A STUDY OF THE AGRICULTURAL GRADUATES OF MICHIGAN STATE COLLEGE

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Irving R. Wyeth

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This is to certify that the

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A STUDY OF THE AGRICULTURAL GRADUATES OF MICHIGAN STATE COLLEGE

By

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

In 1857, a new and untried form of education was initiated at East Lansing, Michigan. Michigan Agricultural College, the first land grant college in America, and the first of its kind in the world, was established. The institution was founded for the purpose of offering scientific and practical instruction in agriculture. For the following 28 years, Agricultural Education was the only course of instruction. Then the applied sciences were added to the college curriculum. In the 96 years that have since elapsed, many courses of study have been added.[1]

Aims of the School of Agriculture are to instruct students in practical and technical phases of the entire field. Modern training is based on an understanding of the sciences and a knowledge of effective farm practices and marketing.

The administrative staff and faculty of the School of Agriculture have long recognized a need to adjust its training program to best meet the demands of an ever-changing agriculture. In accordance with this policy, an extensive follow-up study of the institution's agricultural graduates was conducted in 1952.

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[1] William J. Beal. History of Michigan Agricultural College (East Lansing, Michigan: Michigan Agricultural College, 1915). p. 22.

Purpose of the Research

The overall purpose of this research was (1) to study all information furnished by 2902 agricultural graduates, (2) to report what agricultural graduates do and what they think about all phases of the study conducted, (3) to analyze, in detail, the curriculum, counseling, and occupational phases of the study, and, (4) to suggest suitable courses of action that the School of Agriculture might initiate, based on opinions of graduates. Primary objectives were classified into three main categories which have been outlined as follows and which are discussed and analyzed in detail in subsequent chapters.

1. (a) To supply information relative to agricultural curricula, as furnished by the graduates themselves, to administrators and staff of the School of Agriculture as a basis for revision of its program for the training of students in agriculture. Curriculum information presented in this thesis has been related to the importance of various course areas, most helpful course areas, the determination of factors most influential in course importance and helpfulness. Much emphasis has been given to curriculum information as it related to occupations.

(b) To report what agricultural graduates thought about college specialization within the School of Agriculture, and to show the relationship of specialization to present occupations, to the number of years since college graduation, to advanced graduate study, to the major field of college undergraduate study, and to average salaries received in 1951.

2. To furnish useful information to help the School of Agriculture carry on a more effective program of counseling current and prospective students on matters of courses of study, occupational information, employment opportunities and requirements.

Every student who selects a career is usually influenced by several factors in making his decision. Knowledge of these factors should help in planning adequate counseling services for students.

3. To show the job "picture" of agricultural graduates including the pattern of progress from one kind of work to another, starting with the first position after college graduation, carrying on through to subsequent positions, to one's present work. Further objectives were: to report what graduates thought about the help that their college training provided in getting their first civilian job and how effective the first job was in providing an opportunity for advancement; to furnish data which showed what contacts were mainly responsible in acquiring the first job; to present a summary of major occupations and nature of work, in which alumni were engaged; to furnish statistics that indicated the degree of job satisfaction evidenced by agricultural graduates; to classify present positions and to compare these occupational groupings with what graduates thought about curriculum needs, specialized training, and counseling services.

Review of Related Studies

For the past three years, the Resident Instruction Section of the Association of Land Grant Colleges and Universities has been endeavouring to develop statistics on a national scale showing the positions held by graduates of Colleges of Agriculture.[2] In 1950 and 1951, data were assembled by 22 different land grant colleges throughout the United States. Nearly 15,000 graduates furnished information. Some of these studies have been expanded to include information other than work experiences. Many have been designed to request information from former students about the occupational status and curriculum needs of the colleges.

A review of all available literature has been made. Deans of Agriculture of all colleges who have conducted some study of its graduates were contacted by letter in the summer of 1952. Replies were received from all twenty-two. The information that was received included sample questionnaires, bulletins and leaflets which showed some results of the investigations that had been conducted. Many of the letters contained valuable and pertinent information A 27-page report, which listed coding instructions and occupational information was sent by the Dean of Agriculture, University of Minnesota. This report proved to be most helpful in the subsequent classificatory work and was used as a basis for the development of the occupational coding system devised for use in the Michigan State College study.

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[2] S. B. Shirkey, Dean, School of Agriculture, "National Survey of Employment of Graduates of the College of Agriculture," (written communication with mimeographed data) (Columbia, Missouri: University of Missouri, 1951).

Some of the states have carried on some excellent surveys. Vermont has completed a most comprehensive study of its graduates and a publication has been issued.[3] A study made by the Texas Agricultural and Mechanical College was exceptionally well done, but dealt only and primarily with the subject of farm ownership among agricultural graduates.[4] An excellent report was published by the University of Illinois.[5] The fact that the study was made prior to and during the early years of World War II has made the information somewhat inapplicable and out-dated. The

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[3]R. M. Carter and R. E. Fenix, "Vermont's Agricultural College Graduates," Bulletin No. 541 (Burlington, Vermont: University of Vermont and State Agricultural College, April, 1948).

[4]Charles N. Shepardson, "A Study of the Agricultural Graduates of the Agricultural and Mechanical College of Texas," Bulletin No. 7, Series 5, Vol. 7 (College Station, Texas: Agricultural and Mechanical College of Texas, July 1, 1951).

[5]D. M. Hall and R. R. Hudelson, "The Agricultural Student, His Opportunities and Choice of Job," Bulletin No. 3, Vol. 41 (Urbana, Ill: University of Illinois, Sept., 1943).

States of Colorado,[6] Minnesota,[7] Iowa,[8] Kansas,[9] Mississippi,[10] Wyoming,[11] and Missouri[12] have each carried on quite extensive studies of the occupational status of their graduates.

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[6] Walter R. Horlacher, Dean, School of Agriculture, "Agronomy Graduates by Classes," (written communication with mimeographed data) (Fort Collins, Colo.: Colorado Agricultural and Mechanical College, Aug. 14, 1952).

[7] Keith McFarland, Ass't. Dean, Dept. of Agriculture, "Preliminary Report on Occupational Placement Study of Graduates of the College of Agriculture, Forestry, Home Economics, and Veterinary Medicine," (written communication with mimeographed data) (St. Paul, Minn.: University of Minnesota, Aug. 18, 1952).

[8] R. M. Vifquain, Personnel Officer, Division of Agriculture, "Graduates in Agriculture Are Finding Jobs," (written communication with mimeographed data) (Ames, Iowa: Iowa State College, Dec. 20, 1949).

[9] George Montgomery, Head, Dept. of Economics and Sociology, "Occupations of Graduates in Agricultural Economics and Agricultural Administration," (written communication with mimeographed data) (Manhattan, Kansas: Kansas State College, Aug. 13, 1952).

[10] M. B. Colmer, Associate Dean, School of Agriculture, "Summary of Employment of Graduates from School of Agriculture for 1949 Through 1952." (written communication with mimeographed data) (State College, Miss.: Mississippi State College, Aug. 11, 1952).

[11] H. W. Benn, Ass't. Dean, College of Agriculture, "Special Questinnaire on Courses, 1948," (written communication with mimeographed data) (Laramie, Wyo.: University of Wyoming, Aug. 12, 1952).

[12] Sam B. Shirkey, Dean, College of Agriculture, "Personal Data Sheet of Graduates of the University of Missouri, College of Agriculture," (written communication with mimeographed data) (Columbia, Mo.: University of Missouri, July 30, 1952).

The University of West Virginia has done a fine piece of work in determining curricula needs of the agricultural education students in conducting a study among the vocational agriculture teacher graduates.[13]

In the Vermont study, the college was able to determine to what extent the aims of the agriculture college had been met.[14] Specific recommendations for curriculum improvement were made. There were 26 per cent, of 235 replying, who recommended more Manual Arts course training; 11 per cent thought that more basic courses would be helpful. Only 6 per cent who replied specified more training in the Social Sciences and improved counseling services. Agricultural graduates of the University of Illinois placed greater emphasis upon the need for improved guidance services with 19 per cent of the 447 replies so indicating.[15] A likely explanation for this wide difference of opinion is the period of time the two investigations were made. When the Illinois study was carried on, economic conditions were not as ideal as those of the past war years when Vermont's survey was conducted. The need for counseling services, to include occupational information and placement, were greater in 1939 through 1942 than the period since the termination of the recent World War. It is interesting to observe that over 20 per cent of the Illinois respondents suggested more college course work in practical studies and 19 per cent recommended added training in Speech. A mere 5 per cent thought that more training in the scientific studies was essential.

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[13]Joe P. Bail, Ass't. Prof., College of Agriculture, "Teacher Education in Agriculture," (written communication with mimeographed data) (Morgantown, W. Va.: University of West Virginia, Aug. 14, 1952).

[14]Carter and Fenix, op. cit., p. 3

[15]Hall and Hudelson, op. cit., p. 13.

Whether or not it pays a man to stay in the field of his first choice, the statistics collected in the Vermont study showed that graduates have not only changed many times from one job to another, but 60 per cent have taken up work in a different field from that of their initial endeavor. The men themselves have shifted about a great deal. The list of jobs performed by experienced agricultural workers was much the same as the list of beginning occupations. Older men, of course, were employed in more responsible positions. According to the Illinois study, agricultural graduates were found in a wide variety of occupations. More than 360 different jobs were coded for this study.[16] The variety of jobs undertaken suggested the many different opportunities open to men trained in agriculture.

In July, 1950, the Department of Agriculture, University of Minnesota, contacted 5673 graduates. After three follow-ups, 4297 alumni in Agriculture, Forestry, Home Economics, and Veterinary Medicine had returned information. The following Table is included here to point out a few of the primary occupational groupings in which graduates were engaged.[17] The data are extremely interesting since the results closely paralleled those of the recent Michigan State College study.

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[16] Ibid., p. 33.

[17] McFarland, op. cit., p. 2.

Employment Status of Graduates,
Department of Agriculture
University of Minnesota

Occupational Grouping	Number	Percentage
Farming	96	8.0
Teaching	664	15.5
Research	110	2.6
Agricultural Extension	150	3.5
U.S.D.A.	390	9.0
Other Professional Agriculture	228	5.3
Agricultural proprietors, Managers, and Officials	199	4.6
Agricultural sales and clerical	44	1.0
Non-agricultural professionsl	327	7.6
Non-agricultural clerical-sales	104	2.4
Homemakers[18]	1341	31.2

A further study of data assembled by the Minnesota study revealed the type of employment in which their alumni were engaged. Slightly over 56 per cent were public servants; less than 30 per cent were employed by private individuals, companies, and/or corporations; only 12 per cent were self-employed. The remainder who replied were either unemployed or retired.

[18] Includes graduates in Home Economics.

According to a survey carried on at Iowa State College, covering the period 1926-1936, over 90 per cent of the agricultural graduates, upon graduation, took agricultural jobs toward which their training had pointed.[19] An Iowa State College report, issued in December, 1949, and including 654 graduate and undergraduate students of agriculture, stated that 42 per cent of these students entered the field of educational instruction or organization. Private industry absorbed 26 per cent of this group. According to this investigation, it was found that an increasing number of graduates went directly into farming, either as operators with their fathers, as working farm managers for farm owners, or farm management supervisors for farm management companies. Three times as many graduates entered the farming field in 1949 as in 1939, for a net increase of 3 per cent. Only 11 per cent of the group of 654 entered government service in 1949.

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[19] Vifquain, op. cit., p. 1

Other Studies

Several departments of the School of Agriculture, Michigan State College, have contacted, or are contacting, their graduates for various information. In nearly all instances, the requested information has pertained to occupational status, place of work, and home address. The Departments of Agricultural Economics, Dairy, Forestry, and Landscape Architecture keep an occupational and address record of their alumni. The School of Engineering, which has been expanded within recent years to include Agricultural Engineering students (exclusive of farm mechanics), has recently mailed copies of the Michigan State College Agriculture Graduate questionnaire to 200 agricultural engineering alumni. These alumni were not contacted previously.

Howard Zindel, Michigan State College Extension Poultryman, is presently conducting a thorough and complete study of graduates who majored in the Departments of Animal Husbandry, Dairy, and Poultry Husbandry. Much of this research pertains to a study of curriculum needs.

Professor Ulrey of the Michigan State College Agricultural Economics Department has conducted a follow-up study of alumni of that department.

In a report published by the Agricultural Economics Department, 21 per cent of the 243 replying alumni were working in the field of education; 16.5 per cent in public employment; 17.5 per cent were farming;

10 per cent were engaged in work for farm organizations and cooperatives. The per cent engaged in non-farm and urban businesses (were) was 26.5. A total of 66 per cent (was) were engaged in work directly serving agriculture.[20]

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[20] Orion Ulrey, Prof., Dept. of Agricultural Economics, "Types of Jobs Held by Former Students Who Graduated at Michigan State College Majoring in Agricultural Economics and Farm Management," (oral communication with mimeographed data) (East Lansing, Mich.: Michigan State College, Aug., 1952).

CHAPTER II

PROCEDURES AND METHODS

The aim of social science, as indeed of any science, is to provide logical and fundamental techniques by which a body of reliable and corroborative knowledge can be obtained in order to interpret and predict.[1] In this chapter, a review has been made of (1) the preliminary procedures followed in developing the agricultural graduate study, (2) a description of the investigation, and, (3) techniques used to obtain the information.

Preliminary Planning Procedures

The administrative staff of the School of Agriculture, Michigan State College, has long recognized the need to adjust its training program to best meet needs of an ever changing American agriculture. In accordance with this policy, plans were made in 1951 to conduct a follow-up study of agricultural graduates to obtain information for use in revising the agricultural curriculum, to improve the counseling program in furnishing educational and occupational opportunities, and to be better prepared to meet the needs of alumni. Due to the lack of finances, the study could not then be undertaken. In the following year, the

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[1] Pauline Young, Scientific Social Surveys and Research (New York: Prentice-Hall Inc., 1951) p. 126.

Michigan State College Fund Organization, with William L. Davidson as Director, granted a sum of $700 for conducting this study.

The first action taken was a review of research and similar studies carried on in other states among college alumni. Letters were prepared and sent to the Deans of Agriculture of 22 land grant colleges known to have studied their alumni in one or more respects. Replies were received from each with much valuable imformation gained. Reports, letters, and data which were received were read and studied. With this information as a base, the Michigan State College agricultural study was begun by listing the objectives and aims to be attained.

(First it was decided to use the mail questionnaire method to secure information.)

To conduct this type of study, several important questions had to be decided. How were mailing lists to be prepared? What materials and preparations would be required for development of the questionnaire, the mailing and returning of same? (How were the forms to be printed?)

Using the advice of staff members of Michigan State College and information furnished by 22 land grant colleges, a first copy of the questionnaire was prepared. In the six-week period of questionnaire development, each revision was taken out in the field and pre-tested on agricultural graduates.

Of the 14,000 specially printed envelopes, 9000 were taken to the Alumni Office where the addressing operation was carried out by use of newly installed equipment. In two days, the names and known addresses of 4500 graduates holding Bachelor of Science degrees in agriculture from

Michigan State College were transferred to mailing envelopes and prepared in duplicate. One-half of these, or 4500, were set aside for use in future follow-up mailings. The other half were used for the initial mailing.

In addition to these 9000 envelopes, another 4500 of the original 14,000 were enclosed for use by graduates in returning their completed set of questions. A three-cent stamp was placed on each. It was realized that such a procedure was costly in both time and energy, but it was further felt that the added advantage of the more personal "touch" and appeal would more than offset the extra cost and effort.

The addressograph services of the college agricultural bulletin room were solicited for printing the return mailing address on each of the 4500 envelopes that were enclosed with each questionnaire.

Considerable time was spent in preparing the final set of questions. Many details had to be worked out such as deciding upon the type of print, questionnaire color, size, content, art work, cost, accompanying introductory remarks, reading and checking proofs, the work of revising sentence structure and instructions, and many others. Earl Brigham, Extension Bulletin Editor, gave considerable assistance in helping to solve these problems.

Once these details were solved, an order for 7900 questionnaires was placed with a local Lansing printer. (A copy of the set of questions can be found in the Appendix.)

During the planning stages of the study, all questions that were to be asked graduates were closely checked to see if the answers could be

coded on I B M cards. Working hypotheses were developed and outlined. To test them, dummy tables were prepared indicating the final analysis to be made from the data.

With 9000 addressed envelopes, 7000 printed questionnaires, 4500 self-addressed return three-cent stamped envelopes available, commandeered family help, and much enthusiasm, the big job of stuffing and mailing was begun. Several days were spent in these operations. Each graduate was mailed one copy of the eight-page questionnaire and a self-addressed, stamped envelope. The second 4500 copies of graduate-addressed envelopes were them sorted and filed alphabetically to facilitate the work of subsequent follow-up mailings. Mailing of the 4500 letters was handled by the college postal authorities. Addresses included graduates located in every one of the 48 states with the exception of Nevada. Over 20 foreign countries were also represented in the first mailing.

Graduate Returns

Although only small numbers of replies began to arrive within the first 24 hours after the first mailing, the number that were received increased daily. During the period of from one week to 10 days after the first mailing, a peak number of returns was received. On Monday, November 24, just 21 days following the first mailing, a total of 1832, or 40 per cent of the replies had been received, inscribed with an identification number, and filed. By comparison, it took three months longer for the percentage of returns of the Texas survey to equal those of Michigan's results.[2]

The number of daily arrivals was still sizeable three weeks following the initial mailing. However, owing to the nearness of the Christmas holiday mail season, it was decided to mail a partial follow-up without delay. Because of limited funds it was only possible to mail 1898 follow-up letters. Those to receive the follow-up letter were selected from the alphabetized group of unreturnees starting with the letter "A" and continuing until the desired number had been obtained. Each of these follow-up letters included a copy of the printed set of questions, a self-addressed, stamped envelope, and a short mimeographed letter (see Appendix for a sample copy), signed by Dean Anthony and urging all graduates to return the completed forms.

Response to the partial follow-up mailing was tremendous. Whereas only 40 per cent or 1832 were received as a result of the first mailing, there were 1091 or 58 per cent returns resulting from the partial follow-

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[2]Charles N. Shepardson, "A Study of the Agricultural Graduates of the Agricultural and Mechanical College of Texas," Bulletin No. 7, Series 5, Vol. 7 (College Station Texas: Agricultural and Mechanical College of Texas, July 1, 1951) p. 5.

up mailing. On March 9, all I B M card punching was completed, and a total of 2912 returns had been received. Ten of the forms were overlooked by the machine operators in the card punching operation. Twenty of the initial mailing never reached their destination. It was assumed that 4480 had been received by the graduates. Additional returns were received after the final classificatory work. A total of 2923 returns were received, thus representing a 65 per cent response.

Several hundred hours were spent in the classificatory and tabulating phases of the study. A 17-page key was prepared for use in presenting the detailed coding instructions. The months of December, January, and February were spent in studying the returned questionnaires and in translating all information from the returned forms to specially prepared diagramatic forms, 3000 copies of which were previously mimeographed. Otto P. Owens, a graduate student in Agricultural Extension, worked on the classification of all information contained within the first three questions. The writer, with the help of part-time student labor, interpreted and classfied all remaining information which comprized the bulk of the study. A double check was made of all transferrals to assure a minimum of human error. The work of punching 2902 cards, 80 columns each, was completed on March 9, 1953.

During the months of March and April, well over 50 hours of time were spent operating I B M machines located in the college tabulating rooms. Answers to all questions were tabulated and statistical relationships between various factors were computed.

Techniques Used

One of the five steps in conducting social and research surveys is that of collecting data. Various techniques can be used for this purpose. Among them are such methods as observation, the interview, the use of schedules and questionnaires, and the case study. In conducting the Michigan State College study, information was gathered by use of the mail questionnaire. A great deal of time and effort was spent in developing the serios of questions. Many revisions were made, based on pre-tested results and the combined thinking of many faculty members. Every effort was made to construct clear, and definite questions, as free from vagueness and subjectiveness as possible. Explanatory instructions were used in all instances where doubt might occur. To further eliminate possible confusion, several different styles of print were used. Sentence construction was developed to include both the structured and unstructured type of questions with a greater emphasis upon the closed end type.

Recognizing that a large number of the questions were planned for inclusion, it was necessary to group these to assure greater continuity and prolong interest. To help introduce the series of questions that followed by groups, a series of "squibs" or introductory remarks were prepared and included in the final form.

Realizing that response to a mail questionnaire is largely influenced by the introductory remarks accompanying the set of questions, much effort was placed on the development of the letter. Further recognizing

the fact that large numbers of mail questionnaires are sent each year to people in all walks of life, various devices were employed to arouse and maintain the informant's interest. Some of these techniques used were: (1) The use of green ink on white paper, thus representing the Michigan State College school colors; (2) selecting a folding type of questionnaire form which made for greater compactness and ease of handling; (3) the addition of a large block "S" on the cover page; (4) prominent arrow to draw the reader's attention to the following pages in which were included the questions; (5) pre-testing among agricultural graduates to help locate weak questions, to determine reader reaction, to obtain added advice and suggestions, and to provide a test for clarity and validity of the prepared questions; (6) planning and employing a systematic method for stuffing envelopes for mailing, which, when received by the respondent, was hoped to have had a greater psychological advantage; (7) numbering all returned questionnaires in numerical order as they arrived to facilitate the work of classification, tabulation, and filing; and, (8) alphabetizing all 4500 duplicate graduate-addressed envelopes for easing the problem of selection of those to whom the follow-up was to be mailed.

CHAPTER III

THE REPLIES FROM AGRICULTURAL GRADUATES

A summary of the comments and general information furnished by 2902 agricultural graduates is presented in this chapter. In addition to the summary, an interpretation has been made of the more significant findings.

The Tables included in this chapter give a tabular summary of replies to all questions furnished by 2902 respondents, irrespective of such factors as age, occupation, major field of undergraduate specialization, and so forth. Owing to the lack of sufficient space on I B M punch cards to accommodate answers for all questions, it was necessary to omit two items. These were: the nature of the supplementary occupation of graduates, if engaged in one, and: the period of time the graduate has been engaged in part time work of this kind. Whether or not the alumni had supplementary occupations was asked and the replies were recorded in column 71 of the punch cards.

Agricultural Curriculum

Value of college course areas. Wherever we go, we find that college graduates have developed opinions about the value of courses that they took.

Data shown in Table 1 have been based on the first, second, and third choices of valuable college course areas. The statistics consistently revealed an overwhelming importance attached to the agricultural, professional courses such as Agricultural Engineering, Dairy, Forestry,

and Soil Science. Communication Skills, although rating second in importance, were mentioned from four to seven times less frequently than the professional, agricultural course areas. As the degree of choice of all college course areas decreased, the importance of the communication skills increased by 4 per cent.

It has been frequently asserted that the instructor plays a most vital role in the determination of course value. A study of Table 2 has not borne out this assertion. Only 14 per cent of all those replying to the question thought the instructor, and the way he taught the course, was the important factor. This is still more highly significant when one realizes that the question was devised to permit more than one answer.

Unquestionably, an evaluation of college courses will vary with the nature of one's work. One course area that may be of particular value to a research worker may have little or no value to a livestock feed salesman. However, a study of the data in Table 3 has seemed to indicate the general importance of some courses and the relative unimportance of others. Soil Science is one that has been rated high by a large majority of agricultural alumni. Among those who received some training in Soils, 90 per cent classed this training as important or very important in the conduct of their present work. When one realizes that 16 per cent of the replying graduates reported their work as unrelated to agriculture and yet no fewer than 87 per cent of all informants, who either did or did not receive some training in Soils, felt that this training was important, this fact is highly significant.

TABLE 1. VALUE OF COLLEGE COURSE AREAS TO AGRICULTURAL GRADUATES IN THE CONDUCT OF THEIR PRESENT WORK *

COURSE AREA	FIRST MOST IMPORTANT COURSE AREA	SECOND MOST IMPORTANT COURSE AREA	THIRD MOST IMPORTANT COURSE AREA
Professional Agriculture	68 (1712)	57 (1364)	51 (1129)
Biological Science	7 (188)	11 (271)	11 (241)
Physical Science	7 (182)	10 (246)	10 (221)
Social Science	3 (67)	3 (74)	4 (83)
Communication Skills	10 (266)	11 (272)	14 (313)
Literature and Fine Arts	0 (1)	0 (6)	1 (11)
Miscellaneous	5 (148)	8 (183)	9 (186)
Total	100 (2564)	100 (2416)	100 (2184)
No Replies	(338)	(486)	(718)
Total Returns	(2902)	(2902)	(2902)

*This Table and all following Tables are based on percentage distribution. All figures included within parentheses represent numerical data.

TABLE 2. FACTORS RESPONSIBLE FOR SELECTION OF COLLEGE COURSE AREA CONSIDERED MOST VALUABLE *

The specific information received in the course	22 (1528)
The instructor, and the way he taught the course	14 (1058)
The knowledge of where and how to find information in that field of study when needed	17 (1217)
A confidence to tackle problems in that subject matter area, when required by one's work	18 (1301)
A broad general working knowledge of the subject that the course gives agricultural graduates	25 (1755)
Others	4 (262)
Total	100 (7121)
No Replies	(315)
Total Returns	(7436)

*Replies based on answers to multiple choice question.

TABLE 3. EVALUATION OF AGRICULTURAL AND NON-AGRICULTURAL COURSE AREAS BASED ON COLLEGE TRAINING

Course Area	Took Course(s) in College					
	Very Important	Important	Not Important	Total	No Reply	Total Returns
Agricultural Economics	31 (412)	47 (627)	22 (284	100 (1323	(237)	(1620)
Agricultural Engineering	30 (425)	51 (732)	19 (272)	100 (1429)	(66)	(1495)
Animal Husbandry	38 (578)	40 (611)	22 (343)	100 (1532)	(101)	(1633)
Dairy	46 (683)	32 (470)	22 (317)	100 (1470)	(97)	(1567)
Farm Crops	45 (686)	41 (628)	14 (215)	100 (1531)	(95)	(1626)
Forestry	90 (93)	9 (9)	1 (1)	100 (103)	(3)	(106)
Horticulture	32 (545)	37 (638)	31 (526)	100 (1709)	(98)	(1807)
Landscape	90 (20)	5 (1)	5 (1)	100 (22)	(1)	(23)
Poultry Husbandry	22 (289)	42 (539)	36 (464)	100 (1292)	(74)	(1366)
Rural Sociology and Anthropology	21 (131)	41 (258)	38 (244)	100 (633)	(30)	(663)
Soil Science	55 (1089)	35 (687)	10 (205)	100 (1981)	(69)	(2050)
Accounting	31 (191)	51 (313)	18 (115)	100 (619)	(15)	(634)
Typing	28 (28)	48 (48)	24 (23)	100 (99)	(3)	(102)
Bookkeeping	31 (67)	56 (122)	13 (31)	100 (219)	(15)	(234)
Business Law	26 (99)	59 (226)	15 (56)	100 (381)	(9)	(390)

TABLE 3. Continued (page 2)

Course Area	Very Important	Important	Not Important	Total	No Reply	Total Returns
Economics - other than Agricultural	28 (416)	56 (823)	16 (226)	100 (1465)	(101)	(1566)
History of Agriculture	8 (75)	44 (439)	48 (477)	100 (991)	(67)	(1058)
Botany	38 (731)	45 (862)	17 (337)	100 (1930)	(113)	(2043)
Chemistry	35 (728)	47 (968)	18 (378)	100 (2074)	(114)	(2188)
Education	43 (383)	40 (354)	17 (152)	100 (889)	(63)	(952)
English	59 (1245)	37 (770)	4 (86)	100 (2101)	(123)	(2224)
Entomology	35 (547)	49 (815)	16 (16)	100 (1658)	(122)	(1780)
Journalism	38 (228)	47 (285)	15 (93)	100 (606)	(28)	(634)
Mathematics	38 (774)	47 (953)	15 (291)	100 (2018)	(113)	(2131)
Sociology and Anthropology	19 (117)	44 (272)	37 (230)	100 (619)	(44)	(663)
Speech	65 (1200)	32 (584)	3 (64)	100 (1843)	(82)	(1930)
Radio and Television	44 (24)	35 (19)	21 (11)	100 (54)	(4)	(58)
Zoology	16 (231)	49 (708)	35 (497)	100 (1436)	(148)	(1584)
Public Relations	80 (123)	20 (30)	0 (0)	100 ~~(153)~~ → 3	~~(153)~~	(156)
Recreation	26 (120)	50 (234)	24 (114)	100 (468)	(25)	(493)
Guidance and Counseling	51 (105)	40 (83)	9 (19)	100 (207)	(13)	(220)
Basic College	33 (297)	55 (489)	12 (111)	100 (896)	(33)	(929)
Other	81 (238)	17 (49(	2 (8)	100 (103)	(3)	(106)

TABLE 3. Continued (page 3)

Course Area	Did Not Take Course(s) in College: Very Important	Important	Not Important	Total	No Reply	Total Returns
Agricultural Economics	28 (274)	42 (404)	30 (292)	100 (970)	(312)	(1282)
Agricultural Engineering	16 (124)	42 (334)	42 (333)	100 (791)	(616)	(1407)
Animal Husbandry	16 (117)	24 (176)	60 (428)	100 (721)	(548)	(1269)
Dairy	18 (134)	19 (142)	63 (462)	100 (738)	(597)	1335)
Farm Crops	21 (153)	33 (237)	46 (328)	100 (718)	(558)	(1276)
Forestry	44 (4)	0 (0)	56 (5)	100 (9)	(2788)	(2796)
Horticulture	24 (151)	28 (177)	46 (299)	100 (627)	(468)	(1095)
Landscape	50 (4)	12 (1)	38 (3)	100 (8)	(2871)	(2879)
Poultry Husbandry	8 (64)	20 (170)	72 (599)	100 (833)	(703)	(1536)
Rural Sociology and Anthropology	8 (99)	28 (359)	64 (831)	100 (1289)	(950)	(2239)
Soil Science	43 (219)	34 (170)	23 (117)	100 (506)	(345)	(851)
Accounting	18 (250)	43 (599)	39 (531)	100 (1380)	(888)	(2268)
Typing	15 (255)	38 (659)	47 (805)	100 (1719)	(1081)	(2800)
Bookkeeping	17 (268)	45 (726)	38 (612)	100 (1606)	(1062)	(2668)
Business Law	14 (203)	40 (595)	46 (665)	100 (1473)	(1039)	(2512)
Economics - other than Agricultural	20 (152)	51 (381)	29 (215)	100 (748)	(588)	(1336)
History of Agriculture	4 (40)	28 (271)	68 (649)	100 (960)	(884)	(1844)
Botany	28 (153)	38 (211)	34 (187)	100 (551)	(308)	(859)

TABLE 3. Continued (page 4)

Course Area	Did Not Take Course(s) (Cont'd.) Very Important	Important	Not Important	Total	No Reply	Total Returns
Chemistry	34 (145)	43 (183)	23 (94)	100 (422)	(292)	(714)
Education	17 (209)	36 (430)	47 (558)	100 (1196)	(754)	(1950)
English	59 (242)	34 (142)	7 (28)	100 (412)	(266)	(678)
Entomology	18 (121)	41 (280)	41 (281)	100 (682)	(440)	(1122)
Journalism	17 (218)	43 (563)	40 (538)	100 (1319)	(949)	(2268)
Mathematics	33 (144)	48 (212)	19 (87)	100 (443)	(328)	(771)
Sociology and Anthropology	8 (97)	28 (360)	64 (820)	100 (1277)	(962)	(2239)
Speech	59 (367)	32 (199)	9 (59)	100 (625)	(347)	(972)
Radio and Television	11 (172)	26 (401)	63 (966)	100 (1539)	(1305)	(2844)
Zoology	10 (73)	35 (264)	55 (421)	100 (758)	(560)	(1318)
Public Relations	57 (1012)	32 (576)	11 (198)	100 (1786)	(960)	(2746)
Recreation	11 (149)	41 (568)	48 (658)	100 (1375)	(1034)	(2409)
Guidance and Counseling	21 (321)	39 (595)	40 (602)	100 (1518)	(1164)	(2682)
Basic College Courses	24 (187)	44 (336)	32 (247)	100 (770)	(1203)	(1973)
Other	56 (27)	31 (15)	13 (6)	100 (48)	(2549)	(2597)

TABLE 3. Continued (page 5)

Course Area	Total Returns: Took Course(s)	Total Returns: Did Not Take Course(s)	Grand Total Returns
Agricultural Econ.	(1620)	(1282)	(2902)
Agr. Engineering	(1495)	(1407)	(2902)
Animal Husbandry	(1633)	(1269)	(2902)
Dairy	(1567)	(1335)	(2902)
Farm Crops	(1626)	(1276)	(2902)
Forestry	(106)	(2796)	(2902)
Horticulture	(1807)	(1095)	(2902)
Landscape	(23)	(2879)	(2902)
Poultry Husbandry	(1366)	(1536)	(2902)
Rural Sociology and Anthropology	(663)	(2239)	(2902)
Soil Science	(2050)	(851)	(2902)
Accounting	(634)	(2268)	(2902)
Typing	(102)	(2800)	(2902)
Bookkeeping	(234)	(2668)	(2902)
Business Law	(390)	(2512)	(2902)
Economics - other than Agricultural	(1566)	(1336)	(2902)
Hist. of Agriculture	(1058)	(1844)	(2902)
Botany	(2043)	(859)	(2902)
Chemistry	(2188)	(714)	(2902)
Education	(952)	(1950)	(2902)

TABLE 3. Conclusion (page 6)

Course Area	Total Returns		Grand Total Returns
	Took Course(s)	Did Not Take Course(s)	
English	(2224)	(678)	(2902)
Entomology	(1780)	(1122)	(2902)
Journalism	(634)	(2268)	(2902)
Mathematics	(2131)	(771)	(2902)
Sociology and Anthropology	(663)	(2239)	(2902)
Speech	(1930)	(972)	(2902)
Radio and Television	(58)	(2844)	(2902)
Zoology	(1584)	(1318)	(2902)
Public Relations	(156)	(2746)	(2902)
Recreation	(493)	(2409)	(2902)
Guidance and Counseling	(220)	(2682)	(2902)
Basic College Courses	(929)	(1973)	(2902)
Other	(106)	(2597)	(2902)

Based on these replies, it seems advisable that the School of Agriculture continue to include at least one required course in Soils Science. Many students will find that added training in this area will prove most helpful to them in the conduct of their future work in the agricultural field.

Among the agricultural technical courses, Poultry Husbandry was rated lowest. A probable explanation for this response is the prejudice that many folks feel toward the chicken. On many farms poultry is not a major farm enterprise. Oftentimes farmers will turn over this farm business to their wives for their added personal income. Seldom will we find an agricultural specialist or teacher who is much interested in poultry or who has devoted much time to the development of the poultry business. There is little wonder that farm youth are not too interested in the bird and her production qualities.

An interesting revelation among the non-agricultural course areas is exhibited by data in Table 3. Whereas the communication skills rated far below those of professional agriculture, when compared, it was found that such skills as English and Speech, when compared to other non-agricultural areas, rated highest. Only 4 per cent of all respondents, who reported either having or not having taken some training in English, considered the course as not important to their work. Based on these data, the value of English has been found to be unquestionable. Among all 33 course areas listed, the largest number of very important replies, for those who received some training, were given to English. Agricultural

graduates who replied to questions contained in the ~~Texas~~ Vermont[1] and ~~Vermont~~ Texas[2] studies likewise stressed the importance of an English training in college.

Speech is another of the communication skills which was rated extremely high. When compared to all 33 agricultural and non-agricultural course areas, and when considering all replies irrespective of some or no college training, it was found that the largest number of "very important" votes was given to Speech. A mere 5 per cent of all informants reported the unimportance of this communication skill. Of all improvements suggested by agricultural graduates of the University of Illinois, the largest percentage voted for an improvement in speech training.[3] Texas graduates also reported that they had received insufficient training in Speech.[4]

Based on these, as well as the Michigan data, it seems imperative that students be urged to secure a good basic training in Speech before graduation.

Among the physical sciences, Mathematics and Chemistry were rated highly. Over three of every four who replied reported the value of these two course areas in the conduct of their present work.

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[1] R. M. Carter and R. E. Fenix, "Vermont's Agricultural College Graduates," Bulletin No. 541 (Burlington Vt.: University of Vermont and State Agricultural College, April, 1948) pp. 15-16.

[2] Charles N. Shepardson, "A Study of the Agricultural Graduates of Agricultural and Mechanical College of Texas," Bulletin No. 7, Series 5, Vol. 7 (College Station, Texas: Agricultural and Mechanical College of Texas, July 1, 1951) p. 32.

[3] D. M. Hall and R. R. Hudelson, "The Agricultural Student, His Opportunities and Choice of Job," Bulletin No. 3, Vol. 41 (Urbana, Ill.: University of Illinois, Sept. 7, 1943) p. 13.

[4] Shepardson, op. cit., p. 32.

Although as few as 151 reported having received some training in Public Relations, not one respondent rated the course area as unimportant. Nearly 60 per cent of the remaining 2746, who answered the question, signified the importance of this training in their work.

Due to the unintentional omission of Forestry and Landscape Architecture from the original list of course areas to be rated, all such ratings, when applicable, were transferred from the category listed as "other" to separate groups listed as Forestry and Landscape Architecture.

Specialization versus a broad training in agriculture. Over the years, there has been considerable consternation over the relative importance of college specialization. Different studies have revealed varying results. There is no knowledge, however, of such studies having been conducted among agricultural graduates.

In studying this question it must be borne in mind that agriculture, in itself, is a specialized field. The term "specialization," as used in the investigation, has been construed to mean concentration upon the subject matter of a single department, such as Forestry, Dairy, or Farm Crops.

Michigan State College's agricultural alumni have placed comparatively little value upon an undergraduate specialized training. Data in Table 4 has shown this. Only 333 or 12 per cent of all those who replied, recommended intensive specialization. It was of interest to note that 173 or 52 per cent of the 333 affirmative replies to this type of undergraduate training came from Forestry graduates. Another large group

TABLE 4. RECOMMENDATIONS FOR TYPE OF COLLEGE TRAINING IN PREPARATION FOR WORK IN WHICH AGRICULTURAL ALUMNI ARE ENGAGED

Intensively specialize in the subject matter of a single department in School of Agriculture	12 (332)
Take one course in several departments of School of Agriculture, with remaining technical agricultural courses in some field of specialization within one department	20 (534)
Take two or more courses in several departments of School of Agriculture, with remaining technical agricultural courses in some field of specialization	30 (784)
Try to get as broad a training as possible in agriculture, without specialization in any one single department in the School of Agriculture	17 (446)
Try to get a broad undergraduate training in agriculture without specialization, and then intensively specialize as a graduate student in the subject matter of a single department of School of Agriculture	19 (509)
Other	2 (64)
Total	100 (2669)
No Replies	(233)
Total Returns	(2902)

was made up of alumni who had graduated as majors in Landscape Architecture. Graduates of all other departments favored less concentration on the subject matter of a single department.

A somewhat lessened degree of specialization was favored by 20 per cent of the 2669 who replied to the question. Here again, it was the graduate forester and landscape architect who represented the heaviest voting.

The 36 per cent who recommended a broad undergraduate training, represented a significant figure. It will be noted, however, that 19 per cent of this number, although favoring a broad undergraduate training program, nevertheless, did not minimize the value of specialization.

Between these two extremes of undergraduate specialiation on the one hand, and a broad undergraduate training without specialization on the other, lies a category which was favored by nearly one out of each three who replied. In this category it was recommended that students take two or more courses in several departments of the School of Agriculture, with the remaining agricultural technical courses in some field of specialization. Based on this information, it seems advisable for the average undergraduate student of agriculture to try to follow a "middle of the road" program of studies with lessened emphasis upon intense undergraduate specialization and a stronger leaning to the more broadened undergraduate training.

TABLE 5. RECOMMENDED TYPES OF COLLEGE TRAINING FOUND TO BE MOST HELPFUL IN GETTING THE FIRST POSITION FOLLOWING GRADUATION

Take a specialized training in agriculture		17 (456)
Take a broad general training in agriculture		16 (397)
Take a combination of specialization and broad training		66 (1701)
Other		1 (13)
	Total	100 (2567)
	No Reply	(335)
	Total Returns	(2902)

TABLE 6. WHEN DO GRADUATES MAKE UP THEIR MINDS ABOUT FOLLOWING THEIR PRESENT CAREER?

Before College		31 (876)
Freshman Year		5 (135)
Sophomore Year		11 (294)
Junior Year		9 (251)
Senior Year		8 (214)
After Graduation from College		36 (999)
Other		0 (2)
	Total	100 (2771)
	No Reply	(131)
	Total Returns	(2902)

Counseling Services

One of the aims of the School of Agriculture has been to help students make wise career choices. Data presented in Tables 6, 7, and 8 will prove helpful in attaining this goal and in improving the service.

The data in Table 6 have substantiated the contention that career selection is a continuous process and not one that has certain time limitations in life. About one-third of those replying reported having first made up their minds to follow their present positions before college. Approximately another one-third said that they decided during their undergraduate days. The largest one-third first made up their minds after college graduation.

Based on data shown in Table 7, parents are evidently not as influential in career selection as has been generally presumed. When graduates were asked to choose the person(s) or factor most influential, parents rated a mere 4 per cent. Apparently most youth have turned to those out of the home for advice and counsel regarding career selection.

Members of departments in which the alumni had majored, relatives and/or friends were the categories most frequently mentioned. As can be noted, there existed a very close relationship between those persons who contributed to the influencing process and those who were considered as the most influential.

The fact that 6460 replies were given to the question asking for recommended kinds of help freshmen should be given regarding choice of

TABLE 7. MOST INFLUENTIAL PERSONS IN CAREER SELECTION OF AGRICULTURAL GRADUATES *

	All Influential	Most Influential
High School teacher	8 (347)	6 (85)
Someone in Dean's office	2 (96)	2 (26)
Members of department in which you majored	21 (922)	24 (343)
Other M.S.C. faculty members	10 (464)	9 (122)
College Counseling Center	2 (83)	2 (27)
Parents	13 (645)	4 (60)
Relatives and/or friends	~~4~~ 21 (~~190~~ 972)	~~13~~ 21 (~~190~~) (297)
The graduate himself	4 (190)	13 (190)
Others	19 (904)	19 (266)
Total	100 (4623)	100 (1416)
No Replies	(144)	(1~~4~~86)
Total Returns	(4767)	(2902)

* Replies based on answers to a multiple choice question.

careers was indicative of the importance that agricultural alumni attached to counseling services. Occupational information and individual conferences to help students make wise career choices were the two recommendations most frequently favored. Aside from the category "appropriate tests," the percentage of favorable replies was comparatively high. Based on these data, it seems quite obvious that any plan that is proposed to help freshmen regarding career choices should include more than just one counseling service.

The World of Work

One of the purposes of the Michigan State College agricultural study was to get a clearer picture of the occupational status of its alumni. A further aim has been to secure information which, when studied, would show the relationship between first positions, present fields of work, and other positions they may have held. With these data as a basis, the School of Agriculture could then conduct a more thorough program in helping to guide its students into wiser career choices. Considerable occupational information has been presented in Tables 9 - 20 inclusive. However, only the more significant factors have been presented with accompanying interpretations.

It has been gratifying to observe, by statistics in Table 9, the excellent informant response given to the question that asked for one's present position. Only 10 of the 2902 returns neglected to name their present work.

TABLE 8. RECOMMENDED KINDS OF HELP FRESHMEN SHOULD BE GIVEN REGARDING CHOICE OF CAREER *

An orientation course including information about agricultural occupations	27 (1770)
A personal counseling service in School of Agriculture	20 (1259)
Appropriate tests	15 (934)
Freshman seminar given by each department	9 (603)
Individual conferences to help students make wise career choices	29 (1887)
Other	0 (23)
Total	100 (6476)
No Reply	(150)
Total Returns	(6626

* Replies based on answers to a multiple choice question.

TABLE 9. DISTRIBUTION OF GRADUATES BY OCCUPATIONS SINCE GRADUATION FROM COLLEGE

Occupational Grouping	Occupation	Present Position	First Most Recent Position	Second Most Recent Position	First Position after Graduation
Farmer	General Farmer	2.2 (65)	2.2 (37)	2.3 (23)	2.4 (67)
	Livestock Farmer	5.0 (143)	.8 (13)	.2 (2)	3.8 (107)
	Horticultural Farmer	3.2 (94)	.5 (8)	.6 (6)	2.4 (67)
	Crops Farmer	.3 (10)	0 (0)	.1 (1)	.2 (7)
	Other Farmer	.2 (6)	.1 (2)	.5 (5)	0 (2)
Agricultural Teacher	Unclassified	.3 (9)	1.4 (24)	1.2 (12)	1.0 (30)
	College or University	3.5 (103)	3.5 (60)	4.2 (42)	1.9 (56)
	High School Vocational	7.2 (208)	4.9 (83)	7.2 (72)	18.3 (517)
	High School Veterans	2.0 (59)	.8 (13)	.2 (2)	1.8 (50)
	Other	.4 (12)	.6 (12)	.9 (9)	.8 (24)
Agricultural Research	Unclassified	.5 (12)	.2 (4)	.7 (7)	.7 (21)
	U.S.D.A.	.6 (20)	.4 (7)	.5 (5)	.4 (12)
	State Agricultural Experiment Station	.9 (27)	.5 (9)	1.2 (12)	.7 (22)
	Commercial Research	1.0 (31)	.4 (7)	.7 (7)	.6 (18)

TABLE 9. Continued (page 2)

Occupational Grouping	Occupation	Present Position	First Most Recent Position	Second Most Recent Position	First Position after Graduation
Agricultural Specialists and Administrators (Government)	Agricultural Extension	5.9 (139)	5.6 (96)	6.2 (62)	3.8 (108)
	U.S.D.A.	8.4 (241)	9.6 (164)	10.9 (108)	10.2 (286)
	State Departments	4.1 (116)	2.8 (48)	3.9 (39)	3.2 (94)
	Other Agencies County, City, etc.	5.0 (142)	4.0 (67)	3.4 (34)	4.6 (130)
	Unclassified	.1 (4)	.1 (3)	.3 (3)	.2 (6)
Agricultural Specialists and Administrators, Sales, Clerical, etc. (Non-government)	Unclassified	0 (0)	0 (1)	.2 (2)	0 (2)
	Professional Agriculturalist	9.6 (270)	9.1 (156)	10.1 (101)	15.1 (423)
	Proprietors, Managers, Officials	10.0 (290)	8.7 (149)	6.4 (64)	4.9 (139)
	Clerical and Sales	4.5 (130)	4.4 (74)	3.5 (35)	4.9 (140)
	Craftsmen-Foremen	.5 (17)	.9 (17)	1.2 (12)	2.4 (67)
	Operatives	0 (0)	.1 (3)	.4 (4)	.4 (13)
	Farm Laborers	.1 (3)	.1 (4)	.4 (4)	.6 (20)
	Laborers except farm	.1 (2)	.2 (5)	.4 (2)	2.2 (66)
	Other	0 (1)	.6 (11)	.3 (3)	.7 (22)

TABLE 9. Continued (page 3)

Non-Agricultural Workers	Unclassified	0 (1)	0 (1)	0 (0)	0 (0)
	Professional, Semi-professional and administrative	10.0 (292)	10.4 (177)	10.5 (105)	4.1 (120)
	Clerical, Sales, Service	5.3 (151)	4.1 (69)	3.7 (37)	2.3 (68)
	Trades and Industrial	.8 (24)	2.3 (38)	2.1 (21)	1.2 (36)
	Other	.3 (10)	.2 (5)	.3 (3)	.2 (7)
Miscellaneous Group	Armed Services	3.5 (100)	17.0 (289)	11.9 (118)	1.6 (44)
	Unemployed	.1 (5)	0 (0)	0 (0)	0 (1)
	Retired	2.8 (80)	0 (0)	0 (0)	0 (0)
	Housewife	.9 (24)	0 (1)	0 (0)	.2 (7)
	Combined Agricultural Teacher and School Administrator	.1 (5)	1.5 (25)	1.9 (19)	.6 (20)
	Other	.6 (16)	2.0 (34)	1.5 (15)	1.6 (47)
	TOTAL	100 (2892)	100 (1716)	100 (996)	100 (2871)
	No Reply	(10)	(1186)	(1906)	(31)
	TOTAL RETURNS	(2902)	(2902)	(2902)	(2902)

When one realizes that the states of Iowa, Nebraska, and Minnesota have been recognized as more intensive agricultural states than Michigan, it is interesting to note that the 11 per cent of Michigan State College agricultural graduates who were engaged in farming as their major occupation was greater than the 8 per cent of the University of Minnesota graduates.[5] Of particular interest is the Iowa State College figure which showed only 12 per cent so engaged.[6] A much larger percentage (21 per cent) of the University of Nebraska graduates reported farming as their present work.[7]

It has often been asserted that college graduates leave their field of training to enter unrelated fields of work. A study of Table 9 has not borne out this assertion. Excluding the 100 graduates who reported their present position as members of the armed services, the 24 housewives, and five who were unemployed, only 478 or slightly over 16 per cent were engaged in non-agricultural work. From this information, it has seemed apparent that many opportunities have presented themselves within the agricultural field.

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[5] Keith McFarland, Ass't. Dean, Dept. of Agriculture, "Preliminary Report on Occupational Placement Study of Graduates of the College of Agriculture, Forestry, Home Economics, and Veterinary Medicine," (written communication with mimeographed data) (St. Paul, Minn.: University of Minnesota, Aug. 18, 1952) p. 2.

[6] R. M. Vifquain, Personnel Officer, Division of Agriculture, "Graduates in Agriculture are Finding Jobs," (written communication with mimeographed data) (Ames, Iowa: Iowa State College, Dec. 20, 1949) pp.1-2.

[7] College of Agriculture, "Occupations of Nebraska," (typewritten data) (Lincoln Nebr.: University of Nebraska, not dated).

A study of Table 9 has further shown the pattern of job shifting which has been quite apparent among many graduates. The number of farmers has increased by 26 per cent from the time of the first civilian job to their present positions. Increases were also shown in the category "agricultural proprietor." Undoubtedly the lack of capital was one of the principal reasons for fewer graduates entering these businesses immediately after graduation. College and high school teachers have shown inverse relationships. Whereas the percentage of high school vocational agricultural teachers decreased by 50 per cent, the number of the college and university agricultural teachers nearly doubled during the period of time from the alumni's first to present positions. College teaching has required advanced study and training as necessary prerequisites.

Obviously, the number who reported their first position as college agricultural teacher would have been at a minimum. Graduates were not asked for an explanation of their job changes. One can only speculate as to reasons why such large numbers of vocational agricultural teachers have left this work. Salaries paid may have been one reason, although data have indicated that such positions have paid quite well. The fact that vocational agricultural teachers have received a broad training, without the degree of specialization of other agricultural students, would perhaps increase and broaden their opportunities for other positions.

Although no record was kept of the total number of graduates whose first position was that of a student engaged in graduate studies, it was quite sizable. All such replies were classed as professional agricultural

work. The use of this classification system was partly responsible for the large percentage of those whose first civilian position has been listed as professional.

The fact that the number of managerial and executive positions increased while the number of laboring and operative jobs decreased has pointed to the importance of experience as a necessary essential in work advancement.

Although less than 8 per cent reported their first civilian position as non-agricultural, the percentage doubled in the report of subsequent jobs. The majority of respondents, or about 68 per cent, reported that their first civilian position provided them with a good opportunity for advancement. Very few remained in their first position for periods of time greater than two years. Of the 2822 who replied, 61 per cent reported that their first positions were held for two years or less. Of the remaining 1131, 80 per cent left their first jobs during the first five years after graduation. These results have paralleled those of the Universities of Vermont[8] and Illinois.[9]

The importance of Michigan State College faculty members and advisers to graduates, in career selection (as has been previously reported), and in helping to get the first position, has been borne out by data shown in Table 13. Slightly more than one of each three who

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[8] Carter and Fenix, op. cit., pp. 15-16.

[9] Hall and Hudelson, op. cit., pp. 12-13.

TABLE 10. ROLE PLAYED BY COLLEGE TRAINING IN HELPING GRADUATES TO GET FIRST CIVILIAN POSITION

Gave specific preparation		51 (1346)
Provided general background		42 (1113)
Provided little specific or general background		6 (153)
Other		1 (18)
	Total	100 (2628)
	No Reply	(274)
	Total Returns	(2902)

TABLE 11. PERIOD OF TIME FIRST POSITION WAS HELD BY AGRICULTURAL GRADUATES

Less than 6 months		10 (280)
6 - 11 months		26 (711)
12 - 23 months		25 (700)
2 - 3 years		14 (386)
4 - 5 years		11 (316)
6 - 10 years		7 (214)
11 - 20 years		4 (115)
Over 20 years		3 (100)
	Total	100 (2822)
	No Reply	(80)
	Total Returns	(2902)

TABLE 12. DOES THE FIRST POSITION PROVIDE GRADUATES WITH A GOOD OPPORTUNITY FOR ADVANCEMENT?

Yes	68 (1806)
No	32 (867)
Other	0 (10)
Total	100 (2683)
No Replies	(219)
Total Returns	(2902)

TABLE 13. CONTACTS MAINLY RESPONSIBLE FOR GRADUATES' GETTING THEIR FIRST POSITION

Michigan State College Placement Service	12 (306)
Other employment agencies	1 (1)
M.S.C. faculty member or adviser	35 (35)
Friends (include schoolmates) or relatives	12 (12)
Your own individual efforts	31 (31)
Other	9 (9)
Total	100 (2536)
No Reply	(366)
Total Returns	(2902)

TABLE 14. PERIOD OF TIME GRADUATES HAVE HELD PRESENT POSITION FIRST MOST RECENT AND SECOND MOST RECENT POSITION

Period of Time in Years	Present Position	First Most Recent	Second Most Recent
Less than 1	9.3 (264)	6.9 (110)	5.2 (52)
1	14.8 (408)	16.4 (274)	19.9 (194)
2	12.8 (351)	15.3 (255)	16.9 (165)
3	10.0 (249)	15.6 (260)	13.3 (129)
4	7.0 (191)	10.2 (167)	10.7 (104)
5	5.8 (161)	7.8 (126)	9.1 (89)
6	5.5 (151)	3.6 (58)	4.6 (46)
7	4.1 (115)	2.7 (47)	3.1 (31)
8	2.0 (54)	2.9 (49)	2.0 (20)
9	1.6 (46)	1.7 (29)	2.1 (21)
10	2.7 (73)	3.9 (64)	3.1 (31)
11	1.7 (49)	1.2 (20)	2.2 (22)
12	2.0 (55)	1.9 (31)	1.1 (11)
13	1.0 (29)	1.2 (21)	1.5 (15)

TABLE 14. Continued (page 2)

Period of Time in Years	Present Position	First Most Recent	Second Most Recent
14	1.5 (45)	.8 (15)	.5 (5)
15	1.9 (55)	1.0 (17)	1.2 (12)
16	1.2 (36)	.8 (15)	.1 (1)
17	1.3 (38)	.6 (11)	.8 (8)
18	1.1 (33)	.3 (6)	.9 (9)
19	.3 (11)	.7 (13)	.2 (2)
20	2.1 (61)	.8 (15)	.5 (5)
21	.6 (17)	.5 (10)	.3 (3)
22	1.2 (36)	.2 (5)	.2 (2)
23	1.0 (31)	.1 (3)	.1 (1)
24	.6 (17)	.3 (6)	.1 (1)
25	1.4 (42)	.4 (7)	0 (0)
26	.8 (24)	.1 (2)	.2 (2)
27	.6 (18)	.2 (5)	0 (1)

TABLE 14. Continued (page 3)

Period of Time in Years	Present Position	First Most Recent	Second Most Recent
28	.9 (26)	.2 (4)	0 (0)
29	.6 (17)	.2 (4)	0 (0)
30	1.0 (30)	.5 (9)	.1 (1)
31	.4 (13)	0 (1)	0 (0)
32	.6 (18)	.2 (5)	0 (0)
33	.4 (12)	.2 (5)	0 (0)
34	.2 (7)	.2 (5)	0 (0)
35	.3 (11)	.1 (3)	0 (0)
36	.1 (5)	0 (1)	0 (0)
37	0 (2)	.1 (2)	0 (0)
38	0 (3)	0 (1)	0 (0)
39	.1 (5)	0 (0)	0 (0)
40	.2 (7)	0 (1)	0 (0)
Over 40	.3 (11)	.2 (5)	0 (0)
Total	100 (2827)	100 (1587)	100 (934)
No Reply	(75)	(1215)	(1918)
Total Returns	(2902)	(2902)	(2902)

replied, reported that a faculty member and/or adviser was the responsible contact in securing the first civilian position. It was of particular interest to have noted that 31 per cent of the 2536 replys credited the graduate's individual efforts as the most responsible contact. The value of the College Placement Service has been shown by the 12 per cent who credited this agency as most responsible. When one has realized that this college service has not been available for many years, and only within recent years has it been greatly expanded, the 12 per cent figure is quite significant.

Whether graduates reported having held one, two, or more positions, the same general trend was noted. Many jobs are held for short periods of time, as shown in Table 14. The majority of positions were held for five or less years. Although no thorough investigation has been made to find possible reasons for this situation, in all probability the two World Wars, a major depression, and the prosperous post-war years were contributing factors.

Data have revealed that a large proportion of Michigan state College agricultural graduates were employed as public servants. Nearly one-half of the 2857 who replied reported their present work as public employment. See Table 15. When one has realized the size, scope and expansion of agricultural programs at all levels of government, there is little wonder why so large a proportion are so engaged. Statistics reported by the University of Minnesota graduates study revealed quite similar results. There were 56 per cent publicly employed. In the majority of positions reported, graduates voted for public relations,

TABLE 15. TYPE OF PRESENT EMPLOYMENT OF GRADUATES OF SCHOOL OF AGRICULTURE

Public employment (Federal, State, City, etc.)		48 (1379)
Private employment (working for a company, corporation, etc)		29 (829)
Self employed (in business, such as farming)		20 (544)
Any other type of work (such as retirement)		3 (105)
	Total	100 (2857)
	No Reply	(45)
	Total Returns	(2902)

TABLE 16. SUMMARY OF JOB DESCRIPTIONS THAT BEST APPLY TO PRESENT MAJOR OCCUPATION OF GRADUATES *

Farming		7 (717)
Management		12 (1123)
Teaching		10 (1003)
Research		6 (662)
Sales		8 (773)
Public Relations		14 (1422)
Supervision		14 (1439)
Organization		12 (1173)
Administration		13 (1315)
Other		4 (369)
	Total	100 (9996)
	No Reply	(155)
	Total Returns	(10,151)

*Replies based on answers to a multiple choice question

supervision, and administration among the most important descriptions of their work. Table 16 has presented data to show this distribution.

The fact that 69 per cent reported that they were not interested in a change from their present work to another type of position was one indication of job satisfaction among the majority of alumni. Insufficient information was requested from and furnished by the informants from which to draw conclusions relating to satisfaction of work. In all likelihood there were some of those who favored a change of position since such action may have lead to advancements. Such a change would not necessarily have indicated job dissatisfaction in the first place. Of all data contained withint Table 17, the most significant has been the 31 per cent who voted either for a change or were undecided. The writer has classed the uncertain category with those who replied in the affirmative. According to Hall and Hudelson, most of the University of Illinois agricultural alumni expressed satisfaction with their present jobs.[10]

This 16 per cent who reported job dissatisfaction was comparable to the 16 per cent of Michigan graduates who showed definite interest in a change of position.

The poor response to the question which asked for names of important skills and abilities essential to job success has been attributed to inadequate and unclear instructions outlined in the original set of questions. Many informants had omitted the numerical ratings and

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[10] Ibid., pp. 25-28.

TABLE 17. DO AGRICULTURAL GRADUATES WANT TO CHANGE FROM THEIR PRESENT WORK TO ANOTHER TYPE OF POSITION?

Yes	16 (433)
No	69 (1900)
Uncertain	15 (411)
Total	100 (2744)
No Reply	(158)
Total Returns	(2902)

TABLE 18. MOST IMPORTANT SKILL AND ABILITY FOUND ESSENTIAL IN JOB SUCCESS OF AGRICULTURAL GRADUATES

Skill in using technical knowledge	20 (444)
Ability to sell ideas, products, etc.	10 (214)
Ability to accomplish things	16 (353)
Capacity to work hard	13 (282)
Ability to write	0 (7)
Ability to get along with people	36 (814)
Ability to speak to individuals and groups	3 (77)
Ability to take an active part in community services	0 (13)
Other	2 (45)
Total	100 (2249)
No Reply	(653)
Total Returns	(2902)

consequently such data could not be included. Insufficient space, provided by the I B M punch cards, further necessitated a reduction of data. Information that was finally classified and tabulated represented the one most important skill and ability. Apparently the ability to get along with people was considered by graduates in many fields of endeavor since it was so frequently mentioned as the one most important ability to job success. See Table 18 for data.

According to statistics shown in Table 19, many Michigan State College agricultural alumni have few idle moments with 23 per cent having reported a supplementary occupation.

Since graduates were asked to report their 1951 salary within certain broad brackets, it was not possible to get too clear a picture of salaries received. However, a study has revealed that the 95 per cent who reported, most salaries were comparable to those received by other alumni. Whereas 74 per cent of Michigan's graduates reported salaries of $4000 to $10,000 and above, only 64 per cent of the Texas graduates so reported.[11] A larger proportion of the Michigan graduates were represented in the higher salaried brackets. There has seemed to be a close correlation between salary figures presented by the Minnesota and Michigan graduates.

A study of Table 21 has shown the distribution of replies by year of graduation. Although a large number of graduates who replied have been the more recent ones, nearly twice as many of the pre-World War II

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[11] Shepardson, op. cit., p. 23.

TABLE 19. ARE AGRICULTURAL GRADUATES ENGAGED IN SUPPLEMENTARY WORK IN ADDITION TO THEIR MAJOR OCCUPATION?

Yes	23 (619)
No	77 (2111)
Total	100 (2730)
No Reply	(172)
Total Returns	(2902)

TABLE 20. AVERAGE YEARLY INCOME FOR GRADUATES' MAJOR OCCUPATION BASED ON 1951 EARNINGS

Less than $2000	3 (78)
$2000 - $4000	23 (633)
$4000 - $6000	45 (1255)
$6000 - $8000	15 (413)
$8000 - $10,000	7 (188)
Over $10,000	7 (191)
Total	100 (2758)
No Reply	(144)
Total Returns	(2902)

TABLE 21. NUMBER OF AGRICULTURAL GRADUATES OF VARIOUS YEARS WHO RETURNED QUESTIONNAIRES

Before 1880	0 (1)	1899	0 (2)	1918	1.1 (34)	1937	2.2 (60)
1881	0 (0)	1900	.1 (3)	1919	.5 (17)	1938	2.7 (80)
1882	0 (0)	1901	.1 (3)	1920	1.6 (45)	1939	3.1 (90)
1883	0 (2)	1902	.1 (5)	1921	1.7 (46)	1940	3.4 (100)
1884	0 (0)	1903	.2 (6)	1922	1.8 (54)	1941	2.9 (85)
1885	0 (1)	1904	.1 (5)	1923	2.0 (60)	1942	3.0 (88)
1886	0 (1)	1905	.2 (7)	1924	1.7 (47)	1943	2.2 (62)
1887	0 (1)	1906	.1 (3)	1925	1.8 (51)	1944	.3 (10)
1888	0 (2)	1907	.6 (19)	1926	1.7 (48)	1945	.3 (10)
1889	0 (2)	1908	.2 (8)	1927	1.2 (36)	1946	1.1 (34)
1890	0 (0)	1909	.3 (10)	1928	1.5 (43)	1947	2.8 (76)
1891	0 (1)	1910	.4 (14)	1929	1.8 (51)	1948	5.9 (159)
1892	0 (1)	1911	.7 (21)	1930	1.2 (36)	1949	7.5 (209)
1893	0 (1)	1912	1.1 (33)	1931	1.7 (48)	1950	13.2 (370)
1894	0 (0)	1913	1.5 (42)	1932	1.3 (38)	1951	6.4 (180
1895	0 (2)	1914	1.5 (41)	1933	1.9 (57)	Total	100 (2864)
1896	0 (1)	1915	1.6 (45)	1934	1.8 (50)	No Reply	(38)
1897	0 (2)	1916	1.6 (44)	1935	1.8 (52)	Total Returns	(2902)
1898	0 (1)	1917	2.6 (74)	1936	1.1 (34)		

years reported. The distribution of replies has been quite consistent throughout. Data as to age at time of graduation from college have proven of little value when such data stood alone. When compared to other data in Chapter 5, there was far greater significance. Most agricultural students who answered the question said that they graduated at 23-24 years of age. A still sizeable number graduated at older ages.

Many agricultural graduates have recognized the value of additional college training. There were 23 per cent who said they had earned an advanced degree.[12] It was interesting to note that 83 respondents indicated on their questionnaires having taken additional work towards earning a Master's degree. This information was furnished even though not asked for and without adequate space being provided for its inclusion. Undoubtedly many more have worked or are presently working on advanced degrees with such information being furnished had it been requested.

In Table 24 a detailed tabulation has been given of the undergraduate major and minor fields of specialization as well as the major field of graduate specialization, when such was undertaken. Among the undergraduate majors, foresters represented the largest group with Horticulture majors placing second. The number of Agricultural Education majors was third highest. The three combined groups represented

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[12] In cases where alumni had earned more than one advanced degree, credit has been given to the highest degree only.

TABLE 22. AGE OF GRADUATES AT TIME OF GRADUATION FROM M.S.C.

20 years and under		2 (73)
21 years		12 (313)
22 years		17 (461)
23 years		17 (469)
24 years		15 (418)
25 years		12 (337)
26 years		7 (211)
27 years		5 (160)
28 years		4 (106)
29 - 30 years		5 (156)
Over 30 years		4 (125)
	Total	100 (2829)
	No Reply	(73)
	Total Returns	(2902)

TABLE 23. SUMMARY OF ADVANCED DEGREES EARNED BY AGRICULTURAL GRADUATES

Master's degree		64 (504)
Doctor's degree		20 (150)
Honorary degree		0 (3)
Other Bachelor's degree		5 (42)
Working on Master's degree		11 (83)
	Total	100 (782)
	No Reply	(2120)
	Total Returns	(2902)

TABLE 24. MAJOR AND MINOR FIELDS OF SPECIALIZATION BY UNDERGRADUATE AND GRADUATE STUDENTS IN AGRICULTURE

Course Area	Undergraduate Major Field	Undergraduate Minor Field	Graduate Field
Agricultural Economics	4.7 (134)	5.8 (92)	6.1 (42)
Agricultural Education	15.1 (421)	7.1 (109)	3.6 (25)
Agricultural Extension	.6 (19)	.1 (2)	.4 (3)
Agricultural Engineering	2.2 (63)	5.1 (81)	.5 (4)
Animal Husbandry	7.5 (209)	11.1 (170)	3.0 (21)
Conservation	0 (0)	0 (0)	0 (0)
Dairy	9.9 (277)	7.8 (120)	5.0 (34)
Farm Crops	6.2 (174)	11.1 (170)	3.3 (23)
Forestry	22.8 (637)	2.0 (32)	12.9 (90)
Food Technology	.7 (20)	.2 (4)	.5 (4)
Horticulture	16.2 (453)	7.3 (112)	9.6 (67)
Landscape Architecture	4.7 (133)	1.8 (29)	2.1 (15)
Poultry	1.9 (54)	3.7 (59)	1.4 (10)
Pre-Theology	0 (1)	0 (1)	0 (0)

TABLE 24. Continued (page 2)

Course Area	Undergraduate Major Field	Undergraduate Minor Field	Graduate Field
Rural Sociology	0 (1)	0 (0)	.4 (3)
Soils	5.8 (161)	10.1 (156)	9.5 (68)
General Agriculture	1.0 (30)	1.5 (25)	3.3 (23)
Education - not Agricultural	.1 (4)	1.2 (20)	15.1 (104)
Chemistry	.2 (7)	4.5 (71)	1.5 (11)
Botany	.1 (5)	8.4 (132)	3.8 (27)
Bacteriology	.1 (4)	1.5 (24)	.5 (4)
English	0 (0)	.1 (2)	0 (0)
Economics - not Agricultural	0 (0)	.7 (11)	1.1 (8)
Administration	0 (0)	0 (1)	2.6 (18)
Business Administration	0 (0)	.7 (12)	.5 (4)
Entomology	.1 (3)	1.5 (25)	.4 (3)
Physics	0 (0)	0 (1)	.4 (3)
Zoology	0 (1)	.8 (14)	.9 (7)
Veterinary Medicine	0 (1)	.7 (12)	0 (0)
Others	.1 (4)	5.2 (83)	11.5 (80)
Total	100 (2816)	100 (1570)	100 (714)
No Reply	(86)	(1332)	(2188)
Total Returns	(2902)	(2902)	(2902)

54 per cent of all respondents. A study of the figures representing undergraduate minor fields of specialization has revealed that Forestry, and Horticulture are less popular. It was such course areas as Animal Husbandry, Farm Crops, Soil Science, and Botany that were more popular among the undergraduate students. Some course areas showed compatibleness such as a major in Horticulture and minoring in Botany, Farm Crops and Soils, or Soils and Farm Crops, etc. The large numbers who specialized in Education as graduate students were vocational agriculture teachers or other graduates who reported positions in educational administration. The majority of graduates who held advanced degrees were those who held positions in educational and research work. When one has considered all fields of graduate school specialization, it was found that a larger percentage of forestry graduates were represented. These data can be misleading without a further analysis. One must remember that the large percentage of graduate study degrees were represented by the large numbered groups such as Forestry and Horticulture. When one has studied the data, however, the most impressive record was made by Soils alumni. Whereas only 14 per cent of those men who had majored in Forestry earned advanced degrees, there were 40 per cent of the undergraduate Soils majors who furthered their work. This fact may be partly responsible for the large number of Soils graduates who reported remaining in the agricultural field of work.

Table 25 is highly significant. As the data have revealed, a larger percentage of Animal Husbandry majors left their major field of undergraduate specialization than any of the others. In contrast to

TABLE 25. DO AGRICULTURAL GRADUATES REMAIN IN OCCUPATIONS FOR WHICH THEY SPECIALIZED AS COLLEGE STUDENTS?

Course Area	Majors	Leave Field of Major	Remain Field of Major	Total	No Reply	Total Returns	Remain Agric.	Leave Agric.	Total	No Reply	Total Returns
Agr. Econ.	4.7 (134)	52.6 (69)	47.4 (62)	100 (131)	(3)	(134)	74.8 (98)	25.2 (33)	100 (131)	(3)	(134)
Agr. Educ.	15.0 (421)	51.8 (215)	48.2 (200)	100 (415)	(6)	(421)	82.6 (343)	17.4 (72)	100 (415)	(6)	(421)
Agr. Exten.	.6 (19)	53.0 (9)	47.0 (8)	100 (17)	(2)	(19)	89.0 (15)	11.0 (2)	100 (17)	(2)	(19)
Agr. Engineering	2.2 (63)	50.0 (31)	50.0 (31)	100 (62)	(1)	(63)	80.6 (50)	19.4 (12)	100 (62)	(1)	(63)
Animal Husbandry	7.4 (209)	74.0 (151)	26.0 (56)	100 (207)	(2)	(209)	81.6 (169)	18.4 (38)	100 (207)	(2)	(209)
Dairy	10.0 (277)	42.4 (115)	57.6 (156)	100 (271)	(6)	(277)	87.0 (236)	13.0 (35)	100 (271)	(6)	(277)
Farm Crops	6.2 (174)	64.3 (112)	35.7 (62)	100 (174)	(0)	(174)	80.4 (140)	19.6 (34)	100 (174)	(0)	(174)
Forestry	22.5 (637)	30.0 (184)	70.0 (431)	100 (615)	(22)	(637)	83.5 (514)	16.5 (101)	100 (615)	(22)	(637)
Food Tech.	.7 (20)	10.0 (2)	90.0 (18)	100 (20)	(0)	(20)	90.0 (18)	10.0 (2)	100 (20)	(0)	(20)
Horticulture	16.1 (453)	43.7 (190)	56.3 (244)	100 (434)	(19)	(453)	82.0 (356)	18.0 (78)	100 (434)	(19)	(453)
Landscape	4.5 (133)	35.3 (47)	64.7 (86)	100 (133)	(0)	(133)	82.0 (109)	18.0 (24)	100 (133)	(0)	(133)
Poultry	2.0 (54)	58.0 (29)	42.0 (21)	100 (50)	(4)	(54)	70.0 (35)	30.0 (15)	100 (50)	(4)	(54)
Soils	6.0 (161)	44.8 (72)	55.2 (89)	100 (161)	(0)	(161)	87.0 (140)	13.0 (21)	100 (161)	(0)	(161)
Other	2.1 (61)	55.0 (22)	45.0 (18)	100 (40)	(21)	(61)	95.0 (38)	5.0 (2)	100 (40)	(21)	(61)
TOTAL	100 (2816)			100 (2816)					100 (2816)		
No Reply	(86)			(86)					(86)		
TOTAL RETURNS	(2902)					(2902)					(2902)

the 71 per cent who left Animal Husbandry, were those of Forestry with a low of 28 per cent who drifted into other kinds of work. Data from the Vermont study likewise pointed to the very large percentage of Animal Husbandry majors who entered other fields of work.[13] Although data revealed these above mentioned facts, they also disclosed interesting and pertinent facts. Over 82 per cent of the Michigan graduates who majored in Animal Husbandry reported positions which were still within the agricultural field. One can only speculate as to possible reasons for this reported situation. It could be that the Animal Husbandry field has had a limited area of opportunities.

There are two possible reasons that the writer has proposed to account for the large numbers of trained foresters who remain in the forestry field. Within recent years the people of our country have become extremely cognizant of the importance of soil, water, and forest conservation. With reduced weekly working hours, most people have had increased leisure hours. Many have turned to recreation as a use for this free time. The governmental agencies at all levels have embarked upon expanded programs to include tree care, reforestation, conservation, etc. Larger sums of money have been spent by cities and towns in the care of shade trees. Many new parks and recreation areas have been developed. Especially in the recent post-war years, a tremendous house construction boom has been in progress. On ever increasing supply of wood has been demanded. All of these above mentioned factors have undoubtedly played a role in the number of available positions in forestry.

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[13] Carter and Fenix, op. cit., p. 9.

A further possible explanation, although not yet verified, owing to the wide salary brackets, but suspected by the writer after studying returns, was the generally lower salaries paid to workers in forestry pursuits, especially among the newer graduates. It may be that the greater intensification or specialization in forestry, as undergraduates, has lessened the graduates' opportunities to the extent that he has little opportunity to take work in other fields. These have been presented as possible explanations for the large percentage of graduates who have remained in their major field of specialization, namely Forestry.

Despite the 30 per cent of Poultry and 25 per cent of Agricultural Economics undergraduate majors who have entirely left their field of agriculture, the over-all 84 per cent of graduates who have remained is high. Exceptionally large numbers of Dairy and Soils majors have stayed with agricultural employment. It has been the opinion of the writer that the Dairy field has offered numerous opportunities to agricultural graduates. This has been especially so within the dairy products field in which a large number of the dairy graduates are engaged. Because Soil Science is so basic to any agriculture, Soils majors have found their opportunities more broadened. Since the initiation of the U.S.D.A. Soil Conservation program, many agricultural college graduates have been hired. The basic principles of Economics, whether agricultural or otherwise, are alike. Because of the good basic training that Agricultural Economics majors have received their opportunities are many and varied, to an extent, outside the agricultural field, such as business, banking, transportation, credit and finance and others. These may be possible reasons for the larger than average number who have left Agricultural Economics for non-agricultural work.

Summary

Highlights of the data that have been presented in this chapter in tabular and narrative forms have been summarized as follows:

(1) Technical agricultural courses were considered more important to the agricultural graduate in the conduct of his work than the non-agricultural courses with 68 per cent of all respondents having indicated this category to be of greatest value. Undergraduate students of agriculture should place much emphasis upon this phase of their college training.

(2) Among the non-agricultural course areas, English, Speech, Mathematics, and Chemistry were thought to be most valuable. A greater value was attached to English and Speech than to any of the other 31 listed course areas. Only 3 and 4 per cent, prespectively, of all graduates who replied rated these two courses as not important. There were 80 per cent who rated Mathematics as important with 78 per cent doing likewise with Chemistry. Based on these data, all agricultural students at Michigan State College should be urged to receive a well-rounded training in such subjects.

(3) There were 90 per cent who voted for the importance of Public Relations in their work. Based on this, it is recommended that agricultural students take some course work in this field.

(4) A 68 per cent majority favored a broad general agricultural training for undergraduates with varying degrees of specialization. Landscape Architecture and Forestry graduates, more than any others,

advocated intense undergraduate specialization. Based on these data, it has seemed advisable that agricultural students, in general, be encouraged to take a more broadened training in agriculture.

(5) Inasmuch as approximately one-third said they had first decided on their present career before college, another one-third decided in college, while still another one-third said their decision had been made after college graduation, this would seem to substantiate the contention that career selection is a continuous process and not one that has certain time limitations in life.

(6) Relatives, friends, and members of departments in which graduates majored were the most influential presons in career selection of graduates. There were 45 per cent of informants who voted for these categories.

(7) Based on the data furnished by 2902 returns, it is recommended that greater attention and effort be made in developing guidance and counseling services among undergraduate students of agriculture. The fact that 6460 total recommendations were given to help freshmen make wiser career choices was just one of the indicators that pointed to the advisability of such a service.

(8) Michigan State College agricultural graduates, in 84 per cent of the reported cases, had remained in agricultural fields of work. This indicated the broad and many opportunities that agriculture has afforded trained personnel.

(9) A large majority of agricultural alumni were engaged in agricultural work as their first civilian job. There were 93 per cent who so reported. Obviously, agriculture is not a "closed" field.

(10) Approximately 50 per cent of those who reported vocational agricultural teaching as their first position had left this work for other fields of endeavor. The number of college and university teachers, however, increased. Undoubtedly such factors as salaries received, years of experience, advanced training, and others have been contributing factors for this situation.

(11) An approximate equal number of graduates were working in either government agricultural or non-government agricultural positions.

(12) The number of agricultural proprietors, managers, and officials doubled from the time of graduate's first to their present positions. This is indicative of the experience and added capital that is required in such positions of responsibility.

(13) There were 51 per cent who indicated that their college training gave them specific preparation in helping them to get their first civilian position.

(14) Sixty-eight per cent indicated that their first position provided them with a good opportunity for advancement.

(15) Agricultural graduates held their first positions for comparatively short periods with 61 per cent having reported a period of two years or less.

(16) Over one-third of the respondents indicated that Michigan State College faculty members or advisers played the most significant role in helping graduates to get their first positions.

(17) The fact that 69 of each 100 who replied indicated no desire to change positions was one indicator of job satisfaction. Insufficient

data were available to make additional conclusions. Many of those who were interested in a change of position may have been satisfied in their present jobs, but desirous of a change to improve salary or prestige, to gain added responsibilities, etc.

(18) College undergraduates could well heed the answers given to the question which asked for a rating of the skills and abilities most essential to job success. Although several were listed, more than one in each three felt that the ability to get along with people was the most important.

(19) The majority of graduates completed their undergraduate work at 22 - 24 years of age.

(20) Over 22 per cent reported having earned either a Master's or Doctor's degree. Although the question was not asked, there were 83 informants who reported that they were working for a Master's degree at the time. In view of the sizeable number who so reported, it seems advisable that every encouragement be given to qualified college students to continue their agricultural training on a graduate study level. Undergraduate students should become oriented with the degree requirements of the various positions.

(21) The largest number of graduates who replied were those who had majored in Forestry, Agricultural Education, and Horticulture. These three groups comprised 54 per cent of the total. In the minor fields of specialization, such courses as Animal Husbandry, Crops, and Soils Science were more popular.

(22) Education has been the most common field of specialization on the graduate study level. Almost one in each five who has received either a Master's or Doctor's degree has earned one in Education. In view of the fact that teaching requirements have been set up to require advanced training, it has not been at all surprising to have observed these data.

(23) Only 16 per cent have left the field of agriculture. More Poultry and Agricultural Economics majors than others have left agriculture.

(24) Although 74 per cent of the Animal Husbandry graduates have left their major field of study, there were still 82 per cent who have remained in agricultural work. It could be that these majors, who find the Animal Husbandry opportunities limited, because of their well rounded training can and do find jobs in related fields.

(25) Fewer Forestry and Landscape Architecture graduates left their fields of major study than did other agricultural graduates. Possible explanations were: (1) the increased number of available jobs and the larger amounts of money having been spent by the general public in recreational inprovements and beautification, and (2) the greater degree of specialization of the two types of work.

(26) Fewer than 14 per cent of the graduates of Agricultural Extension, Food Technology, Dairy, and Soils Science have left major fields of study for other fields of work.

CHAPTER IV

COLLEGE CURRICULA

Recognizing that there was a variance of opinion about the value of college courses and the nature of undergraduate training, Chapter IV has been devoted to a discussion of the agricultural curriculum.

Data shown in tables of the preceding chapter point to the value of agricultural, professional training and to the advisability of a broadened undergraduate training in agriculture. Although these results have signified importance, they have not been entirely meaningful as they included all graduates, irrespective of the nature of work in which they were engaged. In the following pages, an attempt has been made to analyze the findings, and to draw conclusions of those factors related to curricula needs of students and graduates. An analysis of the value of college course areas has been given in part 1, while part 2 has been devoted to an interpretation of the data as related to the college specialization.

Value of College Courses

Wherever we go, we find that graduates have developed definite opinions about the value of their college training. The following working hypothesis has been developed to analyze the value of course areas: Professional courses in agriculture which have a direct everyday application are considered more important to the agricultural graduate in conducting his work than are the non-agricultural courses, and this will vary with occupations. The term "professional agriculture" has been construed to mean all courses offered by the School of Agriculture, Michigan State College. Non-agricultural courses have included all others offered by other departments of the college such as the Biological and Physical Sciences, Communication Skills, Literature and Fine Arts, and miscellaneous.

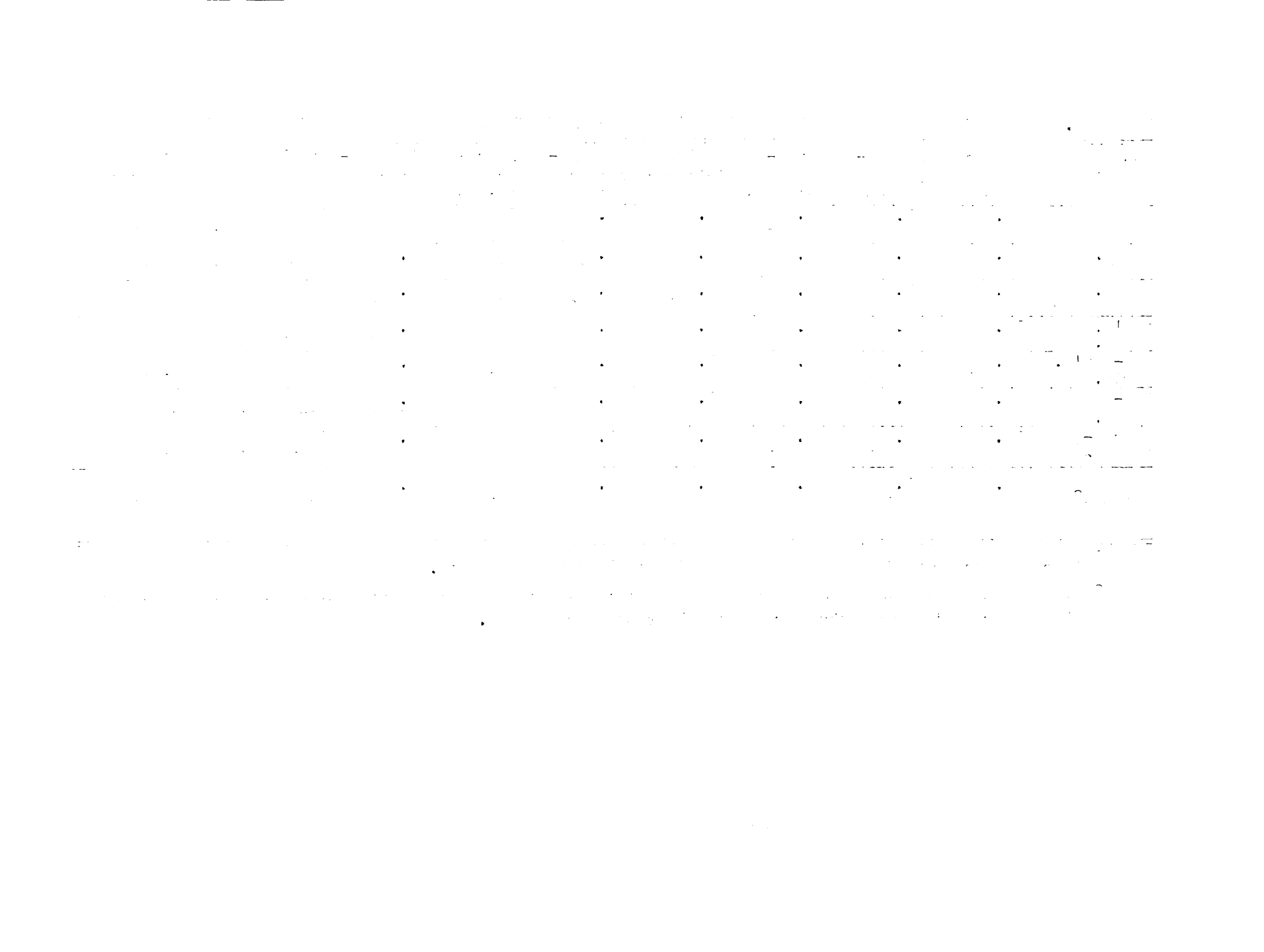
Data to test this hypothesis are given in Table 26. It will be observed that all graduates, irrespective of occupational groupings, and to even include the non-agricultural workers, placed a greater value on the professional agricultural course areas. In the development of future training programs in agriculture, these data will prove very helpful. Farmers and research workers, who rated the professional agricultural course areas as extremely high, placed little value upon the communication skills. In contrast to this was the non-agricultural group who placed the least value upon the professional agricultural courses but gave the highest rating to the communication skills.

TABLE 26. COMPARISON OF MOST VALUABLE COLLEGE COURSE AREAS TO GRADUATES BY OCCUPATIONAL GROUPINGS

Occupational Groupings	Profes-sional Courses	Biolog-ical Sciences	Physi-cal Sciences	Social Sciences	Communi-cation Skills	Litera-ture and Fine Arts	Miscella-neous	Total	No Reply	Total Returns
Farmer	89.0 (253)	7.0 (19)	0.5 (2)	.5 (2)	3.0 (9)	0 (0)	0 (1)	100 (286)	(32)	(318)
Agric. Teacher	85.0 (306)	5.0 (17)	2.0 (8)	2.0 (6)	5.0 (20)	0 (0)	1.0 (3)	100 (360)	(31)	(391)
Agric. Researcher	46.0 (39)	27.0 (22)	21.0 (18)	1.0 (1)	2.0 (2)	0 (0)	3.0 (3)	100 (84)	(6)	(90)
Gov't. Agric.	75.0 (458)	7.0 (47)	2.0 (15)	2.0 (13)	10.0 (61)	0 (0)	4.0 (22)	100 (617)	(55)	(672)
Non-gov't. Agric.	69.0 (447)	8.0 (51)	5.0 (35)	2.0 (14)	10.0 (65)	0 (1)	6.0 (39)	100 (652)	(61)	(713)
Non-Agric.	28.0 (109)	6.0 (25)	22.0 (86)	7.0 (26)	22.0 (87)	0 (0)	15.0 (61)	100 (394)	(84)	(478)
Miscel-laneous[1]	59.0 (101)	4.0 (7)	10.0 (17)	3.0 (5)	13.0 (22)	0 (0)	11.0 (19)	100 (171)	(69)	(240)
Total Returns[2]	68.0 (1712)	7.0 (188)	7.0 (182)	3.0 (67)	10.0 (266)	0 (1)	5.0 (148)	100 (2564)	(338)	(2902)

[1]Miscellaneous group includes the 10 who did not list an occupation.

[2]Total returns category as shown at the end of this and all following tables represent percentage and numerical data brought forward from previous tables to check totals.



It was a surprise to the writer to note that agricultural teachers placed little value on the communication skills. Only 5 per cent reported these areas as most valuable in their present work. Only the farmers and researchers gave a lower rating. Evidently teachers have found that agricultural knowledge is of greater value to them than the manner in which information is presented, either verbally or non-verbally. In all probability this assumption has some validity as the data in Table 27 have revealed. Graduates placed less emphasis upon the instructor and the way he taught the course than upon the broad general working knowledge of the subject and the specific information that they received.

Courses in Biological and Physical Science, although of some importance as data in Table 3, Chapter III, have shown, were not rated particularly high as the most valuable college course area, nor were they important when compared to the agricultural courses. An exception to this statement was exhibited by the research worker group who rated these sciences as second most important. There were approximately 25 per cent who so replied. The very nature of agricultural research has necessitated a good background training in Mathematics, Chemistry, Botany, and the like.

It was significant to note that 22 per cent of the non-agricultural workers credited the physical sciences with a fair degree of importance. The writer has not been able to determine conclusively a possible reason for this disclosure, although the popularity of Mathematics and Chemistry will prove to have been contributing factors.

TABLE 27. COMPARISON OF FACTORS RESPONSIBLE FOR SELECTION OF MOST VALUABLE COLLEGE COURSE AREA BY OCCUPATIONAL GROUPING *

Occupational Grouping	Specific Information	Instructor	Knowledge to Find	Confidence	Working Knowledge	Others	Total	No Reply	Total Returns
Farmer	23.0 (192)	17.0 (146)	16.0 (137)	16.0 (134)	25.0 (204)	3.0 (26)	100 (839)	(29)	(868)
Teacher	23.0 (242)	19.0 (201)	16.0 (170)	19.0 (204)	19.0 4.0 (207)	100 4.0 (42)	100 (1066)	(27)	(1093)
Research	21.0 (46)	17.0 (39)	17.0 (38)	17.0 (40)	25.0 (58)	3.0 (6)	100 (227)	(2)	(229)
Government	21.0 (373)	13.0 (240)	18.0 (315)	19.0 (332)	26.0 (438)	3.0 (63)	100 (1761)	(43)	(1804)
Non-government	22.0 (388)	13.0 (230)	18.0 (316)	18.0 26.0 (323)	26.0 3.0 (450)	3.0 100 (55)	100 (1762)	(57)	(1819)
Non-agricultural	22.0 (201)	15.0 (141)	17.0 (154)	21.0 (187)	30.0 (273)	5.0 (50)	100 (1006)	(80)	(1086)
Miscellaneous	19.0 (86)	13.0 (61)	19.0 (87)	18.0 (81)	27.0 (125)	4.0 (20)	100 (460)	(77)	(537)
Total Returns	22.0 (1528)	14.0 (1058)	17.0 (1217)	18.0 (1301)	25.0 (1755)	4.0 (262)	100 (7121)	(315)	(7436

*Replies based on answers to a multiple choice question

Importance of a Broad Training

Whether training should be based upon specialization, a broad training, or a combination of both, has long been a problem of American educators.[1] An answer to this problem has not been easy inasmuch as many factors have been involved. One must first be cognizant of the fact that agriculture, in itself, has been a specialized field. Within agriculture, there have been varying degrees of specialization insofar as college training has been conducted.

The following hypothesis has been developed for testing: The degree of specialization advocated by alumni for agricultural students depends upon (1) the occupation in which alumni are engaged, (2) the number of years since graduation from college, (3) the major field of study while attending college, (4) the number and type of advanced degrees earned, and (5) the salary earned in present positions.

To avoid possible confusion in semantics, the terms "specialization" and "broad training" in agriculture have been defined. As used here, the term "specialization" has been construed to mean a concentration of one's effort on a special subject of a single department within the School of Agriculture. By "broad training" the writer has meant that the student's agricultural college work has not been confined to a single department within the School of Agriculture.

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[1] Ernest Havemann and Patricia Salter West, They Went To College (New York: Harcourt, Brace and Co., 1952) p. 127.

A series of six Tables, 28 - 33 inclusive, have been included to furnish data to test the hypothesis. Five separate categories or degrees of specialization within the School of Agriculture were employed. These were: (1) intensive specialization in the subject matter of a single department, (2) take one course in several departments with remaining technical agricultural courses in some field of specialization within one department, (3) take two or more courses in several departments with remaining technical agricultural courses in some field of specialization, (4) try to get as broad a training as possible in agriculture, without specialization in any one department; and (5) try to get a broad undergraduate training in agriculture without specialization, and then intensively specialize as a graduate student in the subject matter of a single department.

Categories (1) and (2) have been designated to represent specialization while the remaining ~~five~~ three have been considered to be a broad agricultural training or varying degrees of broadened training.

Occupations and specialization. Whether a graduate was farmer, teacher or research worker, government or non-government agricultural worker, or even in non-agricultural pursuits, he felt that a broadened agricultural training for undergraduate students was preferable. See Table 28. This was true despite the considerable variation of thought. Agricultural administrators and specialists, either government or non-government, were the strongest advocates of specialization with 44 and 35 per cent, respectively, so voting. Teachers, on the other hand, voted 84 per cent in favor of less specialization. Farmers, researchers, and non-agricultural workers fell in between.

From these data, several opinions have been offered. The fact that large numbers of government and non-government agricultural specialists and administrators favored specialization is understandable as such work requires a higher degree of specialization. This has been especially apparent among private business and the industrial enterprises, as data have shown. Employees were hired to assume very definite responsibilities. This has not been entirely true in governmental work, where responsibilities are many and varied. Government agricultural employees frequently have had large geographical areas to serve. This has been especially so of public servants who have a greater need to be a "jack of many trades." Examples that have been cited to substantiate this assumption are: Extension agents, State Department representatives, U. S. D. A. employees, and others.

Although farming is a specialized business, when compared to the situation of 50 years ago, it has been noted that graduates of agriculture who were engaged in farming as their major occupation did not favor a specialized college training. Instead, they were strong advocates of the "middle of the road" proposal that suggested neither too much specialization nor too general (a) training. From a study of the data, it has seemed wisest to suggest that undergraduates who plan to farm take two or more courses in several departments in the School of Agriculture, with remaining technical agricultural courses in some field of specialization. A certified potato seed grower is engaged in a highly specialized work. However, he will want to familiarlize himself with technical knowledge about Soils, Horticulture, Agricultural Engineering,

TABLE 28. EVALUATION OF COLLEGE TRAINING AS RECOMMENDED BY GRADUATES ACCORDING TO OCCUPATIONAL GROUPS

Occupational Grouping	Intensive Specialization	1 Course Each Dept. and Specialize	2 Courses Each Dept. and Specialize	Broad Agric. Undergrad. Training	Specialize as Graduate	Other	Total	No Reply	Total Returns
Farmer	6.2 (19)	23.3 (70)	43.1 (130)	19.2 (58)	6.9 (21)	1.1 (4)	100 (302)	(16)	(318)
Teacher	3.7 (13)	12.6 (50)	28.3 (105)	27.8 (103)	25.3 (95)	2.3 (9)	100 (375)	(16)	(391)
Research	12.5 (11)	13.9 (12)	25.2 (22)	4.7 (4)	36.7 (32)	7.0 (6)	100 (87)	(3)	(90)
Government	16.0 (104)	18.8 (124)	30.4 (198)	12.7 (84)	19.2 (125)	2.9 (18)	100 (653)	(19)	(672)
Non-government	18.4 (126)	25.7 (177)	28.3 (195)	11.6 (79)	14.5 (99)	1.5 (11)	100 (687)	(26)	(713)
Non-Agricultural	8.8 (33)	16.7 (65)	22.8 (88)	22.5 (88)	26.3 (102)	2.9 (90)	100 (388)	(90)	(478)
Miscellaneous	14.6 (26)	20.3 (36)	26.1 (46)	17.0 (30)	19.7 (35)	2.3 (4)	100 (177)	(63)	(240)
Total Returns	12.0 (332)	20.0 (534)	30.0 (784)	17.0 (446)	19.0 (509)	2.0 (64)	100 (2669)	(233)	(2902)

Farm Mechanics, Agricultural Economics, Botany, Rural Sociology, Entomology, Plant Pathology, Accounting, Business Law, Public Relations, and Bookkeeping.

Although only 26 per cent of the agricultural research worker group voted for a specialized undergraduate training, this has not implied that such work is not specialized. On the contrary, such workers have favored a specialized training, but only after undergraduate students have first been well grounded in general agricultural training. Almost 37 per cent favored a general agricultural undergraduate training with specialization on the graduate level.

It was not unexpected to learn that a mere 16 per cent of the teacher group supported the plan of specialized undergraduate training. It must be remembered that more than 50 per cent of the agricultural teachers were high school vocational agricultural instructors whose work did not favor specialization in any one subject.

Specialization and years since college graduation. The number of years since graduation from college was suggested as a possible factor in the degree of specialization recommended by alumni. To test this phase of the original hypothesis, the research procedure followed was to divide all replies into four groups, as shown in Table 29. These were: those who had been graduated in less than five years (1948-1951 inclusive), those who have been out of college from 5 - 14 years (1938 - 1947 inclusive), graduates of 15 - 34 years (1918 - 1937 inclusive), and all those who have been graduated for 35 or more years. The most recent graduate

TABLE 29. COMPARISON OF RECOMMENDED TYPE OF COLLEGE TRAINING AND YEARS OUT OF COLLEGE OF GRADUATES BY OCCUPATIONS

Occupational Grouping	Intensive Specialization				1 Course Each Dept. plus Specialization			
	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over
Farmer	.3 (1)	2.0 (6)	2.6 (8)	1.3 (4)	4.0 (12)	5.3 (16)	9.0 (27)	5.0 (15)
Teacher	.6 (2)	.6 (2)	1.9 (7)	.6 (2)	3.0 (11)	3.0 (11)	6.5 (24)	1.1 (4)
Research	4.6 (4)	2.2 (2)	5.7 (5)	0 (0)	5.7 (5)	3.6 (3)	4.6 (4)	0 (0)
Government	5.2 (34)	4.2 (28)	5.9 (38)	.7 (4)	6.2 (41)	4.5 (30)	6.9 (45)	1.2 (8)
Non-government	9.9 (68)	3.0 (21)	3.8 (26)	1.7 (11)	12.2 (84)	6.4 (44)	5.2 (36)	1.9 (13)
Non-Agricultural	2.4 (9)	2.4 (9)	1.6 (6)	2.4 (9)	3.9 (15)	3.0 (12)	6.8 (26)	3.0 (12)
Miscellaneous	6.2 (11)	0 (0)	2.2 (4)	6.2 (11)	9.7 (17)	3.3 (6)	2.2 (4)	5.1 (9)
Total Returns		12.0 (332)				20.0 (534)		

	2 Courses Each Dept. plus Specialization				Broad Agricultural Undergraduate Training			
	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over
Farmer	11.0 (33)	10.2 (31)	17.9 (54)	4.0 (12)	2.6 (8)	3.6 (11)	9.0 (27)	4.0 (12)
Teacher	12.6 (47)	7.8 (29)	6.2 (23)	1.7 (6)	12.1 (45)	6.5 (24)	8.3 (31)	.9 (3)
Research	9.1 (8)	8.1 (7)	5.7 (5)	2.3 (2)	2.3 (2)	1.2 (1)	1.2 (1)	0 (0)
Government	10.9 (71)	7.7 (50)	10.8 (70)	1.0 (7)	3.3 (22)	2.4 (16)	6.0 (39)	1.0 (7)
Non-government	13.1 (90)	8.2 (57)	5.6 (33)	1.4 (10)	4.9 (33)	2.3 (16)	3.0 (20)	1.4 (10)
Non-Agricultural	7.5 (29)	4.9 (19)	8.0 (31)	2.4 (9)	3.0 (12)	4.1 (16)	8.2 (32)	7.2 (28)
Miscellaneous	12.0 (21)	4.0 (7)	1.1 (2)	9.0 (16)	4.6 (8)	1.7 (3)	1.7 (3)	9.0 (16)
Total Returns		30.0 (784)				17.0 (446)		

TABLE 29. Continued (page 2)

Occupational Grouping	Specialization as Graduate				Other			
	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over
Farmer	1.3 (4)	1.3 (4)	2.0 (6)	2.3 (7)	.3 (1)	0 (0)	.7 (2)	.3 (1)
Teacher	8.3 (31)	6.6 (25)	8.0 (30)	2.4 (9)	0 (0)	1.0 (4)	.5 (2)	.8 (3)
Research	6.8 (6)	12.7 (11)	9.1 (8)	8.1 (7)	2.3 (2)	2.3 (2)	1.2 (1)	1.2 (1)
Government	5.0 (32)	4.2 (28)	8.0 (52)	2.0 (13)	.3 (2)	.3 (2)	1.3 (9)	1.0 (7)
Non-government	6.0 (41)	3.2 (22)	2.3 (16)	3.0 (20)	.6 (4)	.6 (4)	.2 (2)	.1 (1)
Non-agricultural	5.1 (20)	5.7 (22)	14.7 (57)	.8 (3)	.2 (1)	1.0 (4)	1.2 (5)	.5 (2)
Miscellaneous	4.6 (8)	1.1 (2)	3.9 (7)	10.1 (18)	.6 (1)	.6 (1)	0 (0)	1.1 (2)
Total Returns		19.0 (509)				2.0 (64)		

	Total	No Reply	Total Returns
Farmer	100 (302)	(16)	(318)
Teacher	100 (375)	(16)	(391)
Research	100 (87)	(3)	(90)
Government	100 (653)	(19)	(672)
Non-Government	100 (687)	(26)	(713)
Non-Agricultural	100 (388)	(90)	(478)
Miscellaneous	100 (177)	(63)	(240)
Total Returns	100 (2669)	(233)	(2902)

group comprised 21 per cent of the total. There were 31 per cent who replied in the 15 - 34 year group. Only 17 per cent of all replies were those of alumni who had graduated for 35 or more years.

Most graduates who favored a specialized undergraduate training, were those who have been graduated for 15 - 35 years. Apparently, as alumni have developed abilities and skills and have acquired greater experience, their jobs have become more specialized. More recent graduates have been engaged in work that is more general in nature. An exception to this was the non-government agricultural worker. It was the votes of the recent graduates, since 1948, and not the older ones, who strongly suggested a specialized undergraduate training. Several probable explanations have been offered for this result. Non-government agricultural businesses have shown great expansion and development within recent years, especially since World War II. Large numbers of agricultural graduates have been employed in the manufacture and distribution of products as well as consultant responsibilities. Owing to favorable economic conditions, more businesses have been organized. Undoubtedly these factors have been responsible for a greater need for college graduates to fill vacancies as agricultural specialists and administrators. Our American business has been organized around mass production and specialization with most of its employees doing a specialized work.

Recent graduates who reported their major work as farmer, teacher, research, or government worker,, were conspicuous in their lack of enthusiasm for a specialized undergraduate college training in agriculture. Among those alumni who were engaged in agricultural pursuits and

who favored the more broadened training, there appeared to be some significance when considering the element of time since graduation. The largest percentage of farmers and government agricultural specialists, who recommended a broad undergraduate training, were those who had been graduated at least 15 years. In contrast to this were the teacher and non-government specialist groups in which the most recent graduates overwhelmingly voted for a broad undergraduate training. A study of percentages, as shown in Table 29, has cast some light on a possible explanation. Whereas the largest majority of teachers who advocated a broadened undergraduate agricultural training were recent graduates, the older graduates voted more generally for specialized undergraduate training. Perhaps as teachers have acquired more experience, their positions have become more specialized. A study of data in Table 29 has revealed further information that may help to explain this relationship. A large percentage of the older alumni, who were teachers, recommended specialization, but on a graduate study level. Here is a situation which, on the surface, has seemed to present differing views, among teachers of various ages, but a further study has indicated a greater degree of uniformity of opinion.

As the data have indicated, there were 6 per cent within the recent graduate non-government specialist category who advised specialization on the graduate study level. An explanation of this higher than usual figure has been given by the writer. All respondents who reported their present positions as that of a graduate student were classified as non-government professional specialists. It was obvious that many of these men would recommend this course of action since they themselves were so engaged.

Relationship of college major and recommended training. In this part, a further analysis has been made to test the original hypothesis. It has been assumed that one's major field of study, as an undergraduate student, has influenced his recommendation to the present and future students who plan to enter his field of work. Only graduates of Forestry and Landscape Architecture placed more emphasis upon specialization. Nearly 52 per cent of the foresters and 58 per cent of the landscape architects favored specialization. All others favored some degree of a more broadened training. Among those who strongly advocated less specialization were graduates of Agricultural Extension, Agricultural Education, Soil Science, and Farm Crops. Except for the Forestry, Landscape Architecture, and Poultry course areas, all other graduates placed the greatest value on category 2, namely, take two or more courses in several departments in the School of Agriculture with remaining technical agricultural courses in some field of specialization.

Forestry and Landscape graduates placed greater emphasis upon specialization as an undergraduate and less so on a graduate study level. On the other hand, it was found that the heavy votes for less undergraduate specialization, those of Farm Crops, Soils, Agricultural Education, were the leaders in the advocation of specialization on a graduate study level. Apparently the foresters and landscape architects, although feeling that their work was specialized, did not think that advanced college training was necessary.

TABLE 30. COMPARISON OF RECOMMENDED TYPES OF COLLEGE TRAINING AND AVERAGE YEARLY INCOME FOR MAJOR OCCUPATION

Yearly Income	Intensive Specialization	1 Course Each Dept and Spec.	2 Courses Each Dept and Spec.	Broad Agric'l Undergrad Train'g.	Spec. as Grad	Other	Total	No Reply	Total Returns
Below $2000	12.6 (9)	24.0 (17)	26.8 (19)	12.6 (9)	22.6 (16)	1.4 (1)	100 (71)	(7)	(78)
$2000-4000	14.4 (88)	17.0 (103)	36.2 (221)	15.8 (96)	15.0 (91)	1.6 (10)	100 (609)	(24)	(633)
$4000-6000	11.7 (139)	20.4 (244)	29.8 (355)	17.9 (213)	18.8 (224)	1.4 (17)	100 (1192)	(63)	(1255)
$6000-8000	10.5 (41)	22.7 (88)	27.5 (107)	13.1 (51)	22.7 (88)	3.5 (14)	100 (389)	(24)	(413)
$8000-10,000	12.0 (21)	20.1 (35)	21.9 (38)	17.2 (30)	25.9 (45)	2.9 (5)	100 (174)	(14)	(188)
Over $10,000	16.1 (27)	18.6 (31)	18.6 (31)	21.6 (36)	20.3 (34)	4.8 (8)	100 (167)	(24)	(191)
No Reply	10.4 (7)	24.0 (16)	19.4 (13)	16.4 (11)	16.4 (11)	13.4 (9)	100 (67)	(77)	(144)
Total Returns	12.0 (332)	20.0 ~~(524)~~ (534)	20.0 (784)	17.0 (446)	19.0 (509)	2.0 (64)	100 (2669)	(233)	(2902)

TABLE 31. EVALUATION OF TYPE OF COLLEGE TRAINING BY GRADUATES ACCORDING TO MAJOR FIELD OF STUDY FOR A BACHELOR'S DEGREE

Major Field of Study	Intensive Specialization	1 Course Each Dept and Spec.	2 Courses Each Dept and Spec.	Broad Agric'l. Undergrad Train'g.	Spec. as Graduate	Other	Total	No Reply	Total Returns
Agricultural Economics	3.1 (4)	16.4 (21)	33.6 (43)	27.3 (35)	18.0 (23)	1.6 (2)	100 (128)	(6)	(134)
Agricultural Education	1.8 (7)	13.0 (52)	37.5 (150)	27.1 (109)	20.4 (82)	.2 (1)	100 (401)	(20)	(421)
Agricultural Extension	0 (0)	10.5 (2)	26.3 (5)	52.7 (10)	10.5 (2)	0 (0)	100 (19)	(0)	(19)
Agricultural Engineering	5.0 (3)	21.5 (13)	31.0 (19)	22.9 (14)	19.6 (12)	0 (0)	100 (61)	(2)	(63)
Animal Husbandry	1.6 (3)	17.6 (35)	41.2 (82)	19.0 (38)	18.0 (36)	2.6 (5)	100 (199)	(10)	(209)
Dairy	9.6 (25)	25.7 (67)	32.6 (85)	16.0 (42)	15.0 (39)	1.1 (3)	100 (261)	(16)	(277)
Farm Crops	2.4 (4)	16.1 (26)	28.5 (46)	28.0 (45)	24.0 (39)	1.0 (1)	100 (161)	(13)	(174)
Forestry	29.1 (173)	22.7 (135)	20.4 (121)	8.1 (48)	17.2 (102)	2.6 (16)	100 (595)	(42)	(637)
Food Technology	15.8 (3)	21.1 (4)	47.3 (9)	0 (0)	15.8 (3)	0 (0)	100 (19)	(1)	(20)
Horticulture	14.8 (62)	23.3 (98)	30.7 (129)	9.5 (40)	17.9 (75)	3.8 (16)	100 (420)	(33)	(453)
Landscape	28.7 (33)	29.6 (34)	17.4 (20)	3.4 (4)	18.2 (21)	2.7 (3)	100 (115)	(18)	(133)
Poultry	14.0 (7)	28.0 (14)	18.0 (9)	16.0 (8)	20.0 (10)	4.0 (2)	100 (50)	(4)	(54)

TABLE 31. Continued (page 2)

Major Field of Study	Intensive Specialization	1 Course Each Dept and Spec.	2 Courses Each Dept and Spec.	Broad Agric'l. Undergrad. Train'g.	Spec. as Graduate	Other	Total	No Reply	Total Returns
Soils	2.7 (4)	13.1 (20)	38.1 (57)	16.2 (24)	27.2 (41)	2.7 (4)	100 (150)	(11)	(161)
Other	4.0 (2)	16.0 (8)	12.0 (6)	34.0 (17)	26.0 (13)	8.0 (4)	100 (50)	(11)	(61)
No Reply	5.0 (2)	12.5 (5)	7.5 (3)	30.0 (12)	27.5 (11)	17.5 (7)	100 (40)	(46)	(86)
Total Returns	12.0 (332)	20.0 (534)	30.0 (784)	17.0 (446)	19.0 (509)	2.0 (64)	100 (2669)	(233)	(2902)

TABLE 38. COMPARISON OF MOST HELPFUL TYPE OF COLLEGE TRAINING IN GETTING FIRST CIVILIAN POSITION AND OCCUPATIONAL GROUPINGS OF GRADUATES

Occupational Groupings	Specialized Ag. Train'g.	Broad Gen'l Ag Train'g.	Combination of Two	Other	Total	No Reply	Total Returns
Farmer	15.0 (39)	15.0 (37)	69.0 (187)	1.0 (2)	100 (265)	(53)	(318)
Teacher	10.0 (35)	26.0 (96)	63.0 (231)	1.0 (2)	100 (364)	(27)	(391)
Research	22.0 (19)	6.0 (5)	69.0 (59)	3.0 (3)	(86)	(4)	(90)
Government	21.0 (133)	11.0 (69)	68.0 (425)	0 (2)	(629)	(43)	(672)
Non-government	23.0 (154)	13.0 (82)	64.0 (426)	0 (2)	(664)	(49)	(713)
Non-agricultural	11.0 (46)	20.0 (77)	68.0 (265)	1.0 (2)	(390)	(83)	(473)
Miscellaneous	19.0 (30)	18.0 (31)	64.0 (108)	0 (0)	(169)	(71)	(240)
Total Returns	17.0 (456)	16.0 (397)	66.0 (1701)	1.0 (13)	100 (2567)	(333)	(2900)

Specialization recommendations according to degrees earned. In the original hypothesis, it was stated that the degree of specialization recommended by alumni was dependent upon, among other factors, the number and type of advanced degrees earned. Comparative data as shown in Table 33 have been both interesting and significant. All "no" replies have been assumed to be holders of Bachelor of Agriculture degrees only.

As one may have presumed, alumni who have earned advanced degrees favored the course of action that they themselves followed. Among the alumni with Master's and Doctor's degrees, greater emphasis was placed on specialization at the graduate study level. Approximately one-third of all who so replied favored this plan. Only 15 per cent of the graduates with a Bachelor's degree only voted for graduate specialization.

Even those graduates who have been working on a Master's degree, not yet completed, gave strong support to specialization on a graduate study level. It was either because these men could see the difference that advanced study had made in their work or it may have been recommended because they themselves were doing it. By doing it, they may have thought it was the best thing or at least the right thing to do.

A study of the data has left little doubt as to the important role that one's training has played in recommending types of college training.

TABLE 33. RECOMMENDED TYPES OF COLLEGE TRAINING ACCORDING TO GRADUATES WITH OR WORKING TOWARD DEGREES

College Degrees	Intensive Specialization	1 Course Each Dept. and Spec.	2 Courses Each Dept and Spec.	Broad General Agric'l. Course	Spec. as Graduate	Other	Total	No Reply	Total Returns
Master's degree	10.6 (50)	19.3 (91)	26.2 (124)	10.6 (50)	30.0 (142)	3.3 (16)	100 (473)	(31)	(504)
Doctor's degree	8.1 (11)	14.0 (19)	29.4 (40)	8.1 (11)	33.0 (45)	7.4 (10)	100 (136)	(14)	(150)
Honorary	33.3 (1)	33.3 (1)	0 (0)	33.3 (1)	0 (0)	0 (0)	100 (3)	(0)	(3)
Other Bachelor degrees	11.2 (4)	20.0 (7)	35.1 (12)	11.2 (4)	20.0 (7)	2.5 (1)	100 (35)	(7)	(42)
Working on Master's	11.3 (9)	15.1 (12)	27.9 (22)	16.5 (13)	25.4 (20)	3.8 (3)	100 (79)	(4)	(83)
No Reply *	13.2 (257)	20.8 (404)	30.1 (586)	18.9 (367)	15.1 (295)	1.9 (34)	100 (1943)	(177)	(2120)
Total Returns	12.0 (332)	20.0 (534)	30.0 (784)	17.0 (446)	19.0 (509)	2.0 (64)	100 (2669)	(233)	(2902)

*All graduates who received a B. S. in Agriculture from Michigan State College but who have not continued their formal studies for added degrees.

Salaries and specialization. In this, the final section of the original hypothesis, an analysis has been made of the part played by salaries in graduates' recommendations for types of college training. Reference has been made to Table 30 which presents interesting data.

Apparently the variable factor of salary has played little or no role in influencing graduates' recommendations. Whether alumni received less than $2000, over $10,000, or any amount between these, there was no appreciable variation of opinion among the intensive undergraduate specialization percentages. As salaries increased from $2000 to $10,000, the percentage of graduates who recommended specialization on the graduate level almost doubled. Undoubtedly, those who earned larger incomes placed more value on specialization at the graduate level. Two exceptions were noted, those in the less than $2000 salary group and those whose 1951 incomes exceeded $10,000. Since the total number who represented these two groups comprised only 212 or 8 per cent of the total, less significance could be attached to the results. However, it should be recognized that 20 of the 78 graduates who reported incomes of less than $2000 were graduate students whom one would have expected to favor graduate specialization. Inasmuch as many of the group who reported incomes in excess of $10,000 also reported non-agricultural jobs, this may have been one reason for less favorable response to graduate specialization.

Summary and Conclusions

A summary of Chapter IV, related to the value of college course areas and recommended types of college training follows:

(1) Greater value was placed on the professional agricultural course areas. All occupational groupings, to even include non-agricultural employees, voted first for the agricultural courses. Based on this information, undergraduate students of agriculture should devote the majority of their course work to such studies.

(2) There were 89 per cent of the farmer respondents who rated the agricultural courses as most important, while considerably less, or only 28 per cent of the non-agricultural employees, so voted.

(3) Non-agricultural workers attached a higher value to the Communication Skills than did other workers.

(4) Only 3 per cent of the farmers attributed much importance to Communication Skills. Agricultural teachers and research workers, likewise, considered the Communication Skills as relatively unimportant.

(5) Research workers placed great value upon training in the sciences. For students who plan to enter such fields, a basic training in the biological and physical sciences would be highly desirable.

(6) Irrespective of one's job, agricultural graduates, as a group, placed greater value on a non-specialized undergraduate training.

(7) The strongest support for undergraduate specialization was given by non-government agricultural specialists who voted in 44 per cent of the cases.

(8) Over 84 per cent of the teacher replies favored a broad undergraduate training in agriculture.

(9) Farmers did not give support to a specialized undergraduate training.

(10) The largest percentage of alumni who voted in favor of graduate specialization were the research workers.

(11) In the majority of cases, alumni who favored a specialized undergraduate training were those who had been graduated for 15 to 35 years. Apparently, as graduates developed skills and abilities and acquired greater experience, their jobs became more specialized.

(12) Those who reported non-government agricultural positions, and who favored undergraduate specialization, were the more recent graduates.

(13) Those who favored a degree of broadened undergraduate training were mainly teachers and farmers.

(14) Teachers and research workers placed much value on specialization on the graduate level. Positions of this sort have very often required advanced study.

(15) Graduates of Forestry and Landscape Architecture favored specialization over a broadened training. Over 50 per cent so voted. In contrast to this was the heavy voting for undergraduate nonspecialization by graduates of Agricultural Extension and Education, Soils, and Farm Crops.

(16) With the exception of those alumni whose major field of college specialization was Forestry and/or Landscape Architecture, the majority favored the proposal that recommended students taking two or more courses in several departments in the School of Agriculture with remaining technical agriculture courses in the subject matter of one department.

(17) Graduates who have earned advanced degrees favored the type of training in which they participated, namely, graduate specialization. In contrast to this, were the responses as given by alumni without advanced degrees who, in only 15 per cent of the cases, favored this course of action.

(18) Respondents who indicated having worked toward a Master's degree, but not yet having completed the work, strongly supported specialization on a graduate level.

(19) From data furnished, it has appeared that the number and kinds of degrees held by agricultural alumni play an important role in recommending types of college training.

(20) As salaries increased from $2000 to $10,000, the percentage who recommended specialization on the graduate level nearly doubled.

(21) For those who recommended undergraduate specialization, the factor of salaries received had little or no effect on the answers given.

Based on data furnished and interpreted, the following conclusion has been presented; The degree of specialization advocated by alumni

for agricultural students depended upon such factors as (1) the occupation in which alumni were engaged; (2) the number of years since graduation from college; (3) the major field of study while attending college; (4) the number and types of advanced degrees earned, and (5) the salary earned in present positions.

CHAPTER V

GUIDANCE AND COUNSELING SERVICES

Providing an opportunity for every student to gain the most from his school life has long been the recognized goal of all sincere college educators. Such teachers or school administrators not only consider it a goal but an obligation of education. Yet, in spite of this recognized obligation, many thousands of young men and women are in our ~~colleges~~ schools today about whom we know and understand very little and who are in need of help.[1] The help needed may be admustment to college life; it may be in selecting a creer, getting a job, or many other things. This chapter has been devoted to a presentation of counseling information and an analysis of some of those factors considered important by nearly 3000 agricultural graduates. The analysis has been divided into three parts which follow: (1) When did Michigan State College agricultural graduates first decide on following their present career; (2) what kinds of help have these alumni recommended be given college freshmen regarding career choices and (3) the degree of job satisfaction.

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[1] Raymond Hatch, Guidance Services in the Elementary School (Dubuque, Iowa: Wm. C. Brown Co., 1951) p. 1.

Time as a Factor in Career Selection

To study the effect of time as a factor in career selection, the following hypothesis has been proposed: Career selection is a continuous process, but will vary with occupation and age. To avoid possible confusion in semantics, the following definition has been given for the term "continuous process." By continuous process the writer has meant throughout life, irrespective of age.

To test this hypotheses, data have been collected, tabulated, and shown in Tables 34 - 36. Approximately an equal number, 31 per cent before college, 33 percent during college, and 36 percent after graduation, first made up their mind to follow their present careers. In the Purdue study of 1930, over 50 per cent of the alumni reported having decided after graduation from college.[2]

Economic conditions of the two periods likely played a significant role. More important may have been the absence of available counseling and guidance services in the late 1920's and the early 1930's. With an expansion and development of counseling services in the past two decades, college students have been better equipped to make wise career selections.

When such factors as occupational status and age at time of college graduation have been considered, variations have been observed. See Tables 34 and 35. More farmers made up their minds before college

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[2] George C. Brandenburg, "Successful Alumni, What They Do and What They Think," Vol. 31, Report No. 3 (Lafayette, Ind.: Purdue University, 1930).

TABLE 34. AGRICULTURAL GRADUATES' FIRST DECISION TO FOLLOW PRESENT CAREER BASED ON PRESENT OCCUPATIONS

Occupational Grouping	Before College	Freshman Year	Sophomore Year	Junior Year	Senior Year	After Graduation	Other	Total	No Reply	Total Returns
Farmer	51.0 (155)	4.0 (12)	8.0 (26)	5.0 (15)	5.0 (14)	27.0 (83)	0 (0)	100 (395)	(13)	(318)
Teacher	32.0 (125)	6.0 (24)	17.0 (64)	14.0 (55)	11.0 (41)	20.0 (77)	0 (0)	100 (386)	(5)	(391)
Research	22.0 (19)	8.0 (7)	18.0 (16)	10.0 (9)	13.0 (12)	29.0 (26)	0 (0(	100 (89)	(1)	(90)
Government	37.0 (246)	6.0 (39)	10.0 (65)	7.0 (49)	7.0 (44)	33.0 (217)	0 (1)	100 (661)	(11)	(672)
Non-government	31.0 (214)	6.0 (44)	12.0 (83)	11.0 (76)	8.0 (57)	32.0 (224)	0 (0(	100 (698)	(15)	(713)
Non-Agricultural	13.0 (58)	1.0 (3)	4.0 (18)	7.0 (29)	7.0 (30)	68.0 (303)	0 (1)	100 (442)	(36)	(478)
Miscellaneous	31.0 (59)	3.0 (6)	12.0 (22)	9.0 (18)	9.0 (16)	36.0 (69)	0 (0)	100 (190)	(50)	(240)
Total Returns	31.0 (876)	5.0 (135)	11.0 (294)	9.0 (251)	8.0 (214)	36.0 (999)	0 (2)	100 (2771)	(131)	(2902)

TABLE 35. COMPARISON OF PERIOD OF TIME WHEN GRADUATES FIRST DECIDE ON PRESENT CAREER AND AGE OF STUDENTS AT TIME OF GRADUATION FROM MICHIGAN STATE COLLEGE

Age at Time of Graduation	Before College	Freshman Year	Sophomore Year	Junior Year	Senior Year	After Graduation	Other	Total	No Reply	Total Returns
20 years and under	31.9 (22)	4.3 (3)	5.8 (4)	4.3 (3)	8.7 (6)	45.0 (31)	0 (0)	100 (69)	(4)	(73)
21	30.0 (92)	3.2 (10)	9.6 (29)	6.4 (20)	7.6 (23)	43.0 (131)	0 (0)	100 (305)	(8)	(313)
22	30.5 (134)	4.7 (21)	8.0 (35)	8.0 (34)	6.3 (28)	42.5 (187)	0 (0)	100 (439)	(22)	(461)
23	28.0 (128)	5.5 (25)	9.4 (43)	7.9 (36)	7.0 (32)	41.8 (190)	.4 (2)	100 (456)	(13)	(469)
24	35.8 (143)	3.0 (12)	10.8 (43)	12.2 (49)	8.0 (32)	30.2 (121)	0 (0)	100 (400)	(18)	(418)
25	29.7 (98)	4.5 (15)	14.1 (47)	8.1 (27)	10.0 (33)	33.6 (111)	0 (0)	100 (331)	(6)	(337)
26	32.0 (66)	8.2 (17)	15.1 (31)	9.8 (20)	7.2 (15)	27.7 (57)	0 (0)	100 (206)	(5)	(211)
27	33.2 (51)	6.5 (10)	10.4 (16)	13.7 (21)	9.0 (14)	27.2 (42)	0 (0)	100 (154)	(6)	(160)
28	33.6 (35)	8.6 (9)	12.6 (13)	9.6 (10)	3.8 (4)	31.8 (33)	0 (0)	100 (104)	(2)	(106)
29 - 30	37.0 (56)	4.0 (6)	10.0 (15)	9.3 (14)	8.0 (12)	31.7 (48)	0 (0)	100 (151)	(5)	(156)
Over 30	35.2 (43)	5.0 (6)	12.2 (15)	10.7 (13)	7.3 (9)	29.6 (36)	0 (0)	100 (122)	(3)	(125)
No Reply	23.6 (8)	3.0 (1)	8.8 (3)	11.7 (4)	17.6 (6)	35.3 (12)	0 (0)	100 (34)	(39)	(73)
Total Returns	31.0 (876)	5.0 (135)	11.0 (294)	9.0 (251)	8.0 (214)	36.0 (999)	0 (2)	100 (2771)	(131)	(2902)

TABLE 36. KINDS OF HELP FOR FRESHMEN REGARDING CHOICE OF CAREER BASED ON RECOMMENDATIONS OF GRADUATES BY OCCUPATIONAL GROUPINGS *

Occupational Grouping	Orientation Course	Counseling Service	Tests	Freshman Seminar	Individual Conf.	Other	Total	No Reply	Total Returns
Farmer	28.5 (191)	22.2 (149)	12.2 (82)	7.9 (53)	29.0 (194)	.2 (2)	100 (671)	(21)	(692)
Teacher	27.6 (273)	21.8 (216)	14.1 (140)	10.1 (100)	26.2 (257)	.2 (2)	100 (988)	(7)	(995)
Research	27.9 (55)	18.8 (37)	13.8 (27)	11.6 (23)	27.9 (55)	0 (0)	100 (197)	(4)	(201)
Government	27.9 (454)	19.4 316)	14.3 (233)	10.3 (167)	27.8 (455)	.3 (6)	100 (1631)	(9)	(1640)
Non-government	28.7 (453)	18.9 (298)	15.4 (244)	9.3 (148)	27.4 (435)	.3 (5)	100 (1583)	(24)	(1607)
Non-Agricultural	24.3 (235)	17.1 (166)	15.8 (153)	6.6 (65)	35.6 (346)	.6 (6)	100 (971)	(34)	(1005)
Miscellaneous	25.2 (109)	17.7 (77)	12.6 (55)	10.8 (47)	33.3 (145)	.4 (2)	100 (435)	(51)	(486)
Total Returns	27.0 (1770)	20.0 (1259)	15.0 (934)	9.0 (603)	29.0 (1887)	0 (23)	100 (6476)	(150)	(6626)

* Replies based on answers to multiple choice question

than any other type of worker. Nearly twice as many farmers decided before college than after college. A probable explanation for this observation has been given as follows: Many of the present farmers were those who have either entered into a partnership business with their fathers or who have assumed the management of the home farm. They were the alumni whose future, in many instances was already planned before entering college. They were the folks who came to college to become better trained in farm operations. Another possible explanation for the large percentage of farmers who decided before college may have been the great appeal that farming has had for youth, especially those of high school age.

The largest percentage who decided during the college years were the agricultural teachers who so reported in 43 per cent of the cases. When one has realized that a large proportion of the group were high school vocational agriculture teachers it was quite understandable for this result. Algricultural Education majors have been required to decide upon their major not later than the Sophomore year. Statistics shown in Table 34 have borne out this fact. Agricultural administrators and specialists, clerks and those in related positions, whether employed publicly or privately, seemed to furnish quite similar answers. Approximately equal percentages decided before, during, and after college. As we would have assumed, the non-agricultural workers, in 68 per cent of the cases, decided after college.

When decisions were made during the college years, it was mainly during the Sophomore year. It was then that Michigan State College

students of agriculture were required to have decided upon a major field of study for the last two years.

Age at the time of graduation was another factor to examine when considering the time in life that graduates first decided upon career choices. It was observed that students who graduated from Michigan State College at younger ages (20 - 23), were more apt to make career decisions after college, whereas those who graduated at older ages were more likely to have decided before or during the college years. Over 40 per cent of all respondents who graduated at an age of 23 or less said that they first decided on their present career after graduation from college. For those who graduated at the ages of 24 and beyond, a larger percentage of decisions were made either before or during the college years. In all probability, maturity was partly responsible for this relationship. Those who entered college directly from high school had little opportunity to work and gain experience. High School graduates, who worked in the interim, were more apt to have gained valuable experience, maturity, and quite likely to have made surer career decisions because of their work experiences.

Kinds of Help Recommended for College Freshmen

The following hypothesis has been presented: Occupational information, as a phase of the counseling services, should be made available to all college freshmen students of agriculture. By "occupational information" the writer has meant the world of work. The term "counseling services" has been construed to mean all those services to help people improve their adjustments, such as informational, counseling, placement, and follow-up. The large response to the question "What kinds of help should freshmen be given regarding choice of careers?" was indicative of the importance that alumni have placed on this phase of the counseling services. Only 150 of the 2902 total returns neglected to furnish some information on this question. As shown by data in Table 36, the greatest emphasis was placed upon an orientation course and individual counseling. It made no difference in what occupation graduates were engaged. An additional 20 per cent valued a counseling service within the School of Agriculture.

Aside from the non-agricultural workers, who were adherents of individual conferences, there was little indication of varied recommendations. Why did so many of the non-agricultural workers recommend individual conferences? Probably this was a refelction of the encountered experiences. It may have been that these men and women did not find their place in life, agriculturally speaking, and to help others avoid falling into similar pitfalls, they have felt a great need for personal service through individual conferences.

Although professional counselors have recognized the desirability of including a testing program in the conduct of a counseling service, the agricultural graduates have not voted too strongly for this phase of the program. Whether this has been due to one's mistrust of test results, or to their unfamiliarity with testing programs, was not known. Maybe both have been factors.

Job Satisfaction

Any study of counseling services among college alumni would be incomplete without consideration of the all-important topic of job satisfaction. It has been assumed that Michigan State College agricultural graduates were as satisfied as other college graduates. The 69 per cent who indicated no desire to change from their present position to another type of position was reason enough to substantiate this assumption.

The hypothesis selected for testing, and which involved the 31 per cent who were either definitely interested or uncertain in a job change, was: agricultural graduates, who are either interested or uncertain about a change of position, are those who receive less annual income.

Salary data to test this assumption were based on 1951 incomes of graduates and included the total income from major occupations only (less expenses and before taxes).

According to studies reported by Hoppock,[3] it was found that, although money was an important factor, it was not the most important consideration among satisfied workers. There was no way to test Hoppock's results since the agricultural questionnaire had not asked for such information. However, results of the Michigan study, as shown in Table 37,

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[3] Robert Hoppock and H. A. Robinson, "Job Satisfaction Researches of 1949," No. 1, Vol. 29 (Occupations, Oct. 1950) p. 13.

TABLE 37. RELATIONSHIP BETWEEN JOB SATISFACTION AND YEARLY INCOME OF AGRICULTURAL GRADUATES

Yearly Income	Interested in Change	Not Interested in Change	Uncertain	Total	No Reply	Total Returns
Below $2000	34.3 (25)	61.6 (45)	4.1 (3)	100 (73)	(5)	(78)
$2000-4000	21.0 (131)	59.2 (368)	19.8 (123)	100 (622)	(11)	(633)
$4000-6000	17.6 (215)	65.0 (795)	17.4 (214)	100 (1224)	(31)	(1255)
$6000-8000	8.1 (33)	81.2 (328)	10.7 (43)	100 (404)	(9)	(413)
$8000-10,000	5.4 (10)	84.8 (156)	9.8 (18)	100 (184)	(4)	(188)
Over $10,000	2.8 (5)	94.4 (170)	2.8 (5)	100 (180)	(11)	(191)
No Reply	24.5 (14)	66.7 (38)	8.8 (5)	100 (57)	(87)	(144)
Total Returns	16.0 (433)	69.0 (1900)	15.0 (411)	100 (2744)	(158)	(2902)

revealed the importance of salary. The largest percentage of graduates, who were interested in a change of position, were those who received the lowest salaries. As salaries increased from less than $2000 to over $10,000, the percentage of those interested in a change of position decreased from 34 per cent to approximately 3 per cent. Similar results were noted among the uncertain group. Evidently salary has played an important role in job satisfaction.

Summary and Conclusions

Based on information presented in the foregoing sections, a summary of Chapter V follows:

(1) Based on all graduates, irrespective of age and occupation, 31 per cent reported career decisions before college, 36 per cent decided in college, and 33 per cent reported having made up their minds after graduation from college.

(2) Nearly twice as many farmers made up their minds about their present career before college than after.

(3) A considerably larger percentage of farmers decided to follow their career before college than any of the other occupational groupings

(4) Approximately 48 per cent of the agricultural teacher group decided during college, especially before the Junior year. Sixty-eight per cent of the graduates in non-agricultural work decided after college.

(5) Agricultural students, who graduated at younger ages, were more likely to have decided on their careers following college graduation. Older men, at time of graduation, were quite apt to decide either before or during college.

(6) Career choices made during the college years were more likely to have been made during the Sophomore year.

(7) In recommending kinds of help for Freshmen regarding career choices, emphasis was placed upon an orientation course and individual counseling.

(8) Non-agricultural workers favored individual conferences in helping Freshmen.

(9) Testing, as a phase of the counseling program, received little support.

(10) A big majority, 69 per cent, were not interested in a change of position.

(11) The largest percentage of those interested in changing positions were those who reported the lowest salaries. As salaries increased, the percentage of those interested in a change decreased from 34 to 3 per cent.

Based on data furnished and interpreted, the following conclusions have been presented: Career selection was a continuous process and varied with occupations and age; occupational information, as a phase of the counseling services, should be made available to all college freshmen students of agriculture; and, agricultural graduates who were either interested or uncertain about a change of position were those who received less annual income.

CHAPTER VI

OCCUPATIONAL STATUS OF AGRICULTURAL GRADUATES

One of the primary objectives of the Michigan State College agricultural study was to obtain information which would reveal a clearer picture of the present occupational status of its graduates, the sequence of positions since graduation, and the relationship between present positions and major fields of study at Michigan State College. With this knowledge, the School of Agriculture would be in a better position to conduct a more efficient counseling service for its students.

In Chapter VI, an analysis has been made of (1) relationships between present occupational groupings and salaries, (2) relationship between present occupational groupings and major fields of undergraduate study, and (3) the job sequence since college graduation.

TABLE 38. COMPARISON OF MAJOR FIELDS OF UNDERGRADUATE STUDY AND PRESENT OCCUPATIONAL GROUPINGS OF ALUMNI

Major Field of Study	Farmer	Teacher	Research	Govern-ment	Non-Gov-ernment	Non-Agri-cultural	Miscel-laneous	Total Returns
Agricultural Economics	17.1 (23)	5.1 (7)	1.5 (2)	24.7 (33)	24.7 (33)	19.5 (26)	7.4 (10)	100 (134)
Agricultural Education	6.9 (29)	46.1 (194)	1.5 (6)	14.7 (62)	11.6 (49)	15.9 (67)	3.3 (14)	100 (421)
Agricultural Extension	5.3 (1)	10.5 (2)	0 (0)	57.9 (11)	15.8 (3)	10.5 (2)	0 (0)	100 (19)
Agricultural Engineering	15.9 (10)	12.7 (8)	1.6 (1)	14.3 (9)	38.1 (24)	14.3 (9)	3.1 (2)	100 (63)
Animal Husbandry	17.8 (37)	17.2 (36)	2.3 (5)	14.3 (30)	21.6 (45)	17.8 (37)	9.0 (19)	100 (209)
Dairy	20.6 (57)	7.3 (20)	1.5 (4)	17.7 (49)	35.3 (98)	10.8 (30)	6.8 (19)	100 (277)
Farm Crops	12.0 (21)	18.3 (32)	5.2 (9)	22.5 (39)	18.4 (32)	18.4 (32)	5.2 (9)	100 (174)
Forestry	1.0 (7)	2.4 (16)	2.9 (19)	39.5 (252)	31.4 (200)	14.4 (92)	9.4 (51)	100 (637)
Food Technology	0 (0)	0 (0)	15.0 (3)	10.0 (2)	50.0 (10)	10.0 (2)	15.0 (3)	100 (20)
Horticulture	18.4 (82)	8.6 (39)	5.2 (24)	14.3 (65)	27.3 (124)	16.5 (75)	9.7 (44)	100 (453)
Landscape	3.8 (5)	6.1 (8)	.8 (1)	36.1 (48)	33.0 (44)	15.0 (20)	5.2 (7)	100 (133)
Poultry	18.6 (10)	14.9 (8)	1.8 (1)	12.9 (7)	18.6 (10)	27.7 (15)	5.5 (3)	100 (54)
Soils	10.0 (16)	11.9 (19)	6.9 (11)	32.2 (52)	17.3 (28)	12.4 (20)	9.3 (15)	100 (161)
Other	14.8 (9)	3.2 (2)	4.9 (3)	13.2 (8)	14.8 (9)	29.5 (18)	19.6 (12)	100 (61)
No Reply	12.8 (11)	0 (0)	1.1 (1)	5.9 (5)	4.7 (4)	38.3 (33)	37.2 (32)	100 (86)
Total Returns	11.0 (313)	13.5 (391)	3.1 (90)	23.1 (672)	24.6 (713)	16.5 (478)	8.2 (240)	100 (2907)

Occupations and Salaries

What was the relationship between occupations and salaries? A hypothesis developed and tested was: Agricultural alumni receive incomes commensurate with years of experience, but the amount received will vary with occupations. Data furnished by Table 39 have presented an interesting story to show the relationship between occupations, salaries, and years since college graduation. As one might suppose, there were salary differences by occupations. Farmers generally received the least return while non-agricultural workers, as a group, received larger incomes.

Of great significance was a study of the data which showed that graduates who received the higher incomes were those who had had more than 15 years experience. This was true of all occupational groupings. The largest percentage of alumni in the lower income brackets were the more recent graduates, or those who had completed their undergraduate training within the past five years. This data has borne out the need to inform college students of what they can hope for. Too many of today's students anticipate jobs that pay "big" money. According to the data, it has not been apparent that the "big" money was paid to many, except those with many years of experience.

A study of the figures revealed that generally, the non-agricultural workers received larger salaries. An explanation of this may have been due to the large percentage of non-agricultural workers who

TABLE 39. COMPARISON OF AVERAGE YEARLY INCOME FOR GRADUATES' MAJOR POSITION AND YEARS OUT OF COLLEGE BY OCCUPATIONAL GROUPING

Occupational Groupings	Below $2000				$2000 - $4000				$4000 - $6000			
	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over
Farmer	1.9 (6)	1.6 (5)	.6 (2)	1.9 (6)	11.2 (34)	8.1 (25)	12.1 (37)	6.5 (20)	3.9 (12)	8.8 (27)	15.0 (46)	3.6 (11)
Teacher	.2 (1)	0 (0)	0 (0)	.2 (1)	10.1 (39)	1.8 (7)	2.1 (8)	.7 (20)	24.8 (96)	20.4 (79)	19.8 (77)	2.8 (11)
Research	0 (0)	1.1 (1)	0 (0)	0 (0)	16.9 (15)	0 (0)	0 (0)	0 (0)	14.6 (13)	14.6 (13)	6.7 (6)	1.1 (1)
Government Agriculture	.2 (1)	.2 (1)	0 (0)	0 (0)	18.8 (125)	3.8 (25)	1.0 (7)	.4 (3)	11.4 (76)	17.3 (115)	21.4 (143)	2.0 (13)
Non-Government Agric.	2.8 (20)	.1 (1)	.2 (2)	.1 (1)	19.6 (135)	2.2 (15)	1.2 (8)	.8 (6)	20.9 (144)	12.8 (88)	6.6 (45)	2.8 (19)
Non-Agric'l.	.2 (1)	0 (0)	.2 (1)	.6 (3)	8.2 (37)	3.3 (15)	3.5 (16)	2.4 (11)	7.5 (34)	10.2 (46)	14.2 (64)	5.6 (25)
Miscellaneous	6.8 (11)	1.3 (2)	.7 (1)	6.8 (11)	15.6 (25)	.7 (1)	3.0 (5)	6.8 (11)	10.5 (17)	4.3 (7)	3.6 (6)	12.9 (21)
Total Returns	3.0 (78)				23.0 (633)				45.0 (1255)			

TABLE 39. Continued (page 2)

Occupational Groupings	$6000 - $8000				$8000 - $10,000				Over $10,000			
	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over	Less 5 yrs	5-14 yrs	15-34 yrs	35 and over
Farmer	1.6 (5)	1.9 (6)	8.1 (25)	1.9 (6)	0 (0)	1.3 (4)	3.2 (10)	0 (0)	.3 (1)	.6 (2)	3.6 (11)	1.3 (4)
Teacher	.5 (2)	2.1 (8)	7.8 (30)	2.3 (9)	0 (0)	.2 (1)	1.8 (7)	.7 (3)	0 (0)	.2 (1)	1.0 (4)	.5 (2)
Research	1.1 (1)	11.2 (10)	15.7 (14)	4.4 (4)	0 (0)	1.1 (1)	3.3 (3)	3.3 (3)	0 (0)	0 (0)	3.3 (3)	1.1 (1)
Gov't. Agric'l.	.4 (3)	1.6 (11)	11.3 (75)	2.2 (14)	0 (0)	.2 (2)	4.3 (29)	1.8 (12)	0 (0)	0 (0)	1.2 (8)	.5 (4)
Non-gov't. Agric'l.	1.8 (12)	4.3 (30)	3.9 (27)	1.3 (9)	.7 (5)	2.3 (16)	4.1 (28)	.7 (5)	.2 (2)	2.0 (14)	4.8 (33)	3.8 (26)
Non-Agric'l.	1.7 (8)	4.4 (20)	9.7 (44)	4.9 (22)	.2 (1)	.9 (4)	4.9 (22)	3.9 (18)	.4 (2)	1.9 (9)	6.4 (29)	4.8 (22)
Misc.	3.0 (5)	1.8 (3)	1.8 (3)	4.3 (7)	.7 (1)	1.8 (3)	1.3 (2)	5.0 (8)	0 (0)	0 (0)	.7 (1)	6.8 (11)
Total Returns	15.0 (413)				7.0 (188)				7.0 (191)			

TABLE 39. Continued (page 3)

Occupational Groupings	Total	No Reply	Total Returns
Farmer	100 (305)	(13)	(318)
Teacher	100 (389)	(2)	(391)
Research	100 (89)	(1)	(90)
Government Agricultural	100 (667)	(5)	(672)
Non-Government Agricultural	100 (691)	(22)	(713)
Non-Agricultural	100 (454)	(24)	(478)
Miscellaneous	100 (163)	(77)	(240)
Total Returns	100 (2758)	(144)	(2902)

represented the professional and administrative positions such as lawyers, doctors, manufacturing executives, school superintendents, etc. These types of positions have generally paid larger salaries. Farmers, although business men, reported low salaries since the group has generally been less able to adjust their production than industrialists. Farmers cannot lay off workers as can other businesses. Farm prices have fluctuated while production has remained relatively constant. In other businesses, such as industry, the reverse has been the case.

Most teachers reported incomes of from $4000 to $6000. This has undoubtedly been due to the large number of vocational agriculture teachers who have comprised the occupational grouping, and who have generally earned incomes within this range.

Although the researchers comprised a small group, this specialized work has paid slightly high salaries. There were 70 per cent who reported incomes of from $4000 to $8000 with about an equal number in the $4000 - $6000 group as well as the $6000 - $8000 bracket.

Not many of the government agricultural workers reported salaries over $8000. There were twice as many of the non-government agricultural group in the higher income brackets than the public servant workers.

Often one has heard a college Senior make such a remark as, "Teaching or government work is not for me. Salaries are too low. I am going to get a job with private business. It pays more." This frequently-made statement has not been entirely correct as the statistics have revealed. Although data were not furnished to show starting salaries for first positions, the reports have shown the larger percentage of recent

graduates, who are in non-government agricultural work, to be in the less than $2000 and $2000 - $4000 brackets than farmers, teachers, researchers, government and non-agricultural workers. By the same token, a larger percentage of this same group was found in the over $6000 bracket within the five-year period after graduation. It must be remembered, however, that the numbers were small. Many of those who reported higher incomes were those who joined family businesses after graduation.

Many of the group who reported lower incomes were graduate students, or members of the armed forces.

Positions ~~Salaries~~ and Major Fields of College Specialization

Whether an agricultural student majors in one subject or another had no effect on the available job opportunities after graduation. This was the hypothesis that had been developed for testing.

By the term "subject" the author has meant Agricultural Engineering, Dairy, Farm Crops, and others that have been listed in Table 38.

Where enough graduates were involved, it was found that each occupational grouping was represented by one or more alumni who had majored in the subject matter of one of the 13 departments. There was a variation, both by occupations and by major fields of undergraduate study. Very few who had majored in Forestry or Landscape Architecture were presently engaged in either livestock, crops, tree, or nursery stock farming. Limited markets and the necessary long time investments without immediate returns have been considered as possible reasons for this situation. Moreover, Landscape and Forestry graduates have not received suitable training to engage in the more popular types of farming.

The smallest percentage of teachers were those who had specialized in Forestry. Most Forestry training has been geared to other kinds of work. Secondly, the teaching opportunities in the field have been limited due to the lessened demand for such services.

A large percentage of Soils, Farm Crops, and Horticulture graduates reported research positions. Considerable research work has been carried on in these fields of study which deal directly in plant life and soil nutrition.

A review of historical events of the past 20 years has revealed possible explanations for the large numbers who were employed as government specialists and administrators and who majored in Agricultural Economics, Forestry, and Soil Science. With the advent of the New Deal, great stress was placed on conservation of natural resources, advancement of credit, and rehabilitation. Many of the Agricultural Economics graduates reported positions with the Production Credit Association, Federal Land Bank, Farm and Home Administration, and others. A large percentage of the Soils majors reported positions with the Soil Conservation Service of the U. S. D. A. The largest total number of government employees in agricultural pursuits were the foresters who reported positions in the U. S. Forest Service, National Park Service, State Forestry departments, and municipalities.

There were 33 per cent of the Landscape Architect group who were employed as non-government specialists, most of whom were engaged as professional landscapers. Inasmuch as 35 per cent of the dairy graduates reported positions in non-government work, it was apparent that many work opportunities have been available in the dairy products industry.

Most agricultural specialists and administrative positions were held by graduates of Forestry and Landscape Architecture. In contrast to this were the Agricultural Education majors who in only 26 per cent of the replies reported agricultural specialist work. On the other hand, one must remember, that small percentages of foresters and landscapers were found on other kinds of agricultural work. This has been indicative

of the more limited opportunities open to such graduates and the more broadened opportunities available to the Agricultural Education graduates. Apparently, as specialization became more intense, the available job opportunities were reduced.

Graduates of Animal Husbandry were found in all occupational groupings in about equal proportions, ~~in the~~ with research groups as the one exception. Large percentages of Dairy and Horticulture alumni were engaged in private employment. The large number who worked for dairy manufacturers, food processing and distribution businesses, and who farmed, had accounted for these data.

Job Patterns

The hypothesis that has been developed follows: There are patterns of progress from one kind of work to another and knowledge of such patterns are helpful in student guidance. The term "patterns of progress" has been construed to mean a model, guide or the steps of progress.

It has been recognized that a complete testing of the hypothesis would have required countless comparative data. Only the more significant points have been studied in this section.

A list of the jobs performed by experienced agricultural workers was much the same as the list of beginning occupations. No accurate count was made of the jobs performed, but well over 400 would be a very conservative estimate. All of the positions reported were classified into 39 general categories.

Graduates themselves have shifted about a great deal. This was also found to be true in the Vermont study.[1] In some instances the present and first positions were alike. This may have been due to the holding power of the job or to the highly selective nature of employers. In other cases graduates have shifted to positions in unrelated fields. Still others have made steady progress in their chosen fields.

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[1] R. M. Carter and R. E. Fenix, "Vermont's Agricultural College Graduates," Bulletin No. 541 (Burlington, Vt.: University of Vermont, April, 1943) p. 10.

Data in Table 40 have shown the increase in the number who farmed between the first and present positions. It was the more specialized farmers who had increased in number. Approximately one-half of those who listed agricultural teaching as their first position were in other positions at the time they answered the question. The number of researchers increased. Larger numbers assumed positions in non-agricultural work.

Approximately 40 per cent of those who listed Agricultural Extension as their present work had held other kinds of positions previously. Many more graduates listed craftsman, laborer, foreman, and operative as first jobs than as following positions. Large numbers of the agricultural proprietor, manager, and official group entered these occupations several years after graduation. A large percentage of graduates entered farming as their first civilian position. Graduates who entered business, either as agricultural or non-agricultural, were increased in number as years progressed following college graduation. Undoubtedly, available capital was one of the determining factors. One of the reasons for the large decrease within the professional agriculture ranks was the group of graduate students who were classified within this category.

TABLE 40. RELATIONSHIP TO SHOW PERCENTAGE OF GRADUATES REPRESENTING THE VARIOUS OCCUPATIONS FOR FIRST AND PRESENT POSITIONS

Occupational Grouping	First Position After Graduation	Second Position After Graduation
Farmer	8.7 (250)	11.0 (318)
Teacher	23.4 (677)	13.5 (391)
Research	2.5 (73)	3.1 (90)
Government Agricultural	21.5 (624)	23.1 (672)
Non-Government Agricultural	30.9 (897)	24.6 (713)
Non-Agricultural	7.9 (231)	16.5 (478)
Miscellaneous	5.1 (150)	8.2 (240)
Total Returns	100 (2902)	100 (2902)

Summary and Conclusions

(1) Incomes varied depending upon occupation. Farmers, in general, received the least income while the non-agricultural workers received larger incomes.

(2) Graduates who reported the larger incomes were generally those who had more than 15 years of experience.

(3) The largest percentage of alumni in the lower income brackets were the more recent graduates.

(4) The majority of agricultural teachers reported incomes of from $4000 to $6000.

(5) Approximately 70 per cent of those reporting incomes of from $4000 to $8000 were research workers. About an equal number were in the $4000 - $6000 grouping as within the $6000 - $8000 bracket.

(6) Reports have indicated that ~~the~~ there was a larger percentage of recent graduates in non-government agricultural work in the less than $2000 and $2000 - $4000 brackets than in farming, teaching, research, government and non-government work.

(7) Alumni were found to be engaged in work among all occupational classifications.

(8) Very few of the Forestry and Landscape Architecture graduates reported positions in farming.

(9) The smallest percentage of agricultural teachers was the Forestry group.

(10) A large proportion of Soils, Farm Crops, and Horticulture graduates reported research positions.

(11) There were 33 per cent of the Landscape Architect group who reported non-government specialist positions. In the same occupational grouping were 35 per cent of all Dairy graduates.

(12) A list of the jobs performed by experienced agricultural workers was much the same as the list of beginning occupations. Graduates themselves shifted about a great deal.

(13) In the period of time reported from the first job to the present position, the number of vocational agricultural teachers was reduced by 50 per cent; research numbers doubled; approximately 40 per cent of those who had listed Agricultural Extension as their present work had previously held other kinds of positions.

(14) A number of graduates reported first positions as those of craftsman, laborer, foreman, and operator.

(15) Most of the proprietors, managers, and officials assumed these positions of responsibility after years of experience.

(16) The number of graduates who entered either agricultural or non-agricultural businesses was increased as the years since graduation likewise increased.

(17) The large decrease in percentage of professional agricultural workers from the time of the first reported job was experienced. It must be remembered that many of these losses were graduate study students who were so classified occupationally.

Agricultural alumni were paid commensurate with years of experience, but the amount received varied with the occupation. Whether graduates had majored in one subject or another had no effect on the available job opportunities after graduation. There were patterns of progress from one kind of work to another and knowledge of such patterns will be helpful in student guidance work.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The main purpose of this investigation was to secure information for use in revising the agricultural curriculum, to improve the counseling program, and to be better prepared to meet the needs of alumni.

After considerable planning and preparatory work, an eight-page questionnaire was developed and sent to 4500 agricultural graduates of Michigan State College. Approximately 65 per cent, or in excess of 2900, replied. Some of the more highlighting and significant results of the study were as follows:

(1) Graduates attached greater importance to the agricultural courses in their college training than non-agricultural courses. Based on the overwhelming reaction, it seems advisable that college curricula be organized to conform to these suggestions.

(2) Among the agricultural technical course areas, Soil Science was voted as the most important. Only 10 per cent of those who received some Soils training had not considered the training as important to their work. This was significant. Based on this information, it seems advisable that the School of Agriculture continue to require their students to take at least one course in this important subject. It is further recommended that agricultural students be urged to get more training in Soils before graduation. Data received in the study have pointed to the importance of this training.

(3) English and Speech were given the highest rating of any course, agricultural or non-agricultural. Less than 5 per cent of those reporting rated Speech and English as unimportant in the conduct of their present work. Journalism was rated highly by those who had received some college training in the course. Public Relations was another popular course area and strongly recommended by graduates. In view of the importance that alumni have attached to these skills, every undergraduate student should be required to receive fundamental basic training in the communication skills with a recommendation that additional study be placed on these courses during the four college years.

(4) Mathematics and Chemistry are two of the physical sciences that received many favorable votes. Apparently the sciences are basic and highly compatible to the agricultural training and work in the field.

The degree of specialization advocated by alumni for agricultural students depended upon: (1) the occupation in which the alumni were engaged; (2) the number of years since graduation from college; (3) the major field of study while attending college; (4) the number and type of advanced degrees earned, and (5) the salary earned in present positions.

(5) Based on all available data, it seems wisest that the School of Agriculture make every effort to avoid an intense specialized training program in the subject matter of a single department, with perhaps the Departments of Forestry and Landscape Architecture as exceptions. Except for alumni of these two course areas, the majority of all graduates favored some degree of a broadened training. The category that

recommended taking two or more courses in several departments within the School of Agriculture with remaining technical agricultural courses in specialization in one department was more popularly received by the respondents.

(6) Data indicated that career selection was a continuous process and varied with occupation and age. Agricultural graduates who were interested in a change of position were generally those in lower income brackets. The writer is advocating that the counseling and guidance program for agricultural students at Michigan State College be coordinated and headed by one or two persons so designated by the institution. There were several reasons for this conclusion based on the data furnished. In the first place, approximately one-third of the graduates reported having first decided on their present career during their college years. This number is significant enough to warrant coordinated counseling services during the college years. Secondly, statistics revealed that the largest percentage of most influential persons in career decision were members of the departments in which students majored. This is highly significant. The tremendous response given by the 2902 respondents to the question "What kinds of help should freshmen be given regarding choice of careers?" was very important. It has been indicative of the graduates' feelings on the subject. Their strongest recommendations, for an orientation course and individual conferences, seemed to the writer to suggest a coordinated counseling program.

Thirdly, many of the replies and accompanying letters told of past experiences encountered in career selction and securing work. The con-

tents of these notes and letters either recommended such action or strongly suggested it.

In the fourth place, data indicated the great importance that graduates place upon Michigan State College faculty members in getting the first civilian position.

Because of these four main reasons, the writer is suggesting the selection of a supervisor, whose responsibility it will be to coordinate all counseling services of the School of Agriculture of Michigan State College. One of the further responsibilities of such a position would be to act as laison officer with the College Placement Service and agricultural interests on the outside. Such a person should conduct follow-up studies to secure information for the improvement of college curricula, further counseling services, and to help alumni already in the field.

(7) Agricultural alumni were paid commensurate with years of experience, but the amount received varied with the occupation. Whether graduates majored in one subject or another had no effect on the available job opportunities after graduation. Patterns of progress from one kind of work to another have been observed. Knowledge of such information will be helpful in student guidance work.

(8) The larger incomes were generally those reported by the older graduates, 15 or more years since graduation. More of the laboring, operative, craftsman, and foreman positions were reported as first positions rather than later ones. The number of managerial and executive positions increased markedly as graduates received more experience.

Based on the data, agricultural undergraduates should be informed of what to expect in future employment, related to incomes, advancements, and responsibilities.

(9) Agricultural graduates in 23 per cent of the replying cases, indicated that they had earned at least one advanced degree. In view of the statistics, it seems advisable that every encouragement be given to qualified students to continue their training on a graduate study level. A great deal of emphasis should be placed upon the results in which one of each five recommended graduate study for specialized training.

(10) Approximately 54 per cent of the replying alumni were graduates of Forestry, Agricultural Education, or Horticulture.

(11) Fewer graduates of Forestry and Landscape Architecture have left their major field of study than have other graduates. It is recommended that further studies be conducted to find reasons why this situation exists, and why large numbers of Poultry and Agricultural Economics alumni leave the agricultural field.

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APPENDIX

Following are the questionnaire and letter for a follow-up mailing sent to 4500 agricultural graduates of Michigan State College whose names and addresses were shown in the alumni directory.

Finally, we would like a little personal information in order that we may develop a good directory of graduates of the School of Agriculture.

25. Name _____
Last *First* *Middle*

26. Present Address:

_____ _____ _____
Route No. or Street *City or Town* *State*

27. Year of graduation from M.S.C.? _____
Age at time of graduation? _____

28. Major field of specialization in School of Agriculture (if any). (*For example:* Agricultural Education; Dairy; Farm Crops; etc.)

_____

29. MINOR field of specialization in School of Agriculture (if any).

_____

30. Additional degree(s) received after graduation from M.S.C.?
1. Degree_____ 3. Major_____
2. Year received_____ 4. Institution_____

THANK YOU FOR ANSWERING THESE QUESTIONS. Now please put this folder in the stamped, self-addressed envelope which is enclosed and drop it in the mail.

Sincerely yours,

Ernest L Anthony

DEAN, SCHOOL OF AGRICULTURE