Present status and opinions of graduates granted bachelor of science degrees since 1932 in agriculture curricula at Iowa State College

Mark B. Rhea

Iowa State College
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI®
NOTE TO USERS

This reproduction is the best copy available.

UMI
PRESENT STATUS AND OPINIONS OF GRADUATES GRANTED
BACHELOR OF SCIENCE DEGREES SINCE 1932
IN AGRICULTURE CURRICULA AT IOWA STATE COLLEGE

by

Mark B. Rhea

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Major Subject: Vocational Education

Approved:

[Signatures redacted for privacy.]

In Charge of Major Work

Head of Major Department

Dean of Graduate College

Iowa State College

1953
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II. AGRICULTURE AT IOWA STATE COLLEGE</td>
<td>5</td>
</tr>
<tr>
<td>III. REVIEW OF LITERATURE</td>
<td>14</td>
</tr>
<tr>
<td>IV. METHOD OF PROCEDURE</td>
<td>27</td>
</tr>
<tr>
<td>V. ENROLLMENT TRENDS</td>
<td>29</td>
</tr>
<tr>
<td>VI. RESPONDING GRADUATES</td>
<td>38</td>
</tr>
<tr>
<td>VII. PROGRESS TOWARD GRADUATION</td>
<td>49</td>
</tr>
<tr>
<td>VIII. OCCUPATION OF GRADUATES</td>
<td>56</td>
</tr>
<tr>
<td>A. Agricultural Economics Curriculum</td>
<td>62</td>
</tr>
<tr>
<td>B. Agricultural Education Curriculum</td>
<td>62</td>
</tr>
<tr>
<td>C. Agricultural Engineering Curriculum</td>
<td>64</td>
</tr>
<tr>
<td>D. Agronomy Curriculum</td>
<td>65</td>
</tr>
<tr>
<td>E. Animal Husbandry Curriculum</td>
<td>67</td>
</tr>
<tr>
<td>F. Dairy Husbandry Curriculum</td>
<td>67</td>
</tr>
<tr>
<td>G. Dairy Industry Curriculum</td>
<td>67</td>
</tr>
<tr>
<td>H. Farm Operations Curriculum</td>
<td>69</td>
</tr>
<tr>
<td>I. Forestry Curriculum</td>
<td>69</td>
</tr>
<tr>
<td>J. Horticulture Curriculum</td>
<td>71</td>
</tr>
<tr>
<td>K. Landscape Architecture Curriculum</td>
<td>71</td>
</tr>
<tr>
<td>L. Poultry Husbandry Curriculum</td>
<td>71</td>
</tr>
<tr>
<td>M. Agricultural Journalism Curriculum</td>
<td>75</td>
</tr>
<tr>
<td>IX. INCOME OF GRADUATES</td>
<td>76</td>
</tr>
<tr>
<td>A. Income and Year of Graduation</td>
<td>79</td>
</tr>
<tr>
<td>B. Income and Curriculum</td>
<td>83</td>
</tr>
<tr>
<td>C. Income and Advanced Degrees</td>
<td>86</td>
</tr>
<tr>
<td>D. Occupational Differences in Income</td>
<td>88</td>
</tr>
<tr>
<td>X. SUMMARY</td>
<td>96</td>
</tr>
<tr>
<td>XI. LITERATURE CITED</td>
<td>102</td>
</tr>
<tr>
<td>XII. APPENDIX</td>
<td>104</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1. Types of Employment, First and Present
University of Tennessee ........................................ 18

Table 2. Summary of Occupations, Texas A. and M. .................. 19

Table 3. Actual and Predicted Male Undergraduate Enrollment
in Land-Grant Institutions ..................................... 30

Table 4. Actual and Predicted Undergraduate Enrollment
at Iowa State College ........................................... 33

Table 5. Iowa and United States Birth Rates by Years
(Based on per 100 population) .................................. 35

Table 6. Actual and Predicted Iowa Male High School
Graduates by Year ............................................... 37

Table 7. Degrees Granted Each Year by Curriculum ................... 39

Table 8. Questionnaire Returns by Curricula .......................... 41

Table 9. Residence of Graduates (Percentages) ....................... 45

Table 10. Residence of Graduates by Curriculum (Percentages) .... 47

Table 11. Interruptions in College Program ........................... 51

Table 12. Earned Graduate Degrees by Year .......................... 53

Table 13. Farm Rearing of Individuals Holding Graduate Degrees
from Iowa State College and Other Institutions .................. 54

Table 14. Earned Graduate Degrees by Undergraduate Curriculum ... 55

Table 15. Present Occupation of Graduates ........................... 57

Table 16. First and Present Occupation by Curriculum ............... 60

Table 17. Occupation of Graduates from Agricultural Economics
Curriculum .......................................................... 62

Table 18. Occupation of Graduates from Agricultural Education
Curriculum .......................................................... 63
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 19.</td>
<td>Occupation of Graduates from Agricultural Engineering Curriculum</td>
<td>65</td>
</tr>
<tr>
<td>Table 20.</td>
<td>Occupation of Graduates from Agronomy Curriculum</td>
<td>66</td>
</tr>
<tr>
<td>Table 21.</td>
<td>Occupation of Graduates from Animal Husbandry Curriculum</td>
<td>68</td>
</tr>
<tr>
<td>Table 22.</td>
<td>Occupation of Graduates from Dairy Husbandry Curriculum</td>
<td>68</td>
</tr>
<tr>
<td>Table 23.</td>
<td>Occupation of Graduates from Dairy Industry Curriculum</td>
<td>70</td>
</tr>
<tr>
<td>Table 24.</td>
<td>Occupation of Graduates from Farm Operation Curriculum</td>
<td>70</td>
</tr>
<tr>
<td>Table 25.</td>
<td>Occupation of Graduates from Forestry Curriculum</td>
<td>72</td>
</tr>
<tr>
<td>Table 26.</td>
<td>Occupation of Graduates from Horticulture Curriculum</td>
<td>73</td>
</tr>
<tr>
<td>Table 27.</td>
<td>Occupation of Graduates from Landscape Architecture Curriculum</td>
<td>73</td>
</tr>
<tr>
<td>Table 28.</td>
<td>Occupation of Graduates from Poultry Husbandry Curriculum</td>
<td>74</td>
</tr>
<tr>
<td>Table 29.</td>
<td>Occupation of Graduates from Agricultural Journalism Curriculum</td>
<td>74</td>
</tr>
<tr>
<td>Table 30.</td>
<td>Actual and Predicted Mean Income on 1952 Standards and Number of Years Since Graduation</td>
<td>80</td>
</tr>
<tr>
<td>Table 31.</td>
<td>Annual Earned Income for Graduates from Various Curricula</td>
<td>85</td>
</tr>
<tr>
<td>Table 32.</td>
<td>Income and Advanced Degrees</td>
<td>87</td>
</tr>
<tr>
<td>Table 33.</td>
<td>Mean Income and Predicted Beginning Income and Mean Annual Income Increment Assuming Linear Relationship</td>
<td>89</td>
</tr>
<tr>
<td>Table 34.</td>
<td>Quadratic Predicted Mean Income on 1952 Standard for Certain Occupational Groups and Years Since Graduation</td>
<td>93</td>
</tr>
<tr>
<td>Table 35.</td>
<td>Mean and Median Incomes Adjusted for Date of Graduation for Various Occupations</td>
<td>94</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>36</td>
<td>Income in 1952 for Graduates of Agricultural Economics Curriculum</td>
<td>109</td>
</tr>
<tr>
<td>37</td>
<td>Income in 1952 for Graduates of Agricultural Education Curriculum</td>
<td>109</td>
</tr>
<tr>
<td>38</td>
<td>Income in 1952 for Graduates of Agricultural Engineering Curriculum</td>
<td>110</td>
</tr>
<tr>
<td>39</td>
<td>Income in 1952 for Graduates of Agronomy Curriculum</td>
<td>110</td>
</tr>
<tr>
<td>40</td>
<td>Income in 1952 for Graduates of Animal Husbandry Curriculum</td>
<td>111</td>
</tr>
<tr>
<td>41</td>
<td>Income in 1952 for Graduates of Dairy Husbandry Curriculum</td>
<td>111</td>
</tr>
<tr>
<td>42</td>
<td>Income in 1952 for Graduates of Dairy Industry Curriculum</td>
<td>112</td>
</tr>
<tr>
<td>43</td>
<td>Income in 1952 for Graduates of Farm Operations Curriculum</td>
<td>112</td>
</tr>
<tr>
<td>44</td>
<td>Income in 1952 for Graduates of Forestry Curriculum</td>
<td>113</td>
</tr>
<tr>
<td>45</td>
<td>Income in 1952 for Graduates of Horticulture Curriculum</td>
<td>114</td>
</tr>
<tr>
<td>46</td>
<td>Income in 1952 for Graduates of Landscape Architecture Curriculum</td>
<td>114</td>
</tr>
<tr>
<td>47</td>
<td>Income in 1952 for Graduates of Agricultural Journalism Curriculum</td>
<td>115</td>
</tr>
<tr>
<td>48</td>
<td>Income in 1952 for Graduates of Poultry Husbandry Curriculum</td>
<td>115</td>
</tr>
<tr>
<td>49</td>
<td>Class Level Favored for Scholarships</td>
<td>116</td>
</tr>
<tr>
<td>50</td>
<td>Attitude Toward Federally-supported Scholarships by Time of Graduation</td>
<td>116</td>
</tr>
<tr>
<td>51</td>
<td>Attitude Toward Federally-supported Scholarships by Occupation</td>
<td>117</td>
</tr>
<tr>
<td>52</td>
<td>Attitude Toward Federally-supported Scholarships by Mean Income</td>
<td>117</td>
</tr>
</tbody>
</table>
Table 53. Amount of Participation in Extracurricular Activities by Year (percentages) .......................... 118

Table 54. Amount of Participation in Extracurricular Activities by Curriculum (percentages) .................. 118

Table 55. Value of Time Spent in Extracurricular Activities by Year (percentages) .............................. 119

Table 56. Value of Time Spent in Extracurricular Activities by Curriculum (percentages) .................... 119

Table 57. Value of Time Spent in Extracurricular Activities by Occupation (percentages) ..................... 120

Table 58. Value of Counselor by Year (percentages) ................................................................. 120

Table 59. Value of Counselor and Curriculum (percentages) ......................................................... 121

Table 60. Class Days Per Week by Years (percentages) ............................................................... 121

Table 61. Class Days Per Week by Occupation (percentages) ......................................................... 122

Table 62. Days of Class Per Week by Income ............................................................ 122

Table 63. Recommended Changes in Emphasis on Subject Fields by Year (percentages) ....................... 123

Table 64. Recommended Changes in Emphasis on Subject Fields by Curriculum (percentages) ............. 124

Table 65. Recommended Changes in Emphasis on Subject Fields by Occupation (percentages) .............. 125

Table 66. Recommended Changes in Emphasis on Subject Fields by Advanced Degree (percentages) ....... 125

Table 67. Emphasis on Activities at Iowa State College (Percentage based on 96 per cent response) ........ 126
I. INTRODUCTION

It is trite, no doubt, to state that each institution of higher education must justify its existence in terms of its contribution to contemporary culture. The exact niche which any given institution attempts to assume in its contribution to culture, to a large extent, is a function of its self-imposed delimitation of responsibility. Of course, the scope of institutional programs is dependent upon available revenue.

Some institutions, for reasons which are sometimes obscure, have limited their responsibility to men or to women; others to some aspect of education such as vocational education, liberal arts, or professional education. Certain institutions have accepted responsibility for graduate work whereas many others have taken the position that graduate education is beyond the scope of their educational endeavor. Similarly, some institutions have included and some excluded teacher education, medical education, engineering education, et cetera.

Higher education in the United States is characterized more by differences than by similarities in prevailing purposes and programs. It is beyond the scope of this study to indicate the desirable characteristics of an institution of higher education. It may very well be that the lack of uniformity of purposes constitutes the strength rather than the weakness of higher education in the United States.

Institutions vary not only in respect to purposes but also in respect to the administrative organization designed for attaining their postulated
purposes. Perhaps no aspect of higher education is so confusing as the designations of university, college and institute. The definition of these words in terms of institutional function is impossible. For example, many of the outstanding institutions of higher education carry the name of university. On the other hand, many second-rate institutions struggling from mediocrity of program and inadequate financial support likewise are called universities. The rationale underlying the terminology that the Massachusetts Institute of Technology is an institute, Michigan State College is a college and Princeton University is a university is far from obvious. No attempt will be made in this study to add to or subtract from this confusion in terminology. The present study is concerned with Iowa State College which provides its proportional part to the semantic confusion of higher education. For example, the Graduate College is a college within a college, the humanities are included in the Division of Science, education is included in the Department of Vocational Education, et cetera. It is beyond the scope of this study to apologize for or to defend the organizational idiosyncrasies prevailing in institutions of higher education. A brief section dealing with the organization of Iowa State College as it relates to agriculture will be included to orient those readers in other institutions in which differences in organization prevail.

The standards and techniques by which an institution may be evaluated in terms of the degree to which it is attaining its purposes have been and are a perplexing challenge. On first thought it seems straightforward to evaluate an institution in terms of the product it turns out. An
adequate evaluation of such human product is virtually impossible. Vocational competency can be approximately evaluated but humanistic-social development, perhaps more important, remains intangible.

If evaluation should be undertaken in terms of the human product, should it be in terms of graduates from the institution or should it be also in terms of all former students regardless of graduation? The point of view is here taken that an over-all evaluation should include both those who graduated and those who dropped by the wayside. The problem of student attrition has been an issue of greater concern to higher education than its relationship to maintaining enrollment. This study has been delimited to include only graduates but it is hoped that a companion study will be undertaken to include those former students who withdrew from Iowa State College prior to graduation.

On theoretical considerations, objection may be raised to a survey of former graduates reflecting implications not for the present day program but rather for a past program which has been modified and improved over a period of time. In spite of this theoretical objection, the vocational competency of graduates, their opinions concerning curriculum content, extracurricular activities, organizational policies, etc., are considerations of vital importance to present day students, faculty and college administrators. To ignore such considerations would be financial and perhaps educational suicide to a state supported institution of higher education.

Informal and subjective polls by college students, staff members and administrators, unplanned through they may be, are not neglected by those
individuals interested in the improvement of higher education. The present study is designed to assemble in a more satisfactory and detailed manner some evidences of evaluation generally found by keeping an ear-to-the-ground.
II. AGRICULTURE AT IOWA STATE COLLEGE

For almost one hundred years, research, extension and instruction in agriculture have been major functions of land-grant institutions in the United States. In some states the land-grant institution is also the state university and in others it is not. In general, the institution carries the designation of a university if the former, and a college if the latter. However, all land-grant institutions separate from state universities are not designated as colleges, i.e., Purdue University in Indiana. In general, it may be said that there is no apparent distinction in the program of agriculture between the land-grant colleges and the land-grant universities. There are major differences in organization among institutions regardless of their designation as a college or university. In some institutions home economics and forestry are administered within the framework of agriculture. It is not the purpose here to point out similarities and differences from one land-grant institution to another. On the other hand, some description of the Iowa State College organization plan needs to be included for orienting the reader.

Iowa State College was founded in 1858 and opened for students in 1869. During the formative years instruction in agriculture was centered about practical agriculture, dairying, animal husbandry, horticulture, botany and agricultural chemistry. Since that time the program at Iowa State College, like that of each land-grant institution, has been expanded and many times reorganized.
At the present time Iowa State College's responsibility for agriculture consists of research, extension and resident teaching. All of these functions are administered by a dean of agriculture with an associate director of the Iowa Agricultural Experiment Station, an associate director of the Iowa Agricultural Extension Service and an assistant dean in the Division of Agriculture responsible for resident teaching in agriculture. The Division of Agriculture at Iowa State College, administratively, is the same as a College of Agriculture in a land-grant university.

In addition to the Division of Agriculture, there are Divisions of Science, Engineering, Home Economics, and Veterinary Medicine. It can be seen that home economics is not administered within the framework of agriculture as it is at many land-grant institutions. There is no division of education or of liberal arts. The humanities and communication skills are administered in the Division of Science, and general education as well as vocational education is administered in the Division of Agriculture. Instruction in forestry is administered in the Division of Agriculture.

For many years Iowa State College has stressed research. Emphasis in this area has resulted in increased numbers of graduate degrees of Master of Science and Doctor of Philosophy. Most of these advanced degrees have been granted since the creation of the Graduate College in 1919. The Graduate College consists of approved staff members designated to the graduate faculty. Approval for graduate work is by departments rather than through the five divisions at Iowa State College. Actually the graduate program is largely administered by the graduate dean through
a delegated committee unique to each graduate student. Although no evidence has been here assembled, it is probable that the ratio of graduate degrees to baccalaureate degrees at Iowa State College is somewhat higher than at most land-grant institutions. No attempt was made to include in this study aspects of higher education beyond the baccalaureate degree, except to include within the group studied anyone with a Bachelor of Science Degree in Agriculture who may have received later a master's or doctor's degree from Iowa State College or some other institution.

Resident instruction in agriculture at Iowa State College is administered in the Division of Agriculture. There are currently twelve departments within this division. Two departments are jointly administered with other divisions, i.e., the Department of Agricultural Engineering jointly with the Division of Engineering and the Department of Economics and Sociology jointly with the Division of Science.

The twelve departments within the Division of Agriculture are:

- Agricultural Engineering
- Genetics
- Agronomy
- Landscape Architecture
- Animal Husbandry
- Poultry Husbandry
- Dairy Industry
- Technical Journalism
- Forestry
- Vocational Education
- Horticulture
- Economics and Sociology

Several of the twelve departments administer more than one curriculum and one of them does not administer any undergraduate curriculum. The Animal Husbandry Department administers curricula in animal husbandry and dairy husbandry, and the Vocational Education Department administers curricula in agricultural education and industrial education. There is no
separate education division or education department on the Iowa State
College campus, general education courses being taught within the Voc­
tional Education Department. General education courses are taught not
only for those in agricultural education and industrial education
curricula, but also for students in the home economics education and
science education curricula and for prospective teachers in other
curricula in the Division of Agriculture.

The Department of Genetics is responsible for courses in genetics
taken by the majority of undergraduates of other departments in the
Agriculture Division. However, there is no genetics curriculum. The
undergraduates who wish to major in genetics enroll in a curriculum
administered by the Division of Science. The Department of Technical
Journalism administers the agricultural journalism curriculum, another
journalism curriculum jointly with the Division of Home Economics, and
still another with the Division of Science. The Department of Economics
and Sociology administers the agricultural business and rural administra-
tion curriculum. For the benefit of the reader who is unfamiliar with
the curricula in the Division of Agriculture at Iowa State College a
description of each\(^1\) is shown.

Agricultural Engineering deals with the design, building,
servicing and repair of farm machinery; with the planning, sur-
vey, earth moving, tiling, dam construction, contouring and
terracing operations of soil and water conservation; with the
design, construction, and maintenance of farm buildings and
farm houses; with the planning for and utilization of electrical
power on farms. Graduates go into the farm equipment or build-
ing materials industries. They also work for state and federal

\(^1\)Iowa State College, Division of Agriculture. Handbook for the
agencies on drainage, irrigation, land clearing, erosion control, and rural electrification. Farming, teaching and research claim others of them.

Agronomy deals with farm crops and the soils which produce them. Tillage, planting, growth, cultivation and harvesting of crops; plant breeding and plant nutrition; soils classification; soils mapping and survey; soils testing and fertility; soils management, land use and efficient crop production—all are the subject materials of agronomy. Many graduates step into fields of work in soil conservation planning, soil survey, land appraisal, farm management, commercial seed production and sales, fertilizer production and sales, seed technology, and grain inspection. Others go into teaching, research, extension, and farming. Students who desire to further their education in the Graduate College may register for a planned program of undergraduate study to prepare them for graduate work.

Animal Husbandry deals with the breeding, feeding and management of beef cattle, swine, sheep and horses. Students learn about methods of selection, systems of breeding, nutritional requirements, feedstuffs and feeding, livestock management, production, fitting and showing, marketing and meats. Many graduates go into livestock farming, commercial farm management, teaching and research. Meat packers, commission firms and the feed industry are taking increased numbers of them. Others go into extension work, become affiliated with various federal or state agricultural agencies, become connected with breed associations, or serve as livestock advisers for banks, railroads and insurance companies.

Dairy Husbandry is a curriculum administered by the Animal Husbandry Department. Prof. A. R. Porter is the Professor in charge of Dairy Husbandry at Iowa State. The curriculum deals with the breeding, feeding and management of dairy cattle. Students learn about methods of selection, systems of breeding, nutritional requirements, feedstuffs and feeding, dairy cattle management, fitting and showing, and dairy production. Graduates go into dairy farming, commercial farm management, teaching and research. Dairy cattle breed associations, artificial insemination associations and the feed industry provide a steady demand for graduates. Others go into extension work, become affiliated with various federal or state agricultural agencies or serve as livestock and dairy farm real estate advisers for banks, railroads and insurance companies.

Dairy Industry deals with the processing of market milk; butter, ice cream and cheese making; and the distribution and selling of these and other products incident to the operation of the facilities which constitute a modern dairy plant. Bacter-
iology, chemistry, business administration, engineering, psychology, advertising, and dairy husbandry are important fields of study for the Dairy Industry student. Graduates are employed as dairy plant operators and managers, sales and advertising executives for dairy products companies, and publicity men for dairy organizations and the dairy industry in general. Others go into teaching, extension, or research for governmental agencies or go into business for themselves.

Agricultural Business and Rural Administration provides an opportunity for students to specialize in (A) Agricultural Business, which provides training for work in farm management, farm credit and appraisal, marketing and distribution of farm products and farm supplies, (B) Rural Administration, which prepares a student for positions in agricultural administration, public relations and extension work in the field of agriculture, (C) Pre-graduate study in preparation for advanced training in agricultural economics or rural sociology. Graduates find positions in rural banking, government agencies, farm management companies, credit and real estate agencies, and in a variety of teaching, research and farming enterprises.

Farm Operation is designed for those who definitely want to operate a farm, either as the owner or an operator for someone else. The emphasis during the first two years of college is on agricultural economics, agricultural engineering, agronomy and animal husbandry. During the junior and senior years, the curriculum is planned by the student and his counselor to fit the student's own particular needs, and emphasis is placed on a balance among animal husbandry, agronomy and economics. There are a 2-year college program in farm operation and a 4-year curriculum. A certificate is awarded upon successful completion of the 2-year, while a Bachelor of Science degree is awarded to the graduates in the 4-year curriculum.

Forestry includes the study of botany, soils, zoology, economics, surveying, and mathematics, along with the many technical subjects in forestry, such as, silviculture, logging, wood utilization, forest mensuration, timber preservation and range management. All Forestry students take part in an 8-week summer camp in a forested region outside the state. Forestry graduates are employed by many federal and state agencies, including state forestry and conservation agencies, U. S. Forest Service, U. S. Soil Conservation Service, Bureau of Land Management, and Office of Indian Affairs. Many of them go into industrial positions with lumber and paper companies, railroads and building trades.

Horticulture is much like Agronomy except that the emphasis is on vegetables, fruits, flowers, or nursery stock instead of field crops. Subjects covered included greenhouse management, plant propagation, nursery methods, fertilizers, soils, commercial
fruit crops, fruit judging, canning crops, vegetable crops, garden flowers, fundamental sciences, economics, English, and business administration. Many graduates go into businesses of their own, such as, orchards, vineyards, market gardens, truck farms, greenhouses, flower shops and nurseries. Others go into sales and promotion work with spray, fertilizer, and seed and nursery companies. Still others go into teaching and research, or vegetable and fruit grading and inspection.

Landscape Architecture deals with the arrangement of urban and farm buildings for convenience and beauty, the problems of tree and shrub planting, design and layout of public parks and recreation areas, as well as city planning. L. A. students study the basic sciences, engineering, surveying, architecture, history and government, as well as the professional courses in landscape architecture. Graduates go into private practice or join professional firms. Many are employed in the public service of cities, counties and states, as well as federal agencies. Others go into teaching or extension work.

Poultry Husbandry deals with all phases of breeding, feeding and management of chickens and turkeys. Students take courses in basic sciences, veterinary anatomy, avian physiology, embryology, incubation and brooding, nutrition, genetics, marketing and processing of poultry products, poultry sanitation, poultry breeding and others designed to provide technically trained men for the modern poultry industry. Graduates are employed with state and federal agencies, as well as private businesses, such as, hatcheries, processing plants, commercial poultry farms, feed companies and poultry journals. Those wishing to do research, extension or teaching work are encouraged to work toward an advanced degree.

Agricultural Journalism consists of the course work and training which provide the necessary background and know-how that will enable a graduate to bring the story of current research, good farming methods and rural interests and activities to the public through the several media of communication. Graduates are in demand for work on weekly and daily newspapers, farm magazines, technical publications, and radio assignments. The advent of television is opening a new field of opportunity which promises to be a lucrative one for those trained in journalism who have a thorough knowledge of agriculture.

Agricultural Education is designed especially to prepare teachers of vocational agriculture in high schools. The curriculum in Agricultural Education provides balanced training in soils and crops, animal husbandry, agricultural engineering and agricultural economics, in addition to courses in teaching methods, psychology, and communication skills which are essential for
training teachers, supervised practice teaching in a high school vocational agriculture department during one quarter of the student's senior year provides invaluable experience for later full-time teaching assignments. Some graduates go into extension work, farming or agricultural business enterprises either at graduation or after teaching several years.

Industrial Education students take courses in drawing, woodwork, metal work, electricity, crafts, radio, welding and pattern making, in addition to work in education, psychology, English, economics, history, mathematics and science which are also required of Agricultural Education students, along with their courses in technical agriculture. Graduates qualify for teaching industrial arts in high schools, for conducting vocational-industrial classes or for educational work in industry.

Thirteen of the 14 curricula here reported have been included in this study. The industrial education curriculum was eliminated from the study because it is so remotely related to agriculture. Of the 13 remaining curricula, all were established prior to 1932 except the one in farm operations, from which the first degree was granted in 1945. The farm operations curriculum is administered by the Division of Agriculture rather than by a department as are the other curricula.

Perhaps no summary of the responsibility of the Division of Agriculture should be complete without a distinction between farming and the industry of agriculture. Only the most naive individual thinks of farming and the agricultural industry as synonymous. As the technical aspects of farming increase, the demands of the nonfarm segment of the agricultural industry must expand to meet the contemporary demands upon its productive capacity. It may very well be that colleges of agriculture of the future may justify their existence in terms of the increasing proportion of graduates who are in nonfarming occupations. If the work of the agricultural colleges is to be acceptable to farmers, to other individuals in
the agricultural industry and to college administrators, the proportion of emphasis in higher education to be placed upon farming and other aspects of the agricultural industry is a problem which will require recurrent study.
III. REVIEW OF LITERATURE

Many follow-up studies of graduates have been made by colleges and universities. The majority of such published studies have been in fields other than agriculture, relatively few having been devoted to agriculture graduates of land-grant institutions. Most follow-up studies have been primarily concerned with occupational status and present location of graduates. Several studies are under way at present as a part of a project of the Association of Land-Grant Colleges and Universities. Most of these studies, although in progress, have not as yet been published.

More than twenty years ago a study was made to describe and appraise the land-grant institutions. This study was directed by the United States Office of Education by representatives of the Association of Land-Grant Colleges and Universities. In 1930 the United States Office of Education published in two volumes A Survey of Land-Grant Colleges and Universities. Like most of the earlier surveys it was limited, to a great extent, to a description of land-grant programs as they existed prior to 1930. Since this date is prior to the twenty-one year period from 1932-1952, no review of it is here made.

In 1934 Johnson\(^1\) published a study which in part was based upon information assembled in the foregoing survey. He placed major emphasis upon land-grant institutions of the Midwest, particularly University of

---

\(^1\)Johnson, Palmer O. Aspects of Land-Grant College Education. Minneapolis, University of Minnesota Press. 1934.
Summaries were made concerning expenditures of funds, library facilities, characteristics of students and graduates, and income of graduates.

Evidence was presented indicating that between the years 1915 and 1928 seven states appropriated more to charities, hospitals and similar institutions than to public schools or institutions of higher learning. Larger institutions allotted a greater portion of total funds to libraries than did smaller institutions. The larger institutions also had a more adequate collection of volumes as measured by the criterion used. It was concluded, however, that due to differences in accounting systems and lack of standardized terminology related to the phases of library administration an adequate evaluation of libraries is difficult.

In each of the eight institutions studied, the majority of their students were residents of their own state, the mean percentage of students from the state being 88 per cent. It was found that enrollment in agriculture at 17 land-grant institutions increased from 1903 to 1916. During the first half of this period the increase in enrollment was quite rapid. During the second half of the period enrollments varied as a result of World War I and some resulting economic conditions of prosperity and depression.

Several interesting findings were presented concerning the students of the College of Agriculture, Forestry and Home Economics at the University of Minnesota.

1. Median grade point ratios made by present upper classmen during their freshman year were significantly higher than those of the freshmen group of which they were members.
2. During two consecutive years there were 60 and 56 freshmen agriculture students; 28.3 and 16 per cent respectively of these students graduated in the regular four-year period.

3. Students from farm homes had significantly lower percentile ranks on the college aptitude tests, yet their achievements equaled or exceeded those of students from the largest cities.

4. There was a negative relationship between ability and time spent in study.

5. Apparently there was no relationship between time spent in study and honor point ratios.

Information was collected and summarized concerning the salaries of graduates of the University of Minnesota. Findings with respect to salaries are not here reviewed since they are not comparable with 1952 salaries. It was found that the majority of graduates who entered farming had decided to do so prior to college entrance. Interest in farming was reported to be a major factor in the choice of farming as an occupation.

Recently Peacock¹ and others prepared and sent to 1975 graduates of the college of Agriculture at the University of Tennessee a comprehensive questionnaire concerning positions held and farming status. The questionnaires were sent to graduates of the period 1921-1950. Sixty-three per cent of the questionnaires were returned. Approximately 17 per cent of the respondents enclosed with the returned questionnaire a letter, which was requested, of general suggestions concerning program improvement.

¹Peacock, W. D., McSpadden, B. J., and Wingo, G. H. A Study of the Employment Opportunities for Agricultural Graduates of the University of Tennessee. (Bulletin) College of Agriculture, University of Tennessee, Knoxville, Tennessee. n.d.
Peacock found that 30 per cent of the graduates had transferred from other colleges, 11 per cent coming from colleges outside of Tennessee. Seventy-two and one-half per cent of the graduates were employed in Tennessee at the time of the study.

The majority of graduates or 85 per cent of those responding reported their first employment as directly related to agriculture. The areas of employment were as shown in Table 1. It is interesting to note that many more graduates listed farming as their present occupation than as their first occupation. Although only 8.6 per cent listed farming as their major occupation, a total of 30.1 per cent indicated that they owned or were operating a farm.

A mean salary of $4,499 was reported by 942 graduates. College teachers' salaries were close to the mean of the entire group, while vocational agriculture teachers' salaries were below the mean. Mean salaries by degree were Bachelor of Science - $4389, Master of Science - $4881, and Doctor of Philosophy - $6333. The letters accompanying the returned questionnaires indicated an overwhelming need for more emphasis on public speaking, English and journalism.

Shepardson\(^1\) conducted a follow-up study of the graduates of the School of Agriculture at Texas A. and M. College primarily seeking answers to two questions: (1) Why go to college to learn to farm? (2) Why do your agricultural graduates not go back to the farm? Questionnaires were sent to 4702 graduates. Of these, 1927 were completed and returned in time to be

Table 1
Types of Employment, First and Present
University of Tennessee

<table>
<thead>
<tr>
<th>Type</th>
<th>First employment after graduation</th>
<th>Employment at time of survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(% of total)</td>
<td>(% of total)</td>
</tr>
<tr>
<td>Related to agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational agriculture</td>
<td>28.3</td>
<td>20.5</td>
</tr>
<tr>
<td>Veterans' training</td>
<td>7.7</td>
<td>7.9</td>
</tr>
<tr>
<td>Total high school employment</td>
<td>36.0</td>
<td>28.4</td>
</tr>
<tr>
<td>College</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>2.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Research</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Extension</td>
<td>8.7</td>
<td>10.1</td>
</tr>
<tr>
<td>Total college employment</td>
<td>14.3</td>
<td>15.2</td>
</tr>
<tr>
<td>Graduate Study</td>
<td>0.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Total Educational</td>
<td>51.0</td>
<td>45.3</td>
</tr>
<tr>
<td>Federal and state agencies</td>
<td>14.3</td>
<td>16.3</td>
</tr>
<tr>
<td>Commercial</td>
<td>13.8</td>
<td>12.5</td>
</tr>
<tr>
<td>Farming</td>
<td>5.9</td>
<td>8.6</td>
</tr>
<tr>
<td>Total related to agriculture</td>
<td>85.0</td>
<td>82.7</td>
</tr>
<tr>
<td>Unrelated to agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>8.8</td>
<td>10.8</td>
</tr>
<tr>
<td>Military service</td>
<td>1.4</td>
<td>4.0</td>
</tr>
<tr>
<td>Teaching</td>
<td>4.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Total unrelated to agriculture</td>
<td>15.0</td>
<td>17.3</td>
</tr>
</tbody>
</table>
included in the analysis. Among other information requested, graduates were asked to list their current occupations. A summary of occupational listings is shown in Table 2.

Only 18.6 per cent of the respondents were engaged in full-time farming or ranching. However, 44.1 per cent were owners or part time operators of farms or ranches or both. Thirty-five per cent of the animal husbandry graduates were engaged in farming. No other curriculum had such a large proportion of its graduates in farming.

Of graduates reporting, 76.2 per cent came from homes of farm owners or operators. Seventy-eight and four-tenths per cent of the farm reared graduates anticipated farm ownership at the time of college entrance, 76.1 per cent at time of graduation and 51.9 per cent at time the study was made.

Table 2
Summary of Occupations, Texas A. and M.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Related to agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school vocational agriculture</td>
<td>311</td>
<td>16.1</td>
</tr>
<tr>
<td>Agricultural extension</td>
<td>165</td>
<td>8.6</td>
</tr>
<tr>
<td>College teaching and research</td>
<td>203</td>
<td>10.5</td>
</tr>
<tr>
<td>S.C.S. and other government agencies</td>
<td>202</td>
<td>10.5</td>
</tr>
<tr>
<td>Commercial public relations</td>
<td>24</td>
<td>1.2</td>
</tr>
<tr>
<td>Farming</td>
<td>359</td>
<td>18.6</td>
</tr>
<tr>
<td>Business related to agriculture</td>
<td>248</td>
<td>12.9</td>
</tr>
<tr>
<td>Unrelated to agriculture</td>
<td>415</td>
<td>21.5</td>
</tr>
</tbody>
</table>
Mean salaries for occupations were: farmers - $8,450, non-related business - $6,750, related agricultural business - $5,900, and others (teacher, Soil Conservation Service, public relations, and government workers) - $4,800. The average for the entire group of graduates was $6,000.

Principal criticisms of the School of Agriculture included lack of practical training, lack of vocational guidance, lack of training in agricultural economics and social relations, and lack of training in English and public speaking.

O'Brien conducted a study of the graduates of the agricultural engineering curriculum at Iowa State College. He mailed 534 questionnaires and received 465 or an 87 per cent return. The major purpose of his study was to obtain employment status of graduates and to secure an evaluation of selected courses in the agricultural engineering curriculum. It was found that education ranked first as an occupational outlet with approximately one in four so employed. The graduates were classified according to their major interests while in school, farm power was listed by the majority of majors. Both the first and present areas of employment tended to follow the major interest while in school. O'Brien found that the present employment did not differ greatly from the first employment.

The graduates included in the study were polled concerning the emphasis they thought should have been given various course areas. Approximately four out of five reported that about the correct amount of emphasis

---

was given to three areas in productive agriculture and about the same number for four areas in engineering. However, as in the Texas study and in the Tennessee study, graduates thought much more emphasis should be given to English and speech.

Bell conducted an investigation concerning 288 men who had qualified at Iowa State College to teach vocational agriculture. He attempted to isolate characteristics which distinguish between those who remain in teaching and those who enter but do not remain. He collected information concerning 288 graduates. Not all of these graduates were agriculture education majors. Some of them majored in agronomy, animal husbandry or some other area while at Iowa State College.

Ninety-two per cent of the respondents to Bell's questionnaire were engaged in occupations classified as education or agriculture. He found that farm background experience could not be used to distinguish between those who had and those who had not stayed in teaching. However, he did find a significant difference due to the nonfarm work experiences. Those who stayed in teaching had more nonfarm work experiences than those who left teaching. Another significant difference in favor of those who had stayed in teaching was "married when started teaching". Nonsignificance was found for number of years of high school vocational agriculture, number of years of 4-H experience and farming as father's occupation.

Qualified graduates who did not enter vocational agriculture teaching gave as reasons for not doing so, a lack of security of tenure, higher salaries elsewhere, and a desire to use their training for purposes other

---

than teaching. The vocational agriculture teachers who changed teaching positions reported they do so primarily for a higher salary. These teachers also listed the desire for broader personal and professional experience as a major reason for moving from one school to another.

Udoh¹, by means of a questionnaire, secured information concerning 181 B.S. graduates of the industrial education curriculum at Iowa State College (1921-1950). He found sixty-four per cent of the graduates were living in Iowa, 6 per cent were in the armed forces and the remaining 30 per cent were working in twenty-three other states. He found 67 per cent of the graduates were teaching and 23 per cent engaged in other occupations. One hundred twenty-seven of the respondents had taken a first position in education. However, at the time of the study 19 per cent of them had changed to an occupation other than education. On the other hand, only 9 per cent of those who started in non-teaching positions had changed to teaching.

Seventy-two per cent of the respondents reported they had transferred from various curricula of the Engineering Division. Only 10 per cent reported they enrolled in the industrial education curriculum upon entering Iowa State College.

In response to the question: "In the light of your experience what courses should a prospective student in your field elect?", the respondents to Udoh's questionnaire suggested shop courses as a first choice, English as a third choice and courses in agriculture as a last choice. The

graduates rated industrial education laboratory courses as being of great value to them.

Sutherland and LeCount\textsuperscript{1} conducted a survey of the graduates of the University of California, Davis, California. Questionnaires were sent to 466 graduates and 192 returns were received. The purposes of the study were:

1. To determine the occupations chosen by degree graduates of the College of Agriculture for the fifteen-year period, 1933-47.
2. To assemble information which might be of value in advising and counseling students who have made their occupational choices and who are attending the University with the express purpose of entering specific occupations.
3. To obtain from graduates suggestions for making adjustments in undergraduate curricula.
4. To obtain information which might be of value in the placement of subsequent graduates.

Results of the study showed that approximately 25 per cent of the graduates were farming, 20 per cent teaching vocational agriculture, 20 per cent in agricultural business and the remaining 35 per cent were engaged in a variety of occupations, some of which were nonagricultural. Very few changes in occupations were noted among those who started in college teaching or research. This same group, college teachers and researchers, were most satisfied with the undergraduate courses being offered. Those who were engaged in other occupations recommended more courses out-

\textsuperscript{1}Sutherland, S. S. and LeCount, S. N. A Survey of Degree Graduates of the College Of Agriculture, 1933-47 (10 page mimeo) Davis, California. 1948.
side their major area, more practical instruction in agriculture, more field work and more agricultural engineering.

Sutherland and LeCount reported the graduates who had completed their university training ten or more years ago were earning approximately $5000 per year, those who had graduated five to ten years ago had a mean income of about $4000 and those who had graduated during the past two years had a mean starting salary of about $3600 per year. These writers reported a need for a more consistent program of follow-up of graduates of that institution. They indicated that adequate addresses were not available for a large number of graduates.

Havemann and West\(^1\) published a study based on a survey of United States college graduates made by Time Magazine and analyzed by the Columbia University Bureau of Applied Social Research. They described in detail many of the economic, religious, social and political characteristics of 9054 graduates of U. S. colleges, universities, teachers colleges, professional schools and technical institutions. This publication is of broad general interest, but only a few items are pertinent to the study at Iowa State College:

1. Three per cent of the graduates surveyed majored in forestry or agriculture, 9 per cent in education.

2. Twenty-seven per cent of the graduates in forestry or agriculture wished they had prepared for another profession.

3. When asked how much college had helped their present occupation, 70 per cent reported "a lot", 28 per cent report "some" and 2

---

\(^{1}\)Havemann, Ernest and West, Patricia Salter. They Went to College. New York, Harcourt, Brace and Company. 1952.
25

per cent reported "not at all". Seventy-four per cent of the graduates in agriculture reported "a lot".

4. Only nineteen per cent of the graduates who majored in education were earning $5000 or over, whereas 62 per cent of those who majored in law, medicine or dentistry were earning $5000 or more.

5. In both high and low paid professions, the graduates with the best grades earned considerably more money than graduates with low grades. However, in the field of business there were only slight differences in the earning power of the A students and the C or D students.

6. Graduates of more recent years participated in more extracurricular activities while in college than did those who graduated 15 years or more ago.

7. Graduates reported they had not received adequate training in public speaking or English.

As previously mentioned studies are now in progress concerning the agriculture graduates of many of the land-grant institutions and no doubt in several years a composite summary of the opinions of the graduates of all these institutions can be made. Based on the studies here reported the majority of agriculture graduates enter agricultural occupations or occupations closely allied with agriculture. Not so many of the graduates reported themselves as farm operators as the writer expected. However, more graduates listed themselves as currently farming than gave farming as their first occupation. In those studies where graduates were asked to respond to questions concerning course offerings, there was a unanimous
vote for more courses involving communication skills. Several of the investigators reported difficulty in obtaining adequate addresses for many of the graduates.
IV. METHOD OF PROCEDURE

To provide factual information suitable for educational and vocational guidance of students in the division of agriculture at Iowa State College it seemed advisable to secure current opinions and occupational status of a large number of graduates. To secure such information, a questionnaire was mailed to graduates who had obtained baccalaureate degrees from 1931-1932 to 1951-1952. Information concerning first and present occupation, advanced degrees earned, value of counselor, value of course work, recommendations for curriculum changes and opinions concerning other items were included in the questionnaire.

Returned questionnaires were coded and the information was placed on International Business Machine cards. Grade point average and year of graduation of each graduate was secured from the registrar's office.

An occupation distribution was desired by which it would be possible to classify all graduates in agriculture. Such a classification was made and will be used for certain analyses. However, the occupational outlets differ so widely from one curriculum to another, that a second plan of classification unique to each curriculum was devised. Difficulty was encountered in classifying the occupations of some of the graduates. In such cases department heads and counselors were consulted for a more adequate description of the occupation. Location of position was classified by state only. Iowa, Illinois, Wisconsin, Minnesota, Missouri, and

---

1Copy shown in Appendix.
Nebraska were classified individually, however, all other states were classified as a single group.

Graduates were asked to estimate the average (of the last two or three years) income from their major job. The figure given in each case was reduced to the nearest hundred dollars; i.e., $4540 to $4500. For purposes of this study the estimate given was used as 1952 income.

When properly classified, the information concerning each graduate was placed on International Business Machine cards. All group separations were made mechanically by use of International Business Machine equipment.

The study here undertaken should be considered a census survey rather than a sampling survey. Within the twenty-one year period an attempt was made for complete coverage. The graduates who returned questionnaires can not be considered a sample from any known or hypothetical population except in rare instances. Therefore, the use of statistical inference either in estimation or in testing hypotheses, for all practical purposes, is nonexistent in this study.
V. ENROLLMENT TRENDS

During the 25-year period ending in 1952, male undergraduate enrollment in the 52 land-grant institutions for whites increased by approximately 135,000 students. This increase has not been without fluctuations. During this period two major catastrophes occurred, namely, the depression and World War II. As may be seen in Table 3, each of these events had its effect upon enrollment in the land-grant institutions. Apparently many prospective students were deprived of a college education due to the economic conditions of the period 1932-1935. The prevailing conditions affecting enrollment during the war and post-war period were different from those during the depression period. Enrollment reduction was more drastic during the war years than during the depression years. However, as shown by the enrollments of 1947-1950, the shrunken enrollments of the war years represented a delay rather than a sacrifice of formal education for many students. Although not shown in Table 3, when the enrollments were fitted to a straight line, $Y = 8886.6X + 175,322.8$ where $Y = enrollment$ and $X = number$ of years since 1940, a mean annual increase of 8,887 students was found. Except for the depression and the war years, the straight line formula yielded estimates close to actual enrollment for the 25-year period. The estimates were somewhat high for the early and the late years and slightly low for the middle years. The low enrollment of the depression years which occurred during the early years of the 25-year period and the high enrollment following World War II caused the straight
## Table 3
Actual and Predicted Male Undergraduate Enrollment in Land-Grant Institutions

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Agriculture*</th>
<th>Per cent in agriculture</th>
<th>Agriculture enrollment predicted by equation</th>
<th>Linear</th>
<th>Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>1928</td>
<td>103,619</td>
<td>11,461</td>
<td>11.1</td>
<td>8,325</td>
<td>5,576</td>
<td></td>
</tr>
<tr>
<td>1929</td>
<td>107,088</td>
<td>12,504</td>
<td>11.8</td>
<td>9,508</td>
<td>7,944</td>
<td></td>
</tr>
<tr>
<td>1930</td>
<td>116,053</td>
<td>12,772</td>
<td>11.0</td>
<td>10,691</td>
<td>10,066</td>
<td></td>
</tr>
<tr>
<td>1931</td>
<td>116,110</td>
<td>13,123</td>
<td>11.3</td>
<td>11,873</td>
<td>11,984</td>
<td></td>
</tr>
<tr>
<td>1932</td>
<td>114,350</td>
<td>12,219</td>
<td>10.7</td>
<td>13,056</td>
<td>12,735</td>
<td></td>
</tr>
<tr>
<td>1933</td>
<td>105,327</td>
<td>11,161</td>
<td>10.6</td>
<td>14,238</td>
<td>15,343</td>
<td></td>
</tr>
<tr>
<td>1934</td>
<td>103,246</td>
<td>11,192</td>
<td>10.8</td>
<td>15,421</td>
<td>16,835</td>
<td></td>
</tr>
<tr>
<td>1935</td>
<td>117,243</td>
<td>13,818</td>
<td>11.8</td>
<td>16,604</td>
<td>18,225</td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td>129,565</td>
<td>17,827</td>
<td>13.8</td>
<td>17,786</td>
<td>19,522</td>
<td></td>
</tr>
<tr>
<td>1937</td>
<td>141,264</td>
<td>21,393</td>
<td>15.1</td>
<td>18,969</td>
<td>20,741</td>
<td></td>
</tr>
<tr>
<td>1938</td>
<td>151,327</td>
<td>25,679</td>
<td>17.0</td>
<td>20,151</td>
<td>21,895</td>
<td></td>
</tr>
<tr>
<td>1939</td>
<td>160,622</td>
<td>27,461</td>
<td>17.1</td>
<td>21,334</td>
<td>22,983</td>
<td></td>
</tr>
<tr>
<td>1940</td>
<td>164,560</td>
<td>29,519</td>
<td>17.9</td>
<td>22,517</td>
<td>24,012</td>
<td></td>
</tr>
<tr>
<td>1941</td>
<td>163,455</td>
<td>27,917</td>
<td>17.1</td>
<td>23,699</td>
<td>24,994</td>
<td></td>
</tr>
<tr>
<td>1942</td>
<td>151,640</td>
<td>23,356</td>
<td>15.4</td>
<td>24,882</td>
<td>25,930</td>
<td></td>
</tr>
<tr>
<td>1943</td>
<td>143,106</td>
<td>18,354</td>
<td>12.8</td>
<td>26,064</td>
<td>26,825</td>
<td></td>
</tr>
<tr>
<td>1944</td>
<td>171,383</td>
<td>4,207</td>
<td>2.5</td>
<td>27,247</td>
<td>27,682</td>
<td></td>
</tr>
<tr>
<td>1945</td>
<td>82,950</td>
<td>4,751</td>
<td>5.7</td>
<td>28,430</td>
<td>28,502</td>
<td></td>
</tr>
<tr>
<td>1946</td>
<td>170,215</td>
<td>18,971</td>
<td>11.1</td>
<td>29,612</td>
<td>29,294</td>
<td></td>
</tr>
<tr>
<td>1947</td>
<td>324,595</td>
<td>38,475</td>
<td>11.9</td>
<td>30,795</td>
<td>30,077</td>
<td></td>
</tr>
<tr>
<td>1948</td>
<td>353,681</td>
<td>45,270</td>
<td>12.8</td>
<td>31,977</td>
<td>30,786</td>
<td></td>
</tr>
<tr>
<td>1949</td>
<td>349,605</td>
<td>45,848</td>
<td>13.1</td>
<td>33,150</td>
<td>31,490</td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>325,202</td>
<td>45,518</td>
<td>14.0</td>
<td>34,343</td>
<td>32,171</td>
<td></td>
</tr>
<tr>
<td>1951</td>
<td>276,312</td>
<td>37,922</td>
<td>13.6</td>
<td>35,525</td>
<td>32,834</td>
<td></td>
</tr>
<tr>
<td>1952</td>
<td>238,542</td>
<td>32,105</td>
<td>13.5</td>
<td>36,708</td>
<td>33,469</td>
<td></td>
</tr>
<tr>
<td>1955</td>
<td></td>
<td></td>
<td></td>
<td>40,257</td>
<td>35,276</td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td></td>
<td></td>
<td></td>
<td>46,172</td>
<td>37,963</td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td></td>
<td></td>
<td></td>
<td>52,087</td>
<td>40,331</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td></td>
<td></td>
<td></td>
<td>69,832</td>
<td>46,122</td>
<td></td>
</tr>
</tbody>
</table>

line formula to yield large annual increments. For obvious reasons use of the straight line formula for extrapolation of future enrollment is open to serious question.

Enrollment in agriculture at the land-grant institutions has also increased during this 25-year period. When enrollments were fitted to straight line, \( Y = 1182.8X + 21334 \), a mean annual increase of 1183 students was found. As shown in Table 3 the straight line prediction yielded a low estimate of enrollment for the first four of the 25 years. As in the case of total enrollment, the straight line formula for agriculture enrollment yielded a large annual increment. Since, in the judgment of the writer, it is not logical to assume that enrollment in agriculture will continue to increase on a straight line basis, enrollments were fitted to a log curve. Using the formula \( Y = a \log X + c \), the equation became \( Y = 46333.32 \log(X - 1920) - 36367.57 \). The log curve resulted in very different predictions of present and future enrollment from those obtained from straight line prediction. The predicted enrollment using the log curve was considerably below actual enrollment during the early years and appreciably lower than the straight line prediction for future years. It is probably realistic to assume that future enrollments will be between the log curve and the straight line predictions.

A further inspection of Table 3 indicates the effects of periods of depression and war upon enrollment. It is interesting to note the paralyzing effect of World War II on agriculture enrollment. The low of 4,207 students enrolled in agriculture during 1944 reflects the relatively few potential agriculture students who were not engaged in war work, food production or military service. The percentage enrollment
decrease during the war years was not nearly so great for total undergraduate enrollment as it was for agricultural enrollment. This difference in reduction might be explained by the difference in proportions of women enrolled in agriculture and general college enrollment as well as by military sponsored students in areas other than agriculture.

During the past two decades there has been a decrease in the percentage of United States population engaged in farming. On first thought it might be assumed that the percentage of students enrolled in agriculture in the land-grant institutions during the past 25 years has also decreased. The percentage of undergraduates in land-grant institutions enrolled in agriculture, as shown in Table 3, indicates that there was no greater reduction in agriculture enrollment than in total enrollment during the depression period. By fitting a straight line to the reported enrollments it was found that the percentage of the total enrollment enrolled in agriculture has increased slightly during the 25-year period. The increase was approximately two-tenths of one per cent per year.

During the same period, 1928-1952, undergraduate enrollment at Iowa State College increased from 4,534 in 1928 to 7,189 in 1952 with a high of 10,259 in 1949. These enrollments by years are shown in Table 4. When these enrollments were fitted to a straight line a mean increase of 228 students per year was found. Agriculture enrollment at Iowa State College has also increased during this 25-year period. When these enrollments were fitted to a straight line a mean increase of approximately 64 students per year is found. The large enrollments at Iowa State College in recent years caused the straight line equation to yield a low value for the early years. The straight line formula and the log formula were used for
### Table 4
**Actual and Predicted Undergraduate Enrollment at Iowa State College**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Agriculture</th>
<th>Per cent in agriculture*</th>
<th>Agriculture enrollment predicted by equation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Linear</td>
</tr>
<tr>
<td>1928</td>
<td>4,534</td>
<td>1,088</td>
<td>24.0</td>
<td>711</td>
</tr>
<tr>
<td>1929</td>
<td>4,527</td>
<td>1,078</td>
<td>23.3</td>
<td>775</td>
</tr>
<tr>
<td>1930</td>
<td>4,566</td>
<td>1,064</td>
<td>23.3</td>
<td>840</td>
</tr>
<tr>
<td>1931</td>
<td>4,686</td>
<td>1,089</td>
<td>23.2</td>
<td>905</td>
</tr>
<tr>
<td>1932</td>
<td>4,229</td>
<td>942</td>
<td>22.5</td>
<td>970</td>
</tr>
<tr>
<td>1933</td>
<td>3,491</td>
<td>755</td>
<td>21.6</td>
<td>1,035</td>
</tr>
<tr>
<td>1934</td>
<td>3,484</td>
<td>778</td>
<td>22.3</td>
<td>1,099</td>
</tr>
<tr>
<td>1935</td>
<td>3,864</td>
<td>1,006</td>
<td>26.0</td>
<td>1,164</td>
</tr>
<tr>
<td>1936</td>
<td>4,653</td>
<td>1,310</td>
<td>28.2</td>
<td>1,229</td>
</tr>
<tr>
<td>1937</td>
<td>5,011</td>
<td>1,413</td>
<td>28.2</td>
<td>1,294</td>
</tr>
<tr>
<td>1938</td>
<td>5,615</td>
<td>1,524</td>
<td>27.1</td>
<td>1,358</td>
</tr>
<tr>
<td>1939</td>
<td>6,296</td>
<td>1,673</td>
<td>26.6</td>
<td>1,423</td>
</tr>
<tr>
<td>1940</td>
<td>6,630</td>
<td>1,751</td>
<td>26.4</td>
<td>1,488</td>
</tr>
<tr>
<td>1941</td>
<td>6,753</td>
<td>1,607</td>
<td>23.8</td>
<td>1,553</td>
</tr>
<tr>
<td>1942</td>
<td>6,761</td>
<td>1,432</td>
<td>21.2</td>
<td>1,617</td>
</tr>
<tr>
<td>1943</td>
<td>6,144</td>
<td>1,202</td>
<td>19.6</td>
<td>1,682</td>
</tr>
<tr>
<td>1944</td>
<td>5,675</td>
<td>276</td>
<td>4.9</td>
<td>1,747</td>
</tr>
<tr>
<td>1945</td>
<td>4,007</td>
<td>270</td>
<td>6.7</td>
<td>1,811</td>
</tr>
<tr>
<td>1946</td>
<td>7,634</td>
<td>1,337</td>
<td>17.5</td>
<td>1,876</td>
</tr>
<tr>
<td>1947</td>
<td>10,113</td>
<td>2,355</td>
<td>23.3</td>
<td>1,941</td>
</tr>
<tr>
<td>1948</td>
<td>10,172</td>
<td>2,669</td>
<td>26.2</td>
<td>2,006</td>
</tr>
<tr>
<td>1949</td>
<td>10,259</td>
<td>2,861</td>
<td>28.1</td>
<td>2,070</td>
</tr>
<tr>
<td>1950</td>
<td>9,100</td>
<td>2,868</td>
<td>31.5</td>
<td>2,155</td>
</tr>
<tr>
<td>1951</td>
<td>8,081</td>
<td>2,668</td>
<td>33.0</td>
<td>2,200</td>
</tr>
<tr>
<td>1952</td>
<td>7,189</td>
<td>2,158</td>
<td>30.0</td>
<td>2,265</td>
</tr>
<tr>
<td>1955</td>
<td></td>
<td></td>
<td></td>
<td>2,457</td>
</tr>
<tr>
<td>1960</td>
<td></td>
<td></td>
<td></td>
<td>2,785</td>
</tr>
<tr>
<td>1965</td>
<td></td>
<td></td>
<td></td>
<td>3,110</td>
</tr>
<tr>
<td>1980</td>
<td></td>
<td></td>
<td></td>
<td>4,085</td>
</tr>
</tbody>
</table>

predictions of future enrollment in agriculture at Iowa State College. The straight line prediction of 4,085 students to be enrolled in 1980 is approximately double the present enrollment in agriculture and is higher than might logically be expected. A log curve prediction using the formula \( Y = 2446.692 \log(X - 1920) - 1616.4182 \) yielded a mean prediction of 2,734 students for 1980. The log predictions are much lower than those found by use of the straight line formula. It is probably realistic to assume, barring any major catastrophe, that future enrollments will be between the two estimates shown in Table 4.

There has been a slight increase in the percentage of male undergraduates at Iowa State College who enrolled in agriculture during the 25-year period, 1928-1952. These percentages, shown in Table 4, when fitted to a straight line yielded an increase of less than one-tenth of one percent per year. Attention should be given to the effects of World War II on the percentage of total enrollment enrolled in agriculture at Iowa State College. The low of 4.3 per cent during 1944 may indicate a need for a change in national policy should an emergency of a military nature occur in the future.

Upon examination of past and present birth rates, it becomes apparent that there will be more young men of college age in the future quarter century than there were in the past quarter century. Birth rates by years are shown in Table 5. An increase in birth rate can be expected to affect college enrollment approximately 18 years later. On this basis it seems reasonable to infer that college enrollment will increase appreciably in the year 1964 and will continue to increase for several years thereafter.
<table>
<thead>
<tr>
<th>Year</th>
<th>Iowa*</th>
<th>U.S.**</th>
<th>Year</th>
<th>Iowa</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1928</td>
<td>17.7</td>
<td>22.2</td>
<td>1939</td>
<td>17.4</td>
<td>18.8</td>
</tr>
<tr>
<td>1929</td>
<td>17.1</td>
<td>21.2</td>
<td>1940</td>
<td>17.9</td>
<td>19.4</td>
</tr>
<tr>
<td>1930</td>
<td>17.3</td>
<td>21.3</td>
<td>1941</td>
<td>18.5</td>
<td>20.3</td>
</tr>
<tr>
<td>1931</td>
<td>17.0</td>
<td>20.2</td>
<td>1942</td>
<td>20.0</td>
<td>22.3</td>
</tr>
<tr>
<td>1932</td>
<td>16.3</td>
<td>19.5</td>
<td>1943</td>
<td>20.8</td>
<td>22.9</td>
</tr>
<tr>
<td>1933</td>
<td>16.0</td>
<td>18.4</td>
<td>1944</td>
<td>20.8</td>
<td>21.5</td>
</tr>
<tr>
<td>1934</td>
<td>17.0</td>
<td>19.0</td>
<td>1945</td>
<td>20.2***</td>
<td>20.7</td>
</tr>
<tr>
<td>1935</td>
<td>16.4</td>
<td>18.7</td>
<td>1946</td>
<td>23.6</td>
<td>24.5</td>
</tr>
<tr>
<td>1936</td>
<td>17.1</td>
<td>18.4</td>
<td>1947</td>
<td>26.3</td>
<td>27.0</td>
</tr>
<tr>
<td>1937</td>
<td>17.0</td>
<td>18.7</td>
<td>1948</td>
<td>24.4</td>
<td>25.3</td>
</tr>
<tr>
<td>1938</td>
<td>17.4</td>
<td>19.2</td>
<td>1949</td>
<td>24.3</td>
<td>24.0</td>
</tr>
</tbody>
</table>


Table 6

Actual* and Predicted** Iowa Male High School Graduates by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Year</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1928</td>
<td>8,791</td>
<td>1947</td>
<td>12,230</td>
</tr>
<tr>
<td>1929</td>
<td>8,733</td>
<td>1948</td>
<td>11,875</td>
</tr>
<tr>
<td>1930</td>
<td>9,302</td>
<td>1949</td>
<td>11,634</td>
</tr>
<tr>
<td>1931</td>
<td>9,779</td>
<td>1950</td>
<td>11,654</td>
</tr>
<tr>
<td>1932</td>
<td>10,682</td>
<td>1951</td>
<td>11,469</td>
</tr>
<tr>
<td>1933</td>
<td>11,310</td>
<td>1952</td>
<td>11,506</td>
</tr>
<tr>
<td>1934</td>
<td>11,746</td>
<td>1953</td>
<td>11,919</td>
</tr>
<tr>
<td>1935</td>
<td>12,107</td>
<td>1954</td>
<td>12,070</td>
</tr>
<tr>
<td>1936</td>
<td>12,281</td>
<td>1955</td>
<td>11,959</td>
</tr>
<tr>
<td>1937</td>
<td>12,181</td>
<td>1956</td>
<td>12,102</td>
</tr>
<tr>
<td>1938</td>
<td>13,023</td>
<td>1957</td>
<td>11,890</td>
</tr>
<tr>
<td>1939</td>
<td>13,726</td>
<td>1958</td>
<td>11,812</td>
</tr>
<tr>
<td>1940</td>
<td>13,964</td>
<td>1959</td>
<td>11,995</td>
</tr>
<tr>
<td>1941</td>
<td>13,887</td>
<td>1960</td>
<td>12,863</td>
</tr>
<tr>
<td>1942</td>
<td>13,302</td>
<td>1961</td>
<td>12,594</td>
</tr>
<tr>
<td>1943</td>
<td>12,238</td>
<td>1962</td>
<td>12,256</td>
</tr>
<tr>
<td>1944</td>
<td>10,441</td>
<td>1963</td>
<td>11,825</td>
</tr>
<tr>
<td>1945</td>
<td>10,002</td>
<td>1964</td>
<td>14,944</td>
</tr>
<tr>
<td>1946</td>
<td>10,379</td>
<td>1965</td>
<td>16,975</td>
</tr>
</tbody>
</table>


Since the majority of entering college freshman students for any one year are high school graduates of that year an examination of actual and predicted Iowa male high school graduates by years may be helpful in determining future enrollment in agriculture at Iowa State College. Actual and expected numbers of graduates are shown in Table 6. According to these figures only small changes are expected in the number of male high school graduates until the academic year 1963–64. During that year the size of graduating class is expected to exceed the previous class by approximately 3,121 graduates.

It is a wholesome situation for technical agriculture that enrollments in agriculture have tended to increase in the land-grant institutions during the past 25 years. It appears that agriculture enrollment at Iowa State College and at other land-grant institutions will continue to increase in the future with a large increase beginning in 1963–64. These increases coupled with the decrease in the percentage of the United States population engaged in farming will, no doubt, make available more technically trained men to the agricultural industry.
VI. RESPONDING GRADUATES

There were 20,770 baccalaureate degrees conferred by Iowa State College during the 21-year period ending in June 1952. Of these degrees, 4,439 were conferred in the Division of Agriculture and 348 were conferred at the successful completion of the agricultural engineering curriculum, jointly administered by the Division of Agriculture and the Division of Engineering. With 65 exceptions, these degrees have been granted in curricula which currently exist. The 65 graduates from discontinued curricula, who have been eliminated from this study, may be classified as follows:

- Agriculture and Science: 43
- General Agriculture: 18
- Agriculture and Manual Training: 4

In addition to the 65 graduates of discontinued curricula, there were 239 graduates of the industrial education curriculum who were not included in this study because of the remote connection of this curriculum to agriculture. Thus, there were 4,483 graduates of the thirteen curricula during the 21-year period ending in June 1952 as shown in Table 7. These 4,483 graduates constitute the population or universe concerning whom this study was designed.

An inspection of Table 7 suggests that interpretations of the 21-year period will be weighted heavily by recent graduates since more than half of 4,483 individuals have been graduated in the 6-year post-war period. The impact of World War II and of the subsequent post-war financial assistance to veterans is particularly obvious.
Table 7  
Degrees Granted Each Year by Curriculum

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>11</td>
<td>16</td>
<td>13</td>
<td>41</td>
<td>6</td>
<td>19</td>
<td>-</td>
<td>11</td>
<td>9</td>
<td>12</td>
<td>2</td>
<td>4</td>
<td></td>
<td>155</td>
</tr>
<tr>
<td>1933</td>
<td>3</td>
<td>9</td>
<td>8</td>
<td>10</td>
<td>21</td>
<td>5</td>
<td>26</td>
<td>15</td>
<td>1</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td></td>
<td>113</td>
</tr>
<tr>
<td>1934</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>14</td>
<td>30</td>
<td>7</td>
<td>18</td>
<td>17</td>
<td>5</td>
<td>12</td>
<td>1</td>
<td>7</td>
<td></td>
<td>127</td>
</tr>
<tr>
<td>1935</td>
<td>8</td>
<td>4</td>
<td>10</td>
<td>7</td>
<td>23</td>
<td>3</td>
<td>12</td>
<td>23</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>1936</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>8</td>
<td>21</td>
<td>5</td>
<td>18</td>
<td>29</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>1937</td>
<td>8</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>28</td>
<td>2</td>
<td>25</td>
<td>29</td>
<td>13</td>
<td>12</td>
<td>3</td>
<td>1</td>
<td></td>
<td>144</td>
</tr>
<tr>
<td>1938</td>
<td>19</td>
<td>8</td>
<td>9</td>
<td>13</td>
<td>37</td>
<td>8</td>
<td>29</td>
<td>-</td>
<td>45</td>
<td>2</td>
<td>11</td>
<td>6</td>
<td>5</td>
<td>192</td>
</tr>
<tr>
<td>1939</td>
<td>18</td>
<td>10</td>
<td>21</td>
<td>28</td>
<td>42</td>
<td>13</td>
<td>33</td>
<td>-</td>
<td>45</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>232</td>
</tr>
<tr>
<td>1940</td>
<td>11</td>
<td>21</td>
<td>17</td>
<td>26</td>
<td>53</td>
<td>7</td>
<td>22</td>
<td>63</td>
<td>7</td>
<td>11</td>
<td>0</td>
<td>4</td>
<td></td>
<td>242</td>
</tr>
<tr>
<td>1941</td>
<td>16</td>
<td>23</td>
<td>18</td>
<td>23</td>
<td>46</td>
<td>7</td>
<td>21</td>
<td>-</td>
<td>34</td>
<td>9</td>
<td>8</td>
<td>3</td>
<td>5</td>
<td>213</td>
</tr>
<tr>
<td>1942</td>
<td>11</td>
<td>26</td>
<td>13</td>
<td>23</td>
<td>55</td>
<td>2</td>
<td>25</td>
<td>20</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td></td>
<td>190</td>
</tr>
<tr>
<td>1943</td>
<td>12</td>
<td>28</td>
<td>12</td>
<td>25</td>
<td>41</td>
<td>0</td>
<td>18</td>
<td>-</td>
<td>45</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1944</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>1945</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>1946</td>
<td>6</td>
<td>11</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>1947</td>
<td>14</td>
<td>45</td>
<td>13</td>
<td>24</td>
<td>33</td>
<td>6</td>
<td>13</td>
<td>7</td>
<td>28</td>
<td>9</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td>208</td>
</tr>
<tr>
<td>1948</td>
<td>18</td>
<td>34</td>
<td>24</td>
<td>33</td>
<td>48</td>
<td>9</td>
<td>24</td>
<td>10</td>
<td>50</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>271</td>
</tr>
<tr>
<td>1949</td>
<td>19</td>
<td>58</td>
<td>46</td>
<td>68</td>
<td>68</td>
<td>7</td>
<td>32</td>
<td>16</td>
<td>75</td>
<td>5</td>
<td>20</td>
<td>11</td>
<td>12</td>
<td>414</td>
</tr>
<tr>
<td>1950</td>
<td>23</td>
<td>88</td>
<td>46</td>
<td>63</td>
<td>92</td>
<td>10</td>
<td>36</td>
<td>47</td>
<td>98</td>
<td>18</td>
<td>25</td>
<td>11</td>
<td>14</td>
<td>571</td>
</tr>
<tr>
<td>1951</td>
<td>20</td>
<td>79</td>
<td>42</td>
<td>53</td>
<td>83</td>
<td>9</td>
<td>18</td>
<td>58</td>
<td>88</td>
<td>6</td>
<td>18</td>
<td>16</td>
<td>6</td>
<td>496</td>
</tr>
<tr>
<td>1952</td>
<td>15</td>
<td>72</td>
<td>30</td>
<td>44</td>
<td>56</td>
<td>12</td>
<td>18</td>
<td>54</td>
<td>51</td>
<td>12</td>
<td>11</td>
<td>6</td>
<td>12</td>
<td>393</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>244</strong></td>
<td><strong>551</strong></td>
<td><strong>476</strong></td>
<td><strong>847</strong></td>
<td><strong>125</strong></td>
<td><strong>409</strong></td>
<td><strong>196</strong></td>
<td><strong>763</strong></td>
<td><strong>138</strong></td>
<td><strong>199</strong></td>
<td><strong>83</strong></td>
<td><strong>104</strong></td>
<td><strong>4483</strong></td>
</tr>
</tbody>
</table>
A further inspection of Table 7 indicates that the popularity of certain curricula as shown by the number of graduates implies certain trends of demands by society for agriculturally educated personnel. The animal husbandry and forestry curricula have provided more than one-third of the graduates during this 21-year period, although the proportionate number in each of these curricula has become smaller since World War II. The agricultural education curriculum, the third largest, has been increasing its proportion of graduates since the early years of the 21-year period. The farm operations curriculum had its first graduate in 1945, since which time there have been 196 graduates, 112 of whom received degrees during 1951 and 1952.

Addresses for these 4,483 graduates were solicited from department files, from alumni records and by personal interviews with selected faculty members. It was necessary to eliminate from this list those who were known deceased, and those who were living outside of the continental United States without a currently available address. After the questionnaires were mailed, many were returned marked "address unknown". A search was made for a more recent address or, if that was not obtainable, the address at time of college matriculation or graduation was used. A remailing was then made in the hope of obtaining as many completed questionnaires as possible.

At the end of one month approximately two thousand replies had been received. At that time a follow-up letter, a return envelope, and a questionnaire were sent to the nonrespondents. At the end of the second month, another thousand returns had been received. A third follow-up with a postal card resulted in approximately five hundred additional returns.
By the end of the third month, 4,199 questionnaires had been found deliverable, and completed questionnaires were returned by 3,629 graduates. Of this number, 3,593 returns were usable in this study. The percentage of returns of deliverable questionnaires was 85.6 per cent and varied little from one curriculum to another as shown in Table 8.

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Graduates</th>
<th>Questionnaires</th>
<th>% Returns of deliverable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Deliverable</td>
<td>Usable</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>244</td>
<td>221</td>
<td>202</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>551</td>
<td>524</td>
<td>459</td>
</tr>
<tr>
<td>Agricultural Engineering</td>
<td>348</td>
<td>327</td>
<td>307</td>
</tr>
<tr>
<td>Agronomy</td>
<td>476</td>
<td>452</td>
<td>382</td>
</tr>
<tr>
<td>Animal Husbandry</td>
<td>847</td>
<td>802</td>
<td>682</td>
</tr>
<tr>
<td>Dairy Husbandry</td>
<td>125</td>
<td>120</td>
<td>109</td>
</tr>
<tr>
<td>Dairy Industry</td>
<td>409</td>
<td>360</td>
<td>284</td>
</tr>
<tr>
<td>Farm Operations</td>
<td>196</td>
<td>189</td>
<td>168</td>
</tr>
<tr>
<td>Forestry</td>
<td>763</td>
<td>720</td>
<td>592</td>
</tr>
<tr>
<td>Horticulture</td>
<td>138</td>
<td>130</td>
<td>124</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>199</td>
<td>177</td>
<td>152</td>
</tr>
<tr>
<td>Poultry Husbandry</td>
<td>83</td>
<td>77</td>
<td>49</td>
</tr>
<tr>
<td>Agricultural Journalism</td>
<td>104</td>
<td>97</td>
<td>83</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4483</strong></td>
<td><strong>4199</strong></td>
<td><strong>3593</strong></td>
</tr>
</tbody>
</table>

The returned questionnaires show that the Division of Agriculture had drawn students from many states and foreign countries. It was not unexpected, on the other hand, to note that 2,695 graduates were living in Iowa at the time they first entered college. Thus three in every four graduates were residents of Iowa at the time of college matriculation. An analysis, year by year from 1932 to 1952, failed to indicate any upward or downward
trend during the 21-year period studied.

The ratio of state to out-of-state students which would prevail in a tax-supported state institution is beyond the scope of this study. Certainly it would be unfortunate for the agricultural industry if no reciprocity in student attendance existed. On the other hand, it might be possible to carry nonprovincialism to the other extreme in which the farming interest of the state might suffer. It may also be that a leading agricultural state, such as Iowa, may owe an obligation to other states in regard to education in agriculture because of the vast agricultural capacity with which it has been endowed. Regardless of what the desirable state to out-of-state student ratio may be, the three to one ratio found at Iowa State College in this study had varied little from one year to another during the 1932-1952 period.

Of the 898 graduates who were out-of-state students at the time of college entrance, 22 were from outside the continental limits of the United States. Those from surrounding states predominated: Illinois with 269; Minnesota, 71; Missouri, 66; Wisconsin, 59; and Nebraska, 57.

Of the graduates who returned questionnaires, 24, or less than one per cent, came from outside the continental United States. It should be pointed out that a current mailing address was not available for many foreign students. The small number of foreign students here reported is without question an underestimate of the responsibility undertaken for such students at Iowa State College.

The 2,695 graduates who lived in Iowa at the time of college entrance varied widely among the 99 Iowa counties, with the largest number, 187,
coming from Story County in which Iowa State College is located. The number from each county is shown in the outline map, Figure 1.

Although beyond the scope of this study, the factors contributing to the drawing power of Iowa State College for students in agriculture poses an interesting problem for future research. The relative importance of the following factors could be estimated: (1) distance of county from Ames, (2) number of farm youth or number of farms in the county, (3) availability of college within home county, (4) county farm standard of living and (5) value of farm land. No doubt many other factors related to drawing power could be postulated.

The major purpose of the Division of Agriculture is to serve the agricultural industry. As the nonfarming aspects of the agricultural industry expand, it becomes more and more apparent that many students will enroll who are not farm boys.

For purposes of this study, analyses were made with respect to place of residence by classifying type of community as farm, town, city. This classification conforms to that followed in the census of farm, rural, nonfarm and urban. A city, as here defined, is an incorporated community with a population of 2,500 or more persons and a town is one such incorporation with fewer than 2,500 persons. Information was assembled concerning residence at (1) college entrance, (2) first position and (3) present position. The questionnaire placed the responsibility for classification upon the respondent. The word farm was not described in the questionnaire and the adverb immediately was purposely omitted from the item concerning the residence before college entrance. As shown in Table 9, 62 per cent
Figure 1. Residence of 2,697 Iowa graduates at college entrance
Table 9
Residence of Graduates
(Percentages)

<table>
<thead>
<tr>
<th>Residence</th>
<th>Farm</th>
<th>Town</th>
<th>City</th>
<th>Military</th>
</tr>
</thead>
<tbody>
<tr>
<td>College entrance</td>
<td>62</td>
<td>12</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>First position</td>
<td>14</td>
<td>28</td>
<td>54</td>
<td>4</td>
</tr>
<tr>
<td>Present position</td>
<td>20</td>
<td>18</td>
<td>56</td>
<td>6</td>
</tr>
</tbody>
</table>
of the 3,593 graduates reported farm residence, 12 per cent reported town residence and 26 per cent city residence prior to college entrance.

When these graduates were classified with respect to year of graduation, not here shown, a small decrease was noted in the percentage of graduates reporting farm rearing. The decrease of 4 per cent for this 21-year period is not so great as the decrease in Iowa farm population. The 1930 census shows Iowa's farm population to be 39 per cent of the total state population whereas the 1950 census shows 30 per cent living on farms. The percentage of graduates from towns and cities increased during the 21-year period. These percentages may be slightly biased by the number of married veterans who established residence in towns or cities prior to entering college. There may have been a sufficient number of such cases to offset the apparent decrease in the percentage of farm-reared students during the 1947-52 period.

The residences at the time of the first and present position were also solicited with the provision that if first position was in military service it should be ignored and the ensuing position reported. Because some recent graduates have been continuously in service since graduation, the first position in certain cases has been classified as military. The percentages classified as military, shown in Table 9, should not be interpreted as the percentage of the graduates who have been in military service at some time in their careers.

Of the farm boys who graduated in agriculture at Iowa State College, as shown in Table 9, one in every four returned directly to the farm upon graduation, although at present approximately one in every three is farming. This migration effect of a college education in agriculture under no
Table 10
Residence of Graduates by Curriculum
(Percentages)

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Farm</th>
<th></th>
<th></th>
<th>Town</th>
<th></th>
<th></th>
<th>City</th>
<th></th>
<th></th>
<th>Military</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>F</td>
<td>P</td>
<td>B</td>
<td>F</td>
<td>P</td>
<td>B</td>
<td>F</td>
<td>P</td>
<td></td>
<td>B</td>
<td>F</td>
</tr>
<tr>
<td>Ag. Economics (202)</td>
<td>73</td>
<td>18</td>
<td>26</td>
<td>9</td>
<td>19</td>
<td>10</td>
<td>18</td>
<td>59</td>
<td>60</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Ag. Education (459)</td>
<td>86</td>
<td>4</td>
<td>14</td>
<td>8</td>
<td>61</td>
<td>36</td>
<td>6</td>
<td>31</td>
<td>44</td>
<td>0</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Ag. Engineering (307)</td>
<td>79</td>
<td>7</td>
<td>13</td>
<td>7</td>
<td>17</td>
<td>11</td>
<td>14</td>
<td>73</td>
<td>70</td>
<td>0</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Agronomy (382)</td>
<td>78</td>
<td>15</td>
<td>23</td>
<td>8</td>
<td>27</td>
<td>20</td>
<td>14</td>
<td>54</td>
<td>51</td>
<td>0</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Animal Husb. (682)</td>
<td>79</td>
<td>28</td>
<td>40</td>
<td>5</td>
<td>20</td>
<td>13</td>
<td>16</td>
<td>48</td>
<td>42</td>
<td>0</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Dairy Husb. (109)</td>
<td>84</td>
<td>31</td>
<td>37</td>
<td>4</td>
<td>18</td>
<td>12</td>
<td>13</td>
<td>48</td>
<td>45</td>
<td>0</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Dairy Industry (284)</td>
<td>37</td>
<td>3</td>
<td>8</td>
<td>22</td>
<td>14</td>
<td>13</td>
<td>41</td>
<td>82</td>
<td>76</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Farm Operations (168)</td>
<td>74</td>
<td>42</td>
<td>37</td>
<td>8</td>
<td>16</td>
<td>15</td>
<td>19</td>
<td>27</td>
<td>31</td>
<td>0</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Forestry (592)</td>
<td>24</td>
<td>5</td>
<td>5</td>
<td>23</td>
<td>39</td>
<td>25</td>
<td>53</td>
<td>51</td>
<td>62</td>
<td>0</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Horticulture (124)</td>
<td>36</td>
<td>11</td>
<td>15</td>
<td>18</td>
<td>20</td>
<td>18</td>
<td>46</td>
<td>66</td>
<td>64</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Land. Arch. (152)</td>
<td>27</td>
<td>4</td>
<td>7</td>
<td>13</td>
<td>14</td>
<td>3</td>
<td>60</td>
<td>80</td>
<td>87</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Poultry Husb. (49)</td>
<td>33</td>
<td>18</td>
<td>25</td>
<td>31</td>
<td>29</td>
<td>22</td>
<td>37</td>
<td>49</td>
<td>47</td>
<td>0</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Ag. Journalism (83)</td>
<td>59</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>17</td>
<td>6</td>
<td>24</td>
<td>72</td>
<td>78</td>
<td>0</td>
<td>11</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: B - Before college, F - First position, P - Present position
circumstances should be considered an indictment of Iowa State College. It cannot be overemphasized that the agricultural industry is much broader than farming. Furthermore, the number of farm boys reaching maturity annually is much larger than the number of opportunities for farming resulting from death and retirement of farm operators. Certainly one major responsibility of Iowa State College consists of educating farm boys for the wide variety of vocational opportunities in the agricultural industry other than farming.

The residence of graduates varies from one curriculum to another as shown in Table 10. The proportion of farm-reared graduates varied from a low of 24 per cent in forestry to a high of 86 per cent in agricultural education. The curriculum in agricultural education almost demands farm background as a prerequisite. The migration from the farm is almost unanimous for graduates of this curriculum. Only one in every 25 graduates returned to the farm immediately after graduation although one in every seven graduates was living on a farm in 1952.

Perhaps the most interesting observation which can be made from Table 10 is the tendency to migrate to the farm from first to present position. In none of thirteen curricula was this migration tendency reversed. One possible explanation for this migration tendency may be traced to economic considerations. The initial financial outlay required to begin farming forces some graduates to delay entrance into farming for a few years until some capital can be accumulated.
VII. PROGRESS TOWARD GRADUATION

Normal progress toward a college degree is usually thought of as matriculation in a chosen curriculum and subsequent graduation four years later from that same curriculum. There are some students who follow this pattern. On the other hand, many students, perhaps a majority, depart from this pattern. Several groups of students may be identified on this basis.

Some students who enter as freshmen in the Division of Agriculture never receive a baccalaureate degree from Iowa State College. This attrition group poses a distinct challenge which is currently receiving considerable attention at Iowa State College. Important though this attrition may be, it is beyond the scope of this study.

Some students who graduate from curricula in the Division of Agriculture transferred to Iowa State College from some other institution of higher education. Of the 3,593 graduates in this study, 1,165 persons, approximately one of every three, entered the Division of Agriculture after previous college work elsewhere. In the 21-year period the percentage has been increasing slightly which may have resulted from military assignment of students in higher education during World War II.

The list of graduates from the Division of Agriculture has been increased by transfers to agriculture from other divisions. Of the 3,593 graduates, 657 persons, or approximately one in every five has transferred to an agricultural curriculum from some other division at Iowa State Col-
lege. Approximately two in every three such transfers were from the Division of Engineering.

The large group of transfer students should not necessarily be interpreted to mean an inadequacy of the counseling at the secondary school level. Presumably, orientation into life activity should be continued into the college level. The vicariously acquired concept of the glamour of the engineering or medical profession, in certain cases, may become realistically evaluated after preliminary experience with curricula designed for these professional careers.

Some students who first enter the Division of Agriculture change from one curriculum to another. Here again such transfer within the Division of Agriculture should not necessarily be construed as unfortunate. In most cases, the change probably results from changes of student interests accruing from educational experience within the agricultural program at Iowa State College. The counseling service, no doubt, has been called into play in deciding changes from one curriculum to another.

In addition to curriculum changes which involved, in some cases, a loss in time required for graduation, many students have had their college education interrupted by work, military service and other reasons as shown in Table II. Interruptions in college education resulting from military service were few in number prior to the graduating class of 1946, but since that time approximately two of every three students have had their college programs interrupted by military service.

Interruptions due to work, presumably in most cases resulting from lack of necessary financial resources, have been less numerous among recent graduates. The provision for financial assistance to veterans, no
doubt, has made possible continued education without the necessity of temporarily withdrawing in order to recoup financial resources.

If it is possible to postulate that the normal program of college education in agriculture consists of four years of uninterrupted education, without change of institutions or of curricula, the normal program has not frequently occurred. Of the 3,593 graduates here studied, there were only 553 who entered a curriculum in agriculture at Iowa State College and four years later graduated from that same curriculum without interruption from work or military service. The postulated normal program of education in agriculture has been followed by approximately one in every seven graduates in agriculture at Iowa State College. Although the departure from a normal program has been more prevalent among recent graduates,
by no means has it been confined to such graduates. The percentages of graduates who followed the postulated normal education program for (1) the depression years (1932-1936) was 19 per cent, (2) the pre-war years (1937-1941) was 20 per cent, (3) the war years was 22 per cent and (4) the post-war years was 11.5 per cent.

No claim is here made that the postulated normal program is desirable. It may well be that graduates not following the normal program have profited by values accruing from greater maturity, from military service and from early-encountered college orientation.

The attainment of a baccalaureate degree is generally considered the end of formal college education. There are some graduates who continue in professional schools such as law, medicine, and veterinary medicine and others who continue in graduate schools seeking either master's or doctor's degrees or both.

Of the 3,593 graduates in this study, eleven individuals later received Doctor of Veterinary Medicine degrees and 392 others later received one or more earned graduate degrees, usually the M.S. or the Ph.D. degree. In the tabulation of the data, honorary degrees were so small in number that they were disregarded.

Of the 392 graduates who later received graduate degrees, 321 individuals received master's but not Ph.D. degrees and 71 have received the Ph.D. degree. The number of earned graduate degrees by year in which the baccalaureate degree was obtained is shown in Table 12. No apparent trend in the proportion of graduates who continue for advanced degrees can be noted in the 21-year period except some little decline in the last three
or four graduation classes for which insufficient time has elapsed for meeting the requirements for higher degrees.

Of the 3,593 graduates, as seen from Table 12, approximately one in every nine later received one or more earned graduate degrees, with one in every six prior to 1950. When classified by residence at time of college entrance, the same ratio occurred for both farm and non-farm reared individuals. For the 392 who hold graduate degrees, there appeared to be a larger proportion acquiring such degrees at Iowa State College among farm reared than among non-farm reared individuals as shown in Table 14.

<table>
<thead>
<tr>
<th>Year</th>
<th>B.S. only</th>
<th>M.S. only</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>65</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>1933</td>
<td>79</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>1934</td>
<td>73</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>1935</td>
<td>75</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>1936</td>
<td>73</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>1937</td>
<td>36</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>1938</td>
<td>147</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>1939</td>
<td>169</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>1940</td>
<td>156</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td>1941</td>
<td>135</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>1942</td>
<td>135</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>1943</td>
<td>109</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>1944</td>
<td>27</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>1945</td>
<td>16</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>1946</td>
<td>39</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>1947</td>
<td>144</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>1948</td>
<td>204</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>1949</td>
<td>300</td>
<td>42</td>
<td>3</td>
</tr>
<tr>
<td>1950</td>
<td>459</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>1951</td>
<td>399</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>1952</td>
<td>361</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Total 3201 321 71
Chi square was found to be 0.75 which is nonsignificant. Evidence here assembled failed to disprove the hypothesis that graduate education at Iowa State College or elsewhere is independent of farm or non-farm rearing.

The 3,593 individuals were classified with respect to their undergraduate curricula, as shown in Table 14. The percentage holding graduate degrees was highest for agricultural economics and lowest for farm operations. The small number from the farm operations curriculum holding graduate degrees is not unexpected in view of the short time this curriculum has been established and the general objectives for which this curriculum has been designed.

Among those holding the Ph.D. degree, two in every three have completed one of four undergraduate curricula, i.e., agricultural economics, agricultural education, agronomy or animal husbandry. Among those holding the M.S. degree only, the proportion obtaining such a degree from Iowa State College varies depending upon the undergraduate curriculum completed. The highest proportions receiving the M.S. degree from Iowa State College

<table>
<thead>
<tr>
<th>Institution</th>
<th>Farm reared</th>
<th>Non-farm reared</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa State College</td>
<td>126</td>
<td>73</td>
<td>199</td>
</tr>
<tr>
<td>Other</td>
<td>115</td>
<td>78</td>
<td>193</td>
</tr>
<tr>
<td>Total</td>
<td>241</td>
<td>151</td>
<td>392</td>
</tr>
</tbody>
</table>
were in agricultural education, agricultural engineering and agronomy.

In the foregoing interpretations, it should be noted that the 170 M.S. degrees and 29 Ph.D. degrees granted by Iowa State College yield little or no information concerning the total number of graduate degrees granted in agriculture at Iowa State College during this 21-year period.

Table 14
Earned Graduate Degrees by Undergraduate Curriculum

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Graduate degree</th>
<th>No graduate degree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ph.D. I.S.C. Other</td>
<td>M.S. only I.S.C. Other</td>
</tr>
<tr>
<td>Ag. Econ.</td>
<td>6 3</td>
<td>14 20</td>
</tr>
<tr>
<td>Ag. Educ.</td>
<td>5 4</td>
<td>29 9</td>
</tr>
<tr>
<td>Ag. Eng.</td>
<td>2 0</td>
<td>31 12</td>
</tr>
<tr>
<td>Agronomy</td>
<td>4 7</td>
<td>22 7</td>
</tr>
<tr>
<td>Animal Husbandry</td>
<td>4 13</td>
<td>21 25</td>
</tr>
<tr>
<td>Dairy Husbandry</td>
<td>1 4</td>
<td>3 7</td>
</tr>
<tr>
<td>Dairy Industry</td>
<td>1 1</td>
<td>5 16</td>
</tr>
<tr>
<td>Farm Oper.</td>
<td>0 0</td>
<td>2 2</td>
</tr>
<tr>
<td>Forestry</td>
<td>5 3</td>
<td>29 36</td>
</tr>
<tr>
<td>Horticulture</td>
<td>1 5</td>
<td>3 10</td>
</tr>
<tr>
<td>Land. Arch.</td>
<td>0 0</td>
<td>4 2</td>
</tr>
<tr>
<td>Poultry Husbandry</td>
<td>0 1</td>
<td>1 2</td>
</tr>
<tr>
<td>Ag. Journalism</td>
<td>0 1</td>
<td>6 3</td>
</tr>
<tr>
<td>Total</td>
<td>29 42</td>
<td>170 151</td>
</tr>
</tbody>
</table>

or any other period. The present study includes only those individuals who received the bachelor of science degree in agriculture from Iowa State College from 1932 to 1952 inclusive. Individuals receiving graduate degrees in agriculture were not included in this study if the baccalaureate degree was obtained elsewhere or if the bachelor's degree was received at Iowa State College prior to 1932.
VIII. OCCUPATION OF GRADUATES

Satisfactory post-college occupational adjustment is a major consideration in evaluating a college education. Selection of an occupation, satisfying to the individual and contributing toward maximum social well-being, is of vital interest to students and faculty in institutions of higher education.

Each of the 3,593 graduates was asked to state his occupation, both present and first after graduating. When the returns were received, the classification of reported occupations needed to be tabulated. Since mechanical tabulation was thought necessary in this study, no more than two columns on the card were believed justified. The occupations were then divided into ten major occupational categories which were in turn further classified into not more than ten occupations, as shown in Table 15. The classification here chosen represents an attempt to summarize the occupations in which graduates engage for the entire division regardless of suitability for any single curriculum. The small numbers of cases in the last four categories, i.e., farm services, nonfarm services, nonprofit organizations, and others, suggest that they be combined into a single category designated as others. Subsequent analysis has followed this procedure although occupational heterogeneity of this category renders interpretation vague if not impossible.

No apology is made for the general occupation classification here chosen. Perhaps, if the analyses were to be made again the classification would be:
Table 15

Present Occupation of Graduates

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N</th>
<th>Occupation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education (470)</strong></td>
<td></td>
<td><strong>Commercial agriculture concerns (968)</strong></td>
<td></td>
</tr>
<tr>
<td>High school voc. ag.</td>
<td>179</td>
<td>Plant manager (in field)</td>
<td>256</td>
</tr>
<tr>
<td>Other high school teacher</td>
<td>16</td>
<td>Plant manager (other field)</td>
<td>2</td>
</tr>
<tr>
<td>Veterans classes</td>
<td>123</td>
<td>Production (in field)</td>
<td>206</td>
</tr>
<tr>
<td>College agriculture</td>
<td>108</td>
<td>Loans, insurance, appraisal</td>
<td>40</td>
</tr>
<tr>
<td>College others</td>
<td>5</td>
<td>Sales</td>
<td>244</td>
</tr>
<tr>
<td>College administration</td>
<td>4</td>
<td>Buyer</td>
<td>36</td>
</tr>
<tr>
<td>Research</td>
<td>30</td>
<td>Adv. and Journ., Radio, TV</td>
<td>78</td>
</tr>
<tr>
<td>Education-county, state, fed.</td>
<td>5</td>
<td>Area supervisor</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
<td>9</td>
</tr>
<tr>
<td><strong>Extension (175)</strong></td>
<td></td>
<td><strong>Commercial non-ag. concerns (123)</strong></td>
<td></td>
</tr>
<tr>
<td>Federal extension service</td>
<td>1</td>
<td>Management</td>
<td>9</td>
</tr>
<tr>
<td>State extension service</td>
<td>65</td>
<td>Engineering</td>
<td>30</td>
</tr>
<tr>
<td>County extension director</td>
<td>76</td>
<td>Production</td>
<td>3</td>
</tr>
<tr>
<td>County youth assistant or assistant county director</td>
<td>33</td>
<td>Insurance or loan</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sales</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Buyer</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adv. and Journ., Radio, TV</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
<td>16</td>
</tr>
<tr>
<td><strong>Government services (470)</strong></td>
<td></td>
<td><strong>Miscellaneous small business (205)</strong></td>
<td></td>
</tr>
<tr>
<td>U.S.D.A.</td>
<td>38</td>
<td>Agriculture retail</td>
<td>4</td>
</tr>
<tr>
<td>S.C.S.</td>
<td>107</td>
<td>Agriculture wholesale</td>
<td>3</td>
</tr>
<tr>
<td>F.E.A.</td>
<td>27</td>
<td>Flower shop, nursery, greenhouse</td>
<td>20</td>
</tr>
<tr>
<td>R.E.A.</td>
<td>1</td>
<td>Implement dealer</td>
<td>23</td>
</tr>
<tr>
<td>Point Four or other foreign service</td>
<td>7</td>
<td>Other store</td>
<td>12</td>
</tr>
<tr>
<td>Agriculture official (state)</td>
<td>55</td>
<td>Banking</td>
<td>15</td>
</tr>
<tr>
<td>Non-agric. official (state)</td>
<td>12</td>
<td>Land appraisal</td>
<td>4</td>
</tr>
<tr>
<td>U.S. Forest Service, other forest agency, adm. and research</td>
<td>159</td>
<td>Feed, seed, fertilizer, lumber store, elevator</td>
<td>28</td>
</tr>
<tr>
<td>City or county employee</td>
<td>33</td>
<td>Landscape architecture</td>
<td>33</td>
</tr>
<tr>
<td>Others</td>
<td>26</td>
<td>Others</td>
<td>63</td>
</tr>
<tr>
<td><strong>Productive agriculture (702)</strong></td>
<td></td>
<td><strong>Farm services (10)</strong></td>
<td></td>
</tr>
<tr>
<td>Farming or ranching</td>
<td>542</td>
<td>Farm loan services, appraisal</td>
<td>1</td>
</tr>
<tr>
<td>Farm or range management</td>
<td>120</td>
<td>Veterinarian</td>
<td>8</td>
</tr>
<tr>
<td>Nursery</td>
<td>20</td>
<td>Other farm service organizations</td>
<td>1</td>
</tr>
<tr>
<td>Greenhouse</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial seed</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orchard</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poultry enterprise</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>N</td>
<td>Occupation</td>
<td>N</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----</td>
<td>------------------------</td>
<td>----</td>
</tr>
<tr>
<td>Non-farm services (22)</td>
<td></td>
<td>Others (391)</td>
<td></td>
</tr>
<tr>
<td>Non-agriculture services</td>
<td></td>
<td>Graduate student</td>
<td>88</td>
</tr>
<tr>
<td>Milk inspector</td>
<td>21</td>
<td>Unemployed</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M.D.</td>
<td>1</td>
</tr>
<tr>
<td>Non-profit organization (57)</td>
<td></td>
<td>Minister</td>
<td>9</td>
</tr>
<tr>
<td>Farm Bureau official</td>
<td>33</td>
<td>Disabled or retired</td>
<td>3</td>
</tr>
<tr>
<td>Farmers Union official</td>
<td>1</td>
<td>Housewife</td>
<td>21</td>
</tr>
<tr>
<td>Cooperatives official</td>
<td>1</td>
<td>Military</td>
<td>267</td>
</tr>
<tr>
<td>Dairy Association official</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poultry Association official</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef Association official</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other association official</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misc. Non-profit organization</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
where the number of cases is shown within the parentheses. This latter classification is open to question because of the large number of cases classified as others. Regardless of which of the two foregoing classifications should be used, evaluation of any given curriculum in terms of occupations is unsatisfactory.

Graduates in the eight general occupational groups were classified according to the curriculum from which they had graduated, as shown in Table 16. Some changes were noted between beginning and present occupation. This tendency to change occupation no doubt is underestimated because many individuals have been so recently graduated that they have had little opportunity to change from one occupation to another.

Several shifts between first and present occupation are clearly evident even though many persons are recent graduates. Perhaps the most striking of these shifts can be seen in the number engaged in farming. Of the 3,593 graduates, 483 individuals returned to the farm directly upon graduation from college but by 1952, 702 graduates were farming. This migration tendency, as previously indicated, may have resulted from inadequate capital for immediate induction into farming. Although no evidence has here been assembled, it is a suggested postulation that many of the 219 graduates were delayed in entering farming until sufficient capital was accumulated.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>1st</td>
<td>643</td>
<td>34</td>
<td>357</td>
<td>27</td>
<td>62</td>
<td>88</td>
<td>12</td>
<td>11</td>
<td>23</td>
<td>16</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>470</td>
<td>29</td>
<td>208</td>
<td>22</td>
<td>46</td>
<td>81</td>
<td>14</td>
<td>11</td>
<td>14</td>
<td>23</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension</td>
<td>1st</td>
<td>313</td>
<td>17</td>
<td>19</td>
<td>9</td>
<td>46</td>
<td>149</td>
<td>23</td>
<td>3</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
<td>5</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>175</td>
<td>11</td>
<td>23</td>
<td>9</td>
<td>25</td>
<td>62</td>
<td>15</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government service</td>
<td>1st</td>
<td>584</td>
<td>30</td>
<td>2</td>
<td>61</td>
<td>63</td>
<td>29</td>
<td>5</td>
<td>2</td>
<td>7</td>
<td>299</td>
<td>4</td>
<td>79</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>470</td>
<td>18</td>
<td>13</td>
<td>43</td>
<td>63</td>
<td>28</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>221</td>
<td>2</td>
<td>62</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productive agriculture</td>
<td>1st</td>
<td>483</td>
<td>40</td>
<td>15</td>
<td>16</td>
<td>61</td>
<td>195</td>
<td>24</td>
<td>7</td>
<td>76</td>
<td>6</td>
<td>26</td>
<td>10</td>
<td>7</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>702</td>
<td>61</td>
<td>62</td>
<td>36</td>
<td>88</td>
<td>262</td>
<td>33</td>
<td>19</td>
<td>76</td>
<td>22</td>
<td>20</td>
<td>12</td>
<td>11</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial agriculture</td>
<td>1st</td>
<td>1057</td>
<td>56</td>
<td>22</td>
<td>169</td>
<td>101</td>
<td>137</td>
<td>18</td>
<td>222</td>
<td>14</td>
<td>198</td>
<td>47</td>
<td>7</td>
<td>21</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>968</td>
<td>46</td>
<td>50</td>
<td>146</td>
<td>96</td>
<td>118</td>
<td>17</td>
<td>192</td>
<td>14</td>
<td>192</td>
<td>34</td>
<td>7</td>
<td>17</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial non-agric.</td>
<td>1st</td>
<td>88</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>6</td>
<td>11</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>23</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>123</td>
<td>1</td>
<td>9</td>
<td>11</td>
<td>7</td>
<td>22</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>34</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small business</td>
<td>1st</td>
<td>96</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>41</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>205</td>
<td>15</td>
<td>14</td>
<td>14</td>
<td>9</td>
<td>28</td>
<td>0</td>
<td>15</td>
<td>3</td>
<td>38</td>
<td>21</td>
<td>41</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1st</td>
<td>329</td>
<td>16</td>
<td>36</td>
<td>11</td>
<td>39</td>
<td>59</td>
<td>20</td>
<td>35</td>
<td>37</td>
<td>32</td>
<td>18</td>
<td>10</td>
<td>7</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Now</td>
<td>480</td>
<td>21</td>
<td>80</td>
<td>26</td>
<td>48</td>
<td>81</td>
<td>23</td>
<td>32</td>
<td>44</td>
<td>58</td>
<td>25</td>
<td>19</td>
<td>7</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Another noticeable shift from first to present position was among graduates who were engaged in small business. On the other hand, certain initial occupations seem to serve as stepping stones to later occupations. In this respect, the migration from education, extension and government service is particularly noticeable. This migration tendency away from occupations in which security risk is a minimum needs careful study by economists as well as by individuals in higher education.

Each of the thirteen curricula in the Division of Agriculture at Iowa State College has been designed to provide the necessary education for initial induction into one or more occupations. The general occupational classification here used becomes impotent for use with any given curriculum. A graduate of the forestry curriculum would not likely be later employed as a livestock buyer or as a creamery manager. Each curriculum, no doubt, has been developed to provide for certain specific occupational competencies. The general occupational classification, suitable though it may be for the entire Division of Agriculture, is unsatisfactory for any evaluation of a single curriculum.

Faculty members familiar with the facets of occupational endeavor for each of the curricula were asked to assist in designing an occupational classification unique to that curriculum. The discussion of occupations will be focused around the curricula. Interpretation of separate curriculum occupational classification will demand constant reference to information shown in Tables 15 and 16.
A. Agricultural Economics Curriculum

The 202 responding graduates of the agricultural economics curriculum were engaged in many different occupational pursuits in 1952, as shown in Table 17. Approximately one graduate in every five was farming although approximately one-half of that ratio had been farming immediately after graduation. It is surprising to note that only 17 of the 202 graduates of this curriculum were in government service in 1952.

Table 17

Occupation of Graduates from Agricultural Economics Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Education</td>
<td>34</td>
<td>16.8</td>
</tr>
<tr>
<td>Extension</td>
<td>17</td>
<td>8.4</td>
</tr>
<tr>
<td>Farming</td>
<td>21</td>
<td>10.4</td>
</tr>
<tr>
<td>Farm management</td>
<td>20</td>
<td>9.9</td>
</tr>
<tr>
<td>Bank, appraiser, etc.</td>
<td>26</td>
<td>12.9</td>
</tr>
<tr>
<td>Government service</td>
<td>29</td>
<td>14.4</td>
</tr>
<tr>
<td>Service organization</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Industry</td>
<td>34</td>
<td>16.8</td>
</tr>
<tr>
<td>Business</td>
<td>6</td>
<td>3.0</td>
</tr>
<tr>
<td>Others</td>
<td>14</td>
<td>6.9</td>
</tr>
<tr>
<td>Total</td>
<td>202</td>
<td>100.0</td>
</tr>
</tbody>
</table>

B. Agricultural Education Curriculum

The agricultural education curriculum has been designed for the preparation of teachers of vocational agriculture. Immediately after gradua-
tion 300 of the 459 individuals completing this curriculum became teachers of vocational agriculture, as shown in Table 18. However, in 1952 only 167 were teaching in such positions. This high occupational mortality seems unduly large when it is noted that more than one-half of the graduates of this curriculum received degrees during the last four years of the 21-year period studied. Perhaps some possible reasons for this high mortality may be suggested in analyses dealing with income, appearing later in this thesis. The shift from first to present position in farming may represent an accumulation of capital either in the form of cash or credit from experience in the teaching of vocational agriculture.

Of the 3,593 responding graduates, 117 were in college work in 1952. Only 14 of these individuals were in agricultural education, no more than

Table 18

Occupation of Graduates from Agricultural Education Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>High school vocational agriculture</td>
<td>300</td>
<td>65.4</td>
</tr>
<tr>
<td>Other high school</td>
<td>7</td>
<td>1.5</td>
</tr>
<tr>
<td>Veterans classes</td>
<td>45</td>
<td>9.3</td>
</tr>
<tr>
<td>College teaching</td>
<td>7</td>
<td>1.5</td>
</tr>
<tr>
<td>Agricultural organizations</td>
<td>3</td>
<td>0.7</td>
</tr>
<tr>
<td>Extension or experiment station</td>
<td>18</td>
<td>3.9</td>
</tr>
<tr>
<td>Farming</td>
<td>14</td>
<td>3.0</td>
</tr>
<tr>
<td>Government</td>
<td>5</td>
<td>1.1</td>
</tr>
<tr>
<td>Business or industry</td>
<td>28</td>
<td>6.1</td>
</tr>
<tr>
<td>Others</td>
<td>32</td>
<td>7.0</td>
</tr>
<tr>
<td>Total</td>
<td>459</td>
<td>100.0</td>
</tr>
</tbody>
</table>
the proportion found among the graduates in the entire Division of Agriculture. In one respect at least it is surprising to have found fourteen college teachers whose undergraduate curriculum was agricultural education. Most college teachers receive institutional subsidies when taking graduate work required for placement in college positions. These subsidies are granted to graduate assistants, research fellows, and instructors. Thirteen per cent of the graduates in the Division of Agriculture have followed the agriculture education curriculum. The percentage of subsidies channelled to agricultural education graduate students has been far below the practice in the Division of Agriculture. Among the fourteen college teachers whose undergraduate curriculum was agricultural education, although information was not obtainable from the questionnaire, at least one-half of the fourteen college teachers have been subsidized by Iowa State College. In most cases these subsidies have been channelled through other budgets than the department responsible for the undergraduate agricultural education curriculum. In most cases subsidies which have been granted to graduates of this curriculum have been in the Psychology, Agricultural Engineering and Agronomy Departments. Such outside subsidies, useful though they may be from a student's financial situation, should receive careful consideration from the standpoint of a student's professional competence.

C. Agricultural Engineering Curriculum

Graduates of the agricultural engineering curriculum were in a variety of occupations in 1952, with positions in the farm equipment industry
prevailing. About one in every ten graduates was classified in education in 1952, as shown in Table 19. Approximately one in every eighteen graduates entered farming directly upon college graduation although one in nine graduates was farming in 1952. This tendency to shift to farming is not unique to the agricultural engineering curriculum but prevails in the other twelve curricula studied.

Table 19
Occupation of Graduates from Agricultural Engineering Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Education</td>
<td>36</td>
<td>11.7</td>
</tr>
<tr>
<td>Farm equipment industry</td>
<td>130</td>
<td>42.3</td>
</tr>
<tr>
<td>Farm structures</td>
<td>16</td>
<td>5.2</td>
</tr>
<tr>
<td>Soil and water conservation</td>
<td>50</td>
<td>16.3</td>
</tr>
<tr>
<td>Farm operation or management</td>
<td>17</td>
<td>5.5</td>
</tr>
<tr>
<td>Rural electrification</td>
<td>10</td>
<td>3.3</td>
</tr>
<tr>
<td>U.S.D.A. (not including S.C.S.)</td>
<td>7</td>
<td>2.3</td>
</tr>
<tr>
<td>Industry related to agriculture</td>
<td>14</td>
<td>4.6</td>
</tr>
<tr>
<td>Business</td>
<td>9</td>
<td>2.9</td>
</tr>
<tr>
<td>Others</td>
<td>18</td>
<td>5.9</td>
</tr>
<tr>
<td>Total</td>
<td>307</td>
<td>100.0</td>
</tr>
</tbody>
</table>

D. Agronomy Curriculum

The 382 responding graduates of the agronomy curriculum were widely distributed among a variety of occupations as shown in Table 20. Farming represented a plurality although government service, education and industry were not far removed in frequency of occurrence.
It was interesting to note that this curriculum provided more extension personnel than agricultural education although the total number of graduates was smaller. The number of graduates in education, approximately one in every eight, most of whom were engaged at the college level was much higher than the average for the entire Division of Agriculture.

Table 20

Occupation of Graduates from Agronomy Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Education</td>
<td>64</td>
<td>16.7</td>
</tr>
<tr>
<td>Farming (operator)</td>
<td>39</td>
<td>10.2</td>
</tr>
<tr>
<td>Farming (manager)</td>
<td>19</td>
<td>5.0</td>
</tr>
<tr>
<td>Government service</td>
<td>65</td>
<td>17.0</td>
</tr>
<tr>
<td>Bank, appraiser, etc.</td>
<td>14</td>
<td>3.7</td>
</tr>
<tr>
<td>Extension</td>
<td>45</td>
<td>11.8</td>
</tr>
<tr>
<td>Hybrid seed corn company</td>
<td>42</td>
<td>11.0</td>
</tr>
<tr>
<td>Industry</td>
<td>53</td>
<td>13.9</td>
</tr>
<tr>
<td>Business</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
<td>36</td>
<td>9.4</td>
</tr>
<tr>
<td>Total</td>
<td>382</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Perhaps this finding is a function of the amount of available graduate student subsidy. The shift toward farming and away from extension work, as shown in Table 20, was not greatly dissimilar to that prevailing throughout the Division of Agriculture.
E. Animal Husbandry Curriculum

There have been, during the 21-year period, more graduates at Iowa State College from the animal husbandry curriculum than from any one of the other twelve curricula. Although the occupational distribution in 1952 was diversified, more than one in every three was engaged in farming. Of particular interest is the contribution of this curriculum for immediate induction into the extension service and the subsequent shift from this work to other occupations by 1952. In spite of this drastic shift the proportionate number in extension work in 1952 was exceeded only by graduates of the dairy husbandry and agricultural journalism curricula.

F. Dairy Husbandry Curriculum

Of the 109 responding graduates in dairy husbandry, the greatest single occupational outlet upon graduation was in extension service as shown in Table 22. However, by 1952 a shift was noted away from extension service and toward farming. The occupational distribution for graduates of this curriculum was similar to that for graduates of the animal husbandry curriculum.

G. Dairy Industry Curriculum

Of the 284 responding graduates in dairy industry, as shown in Table 23, the majority were working in some capacity in dairy plants, with 107 serving as managers or directors. Relatively few graduates were engaged in educational work either teaching or extension and only one in every
<table>
<thead>
<tr>
<th>Table 21</th>
<th>Occupation of Graduates from Animal Husbandry Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td>First position</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Farming (owner, operator, or manager)</td>
<td>194</td>
</tr>
<tr>
<td>Teaching</td>
<td>89</td>
</tr>
<tr>
<td>Extension</td>
<td>150</td>
</tr>
<tr>
<td>Meat packing or related industry</td>
<td>82</td>
</tr>
<tr>
<td>Breed organizations</td>
<td>9</td>
</tr>
<tr>
<td>Journalism or radio</td>
<td>13</td>
</tr>
<tr>
<td>Government service</td>
<td>24</td>
</tr>
<tr>
<td>Feed industry</td>
<td>25</td>
</tr>
<tr>
<td>Business</td>
<td>44</td>
</tr>
<tr>
<td>Other</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>682</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 22</th>
<th>Occupation of Graduates from Dairy Husbandry Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td>First position</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Farming</td>
<td>20</td>
</tr>
<tr>
<td>Farm management</td>
<td>5</td>
</tr>
<tr>
<td>Education</td>
<td>14</td>
</tr>
<tr>
<td>Extension</td>
<td>26</td>
</tr>
<tr>
<td>Government service</td>
<td>5</td>
</tr>
<tr>
<td>Breed or service organization</td>
<td>6</td>
</tr>
<tr>
<td>Artificial insemination, dairy inspector</td>
<td>5</td>
</tr>
<tr>
<td>Business or industry</td>
<td>20</td>
</tr>
<tr>
<td>Armed forces</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
</tr>
</tbody>
</table>
ten was farming. There was a minimum of overlapping in occupational pattern with other curricula.

H. Farm Operations Curriculum

Of the 168 responding graduates in this curriculum, more than half were graduates of 1951 and 1952. The first graduate of this curriculum was in 1945. The recency of graduation accounts for the similarity in occupational pattern of first positions and of 1952 positions as shown in Table 24. It is not surprising to note a high proportion, almost one in every five, in military service. More confidence could be placed in the occupational pattern for this curriculum if analyzed five or ten years hence when occupational pattern becomes more stable and when those in military service return to civilian life. Farming predominated as the occupational outlet for this curriculum with more than half of the graduates not in military service operating or managing farms.

I. Forestry Curriculum

In the 21-year period, there have been more graduates from this curriculum than from any other except from animal husbandry. The occupational pattern for forestry graduates differed from that shown for other curricula. For all practical purposes, graduates in forestry have not gone into farming.

The greatest single occupational outlet for forestry was in the federal forest service. Of the 592 responding graduates, 222 were in such service immediately after graduation and 156 were in such service in 1952.
### Table 23

Occupation of Graduates from Dairy Industry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>College teaching</td>
<td>6</td>
<td>2.1</td>
</tr>
<tr>
<td>Research, state and commercial</td>
<td>9</td>
<td>3.2</td>
</tr>
<tr>
<td>Extension</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Inspectors, city, state, federal</td>
<td>27</td>
<td>9.5</td>
</tr>
<tr>
<td>Sales work</td>
<td>24</td>
<td>8.5</td>
</tr>
<tr>
<td>Owners of dairy plants</td>
<td>7</td>
<td>2.5</td>
</tr>
<tr>
<td>Manager or director of dairy plant</td>
<td>64</td>
<td>22.5</td>
</tr>
<tr>
<td>Other positions in dairy plant</td>
<td>97</td>
<td>34.1</td>
</tr>
<tr>
<td>Farming</td>
<td>31</td>
<td>10.9</td>
</tr>
<tr>
<td>Others</td>
<td>14</td>
<td>4.9</td>
</tr>
<tr>
<td>Total</td>
<td>284</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 24

Occupation of Graduates from Farm Operation Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Education</td>
<td>22</td>
<td>13.1</td>
</tr>
<tr>
<td>Farming (operator)</td>
<td>59</td>
<td>35.1</td>
</tr>
<tr>
<td>Farm (manager)</td>
<td>15</td>
<td>8.9</td>
</tr>
<tr>
<td>Government services (not military)</td>
<td>7</td>
<td>4.2</td>
</tr>
<tr>
<td>Bank, appraiser, etc.</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>Education (extension)</td>
<td>9</td>
<td>5.3</td>
</tr>
<tr>
<td>Armed forces</td>
<td>27</td>
<td>16.1</td>
</tr>
<tr>
<td>Industry</td>
<td>19</td>
<td>11.3</td>
</tr>
<tr>
<td>Non-profit organization</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>Graduate students</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>100.0</td>
</tr>
</tbody>
</table>
This shift away from federal forest service toward positions in private industry dealing with forest management or forest products is apparent from an inspection of Table 25.

**J. Horticulture Curriculum**

From the standpoint of number of graduates this curriculum is among the smallest. Of the 124 replying graduates, the majority were in occupations for which the curriculum has been designed, as shown in Table 26. Approximately one in every nine graduates in 1952 was in teaching, extension or research.

**K. Landscape Architecture Curriculum**

The two largest outlets for graduates in landscape architecture were city and regional planning and private practice. Immediately after graduation 34 individuals entered park and recreational planning but by 1952 only 17 were so employed. This shift from park and recreational planning was toward varied occupations classified as others which are not directly related to the usual occupations for which this curriculum has been designed. The occupational distribution is shown in Table 27.

**L. Poultry Husbandry Curriculum**

Most graduates in poultry husbandry entered occupations for which the curriculum has been designed, as shown in Table 28. A shift was noted by 1952 toward farming. Care must be taken in interpreting occupational
Table 25
Occupation of Graduates from Forestry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Public service</td>
<td>(311)</td>
<td>(52.5)</td>
</tr>
<tr>
<td>Education (including extension)</td>
<td>23</td>
<td>3.9</td>
</tr>
<tr>
<td>Forest service (federal)</td>
<td>222</td>
<td>37.5</td>
</tr>
<tr>
<td>Forestry and conservation (state-county-municipal)</td>
<td>62</td>
<td>10.5</td>
</tr>
<tr>
<td>Federal agencies other than Forest Service</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td>Private industry</td>
<td>(200)</td>
<td>(33.8)</td>
</tr>
<tr>
<td>Forest management positions</td>
<td>35</td>
<td>5.9</td>
</tr>
<tr>
<td>Harvesting and manufacturing of forest products</td>
<td>114</td>
<td>19.2</td>
</tr>
<tr>
<td>Wholesale or retail of forest products</td>
<td>51</td>
<td>8.6</td>
</tr>
<tr>
<td>Non-forestry</td>
<td>(81)</td>
<td>(13.7)</td>
</tr>
<tr>
<td>Farming</td>
<td>6</td>
<td>1.0</td>
</tr>
<tr>
<td>Engineering</td>
<td>20</td>
<td>3.4</td>
</tr>
<tr>
<td>Other</td>
<td>55</td>
<td>9.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>592</td>
<td>100.0</td>
</tr>
<tr>
<td>Occupation</td>
<td>First position</td>
<td>Present position</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Orchardist (owner, operator)</td>
<td>9</td>
<td>7.3</td>
</tr>
<tr>
<td>Nursery (owner, operator)</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Greenhouse or florist</td>
<td>22</td>
<td>17.7</td>
</tr>
<tr>
<td>Farming (including vegetable)</td>
<td>10</td>
<td>8.1</td>
</tr>
<tr>
<td>Extension or research</td>
<td>11</td>
<td>8.9</td>
</tr>
<tr>
<td>High school or college teaching</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Industry - horticulture</td>
<td>33</td>
<td>26.6</td>
</tr>
<tr>
<td>Industry - not horticulture</td>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>Own business - not horticulture</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Others</td>
<td>19</td>
<td>15.3</td>
</tr>
<tr>
<td>Total</td>
<td>124</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Education</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>City planning and regional planning</td>
<td>44</td>
<td>28.9</td>
</tr>
<tr>
<td>Parks and recreational planning</td>
<td>34</td>
<td>22.4</td>
</tr>
<tr>
<td>Private practices (in field)</td>
<td>43</td>
<td>28.3</td>
</tr>
<tr>
<td>With nurseries</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Highway improvement planning</td>
<td>8</td>
<td>5.3</td>
</tr>
<tr>
<td>Business (allied)</td>
<td>7</td>
<td>4.6</td>
</tr>
<tr>
<td>Sales</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Others</td>
<td>12</td>
<td>7.9</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 28

Occupation of Graduates from Poultry Husbandry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Education</td>
<td>5</td>
<td>10.2</td>
</tr>
<tr>
<td>Extension</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>Poultry production</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Hatchery</td>
<td>12</td>
<td>24.5</td>
</tr>
<tr>
<td>Farming</td>
<td>7</td>
<td>14.3</td>
</tr>
<tr>
<td>Poultry processing</td>
<td>4</td>
<td>8.2</td>
</tr>
<tr>
<td>Service organizations</td>
<td>5</td>
<td>10.2</td>
</tr>
<tr>
<td>Industry</td>
<td>5</td>
<td>10.2</td>
</tr>
<tr>
<td>Business</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>6.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>49</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 29

Occupation of Graduates from Agricultural Journalism Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>First position</th>
<th>Present position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Teaching</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Advertising</td>
<td>16</td>
<td>19.3</td>
</tr>
<tr>
<td>Magazine (other than advertising)</td>
<td>12</td>
<td>14.5</td>
</tr>
<tr>
<td>Radio (other than advertising)</td>
<td>5</td>
<td>6.0</td>
</tr>
<tr>
<td>Television (other than advertising)</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Newspapers (other than advertising)</td>
<td>20</td>
<td>24.1</td>
</tr>
<tr>
<td>Information - industry</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>Information - government</td>
<td>14</td>
<td>16.9</td>
</tr>
<tr>
<td>Business</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Others</td>
<td>9</td>
<td>10.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>83</td>
<td>100.0</td>
</tr>
</tbody>
</table>
pattern for this group since there were but 49 graduates for whom occupations were available.

M. Agricultural Journalism Curriculum

Graduates in agricultural journalism with few exceptions have been employed in occupations for which the curriculum has been designed, as shown in Table 29. Advertising was most frequently reported. Graduates, in general, are concerned with one or more of the media of communications. A shift away from newspaper work is noted between the first and 1952 occupation.
All institutions of higher education are challenged by the justification for the programs of education which they provide. Standards for evaluation of the effectiveness of such institutions are not easily found. Even when such standards have been identified, the relative weight to be assigned to each standard cannot be guaranteed either by statistical computation or by consensus of competent authorities. Certain standards of evaluation, traditionally considered in evaluating colleges and universities by accrediting bodies, are difficult to defend. Some of the more common standards are: (1) percentage of faculty holding the Ph.D. degree, (2) contributions to scholarly periodicals, yearbooks, research bulletins and textbooks, (3) library facilities, (4) amount of endowment, et cetera. No doubt each of these evidences may be related to institutional effectiveness but none can be considered to directly evaluate such effectiveness.

During the past three decades emphasis on evaluation has shifted from what an institution offers to the kind of product the institution delivers. This transition has not made less acute the problem of ascertaining institution effectiveness. Differences in points of view will still exist depending upon whether evaluation is made with respect to all students entering a program or to those who have received a baccalaureate degree. This study has been limited to an evaluation based upon those who received a bachelor of science degree, ignoring the effectiveness or lack of effectiveness in terms of student attrition or in terms of student election of a terminal curriculum not primarily designed for the degree-bound student.
The limitation in this study to individuals who were granted bachelor of science degrees was made in the interest of feasibility and economy. This limitation should not be interpreted to mean that former students who were not graduated are unimportant in any complete evaluation of effectiveness of higher education. Studies dealing with students electing nondegree curricula and those who drop out of school might well be two companion studies to the one here reported.

This study, as previously indicated, is limited to students who received the baccalaureate degree upon successful completion of any of thirteen agricultural curricula at Iowa State College in the period from 1932 to 1952, inclusive. Evaluation in terms of such graduates immediately posed the question of objectives of agricultural college training. Do the same objectives prevail when formulated by the student, by the college faculty, by the college administrative officers, or by the lay public? It is probable that considerable differences in opinion may exist among these groups concerning the relative importance of various objectives. An agreement could probably be reached on the frame of reference that the college education of an individual should contribute to himself and to society.

No effort has been made in this study to ascertain the effectiveness of a college education in terms of benefits to society unless such effectiveness is reflected in rewards to individuals. This limitation should not be construed to minimize the responsibility of the college graduate to society. Rewards to the individual may accrue in the form of salary, scenery and satisfaction. The first of these, apparently, is the most important to the college student whereas the graying college professor
will likely think in terms of the biblical expression, "faith, hope and charity, but the greatest of these is charity". It is beyond the purpose of this study to attempt to evaluate the weight that should be given to each of these three aspects of rewards to the individual.

This study was limited to economic returns to the graduates. Many graduates receive income from their major job and also from other sources. Only the former was used for purposes of this study. The questionnaire included items concerning income from major job and income from other sources. By such procedure it was thought that response to the former would tend to minimize the reporting of income from investments as income from major job. The annual income information, later to be presented, has been defined as income from major job.

Of the 3,593 graduates who returned questionnaires, 3,115 graduates (87 per cent) furnished income information. The total income was $16,413,000 with a mean of $5,269 and a median of $4,586. There were many more graduates of recent years than of early years during the 21-year period. More than one-half of the graduates received the bachelor of science degree since World War II. Many of the recent graduates were in graduate schools at the time the data were collected. Of the 3,115 graduates reporting 1952 incomes, 111 graduates earned less than $2,500 which in many cases represented income from fellowships and part time teaching assignments accompanying further education toward advanced degrees. The mean income, likewise, may be misleading unless interpreted in the light of the disproportionate number of graduates since World War II who are in the process of occupational establishment.
A. Income and Year of Graduation

It is common knowledge that the average income of college graduates in any given year is a function of the number of years since graduation. In this study, as shown in Table 30, the mean income varied from $3,651 for the first year after graduation, i.e., 1952, to $8,003 for the sixteenth year after graduation, i.e., 1937. When the mean incomes were plotted by year of graduation an upward trend in income was apparent depending upon the number of years since graduation. Inspection of the graph suggested a straight line trend, i.e., income increases a constant amount from one year to the next regardless of the number of years since graduation.

A straight line trend as indicated by the equation of a straight line,

\[ Y = aX + C, \]

was found from the weighted mean income by number of years since graduation by the method of least squares. The resulting equation was

\[ Y = 202.5907X + 3582.46 \]

where \( Y \) is the predicted mean income and \( X \) is the number of years since graduation. This equation, indicating a mean annual increment of $202.59 for each year since graduation, was solved for one to twenty-one years since graduation, yielding predicted mean incomes shown in Table 30.

A comparison of these predicted earned income means with actual means within the 21-year period suggests that a linear relationship is a reasonably satisfactory assumption. It can be seen, however, that this linear equation by interpolation within the 21-year period tends to overestimate for recent and early graduates and to underestimate for those graduating
Table 30

Actual and Predicted Mean Income on 1952 Standards
and Number of Years Since Graduation

<table>
<thead>
<tr>
<th>Years since graduation</th>
<th>Year graduated</th>
<th>N</th>
<th>Actual mean income</th>
<th>Mean income predicted by equation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Linear</td>
</tr>
<tr>
<td>1</td>
<td>1952</td>
<td>233</td>
<td>$3651</td>
<td>$3785</td>
</tr>
<tr>
<td>2</td>
<td>1951</td>
<td>329</td>
<td>3849</td>
<td>3988</td>
</tr>
<tr>
<td>3</td>
<td>1950</td>
<td>428</td>
<td>4168</td>
<td>4190</td>
</tr>
<tr>
<td>4</td>
<td>1949</td>
<td>316</td>
<td>4418</td>
<td>4393</td>
</tr>
<tr>
<td>5</td>
<td>1948</td>
<td>212</td>
<td>4646</td>
<td>4595</td>
</tr>
<tr>
<td>6</td>
<td>1947</td>
<td>160</td>
<td>5236</td>
<td>4798</td>
</tr>
<tr>
<td>7</td>
<td>1946</td>
<td>45</td>
<td>5140</td>
<td>5001</td>
</tr>
<tr>
<td>8</td>
<td>1945</td>
<td>15</td>
<td>4900</td>
<td>5203</td>
</tr>
<tr>
<td>9</td>
<td>1944</td>
<td>24</td>
<td>5275</td>
<td>5406</td>
</tr>
<tr>
<td>10</td>
<td>1943</td>
<td>124</td>
<td>5183</td>
<td>5608</td>
</tr>
<tr>
<td>11</td>
<td>1942</td>
<td>140</td>
<td>5938</td>
<td>5811</td>
</tr>
<tr>
<td>12</td>
<td>1941</td>
<td>145</td>
<td>5853</td>
<td>6014</td>
</tr>
<tr>
<td>13</td>
<td>1940</td>
<td>161</td>
<td>5861</td>
<td>6216</td>
</tr>
<tr>
<td>14</td>
<td>1939</td>
<td>179</td>
<td>6586</td>
<td>6419</td>
</tr>
<tr>
<td>15</td>
<td>1938</td>
<td>162</td>
<td>7432</td>
<td>6621</td>
</tr>
<tr>
<td>16</td>
<td>1937</td>
<td>37</td>
<td>8003</td>
<td>6824</td>
</tr>
<tr>
<td>17</td>
<td>1936</td>
<td>79</td>
<td>7980</td>
<td>7027</td>
</tr>
<tr>
<td>18</td>
<td>1935</td>
<td>89</td>
<td>7280</td>
<td>7229</td>
</tr>
<tr>
<td>19</td>
<td>1934</td>
<td>77</td>
<td>6594</td>
<td>7432</td>
</tr>
<tr>
<td>20</td>
<td>1933</td>
<td>86</td>
<td>7566</td>
<td>7634</td>
</tr>
<tr>
<td>21</td>
<td>1932</td>
<td>74</td>
<td>6508</td>
<td>7835</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>9863</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>10673</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td>11686</td>
</tr>
</tbody>
</table>
during the middle years included in this study. This linear equation appears entirely inappropriate for purposes of extrapolation beyond twenty-one years. It is scarcely conceivable that the mean income, as here defined, would approximate $11,686, as shown in Table 30, for graduates of 1913 who were graduated forty years ago.

It also seems likely that the greater demand for younger men for salaried positions would suggest the annual mean income increment would not be a constant $202.59 but would be greater than this amount for recent graduates and would become successively smaller until the annual increment would become zero, followed by negative values. If there is merit in this point of view, a quadratic rather than a linear equation is indicated.

A quadratic equation as indicated by \( Y = a_1X^2 + a_2X + C \) was found by the method of least squares from the weighted mean earned income and number of years since graduation. The resulting equation was

\[
Y = -4.8353X^2 + 298.2733X + 3300.55
\]

This equation was solved for various numbers of years since graduation and the predicted mean incomes are shown in the last column of Table 30. With the 21-year period the annual increments are unequal, varying from $284 between the first and second years to $100 between twentieth and twenty-first years.

The choice of a quadratic rather than a linear equation seems justified by theory. In many situations no a priori knowledge permits such a decision. The usual procedure then followed is to test the significance
of the advantage of quadratic over linear regression.\(^1\) Such a test was made yielding a t-value of 6.18 which is significant far beyond the 1 percent level. Even for purposes of interpolation within the 21-year period, the quadratic is more satisfactory than the linear equation.

For purposes of extrapolation beyond the 21-year period, the quadratic yields more realistic estimates than the linear equation. An inspection of predicted mean incomes shown in Table 30 indicates that a maximum is reached between 30 years and 31 years after graduation. To determine the maximum mean annual earned income as indicated by the quadratic equation, the right-hand member of the equation was differentiated with respect to \(X\) and the first derivative set equal to zero. Upon solution, \(X\) was found to be 30.845 years. Thus the quadratic equation, here developed, suggests that the mean annual income reaches a maximum of \$7900 at 30 years and 10 months after graduation.

Within the 21-year period the quadratic and linear equation yielded two points of identical prediction. To determine these two points the expressions for quadratic and linear prediction were set equal to each other, i.e.,

\[
202.5907X + 3582.46 = -4.8353X^2 + 298.2733X + 3300.55.
\]

When this quadratic equation is solved, the two values of \(X\) are 3.6 years and 16.2 years. Thus, for men who have graduated either 3.6 or 16.2 years ago the quadratic and linear equations yield identical estimates of mean income. With years since graduation of less than 3.6 and more than 16.2,

\(^1\)This method and other statistical procedures used in predicting mean annual earned income are described in "Nonlinear Regression" in Wert, James E., Neidt, Charles O. and Ahmann, J. Stanley. Statistical Methods in Educational and Psychological Research. New York, Appleton-Century-Crofts. In press.
linear prediction is higher than the quadratic prediction. With years since graduation between 3.6 and 16.2, quadratic prediction is higher than linear prediction. When the foregoing formula is simplified, differentiated and the first derivative set equal to zero, the maximum discrepancy of higher prediction for quadratic than for the linear equation occurs at 9.9 years after graduation. For linear regression, the prediction is $5588; and for quadratic regression, it is $5780, a discrepancy of $192 being noted at 9.9 years since graduation.

It should be noticed that all of the foregoing predictions are based upon mean rather than median annual incomes. Caution must be used in making interpretation in terms of the typical graduate. Except in unusual cases, the mean value is higher than the median. The discrepancy tends to become larger as the number of years since graduation increases. This discrepancy also varies depending upon the curriculum elected by the graduate and the occupation in which the graduate engages.

B. Income and Curriculum

Graduates, faculty and students are interested in financial returns reported by graduates of individual curricula. Several pertinent analyses can well be made. One such analysis is to indicate the number of graduates needed to include one graduate with an annual income in excess of $10,000. There were 177 graduates reporting incomes greater than $10,000. Of this number, 48 graduated from the animal husbandry curriculum. Only the poultry husbandry curriculum failed to provide any reported income above $10,000 but there were only 38 from this curriculum providing income
information. The curricula have been arranged in the order of the relative frequency of $10,000 or greater incomes. For the entire group, without curriculum classification, there was one $10,000 or greater income for every 18 graduates. The number in parentheses following the curriculum indicates the number of graduates necessary to provide one graduate with an annual income of $10,000 or more.

Agricultural Journalism (8) Dairy Industry (15)
Agricultural Economics (11) Agronomy (19)
Animal Husbandry (12) Forestry (24)
Agricultural Engineering (13) Agricultural Education (59)
Dairy Husbandry (13) Farm Operations (60)
Horticulture (14) Landscape Architecture (60)

A word of warning may be useful in the interpretation of this information. More than one-half of the graduates have received degrees since World War II. These recent graduates have had little opportunity to reach that stage of occupational establishment which will provide $10,000 incomes. The probability of a graduate making at least $10,000 at some time in his career, no doubt, is greater than suggested by the foregoing information for the various curricula.

Another analysis of salary by curriculum is shown in Table 31. A frequency distribution together with the median and mean incomes is shown. The median is the income above which and below which half of the cases lie. The lowest median income of $4020 was for graduates of the farm operations curriculum and the highest of $5090 was for graduates of the agricultural journalism curriculum. The median income was smaller than
Table 31
Annual Earned Income for Graduates from Various Curricula

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>N reports</th>
<th>Less than 4000</th>
<th>4000-4999</th>
<th>5000-5999</th>
<th>6000-6999</th>
<th>10,000 or more</th>
<th>Median</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag. Economics</td>
<td>170</td>
<td>38</td>
<td>38</td>
<td>33</td>
<td>45</td>
<td>16</td>
<td>5040</td>
<td>5609</td>
</tr>
<tr>
<td>Ag. Education</td>
<td>412</td>
<td>47</td>
<td>259</td>
<td>63</td>
<td>36</td>
<td>7</td>
<td>4550</td>
<td>4679</td>
</tr>
<tr>
<td>Ag. Engineering</td>
<td>281</td>
<td>54</td>
<td>85</td>
<td>55</td>
<td>65</td>
<td>22</td>
<td>5000</td>
<td>5640</td>
</tr>
<tr>
<td>Agronomy</td>
<td>348</td>
<td>90</td>
<td>128</td>
<td>61</td>
<td>51</td>
<td>18</td>
<td>4490</td>
<td>5525</td>
</tr>
<tr>
<td>An. Husbandry</td>
<td>578</td>
<td>110</td>
<td>177</td>
<td>110</td>
<td>133</td>
<td>48</td>
<td>5000</td>
<td>5766</td>
</tr>
<tr>
<td>Dairy Husbandry</td>
<td>94</td>
<td>23</td>
<td>29</td>
<td>16</td>
<td>19</td>
<td>7</td>
<td>4560</td>
<td>5091</td>
</tr>
<tr>
<td>Dairy Industry</td>
<td>258</td>
<td>44</td>
<td>73</td>
<td>50</td>
<td>74</td>
<td>17</td>
<td>5050</td>
<td>5860</td>
</tr>
<tr>
<td>Farm Operations</td>
<td>120</td>
<td>56</td>
<td>43</td>
<td>12</td>
<td>7</td>
<td>2</td>
<td>4020</td>
<td>3827</td>
</tr>
<tr>
<td>Forestry</td>
<td>532</td>
<td>177</td>
<td>147</td>
<td>86</td>
<td>100</td>
<td>22</td>
<td>4430</td>
<td>5037</td>
</tr>
<tr>
<td>Horticulture</td>
<td>95</td>
<td>40</td>
<td>19</td>
<td>16</td>
<td>13</td>
<td>7</td>
<td>4150</td>
<td>5801</td>
</tr>
<tr>
<td>Land. Arch.</td>
<td>121</td>
<td>32</td>
<td>30</td>
<td>21</td>
<td>36</td>
<td>2</td>
<td>4620</td>
<td>5125</td>
</tr>
<tr>
<td>Poultry Husb.</td>
<td>38</td>
<td>11</td>
<td>17</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>4070</td>
<td>4116</td>
</tr>
<tr>
<td>Ag. Journalism</td>
<td>68</td>
<td>12</td>
<td>9</td>
<td>16</td>
<td>22</td>
<td>9</td>
<td>5090</td>
<td>6357</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3115</td>
<td>734</td>
<td>1034</td>
<td>546</td>
<td>604</td>
<td>177</td>
<td>4590</td>
<td>5269</td>
</tr>
</tbody>
</table>
the mean income except for the farm operations curriculum. The discrepancies between these two values vary depending upon the curriculum. It is apparent that the discrepancy became greater whenever the proportion with incomes above $10,000 became greater. The mean income varied from $4,116 for graduates in poultry husbandry to $6,357 in agricultural journalism. A new curriculum, such as farm operations which has had only recent graduates, is penalized since it has been shown that income is a function of recency of graduation.

C. Income and Advanced Degrees

Of the 3,115 graduates who furnished information concerning income, there were 111 who reported incomes under $2,500. Many of these individuals were in graduate schools and the reported incomes were derived from fellowships and part-time teaching assignments. In an analysis of incomes when classified by advanced degrees, it seemed appropriate to eliminate these 111 graduates from the study. Of these 111 graduates there were two individuals who held the Ph.D. degree, 25 who held the M.S. but not the Ph.D. and 84 who held no graduate degree.

A frequency distribution of incomes is shown in Table 32 together with mean and median incomes for those graduates who held the Ph.D., the M.S. only and the B.S. only. For the entire group, the mean income was $5,415 as contrasted to the mean income of $5,269 before eliminating the 111 graduates with annual incomes of less than $2,500. The financial advantage of graduate work seems apparent from an inspection of either the mean or median incomes. The interpretation may be made from the
medians that an M.S. degree provides a $400 additional income and a Ph.D. degree a further $800 increase in income. This interpretation must be made with caution since (1) a graduate with an M.S. degree has had one year less and with a Ph.D. degree has had at least three years less opportunity to become occupationally established than the graduate whose higher

Table 32

Income and Advanced Degrees

<table>
<thead>
<tr>
<th>Income</th>
<th>B.S. only</th>
<th>M.S. only</th>
<th>Ph.D.</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 2675</td>
<td>N = 265</td>
<td>N=64</td>
<td>N=3004</td>
</tr>
<tr>
<td>Less than $4000</td>
<td>584</td>
<td>37</td>
<td>2</td>
<td>623</td>
</tr>
<tr>
<td>4000 - 4999</td>
<td>970</td>
<td>78</td>
<td>6</td>
<td>1054</td>
</tr>
<tr>
<td>5000 - 5999</td>
<td>448</td>
<td>74</td>
<td>24</td>
<td>546</td>
</tr>
<tr>
<td>6000 - 6999</td>
<td>240</td>
<td>30</td>
<td>10</td>
<td>280</td>
</tr>
<tr>
<td>7000 - 7999</td>
<td>158</td>
<td>19</td>
<td>8</td>
<td>185</td>
</tr>
<tr>
<td>8000 - 8999</td>
<td>81</td>
<td>11</td>
<td>5</td>
<td>97</td>
</tr>
<tr>
<td>9000 - 9999</td>
<td>36</td>
<td>2</td>
<td>4</td>
<td>42</td>
</tr>
<tr>
<td>10,000 or more</td>
<td>158</td>
<td>14</td>
<td>5</td>
<td>177</td>
</tr>
</tbody>
</table>

Mean      $5337  $5676  $6867  $5415
Median    $4600  $5000  $5800  $4800

education terminated with the B.S. degree, and (2) the information was available only for the graduates who have been out of college as indicated in this group. The ultimate earning power of individuals with advanced degrees, undoubtedly, would be larger if information could be assembled for each individual when he had reached his peak income.
D. Occupational Differences in Income

Classification of graduates according to occupation yielded 13 or less distinct occupational groups with 90 or more cases in each group. For the purpose of analysis of occupational differences in income, all graduates not falling into one of these 13 categories were disregarded. The mean income for each of these occupational groups is shown in Table 33. The lowest mean income was reported by high school teachers of vocational agriculture whereas the highest mean income was reported by graduates classified in management, the difference being $2686 annually.

For three of these occupational groups, incomes may be compared with other current reports of salaries. A recent study\(^1\) indicated the 1953 salaries of vocational agriculture teachers by states. The lowest reported salary was $2500 in Mississippi and in Rhode Island and the highest was $7500 in California. The reported average for the United States was $4153. The reported average for Iowa was $4558, placing Iowa fifth in rank after Oregon, Washington, Minnesota, and Arizona. The reported range in Iowa was from $3900 to $5500.

In contrast to this Iowa average of $4558, the study here reported indicated a mean of $4496, a difference of $60. It should be noted that the groups are not identical. The former includes most but not all of the 172 graduates in the latter, all graduates not teaching vocational agriculture in Iowa who graduated from Iowa State College prior to 1932, and

all Iowa teachers of vocational agriculture who graduated from other institutions.

Salaries of county extension agents in Iowa, now called county extension directors, are shown in the same report.¹ The mean salary in the thirty-four states reporting was highest in California ($7849) and lowest in Vermont ($4077). The mean salary reported for Iowa was $5293, ranking thirteenth in the thirty-four states reporting. This mean salary is $311 higher than that found in the present study. It should be noted, however, that the former mean was for county extension agents only whereas the latter included also county 4-H club agents and youth assistants.

The income of college teachers is shown in Table 33 to be $5375 for

Table 33
Mean Income and Predicted Beginning Income and Mean Annual Income Increment Assuming Linear Relationship

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N</th>
<th>Mean</th>
<th>Predicted Beginning Income</th>
<th>Annual Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school voc. ag. teachers</td>
<td>172</td>
<td>4498</td>
<td>4423</td>
<td>20</td>
</tr>
<tr>
<td>College teachers</td>
<td>94</td>
<td>5375</td>
<td>4107</td>
<td>147</td>
</tr>
<tr>
<td>Extension workers</td>
<td>137</td>
<td>4982</td>
<td>4192</td>
<td>95</td>
</tr>
<tr>
<td>Federal agricultural agencies</td>
<td>168</td>
<td>4733</td>
<td>4500</td>
<td>27</td>
</tr>
<tr>
<td>Farming</td>
<td>417</td>
<td>5784</td>
<td>4032</td>
<td>196</td>
</tr>
<tr>
<td>Farm management</td>
<td>108</td>
<td>5556</td>
<td>4705</td>
<td>133</td>
</tr>
<tr>
<td>Management</td>
<td>237</td>
<td>7184</td>
<td>4020</td>
<td>316</td>
</tr>
<tr>
<td>Small business</td>
<td>176</td>
<td>7120</td>
<td>4979</td>
<td>216</td>
</tr>
<tr>
<td>Sales</td>
<td>220</td>
<td>5683</td>
<td>4271</td>
<td>280</td>
</tr>
<tr>
<td>Journalism</td>
<td>93</td>
<td>6434</td>
<td>4213</td>
<td>270</td>
</tr>
<tr>
<td>Production</td>
<td>179</td>
<td>4528</td>
<td>3864</td>
<td>143</td>
</tr>
<tr>
<td>Research</td>
<td>97</td>
<td>5310</td>
<td>3513</td>
<td>229</td>
</tr>
<tr>
<td>Federal forestry</td>
<td>156</td>
<td>4685</td>
<td>3520</td>
<td>127</td>
</tr>
</tbody>
</table>

¹Ibid.
the 94 individuals who were teaching in some field of agriculture after eliminating graduates who were holding college positions which were mainly research or administrative. This mean of $5375 is $875 above the 1950 median salary1 of 28,022 full-time faculty members in 68 land grant colleges. Income information which was located for other occupational groups was not comparable to that for any of the other ten groups as classified in this study.

Evidence previously shown indicates clearly, that when all graduates are considered, income is a function of time since graduation. If the annual income increment is a constant, i.e., if a linear relationship exists between income and time since graduation, then the mean annual increment is $202.59. Although considerable evidence has resulted from previous analyses that suggests a quadratic rather than a linear relationship, a preliminary analysis was made by assuming that the annual income increment was constant. Even when this assumption is made, the problem of whether this increment is similar from one occupation to another is one that should be based upon available evidence.

For preliminary analysis a linear equation was found for each occupation by the method of least squares. The equation for high school vocational agriculture was

\[ Y = -20.456X + 5486.80 \]

where \( Y \) = predicted income

\[ X = \text{year of graduation minus 1900}. \]

From this equation it is apparent that the annual income increment is between $20 and $21 for vocational agriculture teachers as contrasted to $202.59 for all graduates included in this study. When 52 (for the year 1952) was substituted in the foregoing equation, the predicted mean income for the first year after graduation was $4423 for high school teachers of vocational agriculture. In a similar way, annual income increments and predicted incomes were found, as shown in Table 33, for each occupation.

The annual increments varied from $20 for teachers of vocational agriculture to $316 for those graduates classified in management. The initial income upon graduation varied from a low of $3513 for those engaged in research to a high of $4979 for those in small business. It is particularly of interest to note that teachers of vocational agriculture, with the lowest mean income of the thirteen groups, were fourth from the top in beginning income.

An inspection of the information in Table 33 with respect to initial income and annual increment indicated clearly that each occupational group had to be analyzed separately. On the other hand, the assumption of a linear relationship between income and number of years since graduation has been disproved. Some technique for predicting mean income was needed which did not require these obviously untenable assumptions.

It was decided to base prediction on the assumptions that, for each of the occupational groups, like the entire unclassified group, (1) the linear and the quadratic equations yielded identical solutions at 3, 6 and 16.2 years since graduation and (2) the mean maximum income occurred at 30.845 years after graduation. The quadratic equation for the unclassified group
\[ Y = -4.8353X^2 + 298.2733X + 3300.65 \]

needs to be modified to conform to the two foregoing assumptions to read
\[ Y = a(-4.8353X^2 + 298.2733X) + 3300.65 + C \]

where the constants \( a \) and \( C \) adapt the equation to any occupational group.

Under the first assumption, two mean incomes are known from the linear equation, i.e., at 3.6 and 16.2 years after graduation. Thus two simultaneous equations may be had:
\[ Y_{3.6} = a(-4.835X_{3.6}^2 + 298.2733X_{3.6}) + 3300.65 + C \]
\[ Y_{16.2} = a(-4.835X_{16.2}^2 + 298.2733X_{16.2}) + 3300.65 + C. \]

The necessary solution for each of the occupational groups is here shown for teachers of vocational agriculture only. The linear equation, previously shown for this group is
\[ Y = -20.456X + 5486.80. \]

The \( X \) in this equation is the year of graduation minus 1900. Thus when the numbers of years since graduation are 3.6 and 16.2, the \( X \)-values are 49.4(53-3.6) and 36.8(53-16.2), respectively. Substituting the \( X \)-values, the predicted mean incomes are $4476 and $4734, respectively. Since the predicted mean values are identical for the linear and quadratic at these points
\[ 4476 = a[(-4.8353)(3.6)^2 + (298.2733)(3.6)] + 3300.65 + C \]
\[ 4734 = a[(-4.8353)(16.2)^2 + (298.2733)(16.2)] + 3300.65 + C. \]

When these equations are solved simultaneously
\[ a = 0.10109 \]
\[ C = 1073.05. \]

The equation then for estimation was found to be
Table 34
Quadratic Predicted Mean Income on 1952 Standard for Certain Occupational Groups and Years Since Graduation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Years since graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>High school voc. ag. teacher</td>
<td>$4403</td>
</tr>
<tr>
<td>College teachers</td>
<td>3969</td>
</tr>
<tr>
<td>Extension workers</td>
<td>4102</td>
</tr>
<tr>
<td>Federal agricultural agencies</td>
<td>4474</td>
</tr>
<tr>
<td>Farming</td>
<td>3847</td>
</tr>
<tr>
<td>Farm management</td>
<td>4600</td>
</tr>
<tr>
<td>Management</td>
<td>3721</td>
</tr>
<tr>
<td>Small business</td>
<td>4750</td>
</tr>
<tr>
<td>Sales</td>
<td>3708</td>
</tr>
<tr>
<td>Journalism</td>
<td>3958</td>
</tr>
<tr>
<td>Production</td>
<td>3729</td>
</tr>
<tr>
<td>Research</td>
<td>3297</td>
</tr>
<tr>
<td>Federal forestry</td>
<td>3400</td>
</tr>
<tr>
<td>All</td>
<td>$3594</td>
</tr>
</tbody>
</table>
Table 35
Mean and Median Incomes Adjusted for Date of Graduation for Various Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Actual Mean</th>
<th>Actual Median</th>
<th>Mean¹ years</th>
<th>Adjusted Mean</th>
<th>Adjusted Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school voc. ag. teacher</td>
<td>$4498</td>
<td>$4532</td>
<td>4.67</td>
<td>$4573</td>
<td>$4607</td>
</tr>
<tr>
<td>College teachers</td>
<td>5457</td>
<td>5375</td>
<td>10.15</td>
<td>5189</td>
<td>5107</td>
</tr>
<tr>
<td>Extension workers</td>
<td>4982</td>
<td>5000</td>
<td>9.28</td>
<td>4891</td>
<td>4909</td>
</tr>
<tr>
<td>Federal agricultural agencies</td>
<td>4733</td>
<td>4588</td>
<td>9.58</td>
<td>4700</td>
<td>4555</td>
</tr>
<tr>
<td>Farming</td>
<td>5784</td>
<td>5196</td>
<td>9.96</td>
<td>5465</td>
<td>4877</td>
</tr>
<tr>
<td>Farm management</td>
<td>5656</td>
<td>5361</td>
<td>8.18</td>
<td>5676</td>
<td>5381</td>
</tr>
<tr>
<td>Management</td>
<td>7184</td>
<td>6141</td>
<td>11.00</td>
<td>6340</td>
<td>5297</td>
</tr>
<tr>
<td>Small business</td>
<td>7120</td>
<td>5878</td>
<td>11.05</td>
<td>6533</td>
<td>5291</td>
</tr>
<tr>
<td>Sales</td>
<td>5683</td>
<td>4986</td>
<td>7.12</td>
<td>6021</td>
<td>5324</td>
</tr>
<tr>
<td>Journalism</td>
<td>6434</td>
<td>6132</td>
<td>9.22</td>
<td>6193</td>
<td>5891</td>
</tr>
<tr>
<td>Production</td>
<td>4528</td>
<td>4428</td>
<td>5.65</td>
<td>4911</td>
<td>4811</td>
</tr>
<tr>
<td>Research</td>
<td>5310</td>
<td>4948</td>
<td>8.86</td>
<td>5189</td>
<td>4827</td>
</tr>
<tr>
<td>Federal forestry</td>
<td>4585</td>
<td>4604</td>
<td>9.38</td>
<td>4452</td>
<td>4471</td>
</tr>
</tbody>
</table>

¹Mean number of years since graduation
\[ Y = 0.10109(-4.8353X^2 + 298.273X) + 3300.65 + 1073.05 \]
or
\[ Y = -0.4880X^2 + 30.1524X + 4373.70. \]

Upon substitution of number of years since graduation for values of \( X \), predicted mean incomes may be obtained. Thus entries are shown for teachers of vocational agriculture in Table 34. In a similar manner, predicted mean salaries are shown for other occupational groups who have held bachelor of science degrees for 1, 5, 10, 15 and 20 years.

Of these thirteen occupations, farming, management and small business usually required some capital outlay which may be obtained by (1) gifts, (2) inheritance, (3) savings and (4) loans. Many students who graduate do not have access to such sources needed for capital outlay. Of the ten remaining occupational groups, farm management offered the greatest financial return immediately upon graduation and research work offered the least. At the end of 20 years, with the same ten occupational groups, sales and journalism vie for the top position and teachers of vocational agriculture and employees of federal agricultural agencies contend for the dubious distinction of smallest income.

Because many of the foregoing analyses have indicated that income is a function of time since graduation, Table 35 was constructed to adjust the median and mean income. This adjustment was made by using the linear formula, previously shown, for each occupation so that the mean number of years since graduation was 8.33 years. An inspection of this table reveals that interpretations of differences occurring in mean annual income among groups are subject to little revision if adjustments are made for group variations in elapsed time since graduation.
X. SUMMARY

One of the major objectives of Iowa State College is to provide the education necessary for leadership in the agricultural industry. The major emphasis in this respect occurs in the Division of Agriculture. During the 21-year period ending with the 1951-1952 school year, 4,439 students in the Division of Agriculture were granted baccalaureate degrees. Of these graduates, 65 completed curricula which since have been discontinued. These graduates were not included in the study. There were an additional 239 graduates of the industrial education curriculum who were not included in the study because of the remote connection of this curriculum to agriculture. Included in the study were 348 graduates of the agricultural engineering curriculum jointly administered by the Division of Engineering and the Division of Agriculture. Thus there were 4,483 graduates of thirteen curricula for whom a follow-up study was designed.

A questionnaire was prepared and sent to these graduates. In all, 4,199 questionnaires were deliverable and 3,593 usable returns were received. Approximately three in every four graduates were residents of Iowa at the time they first entered college.

Farm-reared boys constituted 62 per cent of the graduates with one in every four returning to the farm directly after graduation. The proportion of farm-reared graduates varied from a low of 24 per cent in forestry to a high of 86 per cent in agricultural education.

Of the 3,593 graduates, 1,165 persons, approximately one in every three, entered the Division of Agriculture after previous college work...
elsewhere. Approximately one in every five graduates transferred to an agricultural curriculum from some other division at Iowa State College.

The majority of the graduates had their college education interrupted by work or military service, or both. Of those individuals graduating since 1947, two in every three had their education interrupted by military service. Prior to this time military interruptions were few in number but approximately one-half reported work interruptions during their college careers.

There were 392 graduates who later received one or more earned graduate degrees, usually the master of science or doctor of philosophy degree. Of this number, 71 individuals had been granted the doctor of philosophy degree. This degree had not been received at the time of this study by any graduate of the last three years of the 21-year period. Because the graduates of these three years constitute about one-third of the total group and because the graduates have had insufficient time for obtaining this degree, the 71 of the 3,593 graduates who have obtained the doctorate is an underestimate of the proportion who will eventually receive this degree.

At the time of this study, 470 graduates, or 13 per cent, listed their present occupation as education, not including extension service. Of these 470 graduates, 179 individuals were teaching vocational agriculture in high school; 16 others were teaching veterans classes in agriculture; and the remaining 152 graduates, with few exceptions, were college staff members engaged in teaching or research, or both.

Graduates engaged in extension services were classified separately from other educational workers and numbered 175, or 5 per cent of all
graduates. Of these 175 graduates, county extension directors numbering 76 persons were followed by state extension service numbering 65 persons with county youth assistants and assistant county directors accounting for 33 persons. One graduate was employed in federal extension service.

There were 470 graduates, or 13 per cent, in government service, one-third of whom were in the United States forest service. This large number in forest service was not unexpected since the forestry curriculum, among the thirteen considered in this study, accounted for more graduates than any other curriculum except animal husbandry.

In 1952 there were 702 graduates, or approximately 20 per cent, who were engaged in farming. It has been previously noted that 62 per cent of the graduates had been farm-reared. This migratory effect of a college education in agriculture should not be viewed as unfortunate. The agricultural economy of this country would soon be bankrupt if all farm-reared boys were forced to return to farming. The demands for personnel in the agricultural industry, other than farming, have been so acute that agricultural colleges have recognized that maximum service to agriculture cannot be attained without stressing the opportunities for farm-reared youth in occupations other than farming in the total agricultural industry.

In 1952, enterprises other than farming provided occupational outlets for 1,296 graduates of whom 968 were in commercial agricultural enterprises, 123 in commercial nonagricultural enterprises and 205 in small business ventures.

The foregoing classifications of 1952 occupations account for all except 480 graduates who have been placed in a group designated as others. More than half (267) of these were in military service at the time of this
study. An additional 88 individuals were continuing education as graduate students. The remaining graduates were employed in nonprofit organizations, miscellaneous farm and nonfarm services and a small additional number in a variety of occupations which occurred so infrequently that further classification was impractical.

In addition to the 1952 occupations, the occupations immediately upon graduation were obtained. Several shifts between first and present occupation were clearly evident even though many persons were recent graduates. Perhaps the most striking of these shifts was noted in the number engaged in farming. Of the 3,593 graduates, 483 individuals returned to the farm directly upon graduation whereas 702 graduates were farming in 1952. This migration tendency may have resulted from inadequate capital for immediate entrance into farming. It is probable that many of the 219 graduates were delayed from entering farming until sufficient capital could be accumulated although no evidence was collected to support this contention.

A similar shift was noted among graduates who were engaged in small business. On the other hand, certain initial occupations seemed to serve as stepping stones to later occupations. In this respect the migration from education, extension and government service was particularly noticeable.

One method of evaluating the effectiveness of a college education consists of recording the earned income of graduates. Although such evaluation may leave much to be desired, it constitutes one facet of tangible evidence. Of the 3,593 graduates who returned questionnaires, 3,115 individuals furnished income information. Graduates were asked to
distinguish between income from major job and income from other sources such as investments, inheritance and other minor sources. Only the income from major job was analyzed. The total income for the 3,115 graduates was $16,413,000 for 1952, with a mean of $5269 and a median of $4586.

More than one-half of the 3,593 graduates received the bachelor of science degree since World War II. Many of the recent graduates were in graduate school at the time the data were collected. Of the 3,115 graduates reporting 1952 incomes, 111 individuals earned less than $2500 which in many cases represented income from fellowships and part time teaching assignments accompanying further education toward advanced degrees. For the remaining 3,004 graduates the mean income was $5415 and the median income was $4800 in 1952. The mean income must be interpreted in the light of the disproportionate number of graduates since World War II who were in the process of occupational establishment in 1952.

When the mean income was plotted by year of graduation, an upward trend in income was apparent depending upon the number of years since graduation. The equation for the straight line trend, found by the method of least squares, was $Y = 202,5907X + 3582.46$, where $Y$ is the predicted mean income and $X$ is the number of years since graduation. This linear equation tended to yield an overestimate for recent and early graduates and to yield an underestimate for graduates of the middle years of the 21-year period.

A quadratic was assumed to be a more realistic equation. The equation, $Y = -4.8353X^2 + 298.2733X + 3300.55$, was obtained by the method of least squares. When this equation was solved the mean annual income increments were unequal, varying from $284 between the first and second years
to $100 between the twentieth and twenty-first years. This equation sug-
gests that the mean annual income will reach a maximum of $7900 at 30
years and 10 months after graduation.

Graduates with master's degrees received $400 greater annual income
than those without such degrees. Graduates holding the doctorate received
an additional $800 annual income. The ultimate earning power of indi-
viduals with advanced degrees probably would be larger if information
could be assembled for each individual when he had reached his peak income.

Among thirteen occupations, beginning income, based upon 1952 stand-
ards, was highest ($4750) for graduates engaged in small business enter-
prises and lowest ($3297) for those engaged in research work. Twenty
years after graduation, the highest income ($9558) can be expected in
industrial management and the lowest ($4781) in teaching vocational
agriculture.

Responses to the items included in the questionnaire clearly revealed
that the graduates in agriculture at Iowa State College have received the
education needed for leadership in the agricultural industry.
XI. LITERATURE CITED


Johnson, Palmer O. Aspects of Land-Grant College Education. Minneapolis, University of Minnesota Press. 1934.


XIII. APPENDIX
Dear Graduates:

The faculty of the Division of Agriculture has a real interest in its graduates. We feel, and I am sure you will agree, that a knowledge of what our graduates are doing, in terms of location and occupational placement, will make the educational work done here more meaningful and will provide a basis for giving more adequate educational and vocational guidance to our present and future students.

During the period since graduation you have had a real opportunity to evaluate your college work in relation to your life goals. We believe your evaluation will provide a factual basis for various improvements in the present curriculum.

Studies similar to this one are in progress at several of the land-grant institutions. We welcome this opportunity to solicit your cooperation and feel sure your conscientious efforts in completing these questions will be of great value to us. We will appreciate it if you will return the form at your earliest convenience.

Sincerely yours,

Floyd Andre
Dean and Director
Agriculture
## Study of the B.S. Graduates of the Division of Agriculture (1937-50)

Instructions: Use the mark [ ] to answer the questions where such is appropriate. Disregard the dashes (-) in the right margin. These will be used for tabulation purposes.

1. Name __________________________ Last First M.I. Address __________________________

2. Year B.S. degree received at I.S.C. 19 ___. If you entered military service, give the year 19 ___.

3. After high school graduation, was your schooling program interrupted, other than summer, prior to receiving a B.S. degree. No [ ] Yes [ ] If yes, for what reason(s). work [ ] military [ ] other [ ]

4. Graduate work (earned degrees)
   - Degree __________________________
   - Major __________________________
   - Year __________________________
   - Institution __________________________

5. Positions held since B.S. degree received
   - Position Title __________________________
   - Year __________________________
   - Specific Duties __________________________
   - Location (State only) __________________________

6. Did you transfer from another college to I.S.C.? [ ] No [ ] Yes [ ]
   - If yes, number of undergraduate quarters at I.S.C. ___.

7. While at I.S.C., did you transfer from another division into the Agriculture Division. [ ] No [ ] Yes [ ]
   - If yes, check which division. Engineering [ ] Science [ ]

8. While in the Agriculture Division did you transfer from one curriculum to another? [ ] No [ ] Yes [ ]
   - If yes, from which curriculum?

9. In terms of your felt needs, how valuable was the help you received from your counselor?
   - (1) Great value [ ]
   - (2) Quite helpful [ ]
   - (3) Some assistance [ ]
   - (4) Little assistance [ ]
   - (5) Not helpful at all [ ]

10. Have you owned (or rented) farm land since graduation? [ ] No [ ] Yes [ ]
    - If yes, give first year 19 ___

11. Have you operated a farm since graduation? [ ] No [ ] Yes [ ]
    - If yes, number of years ___

12. Have you owned a business (excluding a farm) since graduation? [ ] No [ ] Yes [ ]
    - If yes, how many years ___

13. Have you ever held a position with the Agricultural Extension Service? [ ] No [ ] Yes [ ]
    - If yes, number of years ___

14. In view of your college and post-college experiences, what changes would you recommend in the amount of work required in your curriculum in the following subject fields?

<table>
<thead>
<tr>
<th>Course Area</th>
<th>Increase Amount</th>
<th>Leave Unchanged</th>
<th>Decrease Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Skills (English, Speech, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Sciences (Chemistry, Biology, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Sciences (Economics, Government, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courses in major department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other courses in Division of Agriculture</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
17. How would you classify yourself as to the number of college extracurricular activities you engaged in?
(1) More than average of your class  □ (2) Average □ (3) Less than average □

18. How do you now value the time and effort which you spent on extracurricular activities while in college?
(1) Well spent and useful □ (2) Of considerable use and value □ (3) Of little or no use □ (4) As time wasted □

19. How do you now value the time and effort which you spent on course-work while in college?
(1) Well spent and useful □ (2) Of considerable use and value □ (3) Of little or no use □ (4) As time wasted □

20. Did your college course work challenge you to do your best? No □ Yes □

21. Will you estimate the approximate average (of the last two or three years) income from your major job?
   (This information is for averages only. An individual's average WILL NOT BE DIVULGED TO ANYONE AT ANY TIME.) No □ Yes □ If yes, approximate annual income from major job ________

22. Will you estimate the approximate average income from all other sources (excluding income from your major job)? No □ Yes □ If yes, approximate annual income from other sources ________

23. What do you think of the emphasis placed by I.S.C.
   A. At Present on:
      a. Intercollegiate football □
      b. Other intercollegiate athletics □
   B. While you were in college on:
      a. Intramural athletics □
      b. Social activities □
      c. Religious activities □
      d. Judging teams □
      e. Music □
      g. Departmental clubs □
      h. Grades □
      i. excuses for class absences □
      j. Number of electives permitted □

24. If I.S.C. were to provide additional scholarships, would you rather see the majority of them given to:
   (1) Entering Freshmen □ (2) Juniors □ (3) Equally divided □
   (4) Sophomores □ (5) Seniors □

25. Would you favor federally-supported scholarships for worthy but needy high school graduates? No □ Yes □

26. From your experiences at I.S.C., what size class would you consider ideal for learning?
   a. Lecture: 10 □ 20 □ 30 □ 40 □ 50 or more □
   b. Recitation-discussion: 10 □ 20 □ 30 □ 40 □ 50 or more □
   c. Laboratory: 10 □ 20 □ 30 □ 40 □ 50 or more □

27. While you were at I.S.C., to what degree were the following brought to your attention:
   a. Opportunities in Extension Strongly □ Moderately □ Slightly □ at all □
   b. Opportunities in college teaching Strongly □ Moderately □ Slightly □ at all □
   c. Opportunities in research Strongly □ Moderately □ Slightly □ at all □

28. If the above were brought to your attention, was it soon enough for you to arrange your college program in order to prepare for such work? No □ Yes □

29. Many colleges are now operating on a five-day week for classes, giving students week-ends free to study or return to their homes. This tends to reduce participation in Friday night and week-end activities.
   In your opinion, from the standpoint of students benefit only, should I.S.C. move in the direction of:
   (1) Classes five days per week □ (2) Classes six days per week □ (3) Doesn't make any difference □
Dear Graduate:

YOUR opinion is needed!

A short time ago we sent a copy of the enclosed questionnaire to each of the graduates of this division (1932-1952). So far the response has been gratifying. However, either due to a wrong address on our part or possibly insufficient time on your part, we have not received your return.

The value of this study will be determined by the number of replies received. We are particularly anxious that your opinion be considered and evaluated in our summary.

If you have already returned your questionnaire, please disregard this letter.

We greatly appreciate your cooperation.

Sincerely yours,

Floyd Andre
Dean and Director
Agriculture
Table 36
Income in 1952 for Graduates of Agricultural Economics Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number Total</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>29</td>
<td>27</td>
<td>$4796</td>
</tr>
<tr>
<td>Extension</td>
<td>11</td>
<td>10</td>
<td>5240</td>
</tr>
<tr>
<td>Farming</td>
<td>43</td>
<td>31</td>
<td>5240</td>
</tr>
<tr>
<td>Farm management</td>
<td>20</td>
<td>18</td>
<td>7089</td>
</tr>
<tr>
<td>Bank, appraiser, etc.</td>
<td>21</td>
<td>18</td>
<td>4861</td>
</tr>
<tr>
<td>Government service</td>
<td>17</td>
<td>17</td>
<td>5753</td>
</tr>
<tr>
<td>Service organizations</td>
<td>3</td>
<td>1</td>
<td>5500</td>
</tr>
<tr>
<td>Industry</td>
<td>30</td>
<td>27</td>
<td>5489</td>
</tr>
<tr>
<td>Small business</td>
<td>11</td>
<td>11</td>
<td>9445</td>
</tr>
<tr>
<td>Others</td>
<td>17</td>
<td>10</td>
<td>3520</td>
</tr>
<tr>
<td>All</td>
<td>202</td>
<td>170</td>
<td>5609</td>
</tr>
</tbody>
</table>

Table 37
Income in 1952 for Graduates of Agricultural Education Curriculum

<table>
<thead>
<tr>
<th>Number Total</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school vocational ag. teachers</td>
<td>167</td>
<td>161</td>
</tr>
<tr>
<td>Other high school</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Veterans classes</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>College teaching</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Agricultural organizations</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>Extension or experiment station</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Farming</td>
<td>61</td>
<td>56</td>
</tr>
<tr>
<td>Government service</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Business or industry</td>
<td>72</td>
<td>69</td>
</tr>
<tr>
<td>Others</td>
<td>60</td>
<td>33</td>
</tr>
<tr>
<td>All</td>
<td>459</td>
<td>412</td>
</tr>
</tbody>
</table>
### Table 38

**Income in 1952 for Graduates of Agricultural Engineering Curriculum**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number Total</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>31</td>
<td>29</td>
<td>$5010</td>
</tr>
<tr>
<td>Farm equipment industry</td>
<td>119</td>
<td>105</td>
<td>6074</td>
</tr>
<tr>
<td>Farm structures</td>
<td>17</td>
<td>17</td>
<td>5794</td>
</tr>
<tr>
<td>Soil and water conservation</td>
<td>38</td>
<td>38</td>
<td>4645</td>
</tr>
<tr>
<td>Farming</td>
<td>33</td>
<td>29</td>
<td>6945</td>
</tr>
<tr>
<td>Rural electrification</td>
<td>7</td>
<td>7</td>
<td>5129</td>
</tr>
<tr>
<td>U.S.D.A. (not including S.C.S.)</td>
<td>3</td>
<td>3</td>
<td>9000</td>
</tr>
<tr>
<td>Industry related to agriculture</td>
<td>10</td>
<td>10</td>
<td>6570</td>
</tr>
<tr>
<td>Business</td>
<td>16</td>
<td>15</td>
<td>5587</td>
</tr>
<tr>
<td>Others</td>
<td>33</td>
<td>28</td>
<td>4029</td>
</tr>
<tr>
<td><strong>All</strong></td>
<td><strong>307</strong></td>
<td><strong>281</strong></td>
<td><strong>5640</strong></td>
</tr>
</tbody>
</table>

### Table 39

**Income in 1952 for Graduates of Agronomy Curriculum**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number Total</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>46</td>
<td>44</td>
<td>$4489</td>
</tr>
<tr>
<td>Farm operator</td>
<td>67</td>
<td>63</td>
<td>5575</td>
</tr>
<tr>
<td>Farm manager</td>
<td>20</td>
<td>18</td>
<td>4611</td>
</tr>
<tr>
<td>Government service</td>
<td>64</td>
<td>64</td>
<td>4355</td>
</tr>
<tr>
<td>Bank, appraisers, etc.</td>
<td>16</td>
<td>16</td>
<td>5050</td>
</tr>
<tr>
<td>Extension</td>
<td>26</td>
<td>25</td>
<td>4424</td>
</tr>
<tr>
<td>Hybrid seed corn company</td>
<td>32</td>
<td>29</td>
<td>4936</td>
</tr>
<tr>
<td>Industry</td>
<td>56</td>
<td>52</td>
<td>5003</td>
</tr>
<tr>
<td>Business</td>
<td>9</td>
<td>8</td>
<td>8275</td>
</tr>
<tr>
<td>Others</td>
<td>47</td>
<td>28</td>
<td>3154</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>382</strong></td>
<td><strong>348</strong></td>
<td><strong>5525</strong></td>
</tr>
</tbody>
</table>
### Table 40

Income in 1952 for Graduates of Animal Husbandry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number Total</th>
<th>Number Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming</td>
<td>259</td>
<td>214</td>
<td>$6042</td>
</tr>
<tr>
<td>Teaching</td>
<td>83</td>
<td>78</td>
<td>4926</td>
</tr>
<tr>
<td>Extension</td>
<td>65</td>
<td>65</td>
<td>4740</td>
</tr>
<tr>
<td>Meat packing (or related)</td>
<td>55</td>
<td>48</td>
<td>5817</td>
</tr>
<tr>
<td>Breed organization</td>
<td>9</td>
<td>8</td>
<td>6038</td>
</tr>
<tr>
<td>Journalism and radio</td>
<td>14</td>
<td>13</td>
<td>5969</td>
</tr>
<tr>
<td>Government service</td>
<td>25</td>
<td>24</td>
<td>4958</td>
</tr>
<tr>
<td>Feed industry</td>
<td>27</td>
<td>26</td>
<td>5854</td>
</tr>
<tr>
<td>Business</td>
<td>69</td>
<td>65</td>
<td>7911</td>
</tr>
<tr>
<td>Others</td>
<td>76</td>
<td>37</td>
<td>4241</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>682</strong></td>
<td><strong>578</strong></td>
<td><strong>5766</strong></td>
</tr>
</tbody>
</table>

### Table 41

Income in 1952 for Graduates of Dairy Husbandry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number Total</th>
<th>Number Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming</td>
<td>30</td>
<td>27</td>
<td>$6130</td>
</tr>
<tr>
<td>Farm management</td>
<td>5</td>
<td>5</td>
<td>5140</td>
</tr>
<tr>
<td>Education</td>
<td>13</td>
<td>12</td>
<td>3925</td>
</tr>
<tr>
<td>Extension</td>
<td>16</td>
<td>15</td>
<td>4833</td>
</tr>
<tr>
<td>Government service</td>
<td>4</td>
<td>3</td>
<td>6967</td>
</tr>
<tr>
<td>Breed or service organization</td>
<td>6</td>
<td>6</td>
<td>6967</td>
</tr>
<tr>
<td>Artificial insemination, dairy inspector</td>
<td>4</td>
<td>4</td>
<td>5125</td>
</tr>
<tr>
<td>Business or industry</td>
<td>18</td>
<td>16</td>
<td>5931</td>
</tr>
<tr>
<td>Armed forces</td>
<td>10</td>
<td>4</td>
<td>4175</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>94</strong></td>
<td><strong>5091</strong></td>
</tr>
</tbody>
</table>
### Table 42
Income in 1952 for Graduates of Dairy Industry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Reporting income</td>
</tr>
<tr>
<td>College teaching</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Research, state and commercial</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Extension</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Inspector (city, state, federal)</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>Saleswork</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Owners of dairy plants</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Manager of dairy plant</td>
<td>107</td>
<td>101</td>
</tr>
<tr>
<td>Other positions</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Farming</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Others</td>
<td>32</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>284</td>
<td>258</td>
</tr>
</tbody>
</table>

### Table 43
Income in 1952 for Graduates of Farm Operations Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Reporting income</td>
</tr>
<tr>
<td>Education</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Farm operator</td>
<td>59</td>
<td>37</td>
</tr>
<tr>
<td>Farm manager</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Government service</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Bank, appraisers, etc.</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Extension</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Armed forces</td>
<td>31</td>
<td>15</td>
</tr>
<tr>
<td>Industry</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Non-profit organizations</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Others (including graduate students)</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>120</td>
</tr>
</tbody>
</table>
Table 44
Income in 1952 for Graduates of Forestry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Reporting income</td>
</tr>
<tr>
<td>Public service</td>
<td>(238)</td>
<td>(232)</td>
</tr>
<tr>
<td>Education</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Forest service (federal)</td>
<td>156</td>
<td>153</td>
</tr>
<tr>
<td>Forestry and conservation</td>
<td>50</td>
<td>48</td>
</tr>
<tr>
<td>Federal agencies, other than forest service</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Private industry</td>
<td>(209)</td>
<td>(193)</td>
</tr>
<tr>
<td>Forest management</td>
<td>51</td>
<td>49</td>
</tr>
<tr>
<td>Harvesting and manufacturing of forest products</td>
<td>93</td>
<td>84</td>
</tr>
<tr>
<td>Wholesale or retail of forest products</td>
<td>65</td>
<td>60</td>
</tr>
<tr>
<td>Non-forestry</td>
<td>(145)</td>
<td>(107)</td>
</tr>
<tr>
<td>Farming</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Engineering</td>
<td>26</td>
<td>24</td>
</tr>
<tr>
<td>Others</td>
<td>102</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td>592</td>
<td>532</td>
</tr>
</tbody>
</table>
### Table 45

Income in 1952 for Graduates of Horticulture Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orchardist</td>
<td>8</td>
<td>7</td>
<td>$5800</td>
</tr>
<tr>
<td>Nursery (owner or operator)</td>
<td>10</td>
<td>7</td>
<td>9171</td>
</tr>
<tr>
<td>Greenhouse or florist</td>
<td>20</td>
<td>15</td>
<td>4100</td>
</tr>
<tr>
<td>Farming (including vegetable)</td>
<td>6</td>
<td>3</td>
<td>13033</td>
</tr>
<tr>
<td>Extension</td>
<td>7</td>
<td>5</td>
<td>5657</td>
</tr>
<tr>
<td>High school or college teachers</td>
<td>8</td>
<td>7</td>
<td>5129</td>
</tr>
<tr>
<td>Industry (horticulture)</td>
<td>19</td>
<td>17</td>
<td>5729</td>
</tr>
<tr>
<td>Industry (non-horticulture)</td>
<td>11</td>
<td>10</td>
<td>4370</td>
</tr>
<tr>
<td>Own business (not horticulture)</td>
<td>8</td>
<td>7</td>
<td>13086</td>
</tr>
<tr>
<td>Others</td>
<td>27</td>
<td>15</td>
<td>2500</td>
</tr>
<tr>
<td></td>
<td>124</td>
<td>95</td>
<td>5801</td>
</tr>
</tbody>
</table>

### Table 46

Income in 1952 for Graduates of Landscape Architecture Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>5</td>
<td>4</td>
<td>$4275</td>
</tr>
<tr>
<td>City planning and regional planning</td>
<td>45</td>
<td>42</td>
<td>4879</td>
</tr>
<tr>
<td>Parks and recreational planning</td>
<td>17</td>
<td>15</td>
<td>5447</td>
</tr>
<tr>
<td>Private practice</td>
<td>40</td>
<td>33</td>
<td>4809</td>
</tr>
<tr>
<td>Highway improvement planning</td>
<td>2</td>
<td>2</td>
<td>5250</td>
</tr>
<tr>
<td>Business (allied)</td>
<td>18</td>
<td>13</td>
<td>6554</td>
</tr>
<tr>
<td>Sales</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>24</td>
<td>12</td>
<td>5167</td>
</tr>
<tr>
<td></td>
<td>152</td>
<td>121</td>
<td>5125</td>
</tr>
</tbody>
</table>
### Table 47

Income in 1952 for Graduates of Agricultural Journalism Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>3</td>
<td>2</td>
<td>$7150</td>
</tr>
<tr>
<td>Advertising</td>
<td>18</td>
<td>17</td>
<td>7229</td>
</tr>
<tr>
<td>Magazine</td>
<td>14</td>
<td>11</td>
<td>7382</td>
</tr>
<tr>
<td>Radio</td>
<td>4</td>
<td>4</td>
<td>6700</td>
</tr>
<tr>
<td>Television</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Newspapers</td>
<td>10</td>
<td>10</td>
<td>6230</td>
</tr>
<tr>
<td>Information (industry)</td>
<td>4</td>
<td>4</td>
<td>6300</td>
</tr>
<tr>
<td>Information (government)</td>
<td>11</td>
<td>11</td>
<td>6027</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
<td>2</td>
<td>4400</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>7</td>
<td>3500</td>
</tr>
<tr>
<td></td>
<td>83</td>
<td>68</td>
<td>6257</td>
</tr>
</tbody>
</table>

### Table 48

Income in 1952 for Graduates of Poultry Husbandry Curriculum

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Reporting income</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>4</td>
<td>3</td>
<td>$5033</td>
</tr>
<tr>
<td>Extension</td>
<td>4</td>
<td>3</td>
<td>4600</td>
</tr>
<tr>
<td>Poultry production</td>
<td>2</td>
<td>2</td>
<td>3050</td>
</tr>
<tr>
<td>Hatchery</td>
<td>10</td>
<td>9</td>
<td>4022</td>
</tr>
<tr>
<td>Farming</td>
<td>11</td>
<td>9</td>
<td>4067</td>
</tr>
<tr>
<td>Poultry processing</td>
<td>2</td>
<td>2</td>
<td>5000</td>
</tr>
<tr>
<td>Service organization</td>
<td>4</td>
<td>4</td>
<td>4475</td>
</tr>
<tr>
<td>Industry</td>
<td>6</td>
<td>3</td>
<td>3867</td>
</tr>
<tr>
<td>Business</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>5</td>
<td>3</td>
<td>3033</td>
</tr>
<tr>
<td></td>
<td>49</td>
<td>38</td>
<td>4116</td>
</tr>
</tbody>
</table>
Table 49  
Class Level Favored for Scholarships  

<table>
<thead>
<tr>
<th>Class level</th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>946</td>
<td>26</td>
</tr>
<tr>
<td>Sophomores</td>
<td>451</td>
<td>13</td>
</tr>
<tr>
<td>Juniors</td>
<td>446</td>
<td>12</td>
</tr>
<tr>
<td>Seniors</td>
<td>162</td>
<td>5</td>
</tr>
<tr>
<td>Equally divided</td>
<td>1179</td>
<td>33</td>
</tr>
<tr>
<td>Other combinations</td>
<td>307</td>
<td>8</td>
</tr>
<tr>
<td>No response</td>
<td>102</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 50  
Attitude Toward Federally-supported Scholarships  
by Time of Graduation  

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>No response</th>
<th>Favor</th>
<th>Do not favor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>32-36</td>
<td>445</td>
<td>45</td>
<td>5</td>
<td>170</td>
</tr>
<tr>
<td></td>
<td>251</td>
<td></td>
<td>38</td>
<td>57</td>
</tr>
<tr>
<td>37-41</td>
<td>754</td>
<td>40</td>
<td>5</td>
<td>289</td>
</tr>
<tr>
<td></td>
<td>425</td>
<td></td>
<td>38</td>
<td>57</td>
</tr>
<tr>
<td>42-46</td>
<td>386</td>
<td>12</td>
<td>3</td>
<td>177</td>
</tr>
<tr>
<td></td>
<td>197</td>
<td></td>
<td>46</td>
<td>51</td>
</tr>
<tr>
<td>47-52</td>
<td>2008</td>
<td>103</td>
<td>5</td>
<td>1084</td>
</tr>
<tr>
<td></td>
<td>822</td>
<td></td>
<td>54</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>3593</td>
<td>178</td>
<td>5</td>
<td>1720</td>
</tr>
<tr>
<td></td>
<td>1695</td>
<td></td>
<td>48</td>
<td>47</td>
</tr>
</tbody>
</table>
### Table 51
**Attitude Toward Federally-supported Scholarships by Occupation**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N</th>
<th>No response</th>
<th>Favor</th>
<th>Do not favor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Education</td>
<td>470</td>
<td>27</td>
<td>6</td>
<td>286</td>
</tr>
<tr>
<td>Extension</td>
<td>175</td>
<td>6</td>
<td>3</td>
<td>85</td>
</tr>
<tr>
<td>Government service</td>
<td>470</td>
<td>28</td>
<td>6</td>
<td>222</td>
</tr>
<tr>
<td>Productive agriculture</td>
<td>702</td>
<td>28</td>
<td>4</td>
<td>319</td>
</tr>
<tr>
<td>Commercial agriculture</td>
<td>968</td>
<td>49</td>
<td>5</td>
<td>420</td>
</tr>
<tr>
<td>Commercial non-ag.</td>
<td>123</td>
<td>8</td>
<td>7</td>
<td>51</td>
</tr>
<tr>
<td>Small business</td>
<td>205</td>
<td>8</td>
<td>4</td>
<td>87</td>
</tr>
<tr>
<td>Agricultural services</td>
<td>32</td>
<td>2</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Farm organizations</td>
<td>57</td>
<td>3</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Others</td>
<td>391</td>
<td>19</td>
<td>5</td>
<td>219</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3593</td>
<td>178</td>
<td>5</td>
<td>1720</td>
</tr>
</tbody>
</table>

### Table 52
**Attitude Toward Federally-supported Scholarships by Mean Income**

<table>
<thead>
<tr>
<th>Response</th>
<th>N</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failed to respond</td>
<td>147</td>
<td>$5020</td>
</tr>
<tr>
<td>Favor</td>
<td>1507</td>
<td>4796</td>
</tr>
<tr>
<td>Do not favor</td>
<td>1461</td>
<td>5783</td>
</tr>
</tbody>
</table>
### Table 53

**Amount of Participation in Extracurricular Activities by Year**

(Percentages)

<table>
<thead>
<tr>
<th>Year</th>
<th>N*</th>
<th>Above average</th>
<th>Average</th>
<th>Below average</th>
<th>Mean rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932-36</td>
<td>445</td>
<td>27</td>
<td>44</td>
<td>29</td>
<td>.98</td>
</tr>
<tr>
<td>1937-41</td>
<td>754</td>
<td>19</td>
<td>54</td>
<td>27</td>
<td>.92</td>
</tr>
<tr>
<td>1942-46</td>
<td>386</td>
<td>22</td>
<td>51</td>
<td>23</td>
<td>.94</td>
</tr>
<tr>
<td>1947-52</td>
<td>2008</td>
<td>20</td>
<td>45</td>
<td>35</td>
<td>.86</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3593</td>
<td>21</td>
<td>48</td>
<td>31</td>
<td>.89</td>
</tr>
</tbody>
</table>

*Percentages are based on 99 per cent response.

**Mean rating was found by assigning values: above average = 2, average = 1 and below average = 0.

### Table 54

**Amount of Participation in Extracurricular Activities by Curriculum**

(Percentages)

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>N*</th>
<th>Above average</th>
<th>Average</th>
<th>Below average</th>
<th>Mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics</td>
<td>459</td>
<td>19</td>
<td>42</td>
<td>39</td>
<td>.79</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>307</td>
<td>20</td>
<td>48</td>
<td>33</td>
<td>.87</td>
</tr>
<tr>
<td>Agricultural Engineering</td>
<td>382</td>
<td>17</td>
<td>46</td>
<td>37</td>
<td>.80</td>
</tr>
<tr>
<td>Dairy Husbandry</td>
<td>109</td>
<td>21</td>
<td>62</td>
<td>17</td>
<td>1.05</td>
</tr>
<tr>
<td>Dairy Industry</td>
<td>284</td>
<td>19</td>
<td>49</td>
<td>32</td>
<td>.87</td>
</tr>
<tr>
<td>Farm Operation</td>
<td>168</td>
<td>21</td>
<td>42</td>
<td>37</td>
<td>.85</td>
</tr>
<tr>
<td>Forestry</td>
<td>592</td>
<td>14</td>
<td>49</td>
<td>37</td>
<td>.77</td>
</tr>
<tr>
<td>Horticulture</td>
<td>124</td>
<td>24</td>
<td>38</td>
<td>38</td>
<td>.86</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>152</td>
<td>14</td>
<td>61</td>
<td>25</td>
<td>.89</td>
</tr>
<tr>
<td>Poultry Husbandry</td>
<td>49</td>
<td>22</td>
<td>65</td>
<td>12</td>
<td>1.10</td>
</tr>
<tr>
<td>Agricultural Journalism</td>
<td>83</td>
<td>71</td>
<td>24</td>
<td>5</td>
<td>1.66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3593</td>
<td>21</td>
<td>48</td>
<td>31</td>
<td>.89</td>
</tr>
</tbody>
</table>

*Percentages are based on 99 per cent response.*
Table 55

Value of Time Spent in Extracurricular Activities by Year
(percentages)

<table>
<thead>
<tr>
<th>Years</th>
<th>N*</th>
<th>Well spent</th>
<th>Considerable use</th>
<th>Little use</th>
<th>Time wasted</th>
<th>Mean rating**</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-36</td>
<td>445</td>
<td>57</td>
<td>34</td>
<td>9</td>
<td>1</td>
<td>2.48</td>
</tr>
<tr>
<td>37-41</td>
<td>754</td>
<td>54</td>
<td>36</td>
<td>10</td>
<td>-</td>
<td>2.44</td>
</tr>
<tr>
<td>42-46</td>
<td>386</td>
<td>54</td>
<td>37</td>
<td>8</td>
<td>1</td>
<td>2.44</td>
</tr>
<tr>
<td>47-52</td>
<td>2008</td>
<td>50</td>
<td>37</td>
<td>12</td>
<td>1</td>
<td>2.36</td>
</tr>
<tr>
<td>Total</td>
<td>3514</td>
<td>52</td>
<td>36</td>
<td>11</td>
<td>1</td>
<td>2.39</td>
</tr>
</tbody>
</table>

*Percentages are based on 98 per cent response.

**Mean rating was found by assigning values: well spent = 3, considerable use = 2, little use = 1 and time wasted = 0.

Table 56

Value of Time Spent in Extracurricular Activities by Curriculum
(percentages)

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>N*</th>
<th>Well spent</th>
<th>Considerable use</th>
<th>Little use</th>
<th>Time wasted</th>
<th>Mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag. Economics</td>
<td>202</td>
<td>54</td>
<td>35</td>
<td>10</td>
<td>1</td>
<td>2.42</td>
</tr>
<tr>
<td>Ag. Education</td>
<td>459</td>
<td>50</td>
<td>36</td>
<td>13</td>
<td>1</td>
<td>2.35</td>
</tr>
<tr>
<td>Ag. Engineering</td>
<td>307</td>
<td>50</td>
<td>39</td>
<td>10</td>
<td>1</td>
<td>2.38</td>
</tr>
<tr>
<td>Agronomy</td>
<td>322</td>
<td>52</td>
<td>36</td>
<td>11</td>
<td>1</td>
<td>2.39</td>
</tr>
<tr>
<td>Animal Husbandry</td>
<td>682</td>
<td>55</td>
<td>37</td>
<td>8</td>
<td>1</td>
<td>2.37</td>
</tr>
<tr>
<td>Dairy Husbandry</td>
<td>109</td>
<td>61</td>
<td>33</td>
<td>6</td>
<td>1</td>
<td>2.55</td>
</tr>
<tr>
<td>Dairy Industry</td>
<td>284</td>
<td>51</td>
<td>38</td>
<td>10</td>
<td>1</td>
<td>2.39</td>
</tr>
<tr>
<td>Farm Operations</td>
<td>168</td>
<td>50</td>
<td>38</td>
<td>12</td>
<td>1</td>
<td>2.38</td>
</tr>
<tr>
<td>Forestry</td>
<td>592</td>
<td>48</td>
<td>35</td>
<td>17</td>
<td>1</td>
<td>2.31</td>
</tr>
<tr>
<td>Horticulture</td>
<td>124</td>
<td>48</td>
<td>37</td>
<td>15</td>
<td>0</td>
<td>2.33</td>
</tr>
<tr>
<td>Land. Arch.</td>
<td>152</td>
<td>46</td>
<td>42</td>
<td>12</td>
<td>0</td>
<td>2.34</td>
</tr>
<tr>
<td>Poultry Husbandry</td>
<td>49</td>
<td>57</td>
<td>36</td>
<td>6</td>
<td>0</td>
<td>2.49</td>
</tr>
<tr>
<td>Ag. Journalism</td>
<td>83</td>
<td>77</td>
<td>23</td>
<td>0</td>
<td>0</td>
<td>3.10</td>
</tr>
<tr>
<td>Total</td>
<td>3593</td>
<td>52</td>
<td>36</td>
<td>11</td>
<td>1</td>
<td>2.39</td>
</tr>
</tbody>
</table>

*Percentages are based on 98 per cent response.
Table 57
Value of Time Spent in Extracurricular Activities by Occupation (percentages)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N*</th>
<th>Well spent</th>
<th>Considerable use</th>
<th>Little use</th>
<th>Time wasted</th>
<th>Mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>470</td>
<td>47</td>
<td>39</td>
<td>14</td>
<td></td>
<td>2.33</td>
</tr>
<tr>
<td>Extension</td>
<td>175</td>
<td>60</td>
<td>35</td>
<td>5</td>
<td>0</td>
<td>2.57</td>
</tr>
<tr>
<td>Government service</td>
<td>470</td>
<td>47</td>
<td>38</td>
<td>15</td>
<td></td>
<td>2.32</td>
</tr>
<tr>
<td>Productive ag.</td>
<td>702</td>
<td>51</td>
<td>39</td>
<td>10</td>
<td></td>
<td>2.41</td>
</tr>
<tr>
<td>Commercial ag.</td>
<td>968</td>
<td>56</td>
<td>32</td>
<td>11</td>
<td>1</td>
<td>2.43</td>
</tr>
<tr>
<td>Commercial non-ag.</td>
<td>123</td>
<td>53</td>
<td>32</td>
<td>14</td>
<td>1</td>
<td>2.37</td>
</tr>
<tr>
<td>Small business</td>
<td>205</td>
<td>52</td>
<td>37</td>
<td>10</td>
<td>1</td>
<td>2.40</td>
</tr>
<tr>
<td>Services</td>
<td>32</td>
<td>40</td>
<td>53</td>
<td>7</td>
<td>0</td>
<td>2.33</td>
</tr>
<tr>
<td>Non-profit organ.</td>
<td>57</td>
<td>55</td>
<td>32</td>
<td>11</td>
<td>2</td>
<td>2.40</td>
</tr>
<tr>
<td>Others</td>
<td>391</td>
<td>53</td>
<td>39</td>
<td>8</td>
<td></td>
<td>2.45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3593</td>
<td>52</td>
<td>36</td>
<td>11</td>
<td>1</td>
<td>2.39</td>
</tr>
</tbody>
</table>

*Percentages are based on 98 per cent response.

Table 58
Value of Counselor by Year (percentages)

<table>
<thead>
<tr>
<th>Year</th>
<th>N*</th>
<th>Great value</th>
<th>Quite helpful</th>
<th>Some assist.</th>
<th>Little assist.</th>
<th>Not helpful at all</th>
<th>Mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932-36</td>
<td>445</td>
<td>16</td>
<td>30</td>
<td>30</td>
<td>16</td>
<td>8</td>
<td>2.30</td>
</tr>
<tr>
<td>1937-41</td>
<td>754</td>
<td>17</td>
<td>34</td>
<td>28</td>
<td>16</td>
<td>5</td>
<td>2.42</td>
</tr>
<tr>
<td>1942-46</td>
<td>386</td>
<td>16</td>
<td>30</td>
<td>34</td>
<td>16</td>
<td>4</td>
<td>2.36</td>
</tr>
<tr>
<td>1947-52</td>
<td>2008</td>
<td>13</td>
<td>33</td>
<td>35</td>
<td>15</td>
<td>4</td>
<td>2.38</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3593</td>
<td>15</td>
<td>32</td>
<td>33</td>
<td>16</td>
<td>4</td>
<td>2.38</td>
</tr>
</tbody>
</table>

*Percentages are based on 99 per cent response.
Table 59
Value of Counselor and Curriculum (percentages)

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>N*</th>
<th>Great value</th>
<th>Quite helpful</th>
<th>Some assist.</th>
<th>Little assist.</th>
<th>Not helpful at all</th>
<th>Mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag. Economics</td>
<td>202</td>
<td>16</td>
<td>26</td>
<td>36</td>
<td>17</td>
<td>5</td>
<td>2.31</td>
</tr>
<tr>
<td>Ag. Education</td>
<td>459</td>
<td>14</td>
<td>35</td>
<td>35</td>
<td>14</td>
<td>2</td>
<td>2.45</td>
</tr>
<tr>
<td>Ag. Engr.</td>
<td>307</td>
<td>7</td>
<td>28</td>
<td>37</td>
<td>22</td>
<td>6</td>
<td>2.08</td>
</tr>
<tr>
<td>Agronomy</td>
<td>382</td>
<td>20</td>
<td>33</td>
<td>29</td>
<td>11</td>
<td>2</td>
<td>2.63</td>
</tr>
<tr>
<td>Animal Husb.</td>
<td>682</td>
<td>14</td>
<td>35</td>
<td>34</td>
<td>13</td>
<td>4</td>
<td>2.42</td>
</tr>
<tr>
<td>Dairy Husb.</td>
<td>109</td>
<td>12</td>
<td>41</td>
<td>29</td>
<td>13</td>
<td>5</td>
<td>2.42</td>
</tr>
<tr>
<td>Dairy Ind.</td>
<td>284</td>
<td>20</td>
<td>29</td>
<td>28</td>
<td>16</td>
<td>7</td>
<td>2.39</td>
</tr>
<tr>
<td>Farm Oper.</td>
<td>168</td>
<td>17</td>
<td>41</td>
<td>31</td>
<td>9</td>
<td>2</td>
<td>2.62</td>
</tr>
<tr>
<td>Forestry</td>
<td>592</td>
<td>16</td>
<td>32</td>
<td>32</td>
<td>16</td>
<td>4</td>
<td>2.40</td>
</tr>
<tr>
<td>Horticulture</td>
<td>124</td>
<td>10</td>
<td>25</td>
<td>28</td>
<td>28</td>
<td>9</td>
<td>1.99</td>
</tr>
<tr>
<td>Land. Arch.</td>
<td>152</td>
<td>5</td>
<td>24</td>
<td>41</td>
<td>22</td>
<td>8</td>
<td>2.28</td>
</tr>
<tr>
<td>Poultry Husb.</td>
<td>49</td>
<td>14</td>
<td>33</td>
<td>33</td>
<td>18</td>
<td>2</td>
<td>2.39</td>
</tr>
<tr>
<td>Ag. Journ.</td>
<td>83</td>
<td>14</td>
<td>23</td>
<td>36</td>
<td>22</td>
<td>5</td>
<td>2.19</td>
</tr>
<tr>
<td>Total</td>
<td>3593</td>
<td>15</td>
<td>32</td>
<td>33</td>
<td>16</td>
<td>4</td>
<td>2.38</td>
</tr>
</tbody>
</table>

*Percentages are based on 99 per cent response.

Table 60
Class Days Per Week by Years (percentages)

<table>
<thead>
<tr>
<th>Years</th>
<th>N*</th>
<th>Days recommended</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>1932-36</td>
<td>445</td>
<td>23</td>
<td>63</td>
</tr>
<tr>
<td>1937-41</td>
<td>754</td>
<td>24</td>
<td>62</td>
</tr>
<tr>
<td>1942-46</td>
<td>386</td>
<td>26</td>
<td>61</td>
</tr>
<tr>
<td>1947-52</td>
<td>2008</td>
<td>33</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>3593</td>
<td>29</td>
<td>56</td>
</tr>
</tbody>
</table>

*Percentages are based on 99 per cent response.
Table 61
Class Days Per Week by Occupation
(percentages)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N*</th>
<th>5</th>
<th>6</th>
<th>5 or 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>470</td>
<td>33</td>
<td>50</td>
<td>17</td>
</tr>
<tr>
<td>Extension</td>
<td>175</td>
<td>29</td>
<td>56</td>
<td>15</td>
</tr>
<tr>
<td>Government service</td>
<td>470</td>
<td>36</td>
<td>49</td>
<td>15</td>
</tr>
<tr>
<td>Productive agriculture</td>
<td>702</td>
<td>19</td>
<td>69</td>
<td>12</td>
</tr>
<tr>
<td>Commercial agriculture</td>
<td>968</td>
<td>30</td>
<td>55</td>
<td>15</td>
</tr>
<tr>
<td>Commercial non-agriculture</td>
<td>123</td>
<td>32</td>
<td>50</td>
<td>18</td>
</tr>
<tr>
<td>Small business</td>
<td>205</td>
<td>24</td>
<td>58</td>
<td>18</td>
</tr>
<tr>
<td>Services</td>
<td>32</td>
<td>16</td>
<td>75</td>
<td>9</td>
</tr>
<tr>
<td>Non-profit organizations</td>
<td>57</td>
<td>25</td>
<td>58</td>
<td>17</td>
</tr>
<tr>
<td>Others</td>
<td>391</td>
<td>38</td>
<td>50</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>3593</td>
<td>29</td>
<td>56</td>
<td>15</td>
</tr>
</tbody>
</table>

*Percentages are based on 99 per cent response.

Table 62
Days of Class Per Week by Income

<table>
<thead>
<tr>
<th>Days</th>
<th>N</th>
<th>Mean income</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>886</td>
<td>$4889</td>
</tr>
<tr>
<td>6</td>
<td>1779</td>
<td>5494</td>
</tr>
<tr>
<td>5 or 6</td>
<td>428</td>
<td>5026</td>
</tr>
<tr>
<td>Total</td>
<td>3093</td>
<td>5256</td>
</tr>
</tbody>
</table>
Table 63

Recommended Changes in Emphasis on Subject Fields by Year
(Percentages)

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Communications</th>
<th>Natural Science</th>
<th>Social Science</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>+* 0 -</td>
<td>+ 0 -</td>
<td>+ 0 -</td>
</tr>
<tr>
<td>1932-36</td>
<td>445</td>
<td>59 40 1</td>
<td>16 75 9</td>
<td>38 53 9</td>
</tr>
<tr>
<td>1937-41</td>
<td>754</td>
<td>57 41 2</td>
<td>14 72 14</td>
<td>35 56 9</td>
</tr>
<tr>
<td>1942-46</td>
<td>386</td>
<td>52 47 1</td>
<td>14 70 16</td>
<td>37 51 12</td>
</tr>
<tr>
<td>1947-52</td>
<td>2008</td>
<td>50 48 2</td>
<td>16 71 13</td>
<td>33 57 10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3593</td>
<td>52 46 2</td>
<td>15 71 14</td>
<td>34 56 10</td>
</tr>
</tbody>
</table>

* + = increase emphasis
0 = same emphasis
- = decrease emphasis.
<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Communications</th>
<th>Natural science</th>
<th>Social science</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Agricultural Economics (202)</td>
<td>60</td>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Education (459)</td>
<td>42</td>
<td>56</td>
<td>2</td>
</tr>
<tr>
<td>Agricultural Engineering (307)</td>
<td>54</td>
<td>46</td>
<td>0</td>
</tr>
<tr>
<td>Agronomy (382)</td>
<td>51</td>
<td>47</td>
<td>2</td>
</tr>
<tr>
<td>Animal Husbandry (682)</td>
<td>46</td>
<td>53</td>
<td>1</td>
</tr>
<tr>
<td>Dairy Husbandry (109)</td>
<td>51</td>
<td>46</td>
<td>3</td>
</tr>
<tr>
<td>Dairy Industry (284)</td>
<td>56</td>
<td>43</td>
<td>1</td>
</tr>
<tr>
<td>Farm Operations (168)</td>
<td>43</td>
<td>53</td>
<td>4</td>
</tr>
<tr>
<td>Forestry (592)</td>
<td>65</td>
<td>34</td>
<td>1</td>
</tr>
<tr>
<td>Horticulture (124)</td>
<td>56</td>
<td>42</td>
<td>2</td>
</tr>
<tr>
<td>Landscape Architecture (152)</td>
<td>60</td>
<td>39</td>
<td>1</td>
</tr>
<tr>
<td>Poultry Husbandry (49)</td>
<td>35</td>
<td>63</td>
<td>2</td>
</tr>
<tr>
<td>Agricultural Journalism (83)</td>
<td>66</td>
<td>33</td>
<td>1</td>
</tr>
<tr>
<td>Total (3593)</td>
<td>52</td>
<td>46</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 65

Recommended Changes in Emphasis on Subject Fields by Occupation (percentages)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N</th>
<th>Communications</th>
<th>Natural science</th>
<th>Social science</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>+ 0 -</td>
<td>+ 0 -</td>
<td>+ 0 -</td>
</tr>
<tr>
<td>Education</td>
<td>470</td>
<td>43 57 0 23 63 14</td>
<td>26 61 13</td>
<td></td>
</tr>
<tr>
<td>Extension</td>
<td>175</td>
<td>59 39 2 14 70 16</td>
<td>34 50 6</td>
<td></td>
</tr>
<tr>
<td>Government service</td>
<td>470</td>
<td>60 39 1 15 76 9 35 54 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productive agriculture</td>
<td>702</td>
<td>39 57 4 14 69 17</td>
<td>33 55 12</td>
<td></td>
</tr>
<tr>
<td>Commercial agriculture</td>
<td>968</td>
<td>62 37 1 12 76 12</td>
<td>37 54 9</td>
<td></td>
</tr>
<tr>
<td>Commercial non-agriculture</td>
<td>123</td>
<td>54 45 1 15 67 18</td>
<td>45 48 7</td>
<td></td>
</tr>
<tr>
<td>Small business</td>
<td>205</td>
<td>54 44 2 10 75 15</td>
<td>40 53 7</td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>32</td>
<td>63 37 0 31 63 6 28 59 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-profit organization</td>
<td>57</td>
<td>60 37 3 7 70 23</td>
<td>51 40 9</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>391</td>
<td>50 49 11 21 68 11</td>
<td>32 58 9</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3593</td>
<td>52 46 2 15 71 14</td>
<td>34 56 10</td>
<td></td>
</tr>
</tbody>
</table>

Table 66

Recommended Changes in Emphasis on Subject Fields by Advanced Degree (percentages)

<table>
<thead>
<tr>
<th>Level of education</th>
<th>N</th>
<th>Communications</th>
<th>Natural science</th>
<th>Social science</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>+ 0 -</td>
<td>+ 0 -</td>
<td>+ 0 -</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>392</td>
<td>62 37 1 26 63 11</td>
<td>33 54 13</td>
<td></td>
</tr>
<tr>
<td>B.S. degree only</td>
<td>3201</td>
<td>51 47 2 14 72 11</td>
<td>34 56 10</td>
<td></td>
</tr>
</tbody>
</table>
Table 67

Emphasis on Activities at Iowa State College
(Percentage based on 96 per cent response)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Too much</th>
<th>About right</th>
<th>Too little</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercollegiate football*</td>
<td>5</td>
<td>59</td>
<td>26</td>
<td>10</td>
</tr>
<tr>
<td>Other intercollegiate</td>
<td>2</td>
<td>67</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>athletics*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intramural athletics</td>
<td>2</td>
<td>80</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Social activities</td>
<td>5</td>
<td>79</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Veishea</td>
<td>16</td>
<td>80</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Religious activities</td>
<td>1</td>
<td>64</td>
<td>31</td>
<td>4</td>
</tr>
<tr>
<td>Judging teams</td>
<td>9</td>
<td>64</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Music</td>
<td>1</td>
<td>55</td>
<td>26</td>
<td>18</td>
</tr>
<tr>
<td>Departmental clubs</td>
<td>3</td>
<td>68</td>
<td>24</td>
<td>5</td>
</tr>
</tbody>
</table>

*Opinions concerning current emphasis on intercollegiate football and other intercollegiate athletics were requested. However, opinions concerning emphasis placed while graduate was in college were requested for all other activities.