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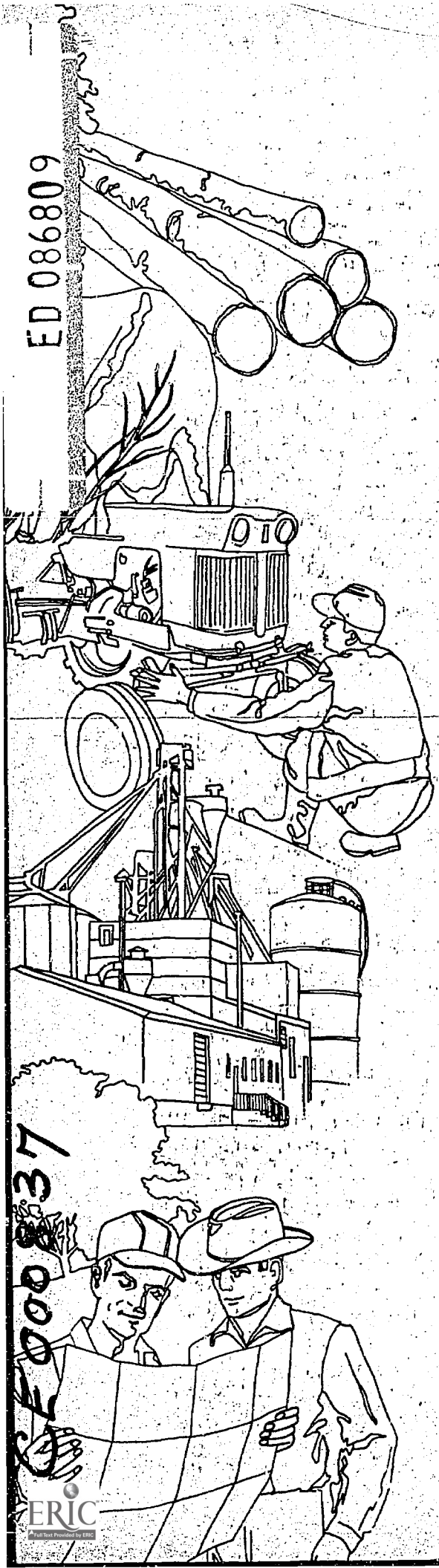
ABSTRACT

The competency study is designed to serve as a guide for persons planning agricultural education programs to meet Montana's agricultural manpower needs. It is part of a five-year Agricultural Manpower Project and one of six agribusiness job surveys. The agricultural supplies and services area represents 40 percent of all agricultural occupations in Montana, employing 3,418 persons (with 127 vacancies). In the next three or four years this field should require 329 trained people to fill predicted vacancies. The farm service center is a growing part of this area. A study was instituted to determine essential competencies that employees should possess for entry into this area. The competencies that management feels are important will serve as a basis for the revision of existing curricula or develop new courses of study. It was found that personal qualities and attitudes were more important than specific skills and that competency in dealing with business was more important than farm experience. Product knowledge, ability to sell, and technical crop and livestock production training were also important. (MS)



A study to determine

Competencies Needed by Employees Entering Agricultural Supplies and Services Occupations

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A STUDY TO DETERMINE COMPETENCIES NEEDED BY EMPLOYEES ENTERING AGRICULTURAL SUPPLIES AND SERVICES OCCUPATIONS

by

Dr. Alvin W. Donahoo

Dr. Max L. Amberson

The work presented herein was performed by the Montana Agricultural Experiment Station and supported by the Office of the Superintendent of Public Instruction, Component for Vocational and Occupational Skills

The Montana State University
Department of Agricultural and Industrial Education
Room 313, Linfield Hall, Bozeman, Montana
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PREFACE

Preceding this report is a series of five Agricultural Manpower Reports in Agricultural Production and Agri-Business. These reports quantify the nature and extent of employment opportunities associated with agri-business and production agriculture in Montana during 1971 and predicted to 1974.

Findings indicate there will be an expansion in the work force in agri-business and production agriculture. To determine specific knowledge, skills and attitudes needed by agricultural workers a series of competency studies were then initiated. Competency studies will serve as a guide for persons planning agricultural education programs to meet Montana's agricultural manpower needs.

Dr. Alvin Donahoo, President of the Minneapolis Grain Exchange, conducted the Grain, Feed and Seed competency study. The Department of Agricultural and Industrial Education was fortunate to again enlist the services of Dr. Donahoo to conduct the Agricultural Supplies and Services Occupations study.

ACKNOWLEDGEMENTS

The Agricultural and Industrial Education Department at Montana State University is indebted to Dr. Alvin Donahoo, President of the Minneapolis Grain Exchange, for accepting the responsibility to develop and validate competencies needed by employees entering agricultural supplies and service occupations. In the process of developing the study it was essential to enlist the assistance of interested individuals, agencies and organizations throughout Montana and in the neighboring states of North and South Dakota and Minnesota.

Several individuals and agencies contributed markedly to the results of the study. They were Mr. Robert Zinn, Manager of Marketing Technology and Public Relations, Peavey Company, Minneapolis, Minnesota; Mr. Ralph S. Whitting, President of Whitting Associates, St. Paul, Minnesota; Mr. Melvin Williams, Cenex, Laurel, Montana; Miss Avis Anne Tobin, Executive Secretary, Montana Hardware and Implement Dealers Association, Helena, Montana.

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CHAPTER I

INTRODUCTION

Montana's farmers and ranchers received $752,000 in 1971 from the sale of agricultural products. Agriculture will continue to be Montana's No. 1 income-producing industry for many years to come. Many agri-business firms are needed to provide materials and services for this agriculture production complex. These businesses serving Montana's No. 1 income-producing industry offer many opportunities for employment in a variety of jobs.

There has never been a comprehensive analysis of current and projected manpower needs for Montana. When manpower needs are known, the quality and availability of education can be improved to supply well-trained employees for current and emerging occupations. Such an analysis can serve the student by providing information concerning career opportunities within the state, hereby helping to reduce out-migration of both youth and adults. Likewise, the matching of manpower supply with manpower demand in the agricultural industry can increase the efficiency of the state's economy.

BACKGROUND

Agricultural Manpower Project

In Montana a five-phase, five-year Agricultural Manpower Project is being undertaken. The purpose of the five-year study is to design

appropriate agricultural education, thereby providing an adequately trained work force for production agriculture and related agricultural areas.

Manpower Needs Assessment

Phase I, an Agri-Business Survey and an Agri-Producers Survey, was completed in 1972. The purpose of the Phase I study was to determine the current and projected manpower needs. In the Agri-Business Survey job opportunities were classified in six areas:

1. Agricultural Supplies/Services
2. Agricultural Mechanics
3. Agricultural Products
4. Ornamental Horticulture
5. Agricultural Resources
6. Forestry

At the time of the survey, a total of 307 job vacancies were reported in 159 businesses in the above seven areas. Sixty-four job openings were reported in service positions. Vacancies in sales positions were second, with a total of 51 openings.

The Agricultural Supplies/Services Area represents 40 percent of all agricultural occupations in Montana. There were 3418 persons employed in this area; 127 vacancies were reported. By 1974, it is predicted 3620 individuals will be employed in Agricultural Supplies/Services, a growth of 202 positions. In the next three or four years the Agricultural Supplies/Services Area should require a minimum of 329 trained people to fill predicted vacancies.

Job opportunities in the grain industry and farm service centers were classified under the Agricultural Supplies/Services Area. A study to

determine the competencies needed prior to becoming employed in the grain industry has been completed. Supporting the production efforts of the producer is a growing number of farm service centers that also offer a variety of job opportunities. The Agri-Business Survey revealed there were opportunities for employment, but the knowledge, skills and attitudes required of employees were unknown.

Phase II of the five-year study is to determine knowledge, skills and attitudes needed by employees in Montana's total agricultural industry.

Purpose of the Study

The farm service center is a growing part of the Agricultural Supplies/ Services Area. Therefore, a study was instituted to determine the essential competencies that employees should possess before entering this segment of the Agricultural Supplies/Services Area, as viewed by management of farm service centers.

The competencies that management deems important will serve as a basis to revise existing curricula or to develop new courses of study. The revised, enriched course content will help to insure that students interested in entering the farm service area will have the competencies needed at the completion of their course of instruction.

CHAPTER II

PROCEDURE

Development of Competency Statement

In developing the procedure for a study of competencies needed by employees in Agricultural Supplies and Services occupations, the author built on the experience gained from completing "A Study to Determine Competencies Needed by Employees Entering the Grain, Feed and Seed Business." There are many similarities between the two studies in the procedures followed.

Initially, a tentative list of competencies considered essential for prospective employees in farm service centers was compiled by Dr. Max L. Amberson, Head, Agricultural Education, Montana State University, Bozeman, Montana, and Dr. Alvin W. Donahoo, Secretary, Minneapolis Grain Exchange. Dr. Donahoo served as Consultant on Phase II of the Agricultural Manpower Project.

The research conducted to compile the tentative list of competencies included: a review of many issues of the magazine FARM STORE MERCHANDISING; interview with the editor of FARM STORE MERCHANDISING; interviews with top management of a number of agri-business firms having farm service centers; interviews with a number of educators training prospective employees and a review of the curricula and course content offered at area vocational technical schools and firm-sponsored technical schools. From each source, areas of competency were isolated. The information from these sources, combined with the consultant's twenty years of association with agri-business,

provided the basis for developing the tentative survey instrument.

Refinement of the competency list by the author resulted in a Preliminary Competency Questionnaire. The competencies were classified into three sections -- Part I, General; Part II, Petroleum Products and Automotive, Truck and Tractor Accessories; and Part III, Services and Supplies Unique to Crop and Livestock Production and General Farm Management.

Validation of the Instrument

Several consultants were used to validate the competency statements. All had expertise in special areas. The consultants represented agri-business firms having farm service centers, state hardware and implement dealers associations, a national retail hardware association, a farm service center, and a firm specializing in training employees for farm service centers. Each was asked to review the Preliminary Competency Questionnaire. These individuals reviewed each competency list for the purpose of:

1. evaluating how realistic it is for a prospective employee to have a particular competency;
2. refining lists of competencies;
3. deleting competencies not relevant;
4. adding competencies considered relevant and not appearing on the original competency list.

The reactions and suggested revisions provided by persons validating the instrument were incorporated into the final competency lists.

Competency Instrument Format

After the lists of competencies were validated, the author adopted the same format used successfully to determine the competencies needed for employment in the Grain, Seed and Feed Industry. A sample of the final format appears in Appendix A, p. 33.

Rating System

In order to standardize responses and have a constant "N" factor, a rating system was devised with values from 0 to 5, as follows:

0 - No Response

1 - No Importance

2 - Some Importance

3 - Average Importance

4 - Very Important

5 - Essential

The respondents were instructed to rate each competency by circling the number that in their judgement indicated the relative importance of each. If a respondent could not rate the statement or did not understand the statement he was instructed to circle "0" for "No Response." This permitted the researchers to record a response for every competency.

Assumptions

The assumptions accepted by the researchers at the beginning of the study were as follows: (1) that top-level management of agri-business firms with farm service centers would be interested in the potential outcome of the study and would cooperate by encouraging farm service center managers to complete the competency questionnaire; (2) that managers of farm service centers would be interested in the potential outcome of the study and would cooperate by rating competencies; (3) that the persons asked to complete the questionnaire would be able to place an importance rating (1-5) on the validated competency statements; (4) that ratings would lend themselves to statistical analysis, thereby making possible ranking the competency statements in order of importance; (5) that after the competencies were rated in order of importance they would serve as a guide for developing courses of study.

Data Collection

In the grain trade Montana, North Dakota, South Dakota and the Red River Valley of Minnesota are considered as one area. The principal grains produced are the small grains -- wheat, barley, rye, oats and corn. Many firms are diversified and operate farm service centers, as well as grain elevators. The operating procedures for the farm service centers and the services offered are similar. Many of the major firms have farm service centers in all four states. Personnel may move from one position to another without regard to state boundaries. For these reasons this study has regional implications for educational programs.

Sample Selection

Comprehensive farm service center managers in the four-state area were considered to be the population for the study. The sample that was selected by the researchers for study was determined to be those businesses who were, (1) in the agricultural supplies and services area, (2) handling products under consideration in this study, (3) determined by regional management. Some one-hundred and forty businesses were identified. A fifty percent sample was drawn at random. Thus, seventy competency questionnaires were mailed.

The Competency Questionnaire was completed by 35 (50 percent) of the service center managers. Of the 35 completed Questionnaires, 21 were from Montana and the remainder from North Dakota, South Dakota and Minnesota. Mailing questionnaires to managers was deemed the advisable approach for collecting data. Since top management was encouraging participation in the study, a high return was expected.

A covering letter by Dr. A. W. Donahoo, President of the Minneapolis Grain Exchange, was sent to each respondent explaining why the study was being conducted. (See Appendix B. p. 55.) The letter also stated that the study was under the sponsorship of Dr. J. A. Asleson, Director, Agricultural Experiment Station, Montana State University, Bozeman. Dr. Asleson requested the trade to assist in determining competencies.

Method of Analysis

A system of analysis was sought that would determine which competencies managers of farm service centers felt to be most important for new employees entering the business. The ranking of competencies was determined by means of a weighted score for each of the three sections of the study. The weighted score was determined by assigning a value of 5 when a competency was rated "Essential," 4 when rated "Very Important," 3 when rated "Average Importance," 2 when rated "Some Importance" and 1 when rated "No Importance." The score given any competency was computed by multiplying the value of the rating, as described above, by the number of persons rating the competency. The highest weighted score respondents could give any competency would be 175. To obtain a weighted score of this magnitude, all 35 farm service center managers would have to rate a competency "Essential" (35 x 5 = 175). If a competency were rated 35 times as no importance with a weighted score of 1, the rating would be (35 x 1 = 35). If, however, 35 persons gave no response to the competency, the weighted score would be (35 x 0 = 0). An inspection of the tables presented in Chapter III, p. 10, gives the rating the respondents gave to each competency.

CHAPTER III

ANALYSIS OF THE DATA

The data were analyzed to determine how farm service center managers rated the importance of each competency.

Workers performing jobs within the industry were not asked to respond to the importance of various competencies. The researchers determined by visiting with regional farm service center managers that standard job titles did not exist among the various centers.

The tables show the rank given competencies in each of the three sections of the Competency Questionnaire. Competencies were ranked on the basis of weighted scores, which was in keeping with the style of preceding agricultural manpower studies.

The mean scores were also reported as another measure of the relative importance of each competency.

Tables and Their Analyses

Table 1 shows the rank order of competencies for Part I, Agricultural Supplies and Services - General, as rated by managers. Sixty-seven competencies were rated and ranked in this section.

Competencies in Part I ranking highest on the weighted-score basis were those involving the personal qualities of an employee. Seven of the ten highest-ranking competencies included establishing good customer relations, projecting a desirable image for the firm, working cooperatively as a member of a team, and demonstrating personal integrity.

After stressing the importance of personal qualities, managers then emphasize the desire for an employee to be competent in the areas of salesmanship and business management.

Farm service center managers ranked the need for farm and ranch experience after age 16 as unimportant. Post-high school training in crop production and livestock production appears to be more of an asset than farm and ranch experience for prospective employees.

By the low weighted scores given for farm management and farm mechanics, it was indicated that farm service center managers place a low priority on potential employees possessing these competencies.

TABLE 1

RANKING OF COMPETENCIES FOR AGRICULTURAL SUPPLIES AND SERVICES OCCUPATIONS AS RANKED BY MANAGERS

PART I
GENERAL

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
1	42.	Demonstrate the ability to establish good customer relations.	0	0	0	0	14	21	35	4.600	161
2	44.	Demonstrate the ability to project a desirable image for the firm.	0	0	0	1	15	19	35	4.514	158
3	47.	Demonstrate the ability to work cooperatively as a member of a team.	0	0	0	2	13	20	35	4.514	158
4	50.	Demonstrate personal integrity as an employee of the firm.	0	0	0	1	15	19	35	4.514	158
5	43.	Handle customer complaints courteously.	0	0	0	1	17	17	35	4.457	156
6	30.	Determine price of merchandise by computing proper margin.	0	0	1	2	13	19	35	4.429	155
7	34.	Complete a sales ticket, recording all required information and receive payment and make change or properly record credit transactions.	0	0	2	4	7	22	35	4.400	154
8	48.	Demonstrate acceptable personal appearance and personal hygiene.	0	0	0	3	16	16	35	4.371	153
9	49.	Demonstrate a desirable job attitude about the organization when working with fellow employees, potential customers and customers.	0	0	0	1	20	14	35	4.371	153
10	35.	Accept, record and follow up telephone orders.	0	0	1	1	18	15	35	4.343	152
11	45.	Demonstrate the ability to get along with others.	0	0	0	3	17	15	35	4.343	152
12	40.	Relate products to customer needs.	0	0	0	3	19	13	35	4.286	150
13	3.	Develop management objectives for promoting business growth.	0	0	3	3	11	18	35	4.257	149
14	31.	Discuss intelligently, and demonstrate if necessary, the merits of materials commonly handled by a farm service center.	1	0	0	0	21	13	34	4.382	149

TABLE 1--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
15	31.	Make an aggressive sales presentation without being high pressure.	0	0	0	2	23	10	35	4.229	148
16	33.	Interpret for the customer labels, tags and charts on merchandise.	0	0	1	2	23	9	35	4.143	145
17	46.	Demonstrate a willingness to work independently.	0	1	0	3	20	11	35	4.143	145
18	2.	Explain the importance of and the function of business profits.	0	1	3	4	10	17	35	4.114	144
19	21.	Increase volume of business through product and service knowledge and by promotion to regular and prospective customers.	0	0	0	7	17	11	35	4.114	144
20	51.	Develop an organized system of housekeeping for the business.	0	0	0	3	25	7	35	4.114	144
21	7E.	Analyze a business enterprise to determine profit leaks by determining: extent of unexplained disappearance of inventory.	0	0	2	6	14	13	35	4.086	143
22	13.	Make a credit analysis to determine customer ability to repay.	1	0	1	6	12	15	34	4.206	143
23	29.	Develop an effective system of inventory control.	0	0	2	4	18	11	35	4.086	143
24	12.	Demonstrate a knowledge of the fundamentals of customer credit.	1	0	1	5	15	13	34	4.176	142
25	22.	Solicit customer business after pointing out customer needs.	0	0	1	3	24	7	35	4.057	142
26	52.	Develop a program to meet the requirements of the occupational safety and health act regulations.	0	0	4	2	18	11	35	4.029	141
27	5.	Recognize the legal and moral responsibility of a business serving the public.	1	0	1	6	16	11	34	4.088	139
28	32.	Demonstrate a basic knowledge of sales techniques.	0	0	1	6	21	7	35	3.971	139
29	4.	Recognize the legal implications to business with regard to: Occupational Safety and Health Act.	0	2	2	6	11	14	35	3.943	138
30	39.	Tell a concise, coherent, well-organized sales story.	0	1	0	5	23	6	35	3.943	138

TABLE 1--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
31	7A.	Analyze a business enterprise to determine profit leaks by determining: If pricing structure set by management is being attained.	0	1	2	10	9	13	35	3.886	136
32	14.	Organize the farm service center for effective merchandising, including developing attractive displays and literature racks.	0	0	0	9	22	4	35	3.857	135
33	36.	Use the telephone as a tool for selling to increase sales.	0	0	1	13	12	9	35	3.829	134
34	4E.	Recognize the legal implications to business with regard to: Food and Drug laws.	0	4	3	6	6	16	35	3.771	132
35	4D.	Recognize the legal implications to business with regard to: Pricing laws.	0	2	3	6	15	9	35	3.743	131
36	25.	Maintain a filing system.	0	1	2	9	16	7	35	3.743	131
37	28.	Prepare clear, concise written reports.	0	0	2	12	16	5	35	3.686	129
38	11.	Determine whether yearly sales volume from a new service is sufficient for additional dollars to be invested.	1	0	5	7	14	8	34	3.735	127
39	24.	Prepare reports of purchases and sales transactions by maintaining needed records, such as sales, cash and credit transactions.	0	1	2	14	10	8	35	3.629	127
40	37.	Use such common office equipment as adding machine, calculator, cash register.	0	0	2	17	9	7	35	3.600	126
41	33.	Prepare a purchase order.	1	0	3	12	14	5	34	3.618	123
42	6.	Analyze available modes of transportation to determine the most economical service.	0	2	5	7	16	5	35	3.486	122
43	10.	Analyze an enterprise to determine profitability of adding a new service.	0	0	6	9	17	3	35	3.486	122
44	26.	Prepare and interpret a financial statement.	0	1	5	12	10	7	35	3.486	122
45	16.	Develop a monthly sales promotion activity calendar based on promotional days or seasonal activity.	0	0	5	16	10	4	35	3.371	118

TABLE 1--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
46	53A.	Employee's background and experience should include post-high school training in technical agriculture crop production.	1	1	7	8	11	7	34	3.471	118
47	53B.	Employee's background and experience should include post-high school training in technical agriculture livestock production.	1	1	8	8	9	8	34	3.441	117
48	4F.	Recognize the legal implications to business with regard to: Pollution laws.	1	4	4	7	12	7	34	3.412	116
49	27.	Prepare letters, statements and other business correspondence.	0	2	3	17	9	4	35	3.286	115
50	53D.	Employee's background and experience should include post-high school training in technical agriculture general farm management.	0	0	9	13	8	5	35	3.257	114
51	8.	Conduct and utilize a business survey to determine potential volume of business in the trade area and to determine product mix.	0	1	8	12	11	3	35	3.200	112
52	9.	Conduct a study to determine the nature of competition in the business area.	1	0	5	16	11	2	34	3.294	112
53	15.	Develop a monthly advertising calendar.	0	0	6	15	9	3	35	3.200	112
54	17.	Develop a sales map of the service trade area.	1	1	8	12	9	4	34	3.206	109
55	23.	Demonstrate an understanding of basic double-entry bookkeeping system.	1	3	8	9	9	5	34	3.147	107
56	18.	Develop advertising media based on promotional days and seasonal activities.	1	1	7	16	8	2	34	3.088	105
57	4C.	Recognize the legal implications to business with regard to: Transportation laws.	1	4	5	14	8	3	34	3.029	103
58	19.	Plan and develop such special events as a field day, open house and other promotional events.	0	1	9	17	7	1	35	2.943	103
59	1.	Describe the types of business organizations (individual owner, partnership, cooperative or corporation).	1	2	9	14	5	4	34	3.000	102

TABLE 1--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
60	4A.	Recognize the legal implications to business with regard to: Labor laws.	2	2	8	12	7	4	33	3.091	102
61	20.	Plan and develop direct-mail advertising from current list of prospective customers.	1	2	8	15	7	2	34	2.971	101
62	54B.	Employee's background and experience should include practical farm or ranch experience after age of 16 in livestock production.	1	1	10	14	7	2	34	2.971	101
63	54D.	Employee's background and experience should include practical farm or ranch experience after age of 16 in general farm management.	1	0	13	12	7	2	34	2.941	100
64	4B.	Recognize the legal implications to business with regard to: Tax laws.	1	4	7	14	6	3	34	2.912	99
65	53C.	Employee's background and experience should include post-high school training in technical agriculture farm mechanics.	0	2	13	11	7	2	35	2.829	99
66	54A.	Employee's background and experience should include practical farm or ranch experience after age of 16 in the crop production.	1	2	9	14	8	1	34	2.912	99
67	54C.	Employee's background and experience should include practical farm or ranch experience after age of 16 in farm mechanics.	2	1	12	18	1	1	33	2.667	88

Table 2 shows the rank order of competencies for Part II, Petroleum Products and Automotive, Truck and Tractor Accessories. Fifty-six competencies were rated and ranked in this section.

Competencies ranked highest on the weighted-score basis were those covering housekeeping, product knowledge of fuels and lubricants, safety and delivery procedures when using bulk trucks. The top twenty ranked competencies in Part II were predominantly concerned with product knowledge and safety.

Managers apparently expect new employees to perform little or no maintenance on tractors and trucks, as most of these competencies were ranked below the average of all competencies in this section.

Managers of farm service centers indicate that new employees can work in the area of petroleum products, automotive, truck and tractor accessories, without formal educational programs in the principles of electricity, hydraulics, and combustion engines, since competencies involving these areas were ranked near the bottom.

TABLE 2

RANKING OF COMPETENCIES FOR AGRICULTURAL SUPPLIES AND SERVICES OCCUPATIONS
AS RANKED BY MANAGERS

PART II
PETROLEUM PRODUCTS AND AUTOMOTIVE, TRUCK AND TRACTOR ACCESSORIES

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
1	102.	Maintain cleanliness of service and sales area.	4	0	0	3	16	12	31	4.290	133
2	62.	Select and sell the proper fuel and lubricants based on manufacturer's recommendations.	4	1	1	4	10	15	31	4.194	130
3	74.	Practice good housekeeping around the bulk service plant.	4	0	1	3	18	9	31	4.129	128
4	101.	Complete a sales ticket.	4	0	1	5	14	11	31	4.129	128
5	68.	Demonstrate safe and efficient loading and unloading procedures for tank delivery truck.	4	0	3	4	13	11	31	4.032	125
6	67.	Fill customer tanks and drums with fuel or oil, following recommended safety practices.	4	0	3	4	14	10	31	4.000	124
7	69.	Operate the various pumps and valves needed to deliver and store bulk petroleum products safely and efficiently.	4	0	3	3	16	9	31	4.000	124
8	63.	Recommend storage procedures that will avoid contaminants and according to safety standards of the National Fire Association, State regulations and Occupational Safety and Health Act regulations.	4	0	1	7	16	7	31	3.935	122
9	93.	Recommend filters for tractors, trucks and cars based on manufacturer's recommendations.	5	0	0	7	15	8	30	4.033	121
10	61.	Service a tractor or truck with proper fuels and lubricants for field work.	4	2	2	4	13	10	31	3.871	120
11	86.	Recommend type, size and quality of tires, batteries and other accessories according to manufacturer's recommendations.	4	0	0	9	17	5	31	3.871	120
12	64.	Develop and follow a schedule for delivering petroleum products according to customer needs.	5	1	1	4	16	8	30	3.967	119
13	90.	Recommend motor oils based on manufacturer's recommendations.	5	0	1	6	16	7	30	3.967	119

TABLE 2--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
14	89.	Recommend transmission and differential oils based on manufacturer's recommendations.	5	0	1	6	17	6	30	3.933	118
15	91.	Recommend hydraulic fluid based on manufacturer's recommendations.	5	0	1	7	15	7	30	3.933	118
16	92.	Recommend lubricants based on manufacturer's recommendations.	5	0	1	7	15	7	30	3.933	118
17	66.	Prepare and keep fuel inventory records and reports.	4	0	5	6	12	8	31	3.742	116
18	78.	Use catalogs to determine parts specifications.	4	1	3	9	9	9	31	3.710	115
19	97.	Demonstrate the ability to replenish oil and water in motor vehicles as needed or requested.	4	0	3	11	9	8	31	3.710	115
20	75.	Recommend safe refueling procedures to producers when using either liquid fuels or LP-Gas.	6	2	0	5	13	9	29	3.931	114
21	85.	Inspect tires, batteries and other automotive, truck and tractor accessories to determine adjustment or replacement.	4	0	1	13	13	4	31	3.645	113
22	96.	Demonstrate the ability to check oil and water levels of customers' vehicles.	4	0	3	13	7	8	31	3.645	113
23	84.	Demonstrate a fundamental knowledge of tires and batteries.	5	0	0	14	12	4	30	3.667	110
24	95.	Demonstrate the ability to operate the service station's gasoline and diesel pumps.	5	0	2	12	10	6	30	3.667	110
25	65.	Prepare and keep customer records, including yearly sales by products, average fill, storage size and credit rating.	4	1	3	9	15	3	31	3.516	109
26	77.	Recommend lubrication equipment needed for farm use.	5	2	1	11	9	7	30	3.600	108
27	98I.	Perform minor maintenance on fan belts.	5	0	3	13	7	7	30	3.600	108
28	71.	Test, repair or replace relief valves if necessary.	6	1	3	7	12	6	29	3.655	106
29	72.	Properly store transfer hose to avoid kinking or deterioration.	5	2	3	7	13	5	30	3.533	106

TABLE 2--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
30	88.	Mount and service tires, batteries and other automotive, truck and tractor accessories.	5	0	3	14	7	6	30	3.533	106
31	98B.	Perform minor maintenance on battery.	5	0	2	14	10	4	30	3.533	106
32	99.	Recommend vehicle service based on manufacturer's recommendations.	6	0	3	10	10	6	29	3.655	106
33	76.	Determine with the customer the size of bulk storage needed for fuels and lubricants.	5	2	0	10	17	1	30	3.500	105
34	98A.	Perform minor maintenance on tire repair, replacement.	5	0	3	13	10	4	30	3.500	105
35	98C.	Perform minor maintenance on lights.	5	0	2	15	9	4	30	3.500	105
36	98D.	Perform minor maintenance on coolants.	5	0	2	15	9	4	30	3.500	105
37	98H.	Perform minor maintenance on filters.	5	0	3	14	9	4	30	3.467	104
38	100.	Prepare a shop order.	6	0	3	11	10	5	29	3.586	104
39	70.	Purge new storage vessels and fill tanks.	6	1	5	5	13	5	29	3.552	103
40	79.	Advise customer on substitution or modification of parts when replacement is not available.	4	3	2	13	8	5	31	3.323	103
41	87.	Repair tires and tubes.	4	1	3	16	7	4	31	3.323	103
42	98E.	Perform minor maintenance on lubrication, oil and grease changes.	5	0	3	15	8	4	30	3.433	103
43	94.	Store hydraulic fluid to insure freedom from dust and moisture.	7	0	2	13	8	5	28	3.571	100
44	98F.	Perform minor maintenance on shock absorbers.	5	1	2	18	6	3	30	3.267	98
45	98G.	Perform minor maintenance on mufflers.	5	1	2	18	6	3	30	3.267	98
46	81.	Use standard and special tools and equipment needed for installing and removing liquified petroleum gas containers.	8	2	4	8	9	4	27	3.333	90
47	82.	Cut and fit tubing and pipe needed in making liquified petroleum gas installations.	8	2	3	10	8	4	27	3.333	90

TABLE 2--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
48	63.	Install couplings, valves and meesuring gauges needed for liquified petroleum installation.	9	1	5	8	9	3	26	3.308	86
49	80.	Explain and demonstrate liquified petroleum equipment to customers.	8	2	5	11	8	1	27	3.037	82
50	73.	Demonstrate the use of the waterpaste test.	9	2	2	14	7	1	26	3.115	81
51	59.	Understand the fundamentals of electricity.	6	5	6	14	3	1	29	2.621	76
52	58.	Understand the operation of equipment that uses liquified petroleum gas as fuel.	7	4	9	9	5	1	28	2.643	74
53	57.	Explain the theory of using liquified petroleum gas as fuel.	7	6	8	8	5	1	28	2.536	71
54	60.	Explain the theory of hydraulics.	7	5	9	10	2	2	28	2.536	71
55	55.	Explain the principles of a 4-stroke cycle engine.	7	6	12	6	2	2	28	2.357	66
56	56.	Explain the principles of a 2-stroke cycle engine.	7	6	12	6	2	2	28	2.357	66

Table 3 shows the rank order of competencies for Part III, Service and Supplies Needed for Livestock and Crop Production and General Farm Management. Eighty-six competencies were rated and ranked.

The competencies that ranked the highest were those concerning plant and animal disease or pest control and safety in the use of chemical products. Eight out of the ten top-ranked competencies in this section were of this nature.

The indicated need for competencies in the area of crop and livestock production emphasizes the importance of post-high school technical agriculture training for those entering farm service center occupations.

The competencies that ranked lowest in this section were those requiring product knowledge of building materials, building hardware and tools needed for working these materials. Farm service center managers indicate that new employees will have little need for background knowledge of such areas as recommending building materials, developing farmstead wiring plans, understanding electrical codes and developing plans for irrigation systems.

TABLE 3

RANKING OF COMPETENCIES FOR AGRICULTURAL SUPPLIES AND SERVICES OCCUPATIONS
AS RANKED BY MANAGERS

PART III
SUPPLIES AND SERVICES NEEDED FOR LIVESTOCK AND CROP PRODUCTION
AND GENERAL FARM MANAGEMENT

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
1	121.	Inform customers how to use chemical products safely.	0	0	1	8	15	11	35	4.029	141
2	120.	Recommend cultural and chemical control methods for insects and crop diseases.	0	0	4	8	12	11	35	3.857	135
3	123.	Discuss, with the customer, the residual effect of using farm chemicals.	0	0	3	7	17	8	35	3.857	135
4	132.	Recommend cropping programs to agricultural producers based on soil testing services.	1	0	3	8	13	10	34	3.882	132
5	106.	Advise agricultural producers of standards governing the use of livestock health products.	0	1	3	8	15	8	35	3.743	131
6	114.	Recommend vaccines, sprays, dips and other medications for animal health problems.	0	0	2	15	10	8	35	3.686	129
7	105.	Recommend appropriate animal health products.	0	2	1	11	15	6	35	3.629	127
8	119.	Identify various insects and crop diseases common to the trade area.	0	0	5	11	15	4	35	3.514	123
9	151.	Demonstrate a knowledge of safety equipment and procedures needed by customers as prescribed by occupational safety and health act regulations.	0	2	6	7	14	6	35	3.457	121
10	122.	Keep current file of insect and disease control recommendations.	2	1	1	12	15	4	33	3.606	119
11	124.	Recommend crop seed varieties appropriate to area.	3	1	4	8	10	9	32	3.688	118
12	133.	Develop and file a complete farm plan for each farm customer.	2	2	2	11	13	5	33	3.515	116
13	126.	Recommend programs for controlling stored grain insects.	2	0	2	17	9	5	33	3.515	116

TABLE 3--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
14	113.	Work with producers in developing animal health programs.	1	1	5	12	12	4	34	3.382	115
15	108.	Recommend appropriate type and size of livestock feeding and watering equipment needed by various size livestock operations.		1	5	13	13	2	34	3.294	112
16	127.	Discuss agricultural outlook information with farmers to assist in planning cropping programs.	3	1	6	12	9	4	32	3.281	105
17	137.	Determine electric motor size and type to meet customers' needs.	0	0	9	18	7	1	35	3.000	105
18	109.	Recommend equipment for livestock confinement, handling and weighing.	3	1	4	15	10	2	32	3.250	104
19	128.	Assist producers in planning alternative cropping programs by determining rates of returns per dollar invested.	4	1	7	8	10	5	31	3.355	104
20	110.	Recommend appropriate type and size of livestock equipment needed for castrating, docking, marking, clipping, fitting.	3	2	3	15	10	2	32	3.219	103
21	135.	Recommend programs for maintaining the quality of stored grain.	3	2	5	12	10	3	32	3.219	103
22	104.	Recommend fencing materials such as wire, posts, gates.	0	1	8	20	5	1	35	2.914	102
23	152.	Develop safety awareness programs for agricultural producers.	1	4	7	12	8	3	34	2.971	101
24	118.	Gather and use agricultural outlook information as a tool in assisting farmers in planning their livestock production, marketing and management programs.	4	3	8	5	11	4	31	3.161	98
25	129.	Determine when grain and hay can be stored safely.	4	1	7	11	10	2	31	3.161	98
26	107.	Promote sales by conducting livestock feeding experiments.	4	1	7	12	9	2	31	3.129	97
27	126.	Recommend appropriate garden and lawn cultural practices.	3	1	8	16	3	4	32	3.031	97

TABLE 3--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
28	133.	Demonstrate the various types and sizes of electric motors on the basis of bearing type, protective devices and motor mounts.	2	1	7	19	5	1	33	2.939	97
29	133.	Recommend electric fence controllers, wires, posts and insulators.	1	1	10	18	4	1	34	2.824	96
30	131.	Determine the timeliness of crop harvest for optimum yields.	5	2	4	13	8	3	30	3.200	96
31	125.	Recommend garden seed varieties which are appropriate to area.	4	1	11	10	5	4	31	3.000	93
32	155D.	Recommend the appropriate types and size of materials and/or hardware paints and other finishing materials.	3	1	7	19	4	1	32	2.906	93
33	153J.	Recommend the appropriate types and sizes of hand tools needed by customers in farm machinery.	3	3	7	16	1	2	32	2.844	91
34	153G.	Recommend the appropriate types and sizes of hand tools needed by customers in welding.	3	1	10	16	4	1	32	2.812	90
35	144.	Determine type and size of water pump to use under varying conditions.	4	1	9	15	5	1	31	2.871	89
36	153K.	Recommend the appropriate types and sizes of hand tools needed by customers in fencing.	3	2	7	20	2	1	32	2.781	89
37	143.	Determine the capacity of water pumps for delivery of a given volume of water.	4	1	8	18	3	1	31	2.839	88
38	112.	Demonstrate proper use of milking equipment to meet sanitary standards.	5	3	8	12	3	4	30	2.900	87
39	153B.	Recommend the appropriate types and sizes of hand tools needed by customers in electricity.	3	2	11	14	4	1	32	2.719	87
40	155B.	Recommend the appropriate types and size of materials and/or hardware hinges.	4	2	7	18	3	1	31	2.806	87
41	117.	Recommend appropriate type and size of pet food, health products and other equipment.	4	4	6	16	3	2	31	2.774	86
42	134.	Recommend appropriate types and sizes of grain box canvas covers.	3	5	6	16	4	1	32	2.687	86

TABLE 3—Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
43	145.	Determine the type and size of water storage tanks to use under varying conditions.	5	2	7	16	3	2	30	2.867	86
44	146.	Recommend size and type of pipe to use in farmstead watering systems.	5	3	6	15	5	1	30	2.833	85
45	153I.	Recommend the appropriate types and sizes of hand tools needed by customers in power machinery.	3	3	10	15	3	1	32	2.656	85
46	130.	Interpret blueprints to determine a bill of materials.	5	2	9	13	5	1	30	2.800	84
47	155A.	Recommend the appropriate types and size of materials and/or hardware fasteners.	4	3	6	20	1	1	31	2.710	84
48	111.	Recommend appropriate type and size of milking equipment for a dairy.	5	3	8	13	5	1	30	2.767	83
49	147.	Determine costs and returns from irrigation.	6	3	10	6	8	2	29	2.862	83
50	153A.	Recommend the appropriate types and sizes of hand tools needed by customers in carpentry.	3	1	14	15	1	1	32	2.594	83
51	155C.	Recommend the appropriate types and size of materials and/or hardware adhesives.	4	3	8	17	2	1	31	2.677	83
52	148.	Determine the amount of water that will be needed for irrigation.	6	3	9	9	6	2	29	2.828	82
53	154H.	Recommend the appropriate types and sizes of power tools needed by customers in power machinery.	5	3	7	16	3	1	30	2.733	82
54	154G.	Recommend the appropriate types and sizes of power tools needed by customers in welding.	5	2	10	14	3	1	30	2.700	81
55	153C.	Recommend the appropriate types and sizes of hand tools needed by customers in plumbing.	4	2	12	15	1	1	31	2.581	80
56	154I.	Recommend the appropriate types and sizes of power tools needed by customers in motor and machine testing equipment.	4	4	10	13	3	1	31	2.581	80
57	142.	Assist customers in planning or altering farmstead watering systems.	5	4	9	13	3	1	30	2.600	78

TABLE 3--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
58	116.	Recommend appropriate type and size of equipment for pleasure horses.	5	7	4	16	2	1	30	2.533	76
59	115.	Assist producers in developing programs for handling animal wastes.	5	3	12	13	1	1	30	2.500	75
60	141.	Determine the cause of water hardness and recommend corrective measures.	6	3	10	13	2	1	29	2.586	75
61	154C.	Recommend the appropriate types and sizes of power tools needed by customers in electricity.	5	4	12	10	3	1	30	2.500	75
62	139.	Recommend types and sizes of switches, fuses and wiring to meet electrical codes.	7	4	10	8	4	2	28	2.643	74
63	149.	Recommend the type and size of terminal irrigation delivery heads.	8	3	9	9	5	1	27	2.704	73
64	154A.	Recommend the appropriate types and sizes of power tools needed by customers in carpentry.	5	4	12	12	1	1	30	2.433	73
65	153D.	Recommend the appropriate types and sizes of hand tools needed by customers in cold metal.	5	4	12	13	0	1	30	2.400	72
66	153E.	Recommend the appropriate types and sizes of hand tools needed by customers in sheet metal.	4	6	11	13	0	1	31	2.323	72
67	150.	Compare the relative adva tage of different types and sizes of sprinkler irrigation systems.	8	4	9	8	5	1	27	2.630	71
68	155F$_8$.	Recommend the appropriate types and size of materials and/or hardware in reinforcement iron.	7	5	8	11	3	1	28	2.536	71
69	153H.	Recommend the appropriate types and sizes of hand tools needed by customers in leather.	5	5	13	11	0	1	30	2.300	69
70	154B.	Recommend the appropriate types and sizes of power tools needed by customers in plumbing.	7	5	9	11	2	1	28	2.464	69
71	155E.	Recommend the appropriate types and size of materials and/or hardware connectors.	9	3	7	13	2	1	26	2.654	69
72	154E.	Recommend the appropriate types and sizes of power tools needed by customers in sheet metal.	7	5	10	10	2	1	28	2.429	68

TABLE 3--Continued

Rank Order	Comp. No.	Competencies N=35	Frequency 0	1	2	3	4	5	Total Responses	Mean Rating	Wtd. Score
73	153F.	Recommend the appropriate types and sizes of hand tools needed by customers in hot metal.	6	7	10	9	2	1	29	2.310	67
74	$155F_1$.	Recommend the appropriate types and size of materials and/or hardware in lumber.	9	3	11	7	4	1	26	2.577	67
75	$155F_2$.	Recommend the appropriate types and size of materials and/or hardware in insulation.	8	4	11	8	3	1	27	2.481	67
76	$155F_4$.	Recommend the appropriate types and size of materials and/or hardware in shingles.	8	5	10	7	4	1	27	2.481	67
77	$155F_7$.	Recommend the appropriate types and size of materials and/or hardware in cement.	8	5	9	9	3	1	27	2.481	67
78	$155F_3$.	Recommend the appropriate types and size of materials and/or hardware in building paper.	8	4	10	11	1	1	27	2.444	66
79	$155F_{10}$.	Recommend the appropriate types and size of materials and/or hardware in plastics.	8	4	12	7	3	1	27	2.444	66
80	154F.	Recommend the appropriate types and sizes of power tools needed by customers in hot metal.	9	4	10	8	3	1	26	2.500	65
81	$155F_5$.	Recommend the appropriate types and size of materials and/or hardware in brick-block.	8	6	9	8	3	1	27	2.407	65
82	154D.	Recommend the appropriate types and sizes of power tools needed by customers in cold metal.	8	5	11	8	2	1	27	2.370	64
83	$155F_9$.	Recommend the appropriate types and size of materials and/or hardware in tile.	8	5	11	8	2	1	27	2.370	64
84	140.	Assist in planning or altering farmstead wiring system.	8	4	14	6	2	1	27	2.333	63
85	153L.	Recommend the appropriate types and sizes of hand tools needed by customers in masonry.	8	7	7	11	1	1	27	2.333	63
86	$155F_6$.	Recommend the appropriate types and size of materials and/or hardware in rock.	8	6	11	9	0	1	27	2.222	60

CHAPTER IV

CONCLUSIONS AND/OR OBSERVATIONS

1. The Questionnaire Covered Competencies Needed by New Employees.

   Manager respondents of farm service centers apparently agree that the competencies needed by new employees were included on the questionnaire. No additional competencies were suggested by these respondents. If educational institutions can equip their graduates with competencies ranked nigh in each of the three parts of the questionnaire, potential employees should be well equipped to enter farm service center occupations.

2. Certain Personal Qualities and Attitudes are Important.

   In this study, as in the study of competencies needed for the grain, seed and feed business, certain personal qualities and attitudes received the highest ranking. Respondents placed greatest importance on such personal qualities as liking people, establishing a rapport with customers, willingness to work and an optimistic attitude. Technical training will not substitute for the desirable personal qualities needed to meet the public. These qualities and attitudes can be strengthened through a training program, but must be present long before students enroll in the program. These inherent qualities suggest the importance of a selection and testing process that will, to some degree, measure these qualities prior to student enrollment.

3. Farm and Ranch Experience After Age 16 Not Considered Important for New Employees.

Managers of Farm Service Centers indicated that farm and ranch experience after age 16 was not a prerequisite for employment in this area. Therefore, those responsible for training should not hesitate to enroll urban students who indicate interest in the agricultural service area. Those planning to enter a farm service occupation should study the list of competencies carefully to decide whether he has a real interest in working in this service industry.

4. Competencies Requiring Training in Non-agriculture Courses Given Top Priority.

Competencies that could only be acquired from courses in business operations, safety, state and federal laws and regulations, financing, budgeting, credit, business planning and economics were ranked high by respondents. This ranking emphasizes the need respondents feel for competencies to aid in the solution of day-to-day business problems.

The priority of educational institutions should be placed on offering courses of instruction designed to develop skills in business operation. Instructors must combine, in any educational program, a selection of business courses and also courses dealing with crops and livestock production.

5. Employees' Background Should Include Post-High School Technical Agriculture Training in Crop and Livestock Production.

In Part I of this study, manager respondents indicated it was important for new employees of farm service centers to have technical agriculture training in crop and livestock production. Table 3 of the study indicates why such technical training is considered significant. However, the respondents indicated that they do not consider essential

for the new employees technical agriculture training in farm management and farm mechanics. A review of the low-ranked competencies in both Table 2 and Table 3 will reveal a consistency in the respondents' ranking in these areas.

6. Product Knowledge and the Ability to Sell are Vital.

Manager respondents, by their ranking of competencies, indicated that the employees in the livestock and crop and general farm management area must first have knowledge and skills in animal disease, pest control and safety in use of chemical products. They likewise need competencies in technical agriculture which might be acquired from a study of crops and livestock production at the post-high school level.

7. The Findings of the Study of Competencies Needed for Farm Service Center Occupations are Similar to Findings of the Grain, Feed and Seed Business Study.

The profiles of ideal employees for both farm service centers and grain, feed and seed businesses would be similar in many areas. Potential employees would like working with people and have a positive attitude toward work. Their public relations skills would be high on a one-to-one relationship with customers. They would have many competencies in the area of business operations and combine business skills with selected competencies in crops and livestock production. However, the employee entering the farm service center occupations must possess additional strengths in selling and merchandising.

8. The large number of "0" responses was of concern to the researcher since it directly affected the weighted score computed for each competency. The researcher could only hypothesize as to why respondents gave a competency a "0" rating.

Following are the researcher's hypotheses:

a. Managers held no feeling which they could reflect about a competency.

b. Managers had no feelings about competencies which workers performed since they did not actually perform the tasks themselves.

c. Competencies were not performed on a regular basis, therefore, those performed less frequently or not at all were given a "0" rating.

CHAPTER V

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APPENDIX A

Montana Agricultural Manpower Project
Department of Agricultural and Industrial Education
Montana State University, Bozeman, Montana

C O M P E T E N C Y Q U E S T I O N N A I R E

NAME _____ ADDRESS _____

POSITION _____

The purpose of this Questionnaire is to determine competencies needed for entry-level employees working in farm service centers. The Questionnaire is divided into sections and covers competencies in three areas: general; petroleum products and automotive, truck and tractor accessories; and services and supplies unique to crop and livestock production, and general farm management.

Please rate each competency listed by circling the number that you believe describes the importance of each skill for a beginning employee. Each competency is to be rated on a scale of 1 to 5, with 1 being of no importance and 5 being essential. If you have no response, please mark 0. Remember, you are being asked to indicate the knowledges and skills you desire a new employee to have before entering your company.

P A R T I

FARM SERVICE CENTER

General

Be Able To:

	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
1. Describe the types of business organizations (individual owner, partnership, cooperative or corporation).	0	1	2	3	4	5
2. Explain the importance of and the function of business profits.	0	1	2	3	4	5
3. Develop management objectives for promoting business growth.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
4. Recognize the legal implications to business with regard to:						
a. Labor laws	0	1	2	3	4	5
b. Tax laws	0	1	2	3	4	5
c. Transportation laws	0	1	2	3	4	5
d. Pricing laws	0	1	2	3	4	5
e. Food and Drug laws	0	1	2	3	4	5
f. Pollution laws	0	1	2	3	4	5
g. Occupational Safety and Health Act	0	1	2	3	4	5
5. Recognize the legal and moral responsibility of a business serving the public.	0	1	2	3	4	5
6. Analyze available modes of transportation to determine the most economical service.	0	1	2	3	4	5
7. Analyze a business enterprise to determine profit leaks by determining:						
a. If pricing structure set by management is being attained	0	1	2	3	4	5
b. Extent of unexplained disappearance of inventory	0	1	2	3	4	5
8. Conduct and utilize a business survey to determine potential volume of business in the trade area and to determine product mix.	0	1	2	3	4	5
9. Conduct a study to determine the nature of competition in the business area.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
10. Analyze an enterprise to determine profitability of adding a new service.	0	1	2	3	4	5
11. Determine whether yearly sales volume from a new service is sufficient for additional dollars to be invested.	0	1	2	3	4	5
12. Demonstrate a knowledge of the fundamentals of customer credit.	0	1	2	3	4	5
13. Make a credit analysis to determine customer ability to repay.	0	1	2	3	4	5
14. Organize the farm service center for effective merchandising, including developing attractive displays and literature racks.	0	1	2	3	4	5
15. Develop a monthly advertising calendar.	0	1	2	3	4	5
16. Develop a monthly sales promotion activity calendar based on promotional days or seasonal activity.	0	1	2	3	4	5
17. Develop a sales map of the service trade area.	0	1	2	3	4	5
18. Develop advertising media based on promotional days and seasonal activities.	0	1	2	3	4	5
19. Plan and develop such special events as a field day, open house and other promotional events.	0	1	2	3	4	5
20. Plan and develop direct-mail advertising from current list of prospective customers.	0	1	2	3	4	5
21. Increase volume of business through product and service knowledge and by promotion to regular and prospective customers.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
22. Solicit customer business after pointing out customer needs.	0	1	2	3	4	5
23. Demonstrate an understanding of basic double-entry bookkeeping system.	0	1	2	3	4	5
24. Prepare reports of purchases and sales transactions by maintaining needed records, such as sales, cash and credit transactions.	0	1	2	3	4	5
25. Maintain a filing system.	0	1	2	3	4	5
26. Prepare and interpret a financial statement.	0	1	2	3	4	5
27. Prepare letters, statements and other business correspondence.	0	1	2	3	4	5
28. Prepare clear, concise written reports.	0	1	2	3	4	5
29. Develop an effective system of inventory control.	0	1	2	3	4	5
30. Determine price of merchandise by computing proper margin.	0	1	2	3	4	5
31. Discuss intelligently, and demonstrate if necessary, the merits of materials commonly handled by a farm service center.	0	1	2	3	4	5
32. Interpret for the customer labels, tags and charts on merchandise.	0	1	2	3	4	5
33. Prepare a purchase order.	0	1	2	3	4	5
34. Complete a sales ticket, recording all required information and receive payment or make charge or properly record credit transactions.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
35. Accept, record and follow up telephone orders.	0	1	2	3	4	5
36. Use the telephone as a tool for selling to increase sales.	0	1	2	3	4	5
37. Use such common office equipment as adding machine, calculator, cash register.	0	1	2	3	4	5
38. Demonstrate a basic knowledge of sales techniques.	0	1	2	3	4	5
39. Tell a concise, coherent, well-organized sales story.	0	1	2	3	4	5
40. Relate products to customer needs.	0	1	2	3	4	5
41. Make an aggressive sales presentation without being "high pressure."	0	1	2	3	4	5
42. Demonstrate the ability to establish good customer relations.	0	1	2	3	4	5
43. Handle customer complaints courteously.	0	1	2	3	4	5
44. Demonstrate the ability to project a desirable image for the firm.	0	1	2	3	4	5
45. Demonstrate the ability to get along with others.	0	1	2	3	4	5
46. Demonstrate a willingness to work independently.	0	1	2	3	4	5
47. Demonstrate the ability to work cooperatively as a member of a team.	0	1	2	3	4	5
48. Demonstrate acceptable personal appearance and personal hygiene.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
49. Demonstrate a desirable job attitude about the organization when working with fellow employees, potential customers and customers.	0	1	2	3	4	5
50. Demonstrate personal integrity as an employee of the firm.	0	1	2	3	4	5
51. Develop an organized system of housekeeping for the business.	0	1	2	3	4	5
52. Develop a program to meet the requirements of the Occupational Safety and Health Act regulations.	0	1	2	3	4	5
53. Employee's background and experience should include post-High School training in technical agriculture in the following areas:						
a. Crop production	0	1	2	3	4	5
b. Livestock production	0	1	2	3	4	5
c. Farm mechanics	0	1	2	3	4	5
d. General farm management	0	1	2	3	4	5
54. Employee's background and experience should include practical farm or ranch experience after age of 16 in the following areas:						
a. Crop production	0	1	2	3	4	5
b. Livestock production	0	1	2	3	4	5
c. Farm mechanics	0	1	2	3	4	5
d. General farm management	0	1	2	3	4	5

NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL

Other competencies you believe important to be developed by the student preparing to enter the area of general farm supply service:

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P A R T II

FARM SERVICE CENTER

Petroleum Products and Automotive, Truck and Tractor Accessories

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
55. Explain the principles of a 4-stroke cycle engine.	0	1	2	3	4	5
56. Explain the principles of a 2-stroke cycle engine.	0	1	2	3	4	5
57. Explain the theory of using liquified petroleum gas as fuel.	0	1	2	3	4	5
58. Understand the operation of equipment that uses liquified petroleum gas as fuel.	0	1	2	3	4	5
59. Understand the fundamentals of electricity.	0	1	2	3	4	5
60. Explain the theory of hydraulics.	0	1	2	3	4	5
61. Service a tractor or truck with proper fuels and lubricants for field work.	0	1	2	3	4	5
62. Select and sell the proper fuel and lubricants based on manufacturer's recommendations.	0	1	2	3	4	5
63. Recommend storage procedures that will avoid contaminants and according to safety standards of the National Fire Association, State regulations and Occupational Safety and Health Act regulations.	0	1	2	3	4	5
64. Develop and follow a schedule for delivering petroleum products according to customer needs.	0	1	2	3	4	5
65. Prepare and keep customer records, including yearly sales by products, average fill, storage size and credit rating.	0	1	2	3	4	5
66. Prepare and keep fuel inventory records and reports.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
67. Fill customer tanks and drums with fuel or oil, following recommended safety practices.	0	1	2	3	4	5
68. Demonstrate safe and efficient loading and unloading procedures for tank delivery truck.	0	1	2	3	4	5
69. Operate the various pumps and valves needed to deliver and store bulk petroleum products safely and efficiently.	0	1	2	3	4	5
70. Purge new storage vessels and fill tanks.	0	1	2	3	4	5
71. Test, repair or replace relief valves if necessary.	0	1	2	3	4	5
72. Properly store transfer hose to avoid kinking or deterioration.	0	1	2	3	4	5
73. Demonstrate the use of the water-paste test.	0	1	2	3	4	5
74. Practice good housekeeping around the bulk service plant.	0	1	2	3	4	5
75. Recommend safe refueling procedures to producers when using either liquid fuels or LP-gas.	0	1	2	3	4	5
76. Determine with the customer the size of bulk storage needed for fuels and lubricants.	0	1	2	3	4	5
77. Recommend lubrication equipment needed for farm use.	0	1	2	3	4	5
78. Use catalogs to determine parts specifications.	0	1	2	3	4	5
79. Advise customer on substitution or modification of parts when replacement is not available.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
80. Explain and demonstrate liquified petroleum equipment to customers.	0	1	2	3	4	5
81. Use standard and special tools and equipment needed for installing and removing liquified petroleum gas containers.	0	1	2	3	4	5
82. Cut and fit tubing and pipe needed in making liquified petroleum gas installations.	0	1	2	3	4	5
83. Install couplings, valves and measuring gauges needed for liquifed petroleum installation.	0	1	2	3	4	5
84. Demonstrate a fundamental knowledge of tires and batteries.	0	1	2	3	4	5
85. Inspect tires, batteries and other automotive, truck and tractor accessories to determine adjustment or replacement.	0	1	2	3	4	5
86. Recommend type, size and quality of tires, batteries and other accessories according to manufacturer's recommendations.	0	1	2	3	4	5
87. Repair tires and tubes.	0	1	2	3	4	5
88. Mount and service tires, batteries and other automotive, truck and tractor accessories.	0	1	2	3	4	5
89. Recommend transmission and differential oils based on manufacturer's recommendations.	0	1	2	3	4	5
90. Recommend motor oils based on manufacturer's recommendations.	0	1	2	3	4	5
91. Recommend hydraulic fluid based on manufacturer's recommendations.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
92. Recommend lubricants based on manufacturer's recommendations.	0	1	2	3	4	5
93. Recommend filters for tractors, trucks and cars based on manufacturer's recommendations.	0	1	2	3	4	5
94. Store hydraulic fluid to insure freedom from dust and moisture.	0	1	2	3	4	5
95. Demonstrate the ability to operate the service station's gasoline and diesel pumps.	0	1	2	3	4	5
96. Demonstrate the ability to check oil and water levels of customers' vehicles.	0	1	2	3	4	5
97. Demonstrate the ability to replenish oil and water in motor vehicles as needed or requested.	0	1	2	3	4	5
98. Perform minor maintenance on the following items:						
a. Tire repair, replacement	0	1	2	3	4	5
b. Battery	0	1	2	3	4	5
c. Lights	0	1	2	3	4	5
d. Coolants	0	1	2	3	4	5
e. Lubrication, oil and grease changes	0	1	2	3	4	5
f. Shock absorbers	0	1	2	3	4	5
g. Mufflers	0	1	2	3	4	5
h. Filters	0	1	2	3	4	5
i. Fan belts	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
List others:						
_____						
_____						
_____						
99. Recommend vehicle service based on manufacturer's recommendations.	0	1	2	3	4	5
100. Prepare a shop order.	0	1	2	3	4	5
101. Complete a sales ticket.	0	1	2	3	4	5
102. Maintain cleanliness of service and sales area.	0	1	2	3	4	5

Other competencies you believe important to be developed by the student preparing to enter the area of petroleum products and automotive, truck and tractor accessories:

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P A R T III

FARM SERVICE CENTER

Service and Supplies Needed for Livestock and Crop Production and General Farm Management

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
103. Recommend electric fence controllers, wires, posts and insulators.	0	1	2	3	4	5
104. Recommend fencing materials such as wire, posts, gates.	0	1	2	3	4	5
105. Recommend appropriate animal health products.	0	1	2	3	4	5
106. Advise agricultural producers of standards governing the use of livestock health products.	0	1	2	3	4	5
107. Promote sales by conducting livestock feeding experiments.	0	1	2	3	4	5
108. Recommend appropriate type and size of livestock feeding and watering equipment needed by various size livestock operations.	0	1	2	3	4	5
109. Recommend equipment for livestock confinement, handling and weighing.	0	1	2	3	4	5
110. Recommend appropriate type and size of livestock equipment needed for castrating, docking, marking, clipping, fitting.	0	1	2	3	4	5
111. Recommend appropriate type and size of milking equipment for a dairy.	0	1	2	3	4	5
112. Demonstrate proper use of milking equipment to meet sanitary standards.	0	1	2	3	4	5
113. Work with producers in developing animal health programs.	0	1	2	3	4	5
114. Recommend vaccines, sprays, dips and other medications for animal health problems.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
115. Assist producers in developing programs for handling animal wastes.	0	1	2	3	4	5
116. Recommend appropriate type and size of equipment for pleasure horses.	0	1	2	3	4	5
117. Recommend appropriate type and size of pet food, health products and other equipment.	0	1	2	3	4	5
118. Gather and use agricultural outlook information as a tool in assisting farmers in planning their livestock production, marketing and management programs.	0	1	2	3	4	5
119. Identify various insects and crop diseases common to the trade area.	0	1	2	3	4	5
120. Recommend cultural and chemical control methods for insects and crop diseases.	0	1	2	3	4	5
121. Inform customers how to use chemical products safely.	0	1	2	3	4	5
122. Keep current file of insect and disease control recommendations.	0	1	2	3	4	5
123. Discuss, with the customer, the residual effect of using farm chemicals.	0	1	2	3	4	5
124. Recommend crop seed varieties appropriate to area.	0	1	2	3	4	5
125. Recommend garden seed varieties which are appropriate to area.	0	1	2	3	4	5
126. Recommend appropriate garden and lawn cultural practices.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
127. Discuss agricultural outlook information with farmers to assist in planning cropping programs.	0	1	2	3	4	5
128. Assist producers in planning alternative cropping programs by determining rates of returns per dollar invested.	0	1	2	3	4	5
129. Determine when grain and hay can be stored safely.	0	1	2	3	4	5
130. Interpret blueprints to determine a bill of materials.	0	1	2	3	4	5
131. Determine the timeliness of crop harvest for optimum yields.	0	1	2	3	4	5
132. Recommend cropping programs to agricultural producers based on soil testing services.	0	1	2	3	4	5
133. Develop and file a complete "farm plan" for each farm customer.	0	1	2	3	4	5
134. Recommend appropriate types and sizes of grain box canvas covers.	0	1	2	3	4	5
135. Recommend programs for maintaining the quality of stored grain.	0	1	2	3	4	5
136. Recommend programs for controlling stored grain insects.	0	1	2	3	4	5
137. Determine electric motor size and type to meet customers' needs.	0	1	2	3	4	5
138. Demonstrate the various types and sizes of electric motors on the basis of bearing type, protective devices and motor mounts.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
139. Recommend types and sizes of switches, fuses and wiring to meet electrical codes.	0	1	2	3	4	5
140. Assist in planning or altering farmstead wiring system.	0	1	2	3	4	5
141. Determine the cause of water hardness and recommend corrective measures.	0	1	2	3	4	5
142. Assist customers in planning or altering farmstead watering systems.	0	1	2	3	4	5
143. Determine the capacity of water pumps for delivery of a given volume of water.	0	1	2	3	4	5
144. Determine type and size of water pump to use under varying conditions.	0	1	2	3	4	5
145. Determine the type and size of water storage tanks to use under varying conditions.	0	1	2	3	4	5
146. Recommend size and type of pipe to use in farmstead watering systems.	0	1	2	3	4	5
147. Determine costs and returns from irrigation.	0	1	2	3	4	5
148. Determine the amount of water that will be needed for irrigation.	0	1	2	3	4	5
149. Recommend the type and size of terminal irrigation delivery heads.	0	1	2	3	4	5
150. Compare the relative advantage of different types and sizes of sprinkler irrigation systems.	0	1	2	3	4	5

Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
151. Demonstrate a knowledge of safety equipment and procedures needed by customers as prescribed by Occupational Safety and Health Act regulations.	0	1	2	3	4	5
152. Develop safety awareness programs for agricultural producers.	0	1	2	3	4	5
153. Recommend the appropriate types and sizes of hand tools needed by customers in the following broad areas:						
a. Carpentry	0	1	2	3	4	5
b. Electricity	0	1	2	3	4	5
c. Plumbing	0	1	2	3	4	5
d. Cold metal	0	1	2	3	4	5
e. Sheet metal	0	1	2	3	4	5
f. Hot metal	0	1	2	3	4	5
g. Welding	0	1	2	3	4	5
h. Leather	0	1	2	3	4	5
i. Power machinery	0	1	2	3	4	5
j. Farm machinery	0	1	2	3	4	5
k. Fencing	0	1	2	3	4	5
l. Masonry	0	1	2	3	4	5
. List others:						

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Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
154. Recommend the appropriate types and sizes of power tools needed by customers in the following broad areas:						
a. Carpentry	0	1	2	3	4	5
b. Plumbing	0	1	2	3	4	5
c. Electricity	0	1	2	3	4	5
d. Cold metal	0	1	2	3	4	5
e. Sheet metal	0	1	2	3	4	5
f. Hot metal	0	1	2	3	4	5
g. Welding	0	1	2	3	4	5
h. Power machinery	0	1	2	3	4	5
i. Motor and machine testing equipment	0	1	2	3	4	5
List others:						
_____						
_____						
_____						
155. Recommend the appropriate types and size of materials and/or hardware in following areas:						
a. Fasteners	0	1	2	3	4	5
b. Hinges	0	1	2	3	4	5
c. Adhesives	0	1	2	3	4	5
d. Paints and other finishing materials	0	1	2	3	4	5

Be Able To:

	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL
155. (Cont.) Recommend the appropriate types and size of materials and/or hardware in the following areas:						
e. Connectors	0	1	2	3	4	5
f. Building materials						
(1) Lumber	0	1	2	3	4	5
(2) Insulation	0	1	2	3	4	5
(3) Building paper	0	1	2	3	4	5
(4) Shingles	0	1	2	3	4	5
(5) Brick-block	0	1	2	3	4	5
(6) Rock	0	1	2	3	4	5
(7) Cement	0	1	2	3	4	5
(8) Reinforcement iron	0	1	2	3	4	5
(9) Tile	0	1	2	3	4	5
(10) Plastics	0	1	2	3	4	5

List Others:

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Be Able To:	NO RESPONSE	NO IMPORTANCE	SOME IMPORTANCE	AVERAGE IMPORTANCE	VERY IMPORTANT	ESSENTIAL

Other competencies you believe important to be developed by the student preparing to enter the area of services and supplies needed for livestock and crop production and general farm management:

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APPENDIX B

Montana State University
College of Agriculture

Agricultural Experiment Station
Bozeman, Montana 59715 Tel. 406-587-3121

Directors Office

June 5, 1973

To: Farm Supply & Service Managers

Montana is currently conducting a comprehensive analysis of its agricultural manpower needs. Early results indicate there are vacancies now and projected manpower needs in several areas of agribusiness. The farm supply and service businesses in Montana are areas where there will be continuing manpower needs in the foreseeable future.

Prior to the establishment of agricultural business curricula at two-year post-high school institutions such as area vocational technical schools or community colleges, it was felt desirable to determine the essential knowledge and skills needed by students prior to their becoming employed in a business such as yours. As a means of determining what should be included in schools curricula, several broad subject matter areas have arbitrarily been selected. Within these areas suggested knowledge and skills students might develop while enrolled in two-year post-high school institutions have been delineated. A number of competencies are listed on the enclosed questionnaire, It would be greatly appreciated if you would take the time to indicate what you feel should be the relative importance of each listed competency. If you feel important competencies have been omitted, please add them. A rating scale appears behind each competency that is listed. The rating scale is as follows (please circle one of the five numbers for each competency):

0 -- No response
1 -- No importance
2 -- Some importance
3 -- Average importance
4 -- Very important
5 -- Essential

This study is under the sponsorship of Dr. J. A. Asleson, Director, Agricultural Experiment Station, Montana State University in Bozeman. He has asked the trade to assist in determining what competencies should be developed while students are in school. Your rating of these competencies will help to determine the course content of the school curricula in the farm supply and service area.

Sincerely yours,

A. W. Donahoo, Secretary
MINNEAPOLIS GRAIN EXCHANGE

AWD:eb