by extension agents in Florida. Of the 158 competencies identified and studied, extension field agents perceived 79% to be at least moderate to very high in importance while state staff rated 97% as moderate to very high in importance. The researchers recommended that the most essential competencies be included in the undergraduate and graduate curricula of the Department of Agricultural and Extension Education.

Gonzalez (1982) identified 144 professional competencies needed by extension agents in Pennsylvania. He defined professional competencies as "those skills, knowledge, and attitudes extension agents should possess in order to effectively perform their roles as educators, exclusive of technical subject matter competencies." His findings indicated that there were no significant differences in the perceptions of extension agents and state staff members regarding the importance of the nine competency categories. All 144 competencies were considered to be moderate to very high in importance. The two groups rated 68 competencies 4.00/5 or higher, while the remaining 76 competencies received combined ratings of at least 3.00/5. In identifying when the competencies should be learned, the combined responses for extension agents and state staff members indicated that 26 competencies should be learned before entering

the job, 6 competencies during a graduate program, and the remaining 113 can be learned on the job or through inservice. Gonzalez (1982) recommended that competencies included in the teaching, communication, and understanding human behavior categories should form a key component of any undergraduate program developed for preparing extension agents.

The completion of an undergraduate program is a common mode by which entrance into agricultural extension work is accomplished. Therefore, the researchers of this study chose to address the professional competencies needed by beginning agricultural agents.

#### Purpose and Objectives

The purpose of this study was to identify the professional competencies needed by beginning agricultural agents of the Cooperative Extension Services of Minnesota, North Dakota, and South Dakota.

The specific objectives were:

1. To determine the importance of selected professional competencies needed by beginning Cooperative Extension Service county agricultural agents in Minnesota, North Dakota, and South Dakota as perceived by the agents themselves.
2. To determine the education mode (i.e., college courses, on-the-job training or special workshops) most appropriate for the development of the selected competencies.
3. To compare findings among agricultural county agents in Minnesota, North Dakota, and South Dakota with regard to the importance of select professional competencies needed by beginning Cooperative Extension Service county agricultural agents and the educational mode indicated for the development of these competencies.

#### Procedures

Data for this study were collected by use of a questionnaire mailed to each member of the population. The population consisted of all county agricultural agents with at least one year but no more than five years of extension work experience, presently employed by the Cooperative Extension Services of Minnesota, North Dakota, and South Dakota. A total of 78 agents were distributed as follows: Minnesota-43, North Dakota-13, and South Dakota-22. The procedures used were consistent with those used in similar studies in other states. As a result of reviewing the relevant literature, particularly Gonzalez's study in Pennsylvania, a substantial amount of information usable in the development of the questionnaire for this study was identified. An adapted instrument for use in this study was developed. The instrument was reviewed by a jury of extension district directors for content validity. The review consisted of reading for clarity and appropriateness of questions, understandable instructions, and ability to properly interpret questions.

As a result of the review procedures, the final questionnaire included 40 competency statements. The questionnaire was divided into two sections. The statements in Section I consisted of items related to pertinent demographic data needed from the respondents. Section II included the competency statements. That second section consisted of two parts. Part 1 was designed using a five-point scale with numerical values assigned to the competencies as follows: 1 = no importance, 2 = low importance, 3 = moderate importance, 4 = high importance, and 5 = very high importance. Part 2 consisted of items related to the time

most appropriate for the development of the competencies. The possible responses were as follows: 1 = undergraduate curriculum, 2 = graduate curriculum, 3 = on-the-job training, and 4 = special workshop and/or conference.

A letter explaining the purpose of the research and soliciting support and the provision of the names and current addresses of potential members of the population was sent to the administration of the Cooperative Extension Services in Minnesota, North Dakota, and South Dakota. A cover letter explaining the purpose of the research and soliciting participation from potential respondents was prepared and sent along with the coded questionnaire and a self-addressed, stamped envelope to the 78 county agents in the three states. After a second mailing and follow-up telephone calls, the last questionnaire was returned completed on December 26, 1985, resulting in a 100% return.

#### Analysis of the Data

The collected data were entered in the NDSU computer for analysis. The means, frequencies, standard deviations, and percentages of all responses were tabulated. Because the sample consisted of the entire population and a 100% response was obtained, only descriptive statistics were used in reporting the results of this study. The instrument was tested using Cronbach's alphas to provide a measure of reliability. The Cronbach coefficient alpha for the eight competency categories studied was 0.93.

#### Results

The importance of selected professional competencies needed by beginning county agricultural extension agents as indicated by mean scores is revealed in Table 1. Those competencies receiving the highest rating of importance (4 = high importance to 5 = very high importance) were: Get along with people (4.77), Remain current through regular reading, workshops, and conferences (4.74); Develop support of local people for extension programs (4.71); Assess county situations and needs (4.38); Identify priority programs (4.34); Public speaking ability (4.19); Understand principles of communication (4.14); Write effective reports and news articles (4.13); and Identify and select appropriate physical, material, and human resources to meet program needs (4.03). These particular competencies appear to be quite common or obvious for an agricultural agent to possess. Knowledge of psychological theories of learning was ranked the least important competency (2.88). This finding may be a cause for concern because most educators would consider this competency to be quite important. If county agricultural agents are teaching in a formal or informal setting, it would seem that knowledge of psychological theories of learning would be important. All other competencies had a mean score of 3 (moderately important) or higher.

When comparing mean scores among states, only slight differences in ratings occurred. This would indicate fairly consistent agreement among the agents surveyed in each of the three states. Minnesota agricultural agents rated 18 of the 40 competencies higher than did North and South Dakota agents; North Dakota agents rated nine higher than did Minnesota and South Dakota agents; Minnesota and South Dakota agents rated one competency highest with equal mean scores; North and South Dakota agents also rated one highest with equal mean scores.

Table 1

Mean Scores of the Importance of Selected Professional Competencies Needed by Beginning County Agricultural Extension Agents in Minnesota (MN), North Dakota (ND), and South Dakota (SD)

Competencies	Mean Scores <sup>a</sup>				Comb. Means N=78	SD
	Rank	MN N=43	ND N=13	SD N=22		
1. EXTENSION PHILOSOPHY AND ORGANIZATION:						
1. Knowledge of the general philosophy of the Cooperative Extension Service (CES)	34	3.51	3.45	3.27	3.44	0.97
2. Knowledge of history and objectives of the CES	37	3.34	3.53	3.09	3.31	0.94
3. Knowledge of the organizational structure policies that govern the CES	37	3.25	3.23	3.45	3.30	0.97
4. Understanding relationship between extension county and area personnel, specialists, the land-grant college or university, and the USDA	27	3.79	3.53	3.59	3.69	0.92
II. EXTENSION PROGRAM DEVELOPMENT, OPERATION, AND EVALUATION:						
1. Assess county situations and needs	4	4.41	4.46	4.27	4.38	0.75
2. Organize/use advisory groups effectively	11	3.25	3.61	4.09	3.94	0.76
3. Identify and select appropriate physical, material, and human resources to meet needs	9	4.04	4.07	3.95	4.03	0.60
4. Identify priority programs	5	4.40	4.00	4.40	4.34	0.64

(table continues)

Competencies	Mean Scores <sup>a</sup>					
	Rank	MN N=43	ND N=13	SD N=22	Comb. Means N=78	SD
5. Design balanced (non-discriminatory) educational program	23	3.80	3.30	3.72	3.70	0.97
6. Set measurable and achievable objectives	14	4.02	3.53	3.86	3.90	0.85
7. Develop extension program plan of work	30	3.73	3.23	3.68	3.63	1.07
8. Evaluate extension programs	21	4.00	3.15	3.81	3.81	0.84
<b>III. COMMUNICATING AND TEACHING:</b>						
1. Understand principles of communication (process)	7	4.34	3.92	3.86	4.14	0.80
2. Public speaking ability	6	4.30	4.23	3.95	4.19	0.68
3. Write effective reports and news articles	8	4.18	4.07	4.04	4.13	0.73
4. Effective use of visual aids in extension work	17	4.02	3.61	3.54	3.82	0.89
5. Use audio-visual equipment to supplement and complement instruction	22	3.93	3.38	3.50	3.27	0.80
6. Organize, conduct, and evaluate effective tours and demonstrations	28	3.62	3.84	3.68	3.68	0.80
7. Understand adult learning process	17	3.90	3.53	3.81	3.82	0.73
8. Use various teaching methods	13	4.04	3.69	3.85	3.93	0.83
9. Knowledge of psychological theories of learning	40	3.02	2.53	2.81	2.88	1.04
10. Use computer in instruction and to provide information	15	3.93	3.46	4.00	3.88	0.89
11. Conduct personal interviews (farm/home visits, surveys, office calls, etc.)	10	3.90	4.38	3.86	3.97	0.90
<b>IV. COMMUNITY STRUCTURE WITHIN THE COUNTY:</b>						
1. Understand community organizational structure	32	3.58	3.38	3.45	3.51	0.85
2. Recognize and use county formal and informal leaders	16	3.88	3.69	3.81	3.83	0.71
3. Cooperate/participate in county organizations	23	3.69	3.53	3.81	3.70	0.84
4. Consider client's value system	17	3.83	3.76	3.81	3.82	0.75

(table continues)

Competencies	Mean Scores <sup>a</sup>				Comb. Means N=78	SD
	Rank	MN N=43	ND N=13	SD N=22		
<b>V. PUBLIC RELATIONS:</b>						
1. Explain county/state/national government agricultural programs and policies	35	3.44	3.23	3.50	3.42	1.04
2. Use appropriate opportunities to inform people about the CES and the USDA	28	3.62	3.38	3.95	3.68	1.05
3. Develop support of local people for extension programs	3	4.41	4.61	4.40	4.71	0.71
<b>VI. ADMINISTRATION:</b>						
1. Prepare reports and maintain records on extension programs	36	3.53	3.15	3.22	3.38	0.91
2. Work within limits of office resources	23	3.60	3.61	3.95	3.70	0.82
3. Use a filing system	33	3.59	3.69	3.59	3.50	0.83
4. Supervise, coordinate, and evaluate activities of county office staff	31	3.44	4.00	3.72	3.61	0.90
5. Handle office correspondence	11	3.88	4.00	4.00	3.94	0.74
6. Get along with people	1	4.81	4.92	4.59	4.77	0.51
<b>VII. RESEARCH:</b>						
1. Conduct validation research program	39	3.04	2.38	3.31	3.01	1.11
2. Understand/Interpret research findings	17	3.74	3.53	4.13	3.82	0.85
<b>VIII. CONTINUING EDUCATION:</b>						
1. Take sabbatical leave	23	3.79	3.15	3.86	3.70	1.10
2. Remain current through regular reading, workshops, and conferences	2	4.74	4.69	4.77	4.74	0.74

<sup>a</sup>Mean scores were calculated using the following weighting scale: 5 = very high importance; 4 = high importance; 3 = moderate importance; 2 = low importance; and 1 = no importance.

Respondents were asked to indicate the educational mode(s) in which competencies should be developed. The modes included: undergraduate program, graduate program, on-the-job training, and special workshops and/or conferences. Respondents could indicate more than one mode for each competency.

Table 2 reveals that a majority of the respondents felt that most of the professional competencies in the categories of Extension Philosophy and Organization; Extension Program Development, Operation, and Evaluation; Community Structure Within the County; Public Relations; and Administration could be developed while on-the-job. A majority of the agents felt that most competencies in the category of Communication and Teaching should be developed through college undergraduate programs. Competencies in the Research category should be developed throughout each of the educational modes.

A comparison of the responses by the agricultural agents in the three states concerning the educational mode by which competencies should be developed revealed responses to be quite similar. Therefore, those results were not included in this report.

#### Conclusions

Most of the competencies were considered to be important or higher and needed by beginning agricultural extension agents in Minnesota, North Dakota, and South Dakota. The competencies ranked the highest in importance included: Get along with people; Remain current through regular reading, workshops, and conferences; Develop support of local people for extension program; Assess county situations and needs; and Identify priority programs.

Most of the selected professional competencies should be developed through training while on-the-job and during undergraduate programs. Competencies in the categories of Community Structure Within the County, Public Relations, and Administration were reported more heavily toward the preference of being developed on-the-job.

No noticeable differences occurred in the perceptions of beginning Cooperative Extension Service county agricultural agents in Minnesota, North Dakota, and South Dakota with regard to the importance of selected professional competencies needed by beginning Cooperative Extension Service county agricultural agents and the educational mode indicated as most appropriate for the development of these selected competencies.

#### Recommendations

The findings of this study should be made available to the administrations of the Cooperative Extension Services in Minnesota, North Dakota, and South Dakota, particularly to individuals responsible for planning and providing pre-service and inservice training programs for extension agents.

The contents of undergraduate and graduate programs in extension education should address as many as possible of the competencies found to have moderate to very high importance. The competencies in the categories of Communication & Teaching and Research as indicated in the study should most definitely be acquired during undergraduate or graduate studies.

Many professional competencies, as reported by agricultural extension agents, might best be developed through on-the-job training. With this in mind, if extension education programs included an internship experience in which some of these professional competencies can be

Table 2  
Educational Modes in Which Competencies Should be Developed

Competencies	Educational Modes <sup>a</sup> (N = 78)															
	UP		GP		OJT		SW/C		UP		SW/C					
	f	%	f	%	f	%	f	%	f	%	f	%				
I. EXTENSION PHILOSOPHY AND ORGANIZATION:																
1. Knowledge of the general philosophy of the Cooperative Extension Service (CES)	26	33	1	1	41	53	14	18	29	37	1	1	38	49	14	18
2. Knowledge of history and objectives of the CES	13	17	1	1	48	61	17	22	11	14	2	3	50	64	16	20
3. Knowledge of the organizational structure policies that govern the CES	14	18	7	9	43	55	19	24	23	29	7	9	30	38	25	32
4. Understanding relationship between extension county and area personnel, specialists, the land-grant college or university, and the USDA	24	31	3	4	42	54	12	15	15	19	2	3	47	60	2	3
II. EXTENSION PROGRAM DEVELOPMENT, OPERATION AND EVALUATION:																
1. Assess county situations and needs	26	33	1	1	41	53	14	18	29	37	1	1	38	49	14	18
2. Organize/use advisory groups effectively	13	17	1	1	48	61	17	22	11	14	2	3	50	64	16	20
3. Identify and select appropriate physical, material, and human resources to meet needs	14	18	7	9	43	55	19	24	23	29	7	9	30	38	25	32
4. Identify priority programs	24	31	3	4	42	54	12	15	15	19	2	3	47	60	2	3
5. Design balanced (non-discriminatory) educational program	26	33	3	4	38	49	1	1	37	47	7	9	21	27	1	1
6. Set measurable and achievable objectives	10	13	1	1	44	56	1	1	19	24	12	15	28	36	31	40
7. Develop extension program plan of work	65	83	5	6	5	6	7	9	70	90	1	1	11	14	4	5
8. Evaluate extension programs	67	86	2	3	9	11	8	10	46	59	2	3	17	22	18	23
III. COMMUNICATING AND TEACHING:																
1. Understand principles/process of communication	43	55	2	3	20	26	15	19	18	23	0	0	48	61	14	18
2. Public speaking ability	18	23	0	0	48	61	14	18	18	23	0	0	48	61	14	18
3. Write effective reports and news articles																
4. Effective use of visual aids in extension work																
5. Use audio-visual equipment to supplement and complement instruction																
6. Organize, conduct, & evaluate effective tours and demonstrations																

(table continues)

Educational Modes<sup>a</sup> (N = 78)

Competencies	UP		GP		OJT		SW/C	
	f	%	f	%	f	%	f	%
7. Understand adult learning process	48	61	15	19	6	8	1	1
8. Use various teaching methods	51	65	8	10	10	13	1	1
9. Knowledge of psychological theories of learning	50	64	14	18	8	10	9	11
10. Use computer in instruction and to provide information	42	54	5	6	20	26	29	37
11. Conduct personal interviews (farm/home visits, surveys, office calls, etc.)	18	23	4	5	53	68	10	13
IV. COMMUNITY STRUCTURE WITHIN THE COUNTY:								
1. Understand community organizational structure	7	9	4	5	58	74	8	10
2. Recognize and use county formal and informal leaders	5	6	1	1	59	76	15	19
3. Cooperate/participate in county organizations	3	4	0	0	68	87	6	8
4. Consider client's value system	13	17	7	9	51	65	11	14
V. PUBLIC RELATIONS:								
1. Explain county/state/national government agricultural programs and policies to others	12	15	3	4	37	47	29	37
2. Use appropriate opportunities to inform people about the CES and the USDA	11	14	1	1	52	67	17	22
3. Develop support of local people for extension programs	8	10	3	4	52	67	23	30
VI. ADMINISTRATION:								
1. Prepare reports and maintain records on extension programs	13	17	2	3	45	58	22	28
2. Work within limits of office resources	16	20	2	3	56	72	9	11
3. Use a filing system	23	30	1	1	52	67	7	9
4. Supervise, coordinate, and evaluate activities of county office staff	6	7	9	11	51	65	15	19
5. Handle office correspondence	18	23	2	3	53	68	8	10
6. Get along with people	41	53	4	5	40	51	9	11
VII. RESEARCH:								
1. Conduct validation research program	12	15	31	40	25	32	17	22
2. Understand/interpret research findings	28	36	19	24	20	26	18	23

Note. Percentage totals for each competency do not total 100 because respondents could indicate more than one mode.

<sup>a</sup>Classifications: UP = Undergraduate program; GP = Graduate program; OJT = On-the-job training; SW/C = Special work-shop and/or conference.

developed, an agricultural extension agent would have acquired the competencies before beginning his/her first job.

Appropriate and practical instructional materials with behavioral objectives should be developed and/or adapted for the professional competencies identified in the study with moderate to high importance for use in institutions preparing county agricultural extension personnel.

#### References

- Beeman, C. E., Cheek, J. G., McGhee, M. B., & Gregotis, E. M. (1979). Professional competencies needed by extension agents in the Florida Cooperative Extension Service (Staff Study). Gainesville: University of Florida, Department of Agricultural and Extension Education.
- Gonzalez, I. M. (1982). The professional competencies needed by extension agents in the Pennsylvania Cooperative Extension Service. Unpublished doctoral dissertation, The Pennsylvania State University, University Park.
- Sappington, A. W., Brown, R. A., Cheatham, D. L., Jones, J. W., Jr., Thompson, G., Thornhill, A., & Bonner, J. (1977). Development of curriculum for professional youth workers (Staff Report). Mississippi State: Mississippi State University.

---

(Kotriik & Druckhammer--Continued from page 31)

#### References

- Bowen, B. E. (1986, January). The pursuit of educational excellence. The Agricultural Education Magazine, 59(7), 3.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16, 297-334.
- Dillon, W. R., & Goldstein, M. (1984). Factor analysis. Multivariate analysis: Methods and Applications. New York: John Wiley & Sons.
- Drake, W. E. (1982, July). Agricultural education fantasies, facts and futures: A reexamination. The Journal of the American Association of Teacher Educators in Agriculture, 23(2), 2-14.
- Hammonds, C. (1957). Making vocational agriculture more educational. In Presentations: Teacher trainers breakfast meetings 1934 to 1956 (pp. 27-33). Alexandria: American Vocational Association, Agricultural Education Division, Teacher Trainers Section.
- Henry, S. (Ed.). (1985). Agriculture teachers directory (1985 edition). Greensburg, PA: Charles M. Henry Printing Co.
- Newcomb, L. H. (1986, July). The future of vocational agriculture. Paper presented at the National Workshop for State Leaders, Washington, DC.
- Rawls, B. F. (1980, January). Facing a decade of change. The Agricultural Education Magazine, 52(7), 5-6.
- Snedecor, G. W., & Cochran, W. G. (1980). Statistical methods (7th ed.). Ames: The Iowa State University Press.