

Introduction of the Sub-programme “From field to fork”

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The Faculty of Agricultural and Food Sciences has always been a basic institution of agricultural research and development activity. Since its foundation in 1818 it always served agriculture by developing innovative technologies and introducing inventions according to the highest scientific standards of the age.

The production of healthy food in sufficient amount is always the most important task of agriculture and food industry and is the basic component of the national economy of a country. It can be realized through the proper operation of the particular elements of agricultural systems. For a successful agriculture we need well-working farms and agricultural plants, proper organization and economic control and last but not least high standard scientific background. The Faculty of Agricultural and Food Sciences with its activity covers all aspects of agricultural research from soils to the highly processed complex foodstuffs. Therefore in the framework programme TÁMOP 4.2.1/B we developed a scientific agenda bearing the title “From field to Fork”, that covers all the aspects of agricultural innovation.

Food begins with soil which is one of the most precious natural resources. The proper utilization of soils is the basis of successful plant production and environmentally friendly effective agriculture. A new method of the proper and sustainable utilization of this basic natural resource is precision agriculture which was an important element of this project. This sub programme was realized by the Institution of Crop Production and the Institution of Biosystems Engineering. Precision agriculture basically is a management system that includes measurement, data handling, analysis and decision making elements. The technical background was supplied by the Institute of Biosystems Engineering and the elaboration of decision-making algorithms by the Institute of Crop Production. The precision agriculture programmes covered almost all aspects of plant production including soil sampling, soil and plant analysis, soil cultivation, seeding and maintenance works, intercultivation, nutrient management, plant protection, harvest and yield mapping.

Proper and careful plant production produces raw materials both for foods of plant origin and for animal feedstuffs. Regarding these topics experiments were carried out in the Institution of Animal Sciences of the Faculty too.

There has been an increased interest in recent years in ways to manipulate the composition of animal products (meat, milk and egg) to meet with human demands.

Fat content and fatty acid composition of animal originated food have great importance in terms of human nutrition. A considerable number of studies proved the different fatty acids to have a number of effects on our health, based on their different physiological roles.

In the programme experiments were carried out with poultry (broiler and laying hen) to increase the conjugated linoleic acid (CLA) proportion of fat in broiler meat and egg.

Fish takes up an unfortunately low proportion in the nutrition of Hungarian people. The production of quality food products using new high quality hybrids can modify this situation. Experiments were carried out in the programme with African catfish and sturgeon hybrids fed on special linseed supplemented diet in order to improve the fatty acid composition of their fillets.

The animal breeding background of the programme was supported by modern biotechnological methods. In one of the projects PCR-RFLP method was used to study gene polymorphisms in the traditional Hungarian Mangalica pig and Hungarian Yellow chicken in order to discover the genetic basis of certain traits important from food production point of view.

The Institute of Food Sciences of the Faculty carries out research on the production of healthy, quality food with good chemical composition for the sake of the production of proper health preserving foodstuffs.

As it was described in this short introduction and as it will be discussed in a more detailed way in the following papers the programme “From field to fork” of the Faculty of Agricultural and Food Sciences contributed successfully to the realization of a good environmentally sound agricultural practice and the production of healthy foods.