IV. — Enseignement de l'élevage des animaux et de la génétique animale

Teaching of animal breeding and genetics at university-level schools in some socialist countries

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The paper deals with the system of teaching animal breeding at Zootechnical Faculties or zootechnical specialization at University-level Schools in the following countries: Poland, Czechoslovakia, GDR, Yugoslavia and the S.U.

Duration of studies is 4-5 years. The program of studies provides from 3 174 to 5 300 h of obligatory subjects. Number of optional subjects is small. Following subjects were given more detailed treatment: genetics and methods of animal breeding, feeding, feed-science and animal husbandry. A total of 863 h (Hungary) to 2 040 h (Czechoslovakia) is planned.

Genetics and methods of breeding are lectured at different years in various countries and number of hours designed for this purpose differs too. In Poland these two subjects are lectured at I and II years of studies during 176 hours.

The topics are mainly: general genetics, population genetic and improvement of breeding methods.

Some traditional aspects concerning general animal breeding are excluded e.g.: animal origin, domestication, purpose of breeding, growth development, reproduction. These aspects are to-day included into the problems of animal husbandry, animal physiology and veterinary science.

Teaching animal breeding in the United States

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Animal breeding is taught in Land Grant Universities primarily according to principles organized by J. L. Lush. Undergraduate students average about 6.0 semester hours in animal breeding (one to three courses), 3.0 hours of genetics, 3.7 hours of mathematics, and 1.2 hours of statistics. Graduate teaching is highly specialized in organized course sequences. About two years is required to earn an M. S. degree and 4.2 years for a Ph. D. The average semester hours of credit taken for the M. S. and Ph. D. degress, respectively, are: animal breeding 5.2 and 8.2, statistics 7.8 and 16.1, mathematics 3.4 and 7.8, and genetics 4.0 and 8.9. Students supplement training in these areas with courses from many other disciplines. Research is an integral and important part of graduate training, generally with substantial guidance from the major professor at the M. S. level and largely independent at the Ph. D. level. Ability to use computers is essential. Students completing Ph. D. degrees have a broad training in animal breeding and have been successful in academic work and in the industry.

Teaching animal genetics in blocked courses

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The position of the subject of animal genetics is demonstrated for the study program of students of general agriculture at *Hohenheim University*. The contents are described of the courses for the different degrees of specialization.

The temporal blocking of the courses has a favourable effect on the teaching of theories and methods since the students deal through several weeks with the same logical context. The interesting difference of individual work and group sessions has proved to stimulate the students. The students prepare the topics in individual work. In the following group session the topics are repeated and discussed with respect to more details and to fields of application. For the individual work written materials containing exercises and problems for self control of the learning process must be available. A maximum of 10 students is the limit for efficient group sessions in order to have all students contribute to the discussions.

Project-oriented courses and project work can be realized even for the subject of animal genetics. Topics suited for this purpose are for instance the methods for optimizing breeding plans or the methods for deriving selection indices. The students are highly motivated by the project work. The project study leads to an extensive discussion of the methods with respect to specific questions. This makes it easier for the students to apply later the methods learned to the problems of practical breeding.

STRUCTURE AND CURRENT STATUS OF THE BLOCK SYSTEM FOR ANIMAL PRODUCTION STUDENTS AT HOHENHEIM UNIVERSITY

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In fall 1971, a system of concentrated courses was introduced instead of the traditional lecture system for animal production students at Hohenheim University. The block system was expected to have several advantages which have been found to be absent in the traditional lecture system: concentration on one subject at a time, possibilities for discussions and communication between teachers and students, control of the learning process, cooperation and motivation of the students, possibility of project work improvement of the exam situation and the possibility for critical discussion and teaching of the logical contexts.

The block system concerns the third and fourth years. The academic year is divided into 11 blocks of three weeks. The students have to complete 16 blocks. Among these five are obligatory, the others can be chosen more or less freely. The students should not take more than one course at a time. Among the courses to be taken are some interdisciplinary blocks. Examinations are at the end of each block. The block grades are averaged to give the grade for the subject. The tests at the end of the blocks can be repeated once even if it was not failed the first time.

Various types of blocks have been developped due to differences in personal habits, subjects, numbers of students and instructors etc.: Lecture blocks. Theories-and-Methods blocks and Project blocks. Particularly the project blocks allow integration of regular and contact studies

The block system has proved to have really most of the expected advantages. The main problems have been solved. Although all courses still show specific deficiencies the system is improving and it is flexible and dynamic due to the steady communications between teachers and students.

TEACHING AMIMAL BREEDING IN THE AGRICULTURAL UNIVERSITY AT WAGENINGEN

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Animal Breeding within the *Agricultural University* at Wageningen is a section of Animal Science, which is one of 22 specialisations in the University. The number of students registered in Animal Science is about 200.

The N preliminary study (first year) prepares for all natural sciences curricula. At the end the student makes a choice from the 22 specialisations. The Preliminary study is followed by a « kandidaats » study of two years. During the first year base subjects of Animal Science are taught. In the second year (kandidaats B) the students makes his own studyplan. This plan should meet fixed criteria with regard to number of study hours and categories of courses and must be approved by the Faculty. The « kandidaats » study is followed by a practical training reflecting personal interest and specialisation of the student.

Finally in the « doctoraal » study the student has to spend 1 ½ year in total on a minimum of two and maximum of four subjects. His choice has to reflect the « kandidaats B » studyprogramme. The requirements usually are a mixture of literature review, a laboratory experiment or analysis of fiels data and an oral examination.

Contents of preliminary and « kandidaats » courses, criteria for individual study programmes, experiences with students choices, and courses taught in Animal Breeding Specialisation are described.