

Small organizations, societies, or users groups are often organized for owners of various microcomputer systems. Among the goals of such organizations are to facilitate communication among members, to facilitate exchange of software, to obtain feedback from users regarding the hardware. Manufacturers and dealers can provide details on such organizations. Two examples are provided below:

*Sol Users Society (SOLUS)* is an organization for owners of Processor Technology Sol Computers and owners of similar computers (8080 and Z-80 Microcomputers). SOLUX, Box 23471, San Jose, CA 95153.

*CompuColor Users Group* - for the owners of the 8001 system. Membership/\$10. CompuColor Users Group, c/o C.P. Electronics, 5250 Van Nuys Blvd., Van Nuys, CA 91401.

### Clubs

There are many computer clubs or societies throughout the country, but space does not permit us to list them all. As mentioned previously, the Grosswirth's book lists 125 of them. Some of the periodicals also contain information about the activities of these clubs. The same source (Grosswirth) lists 262 dealers and computer stores in U.S. and Canada. You can also look them up in the yellow pages.

Another source providing a list of computer clubs and computer stores is: Bunnell, David. 1978. *Personal Computing: A Beginner's Guide*. New York: Hawthorn. 208 pages. \$11.95.

### Conferences

*National Educational Computing Conference*. University of Iowa, Iowa City, June 25-27, 1979.

*The 1979 National Computer Conference* organizes Personal Computing Festival - New York City, June 4-7, 1979.

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# Graduate Study in Agriculture At Non-Land Grant, State Supported Universities

Elmer Gray  
Abstract

*During the 1978-79 academic year agricultural graduate programs at non-Land Grant universities were reviewed. Graduate programs were identified at 31 universities in 11 states. Graduate enrollments have averaged approximately 1500 during the past three years. Approximately 450 graduate degrees are awarded annually. Most agricultural graduate degrees offered by non-Land Grant universities are at the master's level. The most common degree is the Master of Science with a major in agriculture. Although the programs vary among universities, the typical graduate program is offered by a department of agriculture within a college of science; is based upon general agriculture; includes a thesis option; serves graduates of the same as well as other institutions; is not unique when compared with other degree programs within the state; is supported by fewer than six assistantships; and is reported to be growing. The outlook for development of agricultural graduate programs at non-Land Grant universities was described as fair to excellent by most survey respondents.*

The Morrill, or Land-Grant, Act of 1862 provided the original financial support for the creation and maintenance of colleges of agriculture and mechanical arts. This Act and subsequent federal enactments have provided each state with annual federal grants to support a Land Grant institution and its tripartite function of teaching, research, and extension.<sup>1</sup> In addition, several states have provided public financial support for agricultural and related programs through one or more non-Land Grant institutions. The non-Land Grant, state supported programs have been directed more toward teaching than toward either of the other two functions of the Land Grant institution. Since the non-Land Grant institutions have received less support for research, their primary emphasis has been on undergraduate rather than graduate teaching, where research training is more critical.

The objective of the present study was to ascertain the extent of the development of graduate agricultural programs at the non-Land Grant, state supported universities.

### Procedure

Universities offering graduate study in agriculture were identified from the NACTA 1978 **Directory of Post-Secondary U.S. Institutions with Programs in Agriculture**<sup>2</sup> and from NACTA published<sup>3, 4</sup> and unpublished<sup>5</sup> enrollment reports. Statistical data on graduate enrollment and degrees awarded were obtained from unpublished reports by J. C. Dollahon.<sup>5</sup> Information on program characteristics was obtained from each university's graduate bulletin and from results of a survey of administrative heads of units offering graduate programs. Below is a copy of the survey.

#### SURVEY

Agricultural Graduate Programs  
at

Non-Land Grant Colleges and Universities

Institution \_\_\_\_\_ State \_\_\_\_\_

Number of different graduate degree programs in Agriculture \_\_\_\_\_

The following information is needed for each graduate agricultural program.

1. Name of degree: (Examples: M.S., Ph.D.) \_\_\_\_\_
2. Program area options: (Examples: animal science, plant science)  
\_\_\_\_\_
3. Program orientation: \_\_\_\_\_ Teaching, \_\_\_\_\_ Research, \_\_\_\_\_ Public Service,  
\_\_\_\_\_ Other (please explain) \_\_\_\_\_
4. Breadth of program:  
\_\_\_\_\_ Single discipline within agriculture  
\_\_\_\_\_ Two or three disciplines within agriculture  
\_\_\_\_\_ General agriculture (several disciplines within agriculture)  
\_\_\_\_\_ Interdisciplinary (involving disciplines outside agriculture)
5. Thesis: \_\_\_\_\_ Required, \_\_\_\_\_ Optional, \_\_\_\_\_ None
6. Degree is considered as: \_\_\_\_\_ Intermediate, \_\_\_\_\_ Terminal

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7. Degree program mainly serves graduates of: (check one or more)
  - This institution
  - Other institutions of this State
  - Other states and foreign
  - All of the above
8. Program enrollment (Fall, 1978):  Full-time,  Part-time,  Total.
9. Degree program is unique within the State:  Yes,  No  
If yes, please annotate: \_\_\_\_\_
10. Graduate assistantships associated with this program are:  More than six,  Fewer than six,  None
11. Program is best described as:  Growing,  Stable,  Diminishing
12. General outlook for development of agricultural graduate programs at Non-Land Grant colleges and universities is seen as:  Excellent,  Fair,  Poor
13. Comments: \_\_\_\_\_

THANK YOU

## Results

Thirty one non-Land Grant, state supported universities were identified as offering graduate programs in agriculture and/or natural resources. Enrollment and degrees granted data were obtained for each of the 31 universities, completed surveys were returned from 21 universities, and graduate catalogs were obtained from 29 of the universities.

### Enrollment and degrees granted

Graduate enrollment and degrees granted data are presented in Table 1. Graduate enrollments have averaged approximately 1500 during the past three years. Texas Tech University and California State University-Fresno have the largest institutional enrollments. The 31 universities offering graduate programs are located within 11 states. Combined enrollments for the universities in Texas and in California account for approximately 37 and 25 percent of the total, respectively. Illinois and Wisconsin each contribute about 10 percent of the total enrollment.

The number of agricultural graduate degrees awarded by the non-Land Grant universities has averaged approximately 450 per year for the most recent three years. Institutional and state contributions to degrees awarded reflect the enrollment patterns.

For the purpose of comparison, bachelors programs in agriculture and/or natural resources have been identified at 51 non-Land Grant, state supported universities in 16 states. During the most recent three years, enrollments have averaged near 29,000, and degrees awarded have averaged near 4,700.<sup>5</sup>

### Administrative arrangement

The departmental units offering graduate programs in agriculture and/or natural resources are diversely arranged within divisions, schools, and colleges. The programs are identified at the college level — colleges of agriculture, environmental science, or natural resources — in at least seven universities. A comparable number of programs are identified at the school level, e.g., schools

of agriculture, natural resources, or agriculture and home economics. Most of the single-department programs are located in colleges of science and technology.

### Graduate degrees, programs, and options

Only a few of the non-Land Grant universities offer doctoral level graduate programs in agriculture or natural resources. Texas Tech offers a Ph.D. program with options in agricultural economics, agronomy, animal science, and range management. At Southern Illinois, students interested in agricultural education or agricultural economics may enroll in doctoral programs in education or economics. The University of Montana offers a doctoral program in forestry, but offers no graduate programs in agriculture. In 1977-78, the programs at the University of Montana and Texas Tech produced two and five doctoral degrees, respectively (Table 1).

Some of the universities with graduate programs in agricultural education offer the Education Specialist Degree — an intermediate degree between the masters and the doctorate. The specialist degree programs combine coursework in agriculture and education.

Most of the agricultural graduate degrees offered by non-Land Grant universities are at the master's level. The predominant degree is the Master of Science (M.S.) with a major in agriculture. This degree is used for one or more programs by approximately two-thirds of the universities. The Master of Arts (M.A.) with a major in agriculture is offered by four of the universities. The 11 master's level programs which were identified in agricultural education were subsumed under 7 different degree titles: Master of Science (M.S.T.) and Master of Arts in Teaching (M.A.T.). Master of Science (M.S.E.) and Master of Arts in Education (M.A.E.), Master of Education (M.E.), Master of Science in Vocational Education, and Master of Vocational-Technical Education.

It is difficult to determine whether particular offerings should be classified as degree programs or as options within degree programs. The non-Land Grant universities are using some 15 different agricultural degrees to offer approximately 50 degree programs and 120 options.

### Program characteristics

Survey responses and graduate catalog information indicated that program orientation was about equally directed toward three areas — teaching, research, and public service. Several individual master's level programs have broad orientation including two or even all three of the areas. Generally, orientation of education programs toward the teaching area was counter balanced by greater orientation of the Master of Science programs toward research and public service. Public service programs included those providing preparation for employment in both governmental and private agencies.

Table 1. Graduate Enrollments and Degrees Granted in Agricultural and/or Natural Resource Management at 4-year State Supported Non-Land Grant Universities.<sup>1</sup>

University	Graduate Enrollment			Graduate Degrees		
	76-77	77-78	78-79	75-76	76-77	77-78
Arizona State University	64	76	60	12	8	17
Arkansas State Univ.-Jonesboro	4	7	25	2	10	3
California State Univ.-Humbolt	0	94	114	0	21	24
California State Univ.-Chico	16	40	19	4	7	9
California State Univ.-Fresno	153	200	155	22	51	37
Calif. Poly. State Univ.-Pomona	4	11	8	0	0	0
Calif. Poly. State Univ.- San Luis Obispo	119	104	93	68	50	58
Southern Illinois University	114	108	106	47	48	44
Western Illinois University	10	10	7	0	0	0
Illinois State University	11	12	13	0	0	0
Ball State University-Indiana	20	25	43	8	7	5
Western Kentucky University	30	30	29	7	18	15
Morehead State University-Kentucky	35	17	40	0	4	2
Murray State University-Kentucky	32	31	46	17	9	12
Northwest Missouri State University	18	20	24	6	6	10
Central Missouri State University	58	12	8	6	3	2
University of Montana	61	30	27	18	13	14a
Middle Tennessee State University	18	15	0	0	0	0
Angelo State University-Texas	0	2	14	0	0	0
Sul Ross State University-Texas	11	18	23	11	4	4
West Texas State University	32	49	47	7	15	13
East Texas State University	82	80	39	21	24	13
Sam Houston State Univ.-Texas	73	60	65	22	24	22
Texas A & I University	45	47	61	24	33	34
Texas Tech University	156	182	177	41	35	53a
Stephen Austin State Univ.-Texas	88	86	74	12	23	16
Southwest Texas State University	0	66	15	0	0	1
Tarleton State University-Texas	60	47	54	24	27	21
Univ. of Wisconsin-Platteville	19	16	25	9	7	9
Univ. of Wisconsin-River Falls	24	26	71	9	11	13
Univ. of Wisconsin-Stevens Point	71	63	55	18	19	13
TOTALS	1428	1594	1537	415	477	464

1. Enrollment and degree data were provided by Dr. J. C. Dollahon, Dean, College of Agriculture, University of Wisconsin-River Falls.

a. The graduate degrees awarded in 1977-78 by the University of Montana and Texas Tech University included 2 and 5 Ph.D.'s, respectively.

The breadth of graduate programs varied considerably. Approximately 40 percent of the programs were based upon general agriculture, 20 percent were based upon two or three disciplines within agriculture, 20 percent were restricted to a single discipline within agriculture, and 20 percent were interdisciplinary. The interdisciplinary programs included coursework from disciplines such as physiology, natural resource management, business administration, business management, economics, and public administration.

Of the master's level programs, approximately 55 percent included the thesis as an option, 30 percent required the thesis, and 15 percent did not include a thesis. Most of the programs which excluded the thesis were oriented toward public service.

Master's level programs serve a dual role of preparation for a job (terminal) and preparation for advanced graduate study (intermediate). In the present study the numbers of programs described as terminal and as intermediate were essentially equal. Several individual programs were described as both terminal and intermediate.

Although graduate agricultural programs in a few of the non-Land Grant universities enrolled mainly

graduates of the same university or other institutions of the same state, the majority of the programs also enrolled students from other states and foreign countries.

According to the survey results, most of the degree programs were not considered unique when compared with programs at other non-Land Grant or Land Grant universities within the state. However, there were nine programs described as unique because of their interdisciplinary characteristics, clientele serviced, or particular emphasis. For example, California Polytechnic State University-San Luis Obispo offers a program in mechanized agriculture to meet the expressed needs of high school and community college teachers in California. Western Kentucky University offers a Master of Public Service program with an emphasis in agriculture as preparation for employment in the agricultural services.

Survey responses for graduate assistantship support were obtained for 36 programs. The responses showed that 12 programs had 6 or more assistantships, 17 programs had fewer than 6 assistantships, and 7 programs had no assistantship support.

### Present status and future outlook

With reference to the present status and future outlook for agricultural graduate programs at non-Land Grant universities, survey results were obtained from 21 universities on 36 programs. The current status was described as growing for 21, stable for 13, and diminishing for 2 programs. The general outlook for development of graduate agricultural programs at non-Land Grant universities was rated as excellent by 8 respondents, fair by 12, and poor by 1. The lack of financial support for research was suggested as the major hindrance to graduate program development.

### Discussion

The objective of the present study was to determine the extent of development of graduate agricultural programs at non-Land Grant, state supported universities. The significance of these graduate programs is evidenced by the findings that they are being offered by at least 31 universities in 11 states, resulting in approximately 1500 student enrollments and 450 graduates annually.

Development of graduate agricultural programs at non-Land Grant public universities could be characterized as embryonic. The programs tend to be broadly based in agriculture and to have rather comprehensive objectives. Most of the degree programs are offered at the master's rather than doctoral level. Several graduate agricultural programs are administered by a department of agriculture within a college of applied science. Most programs are characterized by low enrollments and limited assistantship support.

Essentially all the graduate agricultural programs were reported to be growing. The outlook for development of agricultural graduate programs at non-Land Grant, publicly supported universities was rated fair to excellent by most respondents. Although survey respondents were not requested to suggest possible directions of future development, results of the study support some speculations.

The flexibility provided by the master's degree as a terminal program for job preparation and as an intermediate step for continued graduate study will likely be conducive to further development of master's level programs. This same flexibility can be used to develop interdisciplinary programs, thereby providing the preparation needed for new job opportunities. As examples, Northwest Missouri State University offers the Master of Business Administration with an area in agricultural economics for students who are interested in the business aspects of agriculture, and Ball State University offers interdisciplinary master's level programs in natural resources for students who are interested in environmental science.

The greater cost of doctoral programs and the general impression on the part of the public that there is a surplus of doctorates will stymie future growth of doctoral programs. Development of doctoral programs in

agriculture at non-Land Grant universities will be further impeded by the presence of the federally supported Land Grant agricultural program within each state.

Development of agricultural programs at non-Land Grant universities in the areas of research and public service will likely be slower than in the area of teaching. The costs associated with research and public service programs are becoming more prohibitive in view of inflation, concern about higher taxes, and the scarcity of grant funds. In addition to the established services provided for teachers, non-Land Grant universities have the opportunity of providing educational programs to part-time students who are employed by various private and public agricultural agencies. The flexibility in breadth of program and in the thesis requirement will appeal to part-time students. However, program offerings must be made available at times and places accessible to the students.

### Acknowledgements

The author is grateful to the respondents who completed the survey, to the graduate deans who provided copies of graduate bulletins, and to Dr. J. C. Dollahon who shared the enrollment and degrees granted data.

### References

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