

# Experience Needs of College of Agriculture Graduates as Perceived by Business and Industry

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## Abstract

*A national study including a mailed questionnaire and personal interviews sought the opinions of human resource managers regarding experience and educational needs of entry-level employees with a BS degree in agriculture. Great value is placed on coop-type programs as well as various work experiences before and during college preparation. Other needs also identified.*

Should the curricula in colleges of agriculture include some form of cooperative education or experiential learning? Ziegler (1987) stated faculties have not accepted off-campus education. The reasons given are because:

1. It is off-campus-ordinarily outside their control and beyond their ability to affect;
2. The curriculum is unfamiliar to them.

Tyler (1981) on the other hand believes the need for cooperative work experiences is greater today than ever. He stated; "Maturity is measured by one's ability to accept and follow through on responsibilities of one's self, one's family, one's work and one's community. To make that transition to adulthood, young people urgently need opportunities to be responsible, caring, participating members of our society!" Tyler further stated; "In this respect, cooperative education makes a substantial contribution to the development of youth and to the survival and strengthening of our society by furnishing opportunities for young people to participate responsibly in the world of work while being encouraged on the campus to gain greater understanding of the work experiences and to acquire those academic competencies that enable them to guide their performance intelligently".

The purpose of this article is to report selected findings of a national study of agricultural business and industry to determine experiential needs of students which might support and strengthen college programs in agriculture. There were two phases of the study including a mailed questionnaire that was sent out during August and September and personal interviews conducted during September, October, November and December of 1991.

## Objectives

The four overall objectives of this study were:

1. determine employment needs of employers of agricultural businesses and industries.
2. identify the level of education required.
3. identify the types of experiences which are beneficial.
4. determine educational requirements for:

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- a. computer technology
- b. mathematics
- c. physical science
- d. biological science
- e. communications
- f. humanities
- g. sciences and
- h. agricultural science and technology.

The following discussion concentrates on objective 3, to identify the types of experiences which are beneficial to employers of agricultural businesses and industries.

## Methods and Procedures

### Phase 1

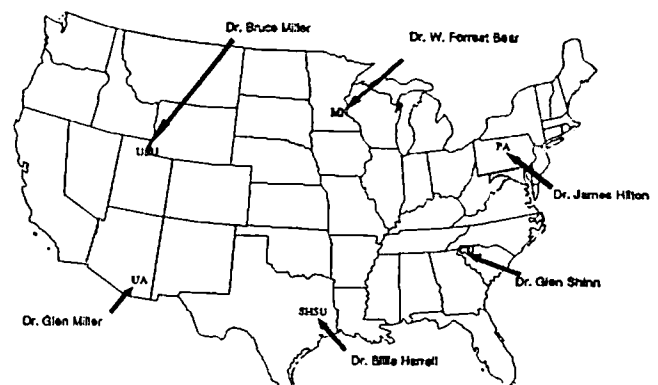
A written questionnaire was developed to obtain data concerning the employment needs, experience needs and educational requirements of agricultural businesses and industries. Input for the instrument was obtained from faculty members in the college of agriculture. The instrument was tested and validated by a panel of faculty members, business and industry representatives.

Names and addresses of firms that employ agriculture graduates were obtained from the Iowa State University College of Agriculture Placement Director, Mr. Roger Bruene. The initial mailing was sent on August 2, 1991 to 225 personnel directors or human resource managers. To achieve maximum response, a follow-up of non-respondents was conducted on August 16, 1991. A 40 percent response rate was obtained.

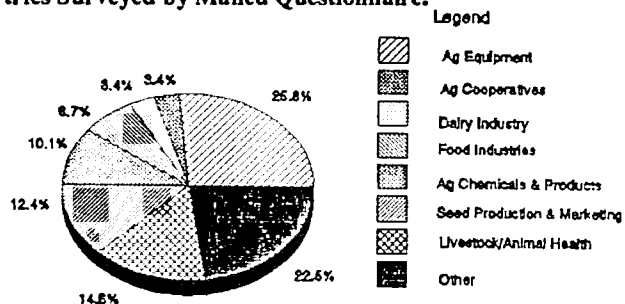
### Phase 2

A personal interview format was selected to obtain additional information regarding experiences needed as well as educational needs. To facilitate the personal interview portion of the study, six universities around the nation were contacted to serve as a base of operations. The six strategic

Figure 1. Location of Cooperating Universities and Contact Persons.



**Figure 2. Categories of Agricultural Businesses and Industries Surveyed by Mailed Questionnaire.**



cally located host universities included Penn State University, Clemson University, Sam Houston State University, University of Arizona, Utah State University and the University of Minnesota. A contact person (cooperator) was identified at each university and is listed on the U.S. map, Figure 1. The cooperators assisted in identifying business and industry contacts who employ B.S. graduates in agriculture. A schedule of visits was established at each site. Seventy individual personal interviews were conducted in the geographic areas surrounding each of the universities listed. A questionnaire was developed to obtain specific information concerning the areas of experience needs and education requirements.

It should be noted that only one business that was contacted declined to participate in the study and this was due to time constraints. Also, all of the 70 interviews with the exception of six were conducted on-site at the business or industry location. The six exceptions were interviewed by telephone due to travel distance, time constraints and inclement weather.

## Findings

Figure 2 describes the categories of agricultural businesses and industries that responded to the mailed questionnaire.

Eighty-nine out of 225 returned usable questionnaires. The largest single category or type of agricultural business and industry was the *agricultural equipment* segment. This category consisted of 21 manufacturers and two sales and service businesses accounting for 25.8% of the respondents. The *other* category was the second largest group with 22.5

**Table 1. Participation in Experience Programs by Ag Businesses and Industries.**

Category	Number of firms participating							Total	Percent
	A	B	C	D	E	F	G		
Ag Cooperatives			1		2			3	3.4
Ag Chemical & Products	2				4			6	6.7
Ag Equipment	2	2	7		2	1		14	15.7
Livestock/Animal Health	2	1	2		2			7	7.9
Seed Prod/Mktg.	2		6					8	9.0
Food Industry			1		1			2	2.2
Dairy Industry							1	1	1.1
Other	6	1	1		1		2	11	12.4
<b>Total</b>	<b>14</b>	<b>4</b>	<b>18</b>		<b>12</b>	<b>1</b>	<b>3</b>	<b>52</b>	<b>58.4</b>
	15.7%	4.5%	20.2%		13.5%	1.1%	3.3%		

**Table 2. Rating of Value of Experiences by Employers.**

Category	Mean Value of Experience						
	A	B	C	D	E	F	G
Ag Cooperatives	7.7	7.0	6.3	6.3	6.7	5.0	5.0
Ag Chemicals and Products	4.4	5.9	7.0	7.0	6.8	5.1	4.9
Ag Equipment	7.1	6.3	5.3	5.6	5.4	4.2	4.2
Livestock/Animal Health	5.5	6.2	5.9	6.2	5.9	5.1	4.5
Seed Production/Marketing	6.6	7.5	6.5	6.8	7.3	5.5	5.5
Food Industry	2.5	3.3	3.0	3.0	3.8	3.8	3.3
Dairy Industry	6.7	6.0	6.0	7.3	7.3	5.3	5.1
Other	5.9	5.6	5.1	5.1	4.8	5.3	5.1
<b>Overall Mean</b>	<b>6.0</b>	<b>6.1</b>	<b>5.6</b>	<b>5.8</b>	<b>5.7</b>	<b>4.9</b>	<b>4.7</b>

A = Reared on a farm, B = Previously worked part-time on a farm or in agribusiness, C = Summer employment at an agribusiness, D = Summer intern at an agribusiness while in college, E = Cooperative internship at an agribusiness while in college, F = Officer of a departmental student club in college, G = Active member in a departmental student club in college.

percent of the respondents. The *other* category were largely diversified businesses and industries that crossed several category lines. The remaining categories of businesses and industries were: livestock/animal health (14.6%), seed production and marketing (12.4%), ag chemicals and products (10.1%), food industry (6.7%), ag cooperatives (3.4%) and dairy industry (3.4%).

Table 1 presents the data indicating the level of participation in experience programs by agricultural businesses and industries grouped by categories. Fifty-two of the 89 firms (58.4%) provide summer internship, cooperative internship or summer employment experience programs for college of agriculture students. The agricultural equipment category accounted for the largest single group with fourteen firms (15.7%) providing work experiences. Seven of the 14 agricultural equipment firms provided the summer employment type of experience.

All of the categories of agricultural businesses and industries provided one or more of the three basic types of experience programs. Summer employment was the largest single type of experience program with 20.2 percent of the firms participating followed by summer internships accounting for 15.7 percent of the experience programs. Twelve firms (13.5%) participate in both summer internship and summer employment types of experience programs.

The survey respondents were asked to rate the value with which their firm views seven selected types of experiences. A rating scale of 1 to 9 was used with 1 = "no value" to 9 = "high value". Table 2 provides the data for this item.

For all categories the highest rated experience was *previously worked part-time on a farm or in agribusiness* with a mean value of 6.1. This was closely followed by *reared on farm* (6.0), *summer internship at an agribusiness while in college* (5.8), *cooperative internship at an agribusiness while in college* (5.7), and *summer employment at an agribusiness* (5.6). The remaining two types of experiences *officer of a departmental student club* and *active member in a departmental student club* rated slightly below average value with ratings of 4.9 and 4.7, respectively.

Three of the eight categories listed rated *reared on a farm* as the top experience including ag cooperatives (7.7), ag equipment (7.1) and the other category (5.9). Also, all three categories rated *previously worked part-time on a farm or in agribusiness* the second best experience.

Three of eight categories rated *summer intern at an agribusiness while in college* as the top experience. The categories ag chemicals, livestock/animal health and dairy industry rated the experience with means of 7.0, 6.2 and 7.3, respectively. It should be noted ag chemicals top ranked experience *summer internship* was tied with *summer employment* and the dairy category was tied with *cooperative internship at an agribusiness while in college*.

The seed industry rated *previously worked part-time on a farm or in agribusiness* (7.5) as the best experience followed by *cooperative internship* (7.3). The food industry category did not rate any of the types of experiences of average value or above.

The size of the categories of the personal interview group was quite similar to the mailed questionnaire group as described in Figure 3. The three largest categories were ag equipment (28.6%), other (24.2%) and livestock/animal health (17.1%).

The personal interview survey asked two open-ended questions concerning experiences needed by college of agriculture graduates. The first question was: identify experiences that employees have that are most beneficial in contributing to their success in the workplace. The top five answers to this question are reported in Table 3. *Work experience* ranked number one with 38 interviewees indicating this as a beneficial experience. *Having a farm background* ranked second, *coop or intern program* third and *working with people* a fairly close fourth position. *Participation in student clubs* was rated as an important experience by 13 of the respondents.

The second open-ended question concerning experiences was; identify specific experiences or activities that will strengthen students educational background when entering the work place. Table 4 presents the specific experiences and activities in rank order.

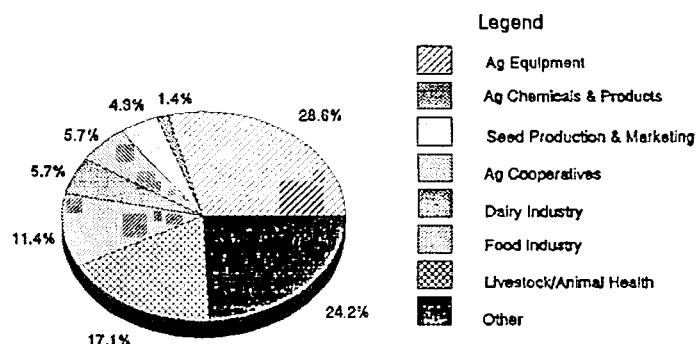
*Coop programs* ranked number one as the experience that will strengthen a students educational background. Forty-four of the seventy (63%) interviewed indicated this is a valuable addition to the four year degree in agriculture.

*Work experience* was listed as a strengthening activity by 27 of the respondents and ranked second overall. Twenty percent of those interviewed identified *involvement in student clubs* as an important activity by providing opportunities for leadership development and team effort.

**Table 3. Experiences Most Beneficial in Contributing to Ones Success In the Workplace.**

Experience	Rank	Number	Percent
Work experience	1	38	54
Farm background	2	27	39
Coop or intern program	3	24	34
Working with people	4	21	30
Student clubs	5	13	19

**Figure 3. Categories of Agricultural Businesses and Industries Surveyed by Personal Interview.**



The fourth-ranked experience was a *farm background/experience*. Twelve interviewees (17%) indicated a farm background or farm experience is a strengthening activity. Many noted that to work with farmers it was important to be creditable; this meant they needed the farm background to establish creditability with this clientele.

The fifth-ranked experience was *working with people*. This experience could perhaps be obtained with any or all of the previously identified items; it never-the-less calls our attention to the aspect of the importance of people skills and having the ability to get along with co-workers.

Additional experiences identified by 2 or 3 individuals as being valuable experiences or activities are as follows:

Community activities	2	Business background	2
Doing-type coursework	3	Sports	2
Sales experience	2	Volunteering	2
Interview skills	2	Field trips	2
Computer	3	Projects	2

## Summary and Conclusions

1. Over one-half of agricultural businesses and industries are presently participating in one or more types of experience programs for college of agriculture students.

2. Summer employment and summer internship were identified as the two types of experience programs most frequently provided by agricultural businesses and industries.

3. Overall the highest rated experience was *previously worked part-time on a farm or agribusiness*.

4. Five experience categories rated above average value including:

- reared on a farm
- previously worked part-time on a farm or in agribusiness.
- summer employment at an agribusiness.
- summer intern at an agribusiness while in college.

**Table 4. Specific Experiences and Activities That Strengthen Students Educational Background.**

Experience or activity	Rank	Number	Percent
Coop program	1	44	63
Work experience	2	27	39
Student clubs	3	14	20
Farm experience/background	4	12	17
Working with people	5	6	9