



## **INNOVATIVE TECHNOLOGIES AND AGRICULTURE**

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### **Abstract**

The article "The Importance of Physics in Agriculture" examines how physical laws, phenomena and physical instruments affect the development of agriculture, increase in yield, and the application of new innovative technologies in this field of the national economy. An example is the application of the laws of mechanics in various agricultural machines. When teaching physics to future specialists in agriculture, in each lesson the topic should be associated with agricultural processes and objects.

**Keywords:** Agrophysics, biophysics, agrometeorology, inertia, electrostimulation.

### **Introduction**

Physical science is of great importance for the development of agriculture, increase productivity, introduction of innovative technologies, further development of this industry. The famous scientist I.M. Komov stated that it is necessary to teach agricultural sciences in conjunction with other natural sciences, especially physics. In his book "On Peasantry", published in 1788, I.M. Komov wrote about the importance of physics in peasant farming: "Peasant farming is closely intertwined with the science of higher sciences, and at the same time with chemistry, mechanics and almost all natural sciences."

Physicist, academic A.F. Ioffe has been advocating for many years the need to strengthen the application of physics in agronomy. On his initiative, in 1932, the Russian Scientific Research Institute of Agrophysics was established in the present city of St. Petersburg, which operates to this day.

Academician A.F. Ioffe noted that the application of physics in agronomy in those years was in a very bad state and said: "Agronomists do not know physics, physics practically does not participate in the practice of agrotechnical education, and physicists do not know and are not interested in agrotechnics, there are no physicists



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among agricultural workers, if they need physical research, it will be carried out by people who are less familiar with the basis of physical knowledge"[1].

Although nearly a century has passed now, it is not enough to explain and apply the importance of physics in the field of agriculture. Addressing the gaps in this area can be helped by teaching contact science such as agrophysics, biophysics, and agrometeorology in the teaching of physics.

From modern experience it is clear that only as a result of the application of physics to medicine, diagnostics and treatment methods of this area have developed at a much higher level. In the present time, medicine is impossible to use without a multitude of diagnostic and treatment methods such as ultrasound diagnostics, X-rays, fluorography, MRI, PET, electrocardiography, UVCh, UFO, electrophoresis, darsenvalization, laser therapy. [2]

With the strengthening of the application of physical laws and phenomena to the structure, physiology and cell of plants and animals, it will be possible to make major changes in this area as well. Below is a discussion of phenomena and cases in which laws pertaining only to the mechanical part of physics are used in agriculture.

In agriculture, the law of inertia, that is, the property of maintaining a state of calm or straight linear motion of bodies, is widely used in agriculture. For example, a normal tractor has a cleaner with an air suction hood, mounted on the side side. In order for the engine to work normally, the air supplied to it should not contain dust and all sorts of dirt. The tractor air purifier works according to the law of air inertia.

The principle of operation of separators is also based on inertial forces arising in a non-inertial number system. [3,4,5]. In the rotary movement of the separators, the cream, which is also lighter than milk, accumulates near the axis of circulation and flows through a separate tube into the container.

Similarly, the law of inertia is used in the principle of operation of drying machines. In the agricultural sector, machines designed for cleaning and grading grains are affected by the air flow of grain particles falling under the influence of gravity. The force of action of the air flow gives different acceleration to grain particles of different masses. Large grain particulates with a large mass receive relatively small acceleration and fall closer. The mass is small, while the small grain particles are scattered due to high acceleration, with the result that the small pieces of the grain are collected separately, the large pieces separately.



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According to the laws of rotational motion of solid bodies, the machine and its rotating parts are made so that the direction of its axes overlaps with the direction of the geometric axis passing through the center of mass. This is because the rotational speed of these machines, for example, a combine drum, is over a thousandth per minute. If the geometric and rotational axes do not overlap, the angle falls on the rotational axis and the bearing and hinges of the axis at large values of velocity.

To reduce dynamic wear, fast-rotating massive mechanisms and working wheels are installed on an inclined, elastic shaft. As a result of the bending of the shaft during large revolutions, the center of gravity of the rotating body approaches its geometric axis. The rotation of a body around the axis passing through the center of mass is the most stable.

### **Conclusion**

From the above data it can be concluded that in the Republic we recommend a deep understanding of the essence of physical processes in the interconnected biosphere in the Republic, from which we recommend to perfectly study the science of physics in connection with the field of agriculture for the development of this sphere.

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