

# Range Management Education

## III. Animal Husbandry Training for the Range Livestock Producer

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The educational preparation for any phase of life's endeavors is rather complex. Few students at the college level are absolutely sure of the vocation they may wish to follow, and many do not end up in the specific area for which they were trained. The decisions are made more complicated by wars and economic situations. Few students realize that they should be training, not for the position of today, but for a position as it will exist, for problems which will confront them ten, twenty, and thirty years hence—at which time, experience has shown, their greatest contribution is apt to be made. College training should be measured in terms of what it contributes to the individual for a better way of life and what he, in turn, is able to do for the society in which he lives. It does not matter what they may be doing, the animal husbandry and range management graduates will always have ample opportunity for the improvement of the environment in which they live.

The economic return of a degree is not the most important contribution of college training. Mitchell (1935) defined an educated man "as one who can do well what he has never done before." The training of the student should be sufficiently basic to enable a man to enjoy continuous improvement in his life's endeavors until he is no longer physically able to perform. Any philosophy on student training in any field of work that would not favor a continuous development of the individual throughout life

fails to meet the needs of education. Therefore, the purpose of higher educational training is to enable a person to enjoy the finer things of life, more especially those relating to his life's work, and to develop with his profession.

Let us assume that a student entering high school has planned to follow range livestock work as a vo-

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*This article on Range Management Education by Prof. T. B. Keith was developed from a panel discussion on this topic at the 1954 meeting of the Northwest Section of the American Society of Range Management in Enterprise, Oregon. Other papers in this series will be presented in subsequent issues.*

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cation. What should be his plans and how should his efforts be directed? If I had the opportunity to advise him, I would suggest that he plan to take at least three years of mathematics, two years of Latin plus at least a year of some other language. If possible, the student should elect high school courses in chemistry, physics and biology.

### **Viewpoints on Animal Husbandry Training**

In the field of animal husbandry quite a few articles have been written on special instructional or training problems. (Rice, 1945; Hughes, Howell and Mead, 1946; Craft, 1953; and Crampton, 1953). These articles concern narrow segments

or pieces of the animal husbandry curriculum and reflect concern over certain aspects of specialization or details of specific course offerings. Hughes (1951) was, however, concerned specifically with the animal husbandry curriculum and its objectives. He presents some excellent philosophy on the subject of teaching, a field which "challenges the intellect." He defines the teaching profession as one that "deals with science, art, and man's position in the field of human relations." In developing the history of animal husbandry curricula, Hughes points out that animal husbandry was originally taught by men trained in the sciences and humanities, men "basically trained" but lacking "the proper tools to apply their knowledge"; but by men who realized that advancement in basic science would set the pace in the developing field of animal husbandry. He attributes this shift of emphasis to the pressure to train men with minimum background in a social framework which demanded that the trained man know how but not understand why.

Hughes analyzed the curricula of Michigan State for 1900-01, of Missouri, 1927-28, and of California, 1950-51, and proposed a minimum curriculum. Examination of these reveals that a thread of the sciences runs throughout all. A balance is struck between production and other agricultural courses. He states that present curricula should require four to five semester hours of botany, four credits of genetics and about six credits, more or less, of agronomy. In order to be good citizens, students need training in economics and in the humanities. He observes that basic training is essentially the same in all parts of the nation but that application is different. This assertion is attested to by the fact that students can easily transfer from one accredited college to another throughout the nation. Hughes emphasizes the importance of giving the student "the proper tools with which to work, when he is granted his degree." Except for the following quotation

from the report of a special committee of Oregon State College staff, Hughes does not place much emphasis, except in the area of biochemistry and nutrition, on an adequate understanding of the plant resource and its management. This committee said animal husbandmen should "maintain the fertility of the soil through judicious use of livestock," and further, "a balance should be found between livestock and feed production with proper evaluation of a better forage supply and more efficient livestock."

In 1945 Rice discussed the development and evaluation of the animal husbandry student, a broad and important aspect of a successful training program. He listed advantages and disadvantages of various types of examinations and stated a case for presenting a realistic situation instead of artificial ones in examination. He suggested that the best evaluation of the mind is a three to six hour comprehensive examination near the close of the senior year, plus a student paper presented in ten minutes and defended for a ten minute question period. He emphasized the importance of advising to aid the student in his personality development, and he outlined a successful program at Massachusetts State College which helps the student chart his progress in this regard.

Rice also emphasized that the evolution of the student's mind depends on our philosophy. He suggested that we need not only to present a store of facts and their meaning, but to test the reasoning power of the student and his ability to think reflectively and logically in the use of his own knowledge in solving "new and unique problems." In my opinion the most valuable tool of an agriculturist is the ability to think from a background of understanding in both the animal and the plant sciences. This latter cornerstone needs expansion, placing plant science in a new perspective and receiving more emphasis in the training of young people for the

important profession of livestock farming and ranching. The future of our forage resources rests primarily with the livestock men as husbandmen of these vital resources, yet their training has given them minimum familiarity with the plant sciences which make the understanding of forage resources and their management possible. The proper emphasis may not be livestock management but *forage management*.

In commenting on the requirements for the Ph.D. in animal breeding, Craft (1953) stated that undergraduate training was not adequate as regards livestock management and that curricula should be strengthened in this respect but he did not elaborate on what he meant by livestock management. Does he mean livestock management to effect better feed resource use or does he mean solely livestock management to minimize diseases, maximize immediate income, and effect modern and rapid advances in breeding without particular concern for the feed resource as such. He mentioned that the students trained at this level in animal breeding should also be familiar with plant breeding, but, except for nutrition courses, his requirements recognized only the animal sciences and statistics. No specific mention is made of such areas as philosophy, psychology, logic or sociology, although he does emphasize that trained students must be good citizens as well. Craft says our objectives should be to "increase . . . perspective, sharpen . . . ability to recognize problems, improve his skill in evaluating problems." He wrote also of a "broad, comprehensive basic training" and it can be assumed that such would include plant science as well as work in the humanities.

In 1953 Dr. Crampton presented his views for the purpose of stimulating discussion. He shows a relationship-wheel with animal husbandry the hub and states "the common center is nourishment of the animal." Plant science, however, is obvious in its absence as

one of the fellies. Dr. Crampton stated that most curricula at bachelor of science level are long on animal management and short on science, especially chemistry and math, although he recognizes that solution of this may not lie in drastic curricular alterations. The objective should be to give the student advanced understanding of things he is already more or less familiar with and to increase his fund of information.

Dr. Crampton quotes a reviewer of his manuscript as follows: "Cultural uniformity marks the first phase of the death of the culture, even though the uniformity may in itself be a culmination." He suggests that we heed this warning in the discussion of any training program or professional discipline. This thought certainly sets the stage for our objective consideration of the needs, desirability, and opportunities for integration of range management and animal husbandry training to effect greater application of sound range management on the land.

### Subject Matter at the College Level

#### Basic Courses

The value of chemistry, physics and mathematics for a student interested in an exhaustive study of any phase of animal science has been underestimated. Six to eight semester credits in mathematics at the college level are the minimum a student should take in order that he be proficient in chemistry and physics. The boundary line between chemistry and physics has completely disappeared. Both fields are concerned with the study of energy in its various manifestations and the interrelationships between different forms of matter. Both subjects are necessary for the basic training of an animal science student. For most training objectives, the value of chemistry is paramount, while for others the value of physics, but in any training plan it is a matter of emphasis, not of discrimination. The fact that the needs of the student can

be acquired with a definite number of credits, each in physics and chemistry, may be merely a difference of personal opinion. The student should be sufficiently familiar with advanced organic and biochemistry to understand the basic problems of the physiological functions of the plant and animal.

Closely associated with the needs for a thorough foundation in mathematics, physics and chemistry is the importance of basic training in zoology, anatomy, physiology and botany.

It is important that thorough consideration be given to courses in the humanities and English. Therefore, courses dealing with history, social science, English, political science, economics, philosophy and psychology should be included in his curriculum. Since there is danger of requiring more courses than could be included in the curriculum, judgment should be used in selecting courses from this category in meeting the major requirements and in providing the student an education as well as technical training.

#### Specialized Courses

The courses required for specialization should be those that will prepare the student to understand thoroughly the applied science subject matter. These courses should

lead to studies in heredity and nutrition of animals and to plant nutrition, physiology, and ecology.

The courses required for specialization should include: Organic chemistry, biochemistry, the chemistry of soils, and plant ecology. A course in plant ecology is becoming more important to the student in animal science, since many of our nutritional and hereditary problems are closely associated with the combined environment of the plant and animal.

These are suggestions as to what the student should attempt to do to qualify himself to be proficient in the field of animal science, regardless of what he may desire to do. The suggested training should be as valuable to a producer of livestock as it would to one intending to do research in this field. However, the student should have sufficient leeway to select courses of his wishes. This is important in that the interest and success of a person in any field of endeavor depends upon the opportunity to do those things that appeal to the curiosity of the individual.

The way to specialize is to build on this curiosity, ability, and interest. This can best be done in complete freedom from the stereotyped curriculum heavy in "specialized" departmental requirements. If production and manage-

ment courses come after the science background, they can be more effectively taught and adequately learned.

In concluding, it is important, in order to be of the greatest service to oneself and to the nation or mankind, that a Bachelor of Science graduate be prepared not only for today, but have a foundation on which to build his tomorrow and every period of his life thereafter.

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