

“Contribution of Latvian scientists’ to the development of dairy farming in the last 10 years”

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Dairy farming occupies the leading position among the cattle breeding sectors in Latvian agriculture. The research work within this sector has always been active and connected with solving the practical problems of dairy producers.

Institute of Agrobiotechnology of Latvia University of Agriculture and Research Institute of Biotechnology and Veterinary Medicine “Sīgra” are the principal research institutions whose scientists conduct studies on dairy farming.

Research on animal adaptation to different keeping technologies has been launched alongside the studies on cow breeding and feeding as well as additional attention has been paid to the studies of factors influencing milk composition and quality features.

One of the topicalities of dairy farming is a precise evaluation of the breeding value estimation of cows and bulls. Initially D. Strautmanis contributed greatly to solving this issue.

The study of the linear statistic models was launched to determine those breeding bulls’ evaluation models that would be the most appropriate for the conditions in Latvia. Both “sire model” and BLUP “animal model” were used in evaluating cows. Further studies of employing the linear models in breeding value estimation were connected with the necessity to cross over from the use of cow standard lactation data to the use of “test day model” data (L. Paura, R. Zutere, Z. Grīslis).

The studies of individual milk productivity commenced with the studies of lactation persistency. The study of milk production process analysed factors influencing the lysocime concentration, the aspects of milk production stability, milk productivity traits variation as well as the influence of calving interval on the individual productivity of cows. The milk freezing-point, the urea level and different indicators of milk composition and quality have been studied for the benefit of the production quality control (D. Jonkus, D. Kairiša, L. Paura).

The body of scientists from Institute “Sīgra” under the guidance of A. Jemelanovs are working on the development of the scientific justification for the production of high quality, uncontaminated, safe and healthy food raw materials of animal origin. The research deals with the study of the genetic, physiological and biochemical features of animals, including dairy cows, as well as the application of up-to-date agrobiotechnology methods to cow feed preparation and the introduction of new feed preparation technologies in ensuring the wholesome feeding of cows.

Starting with the year 2007 Molecular Genetics Research Laboratory commenced its work at the LLU Faculty of Agriculture. The main objective of this laboratory is to store the biomaterial of agricultural animals’ genetic resources, to extract DNA and to form a data base. Scientific research is also carried out at the laboratory; accordingly, in 2008 L. Paura and D. Jonkus studied the frequency of milk protein genes in the Latvian brown breed dairy cows. From 2009 a group of researchers under the guidance of senior researcher Z. Grīslis have launched a 4-year project to study the polymorphism of milk protein genes in Latvian cow populations and to prepare information for the transition to gene assisted selection (GAS).

The high productivity, health and longevity of cows can be ensured by their wholesome feeding. The research on grass silage preparation, storage and feeding, with the aim of reducing nutrition costs and the prime costs of the produced milk, have always dominated in the feeding of dairy cows. J. Latvietis, I. Ramane, D. Kravale, J. Mičulis, B. Ošmane, M. Beča and V. Auziņš can be regarded as the most important scientists of this research sphere.

Great work has been done concerning the development of the nutrients’ energetic and protein evaluating systems and their introduction into cow feeding (U. Osītis); furthermore, an accurate supply of mineral substances in cow feed doses has been

studied (A. Trūpa). The computer programme "LĒDA" that manages the composition of cow feed doses for all the levels of productivity has been developed on the basis of these elaborations.

After launching the modern site of dairy cows at the LLU Teaching and Research Farm "Vecauce", opportunities arose to begin a set of scientific research on the adaptation of dairy cows to the new conditions, the influence of milking technologies on the composition and quality of the obtained milk as well as the reproduction and health of the dairy cows herd. The research spectrum is broad and the LLU scientists and doctoral students from the Faculties of Agriculture, Engineering and Veterinary Medicine are involved.