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AGRICULTURAL EDUCATION IN BULGARIA – TRADITIONS AND FUTURE

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Abstract

The foundations of Bulgarian higher agricultural education date back to 1921. Until then, agricultural university graduates were trained in France, Germany, Italy and other European countries. In 1945, based on the *Regents' Council Decree No 180* of August 4th, published in the *State Gazette* on August 20th, the Ordinance setting up a state university located in Plovdiv was enacted. Nowadays, the Agricultural University (AU) is the successor of that first university situated outside the capital Sofia. The history and traditions of this higher educational establishment have invariably followed the social and cultural development of the country, which has gone through difficult and complicated political and economic times. Even today, the Agricultural University in Plovdiv is the only specialized state university in Bulgaria in the area of agricultural and related sciences of national, European, and international high prestige. The purpose of the present review is to present the traditions and challenges in agricultural education in Bulgaria. The University draws strength from the rich tradition but looks to the future and global problems to provide accurate decisions to the challenges of the twenty-first century in agricultural education, science, and safe food production for a better quality of life.

Keywords: agriculture, education, traditions, research, innovations

INTRODUCTION

The favorable climatic conditions, specific geographic location, and biodiversity richness of Bulgaria have contributed to the rich traditions in agriculture and made this country a desirable tourist destination. Farming has been the main means of living ever since the founding of the Bulgarian state. The hard labor, the strong dependence on specific climatic conditions throughout the years, the technological advance of the processing industry, the growing customers' requirements to the quality and safety of the products, the competition on regional and world scale have imposed the need for continuous improvement of the century-old traditions. Moreover, the key challenges facing agriculture are the increase of the assortment range of crops grown, overcoming unfavorable factors related to the

climatic changes, control of plant diseases and pests, environmental protection against pollution, and the growing demand for local and organic foods in Europe.

HISTORY

Historically, agriculturally-oriented education emerged more than 130 years ago, by the long experience and good practices of generations of farmers. Bulgarian gardeners significantly contributed to the development of vegetable growing in Austria, Bohemia, and Hungary. After the Liberation in 1878, Bulgaria had its first scientists in agriculture, who graduated from esteemed European Universities in France, Germany, Austria, Italy, Bohemia. Based on their knowledge and optimism, the first research stations and schools have been established.



The foundations of Bulgarian higher agricultural education date back to 1921, when the Faculty of Agronomy at the University of Sofia was officially opened.

In 1945, based on the *Regents' Council Decree No 180* of August 4th, published in the *State Gazette* on August 20th, the Ordinance on setting up a state university located in Plovdiv was enacted. Nowadays, the Agricultural University (AU) is the successor of that first university situated outside the capital. The history and traditions of this higher educational establishment have consistently followed the country's social and cultural development, which has gone through difficult and complicated times.

TODAY

Even today, the Agricultural University in Plovdiv is the only specialized state university in Bulgaria in the area of agricultural and related sciences of national, European, and international high prestige. Sustainably in the last years, it is a National leader in Crop Science, Plant Protection, and Animal Science according to the Rating System of the Higher Educational Institutions of the Republic of Bulgaria.

The University draws strength from the rich tradition but looks to the future and global problems to provide accurate decisions to the challenges of the twenty-first century in the field of agricultural science and safe food production for a better quality of life.

Academic Atmosphere

The academic atmosphere at University presents a medium of emancipated and advanced thinking as universities have always been the centers of novelty. The elite status of the educational establishment depends mainly on the style and quality of work. Academic priority is given to the improvement of laboratories, equipment, and facilities and

raising the self-confidence of the lecturers, staff, and students.

Nowadays, advanced teaching methods are used for agricultural programs like demonstrations, discussions, problem-solving/discovery, field trips, role-plays and simulations, project methods, exhibitions supported by world-famous agricultural companies. BASF, Bayer, SummitAgro, Syngenta, CLAAS, Lemken, Amazone, Fendt, etc., demonstrate their latest products, innovations and machinery in student training.

The AU provides training for three academic degrees – Bachelor, Master, and Doctor. Lifelong Learning opportunities enhance the qualifications of professionals. The profile of the students is diverse – young people from all over the country and foreigners, enrolled both as full-time and part-time students in the three academic and educational degree courses.

The AU reputation among students, business partners, and society is continuously growing. The signed contracts and agreements for cooperation with national and international agencies, institutions, leading companies, associations and foundations, and farms and enterprises precondition the high quality of practical training.

The primary criterion for successful training at the University is the graduates' professional orientation and career development. The employers take into consideration the quality of education and acquired knowledge and skills of AU graduates. It is a fact that a large number of employers prefer to recruit applicants who have graduated from AU. An increasing number of businesses are interested in signing contracts for students' internships and are willing to be involved in the training process via giving open talks, participating in the discussions on curricula development, and being involved in the State Practical Examination Boards.



Some of the academic priorities include:

- Providing accessible and high-quality academic education resting on scientific research;
- Student and teachers' responsibility and enthusiasm in the teaching/learning process;
- Diversifying the forms and methods of learning for providing accelerated professional career development.
- National and international mobility;
- Harmonizing the training process with the European educational practices and standards;
- Recognition of study periods abroad, the awarded diplomas, and the acquired qualifications;

AU offers opportunities for a successful professional career in governmental and municipality structures, in policymaking in the area of agriculture, plant protection, ecology, and agribusiness. Bulgarian and international students implement their competencies in Europe, Africa, Asia, and Latin America. Over the last years, the number of AU graduates with a prosperous professional career in European countries, Canada, and the USA has increased considerably.

University Management

New strategic documents have been developed, such as AU Vision 2017–2020 for University development, Strategy for Research and Innovations, Strategy for Internationalization, and modeling the European image of Bulgarian higher agricultural education.

Major tools for policy implementation are the national and international projects on unmanned and digital technologies in agriculture and encouraging the involvement of AU researchers in agricultural business with consultancy and expert services. AU staff members are active participants in national expert commissions, scientific fora,

roundtables, meetings. Public discussions with representatives from the Presidency, the Government, diplomatic missions, employers' and NGOs are often initiated and hosted by AU. The AU is an active player in elaborating national and European policies in the areas of agriculture, ecology, tourism, and rural development.

AU ranks the fifth of the seven leading universities in the National Survey conducted among 33 state-funded Bulgarian Universities, indexed as a predictable, program-oriented institution, with transparent financial and academic management and good practices.

Research Policy

The University research policy involves support and cooperation in research and project development focused on knowledge-based society. AU responds to current issues of science related to agricultural sustainability, innovative food products, and smart bioeconomy following the policies defined in the National Research Strategy “Better Science for Better Bulgaria 2017-2030”; address the priorities under the Innovation Strategy for Smart Specialization; and Bulgaria National Roadmap For Research Infrastructure 2017-2023 (2017).

Practical Training

Practical training is an essential part of all study programs. It is realized on the training-and-experimental farms and fields, spreading on 185 ha, maintaining on a high agrotechnical level more than 1500 biological units, with possibilities of producing seed and planting material. Many subtropical and tropical shrubs and tree species are grown, offering planting material for sale, with the appropriate technology for their adaptation under the local conditions.

A collection vineyard with over 450 cultivars of wine and table grape cultivars was established. The modern university



experimental and research wine cellar is the only winery in Bulgaria, designed and constructed for boutique wine production for scientific and training purposes. The winery meets all the modern requirements for grapes processing and wine production.

Different animal races are bred for the needs of student training and experimental purposes. The excellent animal welfare of the local sheep, cattle, and shepherd dog races is quite valuable for practice.

Advanced structural units realizing the links along with the chain education – research – agricultural practice were developed:

- *Agroecological Centre* was founded in 1989 to coordinate the efforts of researchers, students, farmers, and consumers to carry out research and provide education in organic agriculture, developing methods and models for biological production, testing of biofertilizers, biocontrol of pests and diseases. In 2016 it was certified by IFOAM.

- *Centre for integrated management of plant diseases* offers current plant protection systems. The methods to be used include internet-based forecasting models, plant disease and pest development by meteorological data and mathematical models, carrying out field and laboratory studies for practical problem-solving. The results are available on the Internet and quickly accessed by interested.

- *Centre for biological testing* is certified by the Bulgarian Food Safety Agency for carrying out biological testing of plant protection products, providing quality assurance of the conducted experiments on their effectivity in compliance with good experimental practices.

- *The 16+1 Demonstration Center for e-commerce with agricultural and other products* is a comprehensive trade cycle model related to buying, storing, processing, and selling later on international markets in bilateral cooperation between China and the CEE countries, and multilateral – between the countries of Central

and Eastern Europe themselves. The Center at the Agricultural University is part of the "Demonstration Zone of Agricultural Cooperation between China and the Central and Eastern European Countries," launched by the Prime Ministers' summit of the 16+1 countries, as a model of a complete agricultural cycle, from production to its realization on the world markets.

Publicity

The academic traditions over the years, the numerous prestigious events AU hosts, and its real treasure – the graduates make the University recognizable in local, national and international media.

Two important international events in 2018 placed the Agricultural University – Plovdiv on the world map. The first edition of the International Field Days Bulgaria held in the Experimental Fields of the University became the meeting point of agribusiness professionals, academics, researchers, farmers, students who gained the first-hand experience on modern plant varieties, improved cultivation methods, advanced production technologies, live demonstration of agricultural machinery, as well as the latest research findings.

The Agricultural University and the Ministry of Education and Science of Bulgaria successfully executed the Second FOOD 2030 High-Level Conference "Research and Innovation for Food and Nutrition Security: Transforming our food systems," under the Bulgarian Presidency of the Council of the European Union. The Conference involved a wide range of participants from 32 EU Member and the Non-Member States, i.e., the scientific community, high-level officials, industry, entrepreneurs, investors, policy-makers, and civil society organizations. The event was attended by the European Commissioner for Health and Food Safety, the Director-General for Science and Innovation, the Director for the Bioeconomy in DG Research & Innovation,



and representatives of the European Commission and European Agencies for Research and Innovation, participants from European and world scientific institutions. The exhibition Food Village presented over 20 stands with innovative food technologies, trying to identify the future transformation of our food systems.

COVID-19 impact

The Covid-19 pandemic has affected higher education globally and has also brought numerous challenges to the higher education community (Smalley, 2021). Although initial reactions of the faculties were directed to change their traditional curriculums to fit an online environment, the opinion of the teachers and students is that agricultural education transitioning to an online learning environment is not enough. Moreover, the pandemic has a substantial influence on higher education cooperation, student's and teacher's mobility by Erasmus+ and bilateral agreements, participation in scientific and cultural events. Despite this, the international and national authorities and the universities have been quick to adopt innovative ways for continuing the developed standards. However, the challenges are many, and the approaches for overcoming the pandemic require adequate measures to be assumed over and done with long-term effectiveness.

FUTURE

Agriculture is the sector that is heavily linked to future demands - providing food for the growing population, mitigating the impact of climate change, and preserving biodiversity. It is also the sector, which will play a key role in achieving the Sustainable Development Goals set by United Nations (2015) and European Green Deal (2020), and will use new technologies such as robots, temperature and moisture sensors, aerial images, and GPS

technology. These innovative devices and precision agriculture will allow farms to be more profitable, efficient, safe, and environmentally friendly. To meet all these challenges, agricultural education providers have to adapt their programs and use modern training methods to develop new skills and competencies needed for the digital and global society. According to COM (2016), Europe needs digitally smart people capable of using innovative approaches and being future leaders in the sector.

Following “Strategy for development of higher education in the Republic of Bulgaria” (2015, 2021), our educational institution guarantees:

- Transformation into the scientific and cultural center creating and spreading new knowledge for better understanding of the world and the enrichment of its cultural heritage;
- High-quality education contributing to the overall development of the personality and preparing students both for their professional realization and social and civic role in an open, dynamic and democratic society;
- Creation of active, innovative, and motivated specialists;
- The modernization of curricula and programs adapted to digitalization and globalization;
- Developing e-learning programs allowing a flexible learning environment for different social groups;
- Internationalization of the programs; research and education partnership between institutions;
- Creation of double/joint programs that will enable students to be more competitive in the labor market;
- High fundamental and economically applicable research outcomes;
- Growing competitiveness of higher agricultural education and economy of knowledge in European and global context.



CONCLUSION

The European Commission presented the status quo of Food and Nutritional Systems research and innovation policy and its vision of shaping tomorrow's sustainable food and nutritional systems regarding healthy and sustainable diets, climate resilience, and circularity of food systems user-centric innovation, new business models, and investment.

Keeping the traditions and knowledge of generations of scientists, the Agricultural University will further develop as a modern national and international educational and advanced research center, integrated into the European Education Area with a significant contribution to the sustainable smart growth of agriculture and society.

Celebrating its 75th Anniversary, the Agricultural University - Plovdiv is a source of pride and faith that agriculture has its rich past, dynamic present and challenging future.

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