Professor Arvīds Leppiks – Founder of Agricultural Engineering in Latvia

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The year 2009 is the 120th birth anniversary of Arvīds Leppiks; however already 44 years have elapsed since he has passed away. In the course of time the most essential contribution has remained thus attesting Arvīds Leppiks as the founder of agricultural engineering in Latvia.

Being the son of a Čiekurkalns worker, he attended Čiekurkalns Elementary school, Biķeri Parish school, and in 1907 he finished Peter Real school. A. Leppiks studied in Riga Polytechnic Institute, and graduated it in 1913 as an engineer-technologist.

In 1913 A. Leppiks started working as an engineer at the Baltic Machine Testing Station in Priekuļi, Cēsis district, which should be regarded also as a starting point of his scientific activity in agricultural engineering. Already at the very beginning of his activity he organised machine testing on scientific foundations introducing elements of research into the evaluation of the operation of machines. In machine testing it is not enough simply to state the facts, though correlations are sought among the phenomena, their interpretations, new methods for the evaluation of the designs, and operation of machines. The brochures written by A. Leppiks and published in Petersburg during the years of World War I (1915, 1916) on testing and assessment of stump extractors, mineral fertiliser seeders, and potato sorters served as a witness of his activities.

In 1915, when mobilisation was over, A. Leppiks worked as the head of the design department at a horseshoe factory, he supervised the construction of a fortress near Tallinn, later he was engaged as a specialist in agricultural machinery in the Russian Ministry of Agriculture and the department of agricultural machinery.

In 1919 A. Leppiks returned to Latvia and started working as the head of the Chair of Agricultural Machinery in the Faculty of Agriculture, the University of Latvia (LU), where he remained in this office at the University of Latvia and afterwards at Latvian Agricultural Academy (LLA) till 1944. He organised again the work at Priekuļi Testing Station of Agricultural Machines and headed the Station till 1924 remaining after that as its consultant till 1939. A comparative assessment of the operation of machines, belonging to the same functional group, by their agrotechnical, energetic, and other characteristics is a characteristic feature in the machine testing of this period, which started already before the war. This allows a more unbiased judgement on the advantages or drawbacks of a particular machine in contrast to other machines and its suitability for the use on the conditions of Latvia. Along with the duties of a university teacher and the head of a testing station A. Leppiks carried out scientific research both in agricultural machines, as a whole, and particularly in their most significant operating parts. The subjects of studies carried out by him or under his guidance comprised: seeders of mineral fertilisers and grain, soil tillage machines (ploughs, spring-tine harrows, and cultivators), potato diggers and sugar beet lifters, and grain harvesters.

In 1923 A. Leppiks became an associate professor, and since 1924 he had worked only as a university teacher, expanding and deepening simultaneously scientific investigations in the operating parts of soil tillage machines. In 1934 he was conferred a Doctor's degree in agronomical sciences for the comparative studies of the tines of a spring-tine cultivator and a harrow and their operation. Later, in 1947, the State Attestation Commission conferred him for this work a Doctor's degree in technical sciences. In 1935 A. Leppiks was elected as a professor at the Department of Agricultural Machinery.

After World War II, having returned from Germany, the Professor worked at the Faculty of Agricultural Mechanisation of LLA as the head of the Department of Material Strength and Machine Elements. He was continually interested in the knowledge about the newest in agricultural mechanisation and machines from the literature and taking active part in the shows of the new machines as well as in the evaluation of their designs and operation. The Professor's opinions and conclusions on these issues are usually were perceived as the most authoritative ones.

In 1926 and 1947 A. Leppiks wrote the first extensive books on agricultural machines which were used as textbooks. Here the Professor described not only the structure and operation of the machines but also gave his own assessment on many of them, including the results of his research.

During the period of 1921 – 1940 the Professor participated with reports on agricultural machinery and mechanisation in several international congresses in Germany, Belgium, Italy, and Spain, which consequently resulted in publications in the materials of these congresses. Between 1930 and 1940 has been a member of the international commission of agricultural machines. After World War II the scientists of Latvia were practically deprived of such an opportunity.

Professor A. Leppiks has written more than 30 scientific publications. Most recently he was active in the Terminology Commission of Latvia Agricultural Academy and the Academy of Sciences giving more than 1000 Latvian names for the machines and their operating parts. Together with co-authors he has written textbooks on machine elements and strength of materials.

In general, when we evaluate Professor A. Leppiks' contribution to science, development of new research methods and equipment, training and education of the new specialists and scientists, he should be indisputably recognised as the founder of agricultural engineering in Latvia whose contribution has a yield even today.

Key words: Arvīds Leppiks, agricultural engineering, spring-tine studies.