DEPARTMENT OF ELECTRIC DRIVE AND ELECTROTECHNOLOGIES - 80 YEARS

OM Bereka, LS Chervinsky, doctor of technical science

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Department staff of electric drive and electrotechnologies

The use of electricity in production processes of agricultural production caused the need for skilled workers. This led to the creation in 1932 of the first schools in the USSR Electrification of Agriculture in Moscow and Kiev Institute of mechanization and electrification of agriculture.

The founder and first dean of the Faculty of Agriculture Electrification Kiev Institute of Mechanization and Electrification of Agriculture was Professor S. Inozemtsev. In 1932 at the Faculty had only one specialized department of general electrical engineering, which taught general technical disciplines.

Due to the necessity of teaching the special disciplines to prepare for Electrical Engineers in 1934 was created Department of electric and electricity use in agriculture.

In 1934 - 1941 pp. Department was headed by Associate Professors A. Orlovsky, V. Holmsky and Professor M. Vasiliev. The department taught the following courses: Electric Drive (prof. Vasiliev M.); the use of electricity (V.M. Gordienko); electrical networks and transmission lines (doc. Kustovsky G.); power plants and substations (doc. A. Orlovsky).

During World War II training was conducted in the city. Almaty-based Kazakh Agricultural Institute. There also were taken special equipment and laboratories. Some faculty members defended the land at the front: Professor I. Martynenko, associate V. Hayduk, V. Honchar, V. Oleinik, M. Terpylo and master of industrial training T. Kadnikov.

After the liberation of Kyiv began teaching in 1944 Restoration of academic and laboratory facilities was conducted in parallel with the educational process in the joint department of electrical machines and electric drive, which was headed by Professor S. Inozemtsev.

In 1949 at the initiative of Associate Professor S. Bondarenko updated Dept. of electricity use in agriculture. In the head, the department worked as an assistant V Oleinik and O. Piddubny.

S. Bondarenko headed the department for 15 years.

After 1963 the department was headed by Associate Professor V. Oleinik (1964 - 1969 and 1974 - 1986), Professor I. Martynenko (1969 - 1973), Professor G. Kisten (1986 - 1994), Associate Professor E. Zhulay (1994 - 2004), Professor L. Chervinsky (2004 - 2014). Now the department is headed by Doctor of technical science, Professor A. Bereka. Each of the heads of department successfully resolved issues related to its educational and research activities.

In 1937 the department released from the department of production and distribution of electricity in agriculture in 1972 - Department of operation and

maintenance of electrical equipment and in 1974 another department - automation of agriculture.

In different years worked at the Department professors H.Kvachov, G. Inozemtsev, associate V. Bondar, V. Hayduk, V. Gonchar, A. Marchenko, M. Nedilko, T. Reznichenko, M. Salata, M. Skrypnyck, M. Terpylo, L. Tishchenko, S. Shevel, assistant O. Bugaichuk, V. Demchenko, I. Efimenko, I. Kucherenko, V. Marchenko, M. Moysyeyev, V. Harsun, C. Shmatko.

The chair has been completed theses and dissertations defended 38. Of these, doctor - O. Bereka, I. Martynenko, M. Skrypnyck, L. Chervinsky and candidate – O. Bereka, V. Bondar, H. Borsch, V. Hayduk, M. Hrenishen, E. Zhulay, G. Ivanov, T. Knizka, M. Kovalenko, Y. Lawrynenko, A. Marchenko, S. Mezeny, P. Melnik, Nguyen Van A (Vietnam), M. Nedilko, V. Oleinik, P. Oleinik, A. Okushko, O. Pasichna, V. Podobaylo, T. Reznichenko V. Savchenko, M. Salata, M. Soloviev, L. Storozhuk, M. Terpylo, L. Tishchenko, Y. Timoshenko, S. Usenko, Tserennorovyn Yendosambuu (Mongolia), L. Chervinsky, M. Chuyenko, I. Sharamok, S. Shevel.

Currently, the department consists Chair, Doctor of technical science, Professor O. Bereka, PhD, Professor L. Chervinsky, associate professors, candidate of technical science. G. Borsch, I. Golodny, B. Kovalyshyn, Y. Lawrynenko, P. Oleinik, V. Savchenko, A. Synyavsky, L. Storozhuk, assistants, candidate of technical science T. Knizka, S. Usenko, assistants V. Komarov, A. Romanenko, teaching and support staff – I. Naumovsky, I. Kuksa, E. Plyachenko.

The Department is the base for profiling and bachelors in "Power and electrical systems in agriculture 'and masters in the specialty" Electrification and Automation of Agriculture. "The department offers courses to undergraduate and graduate students of Department of Energy and Automation, Engineering ahrobiosystem, computer science, teaching, taught more than 40 courses, course design is performed with 4 subjects.

Six educational department laboratories with modern equipment and are among the best among related departments of higher education in Ukraine. Their formation is directly linked with the name of V. Oleinik and H. Kisten. A significant

contribution to the development of modern laboratory facilities department also did training master T. Kadnikov, V. Klimenko, O. Kobko, A. Kostenko P. Kryvenda, laboratory A. Lysovy.

Laboratory of lighting and exposure established by Professor V. Kyianytsia reconstructed S. Shevel and L. Chervinsky. The laboratory is equipped with modern fixtures and examples of sources of optical radiation. It performed laboratory work on measuring lighting and energy parameters of incandescent and HID lamps of various kinds. In the laboratory classes in the disciplines "electrotechnology and lighting", "Optical electrotechnology", "spectrographic methods as processing of agricultural products", "Design of lighting systems and networks."

The contemporary laboratory electric agricultural machines (Fig. 1) established E. Zhulay, A. Lysovy, A. Synyavsky. Reconstructed in 2011 associate professors F. Synyavsky and V. Savchenko. The laboratory is equipped with modern devices control and protection devices Low voltage control thyristor voltage and current frequency, microprocessor devices program control, adjustable electric drives. The laboratory conducted laboratory training "Fundamentals of electric", "Electric Machinery manufacturing", "Electric agricultural machines, machines and production lines", "Automatic Electric", "typical electric", "Electric actuators in automation systems".

Fig. 1. Laboratory classes in the laboratory electric farm machinery held Associate Professor A. Synyavsky

Fig. 2. Laboratory training in the fundamentals of electric conducting laboratory assistant professors Y. Lawrynenko and I. Golodny

Laboratory electric bases (Fig. 2) created an Associate Professor V. Oleinik in 1965 reconstructed Associate Professor A. Marchenko and school master P. Kryvenda in 1992. The laboratory is equipped with modern systems of electric drive with thyristor control and frequency converter. In addition, laboratory work performed on the study of DC motors with independent and consistent stimulation, induction motors with squirrel and slip-ring motors. In the laboratory classes in the disciplines "Fundamentals of electric", "Automatic Electric", "controlled electric", "Modeling of controlled electric."

Laboratory elektronahrivannya and electrotechnologies created lecturers M. Salata and G. Borsch in 1993. It is equipped with water heaters, Electroheaters, Electrical installation electron-ion technology. It offers courses in the disciplines "electrotechnology and electric", "electrical technologies in agriculture", "electrotechnology processing of agricultural products", "Agricultural production in the field of corona discharge."

Laboratory of electro-technological research methods and cultivation of agricultural products created by lecturers M. Salata and O. Bereka in 2004. It is equipped with modern electro-technological equipment. In the laboratory classes in the disciplines "electro-technological methods of cultivation and agricultural products", "electrotechnology cultivation of agricultural products", "Electron-ion technology in agriculture."

Modern agricultural machinery electrical laboratory established in 1992 led by Professor Y. Lawrynenko with the active participation of assistant V. Demchenko and students Kutsenko and A. Mykolayenko. In the laboratory classes on subjects' typical electric "," Electric drive and automation "," electrified technology in agriculture. "The laboratory is equipped with modern laboratory equipment and instrumentation, which allows the study of electric, heating, lighting and Irradiation facilities.

The department manages production practices, many working to improve the level of electrification processes in educational farms NUBiP Ukraine, particularly

in a secluded section "agronomic research station." Every year the department is protected by more than 100 bachelors diploma projects and students of Master.

Scientific activity dates back to pre-war years. The first scientific fields - rational use of electricity in agriculture - launched a professor S. Bondarenko, development and implementation of lighting and Irradiation facilities supervised by prof. V. Kyianytsia. Subsequently, many studies conducted in the areas of automation systems and microclimate electrotechnologies under Academician of Agrarian Sciences I. Martynenko.

The department has formed a scientific school "electrotechnology in biotechnical systems" founded by Doctor of Technical Sciences, Professor G. Kisten. His followers O. Bereka, L. Chervinsky, A. Synyavsky, Y. Gerasymchuk together with his students conduct research on the influence of electrical, magnetic, electromagnetic fields and radiation on biological objects and their products in order to improve existing or create new electro-technological processes, facilities and systems aimed at increasing the quantity and quality of production, processing and storage of biological objects, products and raw materials.

The Department of 2011 profesorom O. Bereka created problem research laboratory "electro-technological processes and systems in agriculture", the main areas of research which is electrotechnological biotechnological processes in systems under high electric field energy intensity; electrotechnology and electrical systems for the cultivation, processing and storage of agricultural products, electrical systems in livestock and poultry (Figure 3, 4).

Fig. 3. Professor O. Bereka, assistants S. Usenko, A. Naumenko and graduate student D. Ilyukhin conduct research in problem research laboratory

Fig. 4. Associate Professors V. Savchenko and A. Synyavsky conducting a study of electro-technological complex for magnetic processing of agricultural products

Currently, the department trained 4 graduate students under the direction of Professors O. Bereka and L.Chervinsky. Scientists and staff conducts research to improve agricultural machines and electric use of new electrotechnologies in agricultural production.

Scientists department published more than 700 scientific and educational works, received more than 40 patents, transferred into production 30 scientific research, developed 3 standards organizations of Ukraine.

The latest development department - electrotechnological complex processing of grain production in the electric field of high voltage (developers O. Bereka, S. Usenko, A. Naumenko) (Figure 5) pre-treatment of crops in a magnetic field (V. Savchenko, A. Sinyavsky) (Fig. 6), seed treatment plant crops ultraviolet and infrared radiation (L. Chervinsky, A. Romanenko).

Fig. 5. Electrotechnological complex processing of grain production in the electric field of high voltage

Fig. 6. Electrotechnological complex magnetic processing of agricultural products

The department has always taken a leading role in the publication of textbooks. There was none of the 24 schools in rural electrification universities USSR, wherever used in the book "Application of electrical energy in the agricultural sector" (co-author Professor Bondarenko S.), "Workshop on automated electric drive" V. Oleinik, " Course and diploma design for complex electrification and automation" (authors Martinenko I. and Tishchenko L). The most popular for practical use among electricians Ukraine is "Rural electricity Handbook" edited by V. Oleynik, who has survived three editions. During the years of independent Ukraine by the department published textbooks "Electric" (co-Lawrynenko Y., Marchenko A., Synyavsky A.), "Electric agricultural machines, machines and production lines" (co- Zhulay E. , Lawrynenko Y., Marchenko A.), "Modeling controlled electric" (Golodnyy I., Lawrynenko Y., Chervinsky L.), manuals "Mechanization and automation in livestock and poultry" (Marchenko A., Lawrynenko Y., Zhulay E., Salata M., Borsch G.), "Workshop on electric" (V. Oleinik, A. Marchenko, E. Zhulay, Y. Lawrynenko), "Electric drive and automation" (co-Synyavsky A., Savchenko V., Lawrynenko Y.), "Physical and Electrical Properties of technological products and agricultural materials (Bereka O. et al, Chervinsky L.) "Regulated electric. Theory. Modeling "(co-Golody I., Lawrynenko

Y., Chervinsky L., Savchenko V.)," artificial lighting and exposure "(Chervinsky L., Storozhuk L.).

The department works closely with the All-Russian Institute for Electrification of Agriculture. Teachers of the department participated in international conferences held in VIESH, scientific papers published in international faculty publications.

The department provided constant support of regional higher education institutions NUBiP Ukraine. Teachers of the department give lectures, conduct laboratory and practical training and exercise course and degree design in Berezhany and Nizhyn Agrotechnical Institute, Nemishaevo Agricultural College. The department promotes training of teachers and scholars, managing research work of graduate students and applicants.

The main tasks of teaching and research department and electric electrotechnologies are:

training in the field of electrification and automation of agriculture;

creation and implementation of the learning process electronic manuals for self-training students;

widely used in the educational process packets of software modeling and study of electric and electrical equipment;

periodic upgrading teaching laboratories with modern equipment;

providing a continuous process of scientific school department by preparing graduate students and doctoral candidates as provision of scientific and teaching personnel department, active participation in promoting the National University of Life and Environmental Sciences of Ukraine and its ESI Energy and Automation, inviting leading experts and scientists to improve the skills of graduates.