AGRICULTURAL EDUCATION PROGRAMS FOR FEWER FARMS

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A great new phase in the development of educational programs in agriculture is just appearing on the horizon which will bring changes in directions that are least expected. The clue to this development is given by a simple chart showing the number of farms listed in census records. (Figure 1)

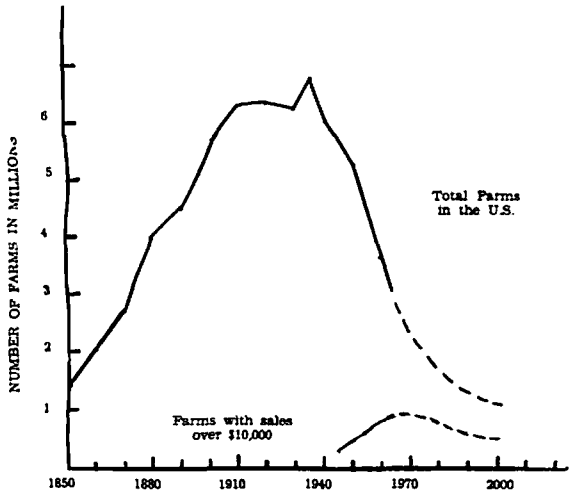

Figure 1. Number of farms in the United States 1850-1964 with projections to 2000.

The anticipated changes can best be presented as a logical next step in the development of the agricultural industry. With this in mind consider once again American agriculture in its historical setting.

The years from 1850 to 1920 represent years of growth of a great agricultural nation. During these years much of the western part of the United States was settled, developed and brought into production. At the same time, sparsely settled areas in the East were brought into more intensive use. The early development of the U.S. was largely agricultural as shown by increasing numbers of farms. As late as 1890, only 36 per cent of the nation's population was listed as urban. By 1910 this figure had grown to 46.3 per cent and by 1920, 51.4 per cent of the nation's population was living in urban areas. It is interesting to note that in this same year the number of farms in the United States began a downward trend.

Almost before this downward trend became evident, there was a brief upswing in farm numbers in the middle thirties. It appears that an extra half million farms were organized and operated on somewhat of a survival basis during the difficult depression years.

The change from a predominately rural to a predominately urban society in the United States was preceded by a shift in the job opportunities for agricultural and non-agricultural workers. In 1850 there were less than a million people employed in non-farm work compared with approximately five million workers on farms. By 1880 this picture had changed. In that year approximately eight and one-half million workers were employed on farms and a little more than this number were employed in other industries. Although employment on farms grew to about 11.5 million during the next three decades, the non-farm employment increased much more rapidly, and the nation's employment became predominantly industrial.

A decline in number of workers on farms in the United States began about 1920 and has continued up to the present time. Data for 1967 show approximately 69 million non-farm workers in the United States compared to 3.4 million farm workers.

This is less than 5 per cent of the total working force devoted to agricultural production. This is an amazing statistic but even this figure will decline according to the trend indicated by changing farm numbers.

Another interesting commentary on the development of agriculture over this period is that there was very little change in productivity or yield up to about 1930. For example, the per acre yields of corn in the United States were just as good in the period 1865 to 1875 as they were in the period from 1920 to 1930. Beginning about the same time as the decline in number of farms, however, there was an intensification in production practices and an application of results of scientific research which has completely changed the face of the agricultural industry. In contrast to the earlier period, this new picture in agriculture includes mechanization, wide spread and liberal use of agricultural chemicals, improved varieties of crops, improvement of breeds of livestock, new concepts in nutrition and feeding practices, new understanding and treatment of plant and animal diseases, with the application of all these developments made possible through the growth of agricultural service industries and use of agricultural credit.

In spite of recent advancements in application of the discoveries of science to agricultural production and the resulting increase of labor efficiency, the decline in farm numbers at a rate of more than 100,000 per year for more than thirty years has caused great concern to many people. This is especially true of those who would like to preserve rural America as they remember it. The extrapolation of present trends, however, point to a time in the near future when there may be only a little more than a million farms in the United States with only about half of these having any significance in commercial agricultural production.

Will this really happen? In my opinion it will. Annual net farm income for the United States stands at about 15 billion dollars and has shown no positive upward trend for the last twenty years although gross farm sales have increased by approximately 80 per cent. Most recent census data show declines in numbers of farms in every size class except those having sales of over 20,000 per year. Even farms with sales of $10,000 to $20,000 per year which formerly were growing in numbers are now declining.

All of this has a special meaning for those directing agricultural education programs. Incongruous as it may seem, it points to a greatly increased demand for college training in agriculture. To explain further, the demand for young men and women well prepared in the agricultural sciences will continue as before; the demand for well prepared young men to work in agricultural service industries and agriculture-related businesses will also continue strong; but in addition there will be a steadily increasing demand for those prepared to work in production and management.

In the past, approximately 10 per cent of graduates from U.S. Agricultural Colleges have found employment in production and management phases of the industry. In numbers this would be less than 1,000 per year.

If present trends continue, the bulk of agricultural production will come from approximately one-half million large commercial farms with average net incomes of $25,000 to $30,000 per year. As this develops there will be a new market for farm managers and for specialists in agricultural production technology.

To get an idea of the magnitude of the possible demand for college graduates that these large commercial farms may have, let us assume that there would be a place for at

least one manager or specialist for every production unit. This one might be an owner-operator, or employee such as manager, foreman, herdsman, or other specialist depending on the organization. If we further assume a tenure of 30 years, we arrive at a figure of approximately 17,000 new positions annually.

The total U.S. production of bachelor's degrees in agriculture at the present time is only about 8,000 annually.

Will the large commercial farms of the future create such a demand for college training? It is entirely possible that they will. It would mean that approximately one person out of every six or seven working on farms would be college trained. If the demand amounts to only one-half to one-quarter of this number, the impact will be tremendous.

The steady decline in farm numbers, the continuing sophistication of farm methods and the ever increasing application of scientific principles in production and management make these projections believable.

The development of educational and placement programs specifically directed toward production and management is, in my opinion, the challenge of the next decade.

ANIMAL SCIENCE WORKSHOP

Hal B. Barker, Reporter

The workshop session in Animal Science was well attended with representatives from the universities, state colleges, and junior colleges.

Definite positive answers of "yes" were given to the first two questions:

1. Is cooperation in working for excellence in courses and materials feasible?
2. Can NACTA members, and others, combine efforts for excellence?

Our discussion centered around "how do we begin?" In fact, many beginnings have already been made. Drs. Oldfield, Nelson, and Sheffner, representing Animal Science, Dairy Science, and Poultry Science, respectively, referred to those yesterday in their presentations.

The Commission on Education in Agriculture and Natural Resources sponsored a conference last spring concerning undergraduate education in the Animal Sciences. Among the questions that were asked were:

1. What teaching materials are available?
2. How can other materials be developed?

Mr. Richard Geyer informed us today that the proceedings of this conference will be available for distribution in the immediate future.

Dr. Oldfield and Mr. Geyer announced the Symposium on Undergraduate Education in Animal Science. Co-sponsored by American Society of Animal Science and CEANAR as a part of the annual meeting on the campus of the University of Nevada, at Reno, in early August.

I would hope that everyone concerned in Animal Science instruction from state and church-related colleges present here would make a very special effort to attend. This is a place where we can lend our cooperation in working for excellence and stand to gain more than we contribute.

We feel that all teachers should continue to up-grade themselves professionally.

The idea has been proposed that the best and most dedicated persons representing the broad field of Animal Science be assembled together on some major university campus for an extended period of time to explore ways and means of developing effective lecture and laboratory materials and, further, to proceed toward the development of such.

Some professional persons in Animal Science have felt that it would be more difficult to make such approaches in Animal Science as Dr. Postlethwait and Dr. Green so enthusiastically and adequately described in the area of Plant Science. Dr. Neal First has already initiated similar techniques at the University of Wisconsin and, according to Mr. Geyer, he will appear on the program in Reno.

We know that many fundamental principles concerning Animal Breeding, Nutrition, Physiology, and Meat Technology can be more effectively presented than we are now presenting them. Many bits of research that have been reported in the past 15 years (some of which have already been recognized as classic in nature) can be readily modified to be presented as a laboratory exercise, such as, demonstrations in areas involving rumen functions, milk secretion, and reproductive physiology. Source books containing laboratory experiments would be most desirable with each person using these, selecting those appropriate in his circumstances, and certainly employing his own ingenuity for modification. If successful results are obtained, he has an obligation to filter this additional information back to the original source.

These are only beginnings, but we believe that the instructors in Animal Science, in the future, will have at their disposal more and better *techniques* than are presently available; but for this to be a reality, it certainly involves time on the part of the teacher and his professional societies. This is a continuing effort.