

from poor funding and face lots of challenges from day to day. Therefore, Ukrainian land surveying and geodesy faculties and departments experience the lack of:

- professionals in this field, especially those ones, who have real experience in practical work;
- up-to-date equipment (scanners, total stations, drones, digital theodolites, etc.) and proper software as well as qualified staff who can teach how to operate it;
- access to modern textbooks and manuals;
- high-professional organizations that provides geodetic and land measurements and can provide an internships and practice for undergraduate students.

Moreover, the land management faculty of a modern higher education institution should no longer be just a training center. It should become an intellectual and expert-analytical center of the industry, a platform for testing and practical adaptation of advanced technological solutions, a platform for professional discussions and training. Only such an approach will allow keeping domestic land management education on the proper level in order to achieve the international recognition in the future.

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ROBOTIZATION OF AGRICULTURE IN THE WORLD

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The article deals with the problem of automation and robotization of agricultural operations. The spheres of application were considered as well as prospects and difficulties. Some statistic data was also nalized.

Innovative developments are being introduced into different agricultural sectors nowadays. Large companies focus on key agricultural areas, practically not covering small industries. The main areas of robots designing and application are: systems for livestock farms, sowing, land-working robotics, unmanned tractors, UAVs (unmanned aerial vehicles), harvesting robots and agrobots for applying plant protection products, fertilizers and irrigation.

There is little competition in the robotics market. Basically, this is the struggle of large developers for new markets, as well as "confrontation" between different startups that are trying to solve the same problem. But the market is not saturated and needs technologies that will ensure food production with a minimum load on the environment and energy consumption.

Farming robots are a way to solve existing problems. But there are a number of difficulties that slow down their development and wide spread:

- heterogeneity of the working environment for robots;
- the problem of identifying and classifying targets and obstacles on the way;

- insufficiently developed navigation technology;
- labor safety of workers (robots may "miss" a person on their way);
- difficulties associated with the characteristics of agricultural processes.

The dairy industry is at the forefront of robotics adoption. Systems for animals feeding and cleaning barns are already actively used. The market volume is estimated at \$ 1.9 billion, and in 5 years it will increase by 4 times. Another promising direction is robots for grazing animals which is going to be developed in further decade.

According to IDTechEx (based in Cambridge, the United Kingdom), more than 300,000 tractors with autopilots were sold in 2016. Work continues on the follow-the-leader approach. The concept is that unmanned vehicles follow the leading tractor or harvester, which is controlled by a person. But leading agricultural machinery manufacturers are working on an 100% unmanned tractor. Case IH (based in Wisconsin, the United States) unveiled a concept car last year. Therefore, their research on the problem seems to be quite prospective for irrigation systems to use water efficiently. A similar approach is used in the development of fertilizing robots which can move between the rows of corn and spot nitrogen fertilizer.

To conclude we should claim the future development of the robotics for agriculture. In spite of the difficulties and limitations the research and tests are performing. The fact is that the agricultural equipment of the future is going to be more sophisticated and effective.

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EVALUATION OF THE TEMPERATURE INFLUENCE AND ACTIVE ACIDITY OF THE SOLUTION ON THE RECOVERY OF DRY POWDER FROM FRUIT BODIES PLEUROTUS OSTREATUS (JACQ) P. KUMM

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The improvement of growing technology of *Pleurotus ostreatus* in Ukraine by improving the quality of plant substrates and the introduction of highly effective strains in industrial crops allows obtaining high yields throughout the year [1]. The increase in the amount of mushroom raw material determines the development of new directions of fruit bodies processing, in particular the production of mushroom powder which is successfully used to enrich everyday products: bread, pasta, soups, etc. [2, 3]. But the use of powders for some foods: sauces, the pate filling for pies needs to be restored [4]. Unfortunately, there is no scientific data on the optimal modes of this process.

Therefore, the aim of scientific research was to determine the effect of temperature and acidity of the solution on the index of increase in the mass of the renewed powder from the fruit bodies of *P. ostreatus* (stamm 2301).