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**FORMATION AND DEVELOPMENT OF A RESEARCH CASE
ON THE MECHANIZATION OF PRODUCTION PROCESSES
IN KIROVOGRAD REGION (THE BEGINNING OF THE XX –
THE BEGINNING OF THE XXI CENTURIES)**

Summary

At the end of the nineteenth and at the beginning of the twentieth centuries the spread of means of mechanization required the study of the possibilities of using these machines in the conditions of the zone, compliance of them with agrotechnical requirements, which served the creation a machine testing department on the base of Adzhamka Agricultural Experimental Station. The department staff tested the plows and row drills, provided consultations to the peasants how to use them. In 1915, under the guidance of engineer Mescherin V.I. it was tested a disk harrow on a horse traction and cultivators with different working parts.

At the beginning of 1929–31, the work of the machine testing department was aimed at studying the processes of mechanization of basic tillage, application of fertilizers in oilseeds, sowing technologies, plant care and harvesting systems.

In 1956 it was introduced a square-hole method of sowing of sunflower and corn, was improved machinery and technology, and learned new methods for obtaining high yields of these crops.

In 1970–1980, the laboratory staff worked together with other departments, and the researches were aimed at improving the mechanization of technological processes in crop and livestock production.

Since 1989, work in the laboratory of mechanization was aimed at testing, scientific and production examination of new machinery and technologies in the conditions of agricultural enterprises in the Kirovograd region. With the development of farms, a scientific and production examination of a full complex of implements for these farms was carried out in the laboratory.

The researches were carried out in-depth on the peculiarities of the use of machinery also in the process of reforming the agroindustrial complex, which was characterized by the emergence of different by area, form of ownership, technical security and economic capacity of farms.

In the late 1990s and early 2000s, scientists worked on the problems of using machinery in conditions where the level of depreciation of MTP at agricultural enterprises was 90–95%, and the rate of readiness decreased to 0.6 and almost did not updated the material and technical base.

From 2000 to 2005, there were conducted the researches to determine the optimal structure, quantitative composition of MTP according to the developed norms, which ensured reduction of operating costs in the production of agricultural products.

In the period from 2006 to 2010, the scientific team of the laboratory researched the level of technical readiness and efficiency of use of MTP in the farms of the region, and it was established that due to the use of a scientifically grounded complex of tillage and sowing machines it was possible to reduce the time spent on sowing by 75%, the costs of petrol, oil and lubricants by 20 % and total costs per a hectare up to 16% compared to a traditional technology.

From 2006 to 2009, together with scientists of the NNC «IMESG» of UAAS it was developed a scientific and practical publication «Technological process of production of substrate for growing of oyster mushrooms by fermentation method in

a pasteurization chamber», which was implemented in TOV «Slavuta» of Belaya Tserkva district, Kyiv region.

The results of cooperation with the educators of the Department of Agricultural Engineering of the KNTU (now TsNTU) were collaborative development and testing of modern agricultural machines and elements of working parts.

Since 2011, the researches were aimed at developing a technological process and justifying the complexes of technical means for harvesting and the use of plant biomass (straw) as solid biofuel to increase the level of energy autonomy of agricultural production.

The main results of the scientific researches carried out by the laboratory's scientists were used in the preparation of the publication «The scientifically grounded system of agricultural production in the Kirovograd region», the scientific collection «Vestnik Stepiv», the monograph «The technology of production of oyster mushrooms» and the scientific-practical edition «The technological process of harvesting and use of plant biomass as solid biofuel».

Clearly understanding their role and tasks in solving the problems of mechanization of agroindustrial production, the team of scientists will increase the efficiency of scientific researches and implement the completed scientific developments in agricultural production in the future.

Key words: formation, development, mechanization of production processes, means of mechanization, technological process, machine and tractor park.