AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Pedagogical and Educational Research
ISSN (E): 2832-9791| Volume 13, | June, 2023

THE SIGNIFICANCE OF PHYSICS IN AGRICULTURE

Чори Холиқович Тошпўлатов,
Доцент Самарқанд давлат ветеринария медицинаси чорвачилик ва биотехнологиялар университети Тошкент филиали

ABSTRACT	KEYWORDS
The article briefly describes the place and role of physics in agriculture.	agriculture, physics, plants, land, nature, experience

Introduction

Physical science is of great importance for the development of agriculture, increase of productivity, introduction of innovative technologies, further development of this branch.

A. Beruni (973-1048) described the first concepts about the physical properties of the mineral part of the soil in "Kitobul jamohir fi marifa il javahir". The famous scientist I.M. Komov emphasized the need to teach agricultural sciences in connection with other natural sciences, especially physics.

Now, almost a century later, the importance of physics in agriculture cannot be explained and applied enough. The teaching of contact sciences such as agrophysics, biophysics and agrometerology in the teaching of physical science will help to eliminate the shortcomings in this area.

If the application of physical laws and phenomena to the structure, physiology and cells of plants and animals is strengthened, great changes can be made in this area as well.

The soil's heat, light and water regimes are important for the normal growth of plants. I.M. Komov proved that quality cultivation is the most important agrotechnical measure to improve the physical condition of the soil .

When improving the thermal regime of the soil, it is necessary to pay special attention to the planting period of plants. The thermal regime of the soil is controlled by correcting its water and air regime, and by enriching the soil with humus and making it structural.

Light is necessary for photosynthesis, plant growth and development. Plants cannot grow without light. But different plants do not have the same requirements for light, especially for bright days. For example, when wheat, rye, oats, barley, chickpeas, vetch, mustard, fiber flax, sebarga, sunflower and other crops are planted in the spring, especially until the flowering phase, half of the day that is, it requires more than 12 hours of daylight.

Heat is necessary for physical, chemical and biological processes occurring in plants and soil. Different crops require different amounts of heat for seed germination, grass greening, and for the normal passage of different phases during the growing season.

Minimum soil temperature is required for seed germination and greening of grass.

Taking into account the different requirements of plants for heat, it is necessary to develop the scientific basis of placing crops in different soil and climate conditions of our country, and to determine the correct terms of planting crops.

Air is one of the vital factors necessary for crops. Soil air differs from atmospheric air in that it contains less oxygen and more carbon dioxide. The air in the soil contains important nutrients that, under certain conditions, pass into a plant-digestible form. Oxygen in the air is necessary for seed germination, respiration of roots and soil microorganisms. Carbon dioxide produced in the soil enriches the soil air and enhances photosynthesis. Oxygen demand increases as roots grow.

To improve the air regime of the soil, it is necessary to increase its porosity. For this, it is necessary to properly organize soil cultivation, to use organic fertilizers widely, to apply lime to acidic soils, and to apply plaster to acidic soils.

Water is an important vital factor, it plays an important role in the germination of seeds, the realization of various biochemical processes in plant cells, the passage of development stages, the transfer of nutrients to the plant in transpiration, soil, the temperature of the plant body and the temperature of the soil. Most of the water received by the plant (95%) evaporates through the leaves. Different crops require different amounts of water for seed germination .

The main sources of moisture in the soil are atmospheric precipitation, irrigation and underground seepage. It is necessary to improve the water regime of the soil, increase the moisture capacity of the soil, the ability to lift moisture up and reduce the evaporation surface.

Nutrients play the main role in the formation of the structure of the plant or its biomass.

It is possible to find out how much nutrients the crops receive by looking at its composition. Plants mainly consume carbon, oxygen, hydrogen, nitrogen, phosphorus, potassium, calcium, sulfur and magnesium elements. In addition, it contains small amounts of trace elements - copper, manganese, molybdenum, zinc, and other elements. Even if any of the nutrients are not enough, the normal metabolism of plants is disrupted, and in some cases, the plant may die.

To control the nutrient regime of the soil, it is necessary to improve its water, air and heat regime. Studying the nutrient requirements of plants makes it possible to develop the scientific basis of soil fertilization, to properly organize agrotechnical works such as crop rotation and tillage . The most important way to control the nutrient regime of the soil is the correct implementation of all agrotechnical works aimed at increasing soil fertility.

To increase the air in the soil, it is necessary to ensure the porosity of the soil. For this, it is very important to properly organize soil cultivation. One of the more important ways to improve the air regime of the soil is to plant high-yielding crops, apply more organic fertilizers, and add lime to acidic soils. Planting annual legumes and occasional perennial grasses also improve soil aeration.

In agriculture, it is tried to control the thermal regime of the soil. Therefore, some agrotechnical measures aimed at increasing and decreasing the soil temperature can be applied. In managing the air regime of the soil, the heat balance is taken into account, that is, the balance between the useful heat energy coming from the Sun and the amount of heat that goes down from the surface layer of the soil and is used for water evaporation. Practice shows that in the northern regions it is important to carry out work related to soil heating and heat retention, and in the south, it is important to apply measures related to soil cooling, especially on hot days. One of the most important ways to control the thermal regime of the soil is mechanical tillage of the soil.

When improving the thermal regime of the soil, it is necessary to pay special attention to the planting

period of plants. The thermal regime of the soil is controlled by correcting its water and air regime and by enriching the soil with humus and making it structural.

The following goals and tasks are envisaged in soil cultivation:

1) t upro q niig physico-mechanical properties emptying ; _ _

2) food of articles biological family _ _ stay how to shake ;

3) t upro kni and _ crops disease and pests by damage price _ fight _

4) t upro qq a feed substances i _ tooth _ increase ; _

5) creation of favorable technological conditions for quality planting, maintenance and harvesting of agricultural crops.

Summary

From the information given above, we can conclude that in our Republic, we recommend to study physics in close connection with the field of agriculture for a deep understanding of the essence of the physical processes in the biosphere, which are inextricably linked to each other, and for the development of this field.

Used Literature

1. Ch . X. _ Toshpolatov Importance of physics in agriculture. AGRO INFORM . Max is the number. 2021 year. Pages 16-17.
2. Kh.Abdullaev, Kh.Arginboev, T.Khushvaktov. "Agrophysics". Methodical guide. Tashkent. 2003. Page 198.
3. Turgunov T.T. Applied physics. Tashkent. " Uzbekistan " 2003. 480 p.
4. D.Yormatova. Basics of soil science and plant science. Tashkent "Ilm Ziya". 2014. Page 320.
5. "Mediata'lim is an important factor in protecting young people from negative information". Oriental Renaissance: Innovative, educational, natural and social sciences VOLUME 1 | ISSUE 11 ISSN 2181-1784 Scientific Journal Impact Factor SJIF 2021: 5.423 300-305.
6. "Innovative technologies as a factor of improving the quality of education and training". Scientific journal Internauka No. 40(216) November 2021 Part 3 pp. 79-81.
7. Avazov K.H. Spiritual and moral foundations of the formation of a threat-resistant society// News of Kardu 4 (42), 104-107
8. "The place and role of media education in the stability of society". The question is political. 5 (45) 2019. pp. 990-998.
9. Shukritdin Paxrutdinov Democratic society and responsibility of leaders in New Uzbekistan// European Journal of Humanities and Educational Advancements (EJHEA).Vol. 4 No.4, April 2023
10. 11. Avazov Komil Hollievich, Spiritual and Moral Aspects of the Formation of a sustainable Society International Journal of Humanities Social Sciences and Education 2017,4(10): 1-9.