

## Maize in Latvia – Research during the Past Century

Z. Gaile

Institute of Agrobiotechnology, Faculty of Agriculture

Maize (*Zea mays* L.) as crop with a Southern origin is warmth demanding and one of the newest field crops grown in Latvia. The very first published data on maize growing and ensiling in Latvia date back to 1886 and 1887; however the results of first experiments carried out in Skrīveri were published 10 years later. After World War I Latvian refugees returned from Russia bringing some maize seed with them. Even good maize grain yields (2.5-3.0 t ha<sup>-1</sup>) were obtained in Latgale region, but the production of maize on the farm scale was ceased after some failure years (especially in 1928). J. Bergs studied maize in Bērmuiža research station and confirmed (1920) possibilities of maize growing for grain in Latvia. P. Rizga (1927) paid attention to maize use for forage. Large scale field experiments on maize growing peculiarities under the guidance of P. Dermanis were carried out in the research farm "Vecauce" of the Faculty of Agriculture (the University of Latvia) during the period of 1925-1931. Those experiments resulted in the main conclusions that growing of maize for grain in Latvia has no practical meaning, while its growing for forage is perspective, and during agriculturally favourable years maize can guarantee higher yield if compared with traditionally grown crops.

After World War II Latvia was incorporated into the Soviet Union, and consequently all regulations passed by the Communist Party were mandatory. Thus, during the September Plenum of the Communist Party in 1953 it was decided that maize growing area had to be expanded towards the North, including Byelorussia and the Baltic Republics. Large scale maize growing was enforced by authorities (including a leader of the Communist Party Nikita Khrushchev) despite the lack of suitable cultivars, experience and knowledge, and special machinery. From that time maize was called Khrushchev-crop, and even nowadays some people continue to consider maize as something strange. The first data on wider maize growing on the farm-scale date back to 1954 (8240 ha), however the beginning was not very successful due to the interaction of too late maturity cultivars with unsuitable meteorological conditions that supplemented the previously mentioned reasons. An expansive programme investigating different questions important for maize growing was launched in the middle of the 1950s and continued up to the 1970. The programme focused on the following aspects: research of maize growing and development, searching for best cultivars, later on – hybrids (even some breeding work was performed), soil suitability, liming and fertilisation, sowing time and mode, desirable plant density, importance of harmful organisms and possible ways for their control, harvesting time and desirable maize maturity at harvest, ensiling methods and forage quality, and maize growing together with legumes (field beans or lupine) for increasing crude protein content of forage. Some of the conclusions were useful only at that time, while the others have maintained their importance even nowadays. Mainly all the scientific institutions dealing with the research in agriculture were involved in this research. The study covered regions with different soil and meteorological characterisation. Even machinery system for mechanisation of all field works was developed by the constructors of Riga Agriculture Machinery factory.

During the period from 1970 to 1990 the research on maize was continued, though not on so big scale as before. New varieties were tested and a lot of studies of maize ensiling and silage quality improvement were performed. At the end of the 1980s thanks to the progress in breeding new early maturity hybrids were available and big scale investigations studying also agro-technology were performed in the Research Institute of Agriculture (RIA) in Skrīveri. In the 1990s, after Latvia regained its independence, contacts with different Western countries were established; particularly close collaboration was developed with the Latvians from the USA and Canada. As a result of the cooperation seed of new earlier maturity and at the same time high yielding hybrids were obtained for the research as well as production purposes. Again, new wave of investigations started and three main institutions were involved: RIA in Skrīveri, the Research Institute of Animal Science and Veterinary in Sigulda, and in 1993 also the research farm "Vecauce" of LLU. As land reform in Agriculture was performed, farmers again should be convinced on maize

growing possibilities and importance. New hybrids demand new growing technology and anew machinery did not satisfy the needs of the new technology. Those questions were solved by local researchers applying the experience from the Western Europe and America as well. Today a lot of studies are performed in the research farm "Vecauce" where also other way of maize silage use (for biogas production) is investigated.

Nowadays most of farmers appreciate the value of maize for animal forage and biogas production as well. Nevertheless they still have to learn a lot about this crop of a Southern origin, and therefore researchers shall provide the best ways for obtaining high and good quality yields.

**Key words:** climate suitability, cultivars and hybrids, sowing time and mode, control of harmful organisms, harvesting, forage quality.