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OF MODERN SCIENCE**

I International Scientific and Theoretical Conference

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ІСТОРИЧНИЙ АСПЕКТ КРИМІНАЛЬНОЇ ВІДПОВІДАЛЬНОСТІ ЗА
«ПОРУШЕННЯ ПРАВ ПАЦІЄНТА» У ВІТЧИЗНЯНОМУ ЗАКОНОДАВСТВІ
Томчук І.О., Гакало І.Г. 61

ЛІС ЯК ОБ'ЄКТ ЕКОЛОГІЧНОГО ПРАВА ТА ПРОБЛЕМИ, ПОВ'ЯЗАНІ З ЙОГО
ВИРУБКОЮ
Гопкало І.І. 64

ПРЕВЕНТИВНИЙ ПОЗОВ ТА САМОЗАХИСТ: АКТУАЛЬНІ ПИТАННЯ
(НА ПРИКЛАДІ УКРАЇНИ ТА ПОЛЬЩІ)
Фурса С.Я., Фурса Є.І. 67

ПРОБЛЕМИ ТЛУМАЧЕННЯ ЗАКОНОДАВСТВА У СФЕРІ СЛУЖБОВИХ ТВОРІВ
Білошенко Л. 70

СЛОВЕСНА ІМПРОВІЗАЦІЯ У ПРОФЕСІЙНІЙ ДІЯЛЬНОСТІ ЮРИСТА
Циганець А.В. 72

SECTION 8.

FIRE AND CIVIL SAFETY

ПРІОРИТЕТНІ НАПРЯМИ МІНІМІЗАЦІЇ ПРОЯВІВ «ЛЮДСЬКОГО ФАКТОРА» В
СФЕРІ ОХОРОНИ ПРАЦІ
Бочковський А.П., Сапожнікова Н.Ю. 74

SECTION 9.

BIOLOGY AND BIOTECHNOLOGY

ALL ABOUT THE WATER SUPPLY OF COTTON
Kholliyev A.E., Norboyeva U.T., Jabborov B.I. 79

SALT RESISTANCE, WATER EXCHANGE AND PRODUCTIVITY OF COTTON
Kholliyev A.E., Qodirov E.I., Ramazonov O.O. 83

ЗАЖИТТЄВА ОЦІНКА БУГАЙЦІВ МОЛОЧНИХ ПОРІД
Можняк А.М., Єгорова Є.С. 87

SECTION 10.

AGRICULTURAL SCIENCES AND FOODSTUFFS

АНАЛІЗ ВИКОРИСТАННЯ КВІТКОВИХ РОСЛИН В ОЗЕЛЕНЕННІ
ТЕРИТОРІЇ ЛУГАНСЬКОГО НАЦІОНАЛЬНОГО УНІВЕРСИТЕТУ ІМЕНІ
ТАРАСА ШЕВЧЕНКА
Шкарупа О.Д. 89

SECTION 9. BIOLOGY AND BIOTECHNOLOGY

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ALL ABOUT THE WATER SUPPLY OF COTTON

In the arid climate of Central Asia, the soil does not get enough moisture due to atmospheric precipitation. Therefore, a timely and adequate water supply is one of the most important factors in the normal growth and development of cotton. The role of water in the life of cotton is extremely large and multifaceted. Water is needed throughout the life of the cotton, especially from seed germination to harvest. In other words, water is involved in the normal course of all vital (biochemical and physiological) processes that take place in a plant.

Water is also necessary for cotton because it primarily dissolves various compounds in the plant and makes them mobile. Without it, the plant's vital activity stops, water replaces the metabolic process in plant cells, and the products of this process move from one tissue of plant organs to another. Water is also necessary for cotton to produce organic matter and form its various organs. Organic matter makes up 90-95% of the dry mass of the plant. It is formed due to the use of solar energy in the presence of carbon dioxide in water and the atmosphere. In this case, the ability of leaves to absorb carbon dioxide depends in many respects on how well the plant cells are supplied with water [8-11].

Water is also important in keeping plant cells and tissues stable. To keep the plant in this condition, it needs enough water. This increases the volume of cell sap and the pressure in the cell membrane. In turgor, the plant is hardy and tense. When Turgor falls out of the situation, he dies [1-3].

Water is also important in the absorption of nutritious minerals into cotton. The assimilation of this type of substance along with water occurs through the very fine root hairs in the plant. The absorption of water and mineral compounds into the plant, even if they are related to each other, but the plant absorbs from the soil solution mainly the substances it needs for itself. Because it has a selection feature.

Cotton also needs water to keep it warm on the hot summer days. As the plant evaporates water through the leaves, the body temperature drops. This is very important for the normal functioning of the plant's life during times of intense heat. This evaporation of water allows the creation of favourable climatic conditions for the plant on the surface [4-7].

From the above, it is clear how important water is for the life activities of cotton. Therefore, measures should be taken to provide cotton with water regularly. In cotton fields, water should not be allowed to overflow and vice versa. The activity of all physiological processes that take

place in the body of the cotton plant depends on their moderate water supply. At the same time, a common irrigation norm and irrigation regime should be developed for each cotton variety. At the same time, photosynthetic productivity can be further increased by knowing and applying cotton irrigation times and methods for its detection [11-17].

Water cannot be stable and constant in the composition of the plant. During the life activity of the plant, it is constantly changing. For example, it is consumed and regenerated at the expense of soil moisture. The ingress of soil moisture into the plant occurs under the influence of the suction power of the leaf and root system. Absorption force is created under the influence of the suction pressure of the cell sap. The less moisture in the cell sap and the more dissolved mineral compounds, the higher its concentration. Accordingly, the suction power will also be higher [17-19].

The ratio between the swelling power of the soil and the suction power of the plant determines how much water enters the plant. If the soil moisture is too low, water cannot enter the plant. As a result, the swelling pressure of the soil solution increases and the plant begins to dominate the suction power. A similar situation occurs in highly saline soils, which is the result of an increase in the concentration of the soil solution [20-23]. Thus, in order to provide the cotton with a normal water supply, the irrigation regime should be organized in such a way that the soil moisture does not decrease and the concentration of the soil solution does not increase.

The plant constantly consumes the water it absorbs from the soil. The water consumed in cotton depends on the dynamics of plant growth and accumulation of dry matter. In this case, only 1-2% of the commonly used water is used for the formation of organic matter and the structure of various organs. The rest of the water (98-99%) evaporates through the leaves of the plant (transpiration) [23-25].

It is important to correctly determine the norms of regular and seasonal irrigation at the same time as the irrigation period. Irrigation rate is the amount of water per cubic meter per hectare, and seasonal irrigation is the total amount of water per hectare per cubic meter during the entire growing season. At each irrigation, the soil should be watered with the field moisture capacity of the soil (assumed to be 100%) and its last allowable (in% of field moisture capacity) moisture content. Irrigation norms include water that evaporates from the ground during irrigation in addition to the water supplied in the above volumes, as well as water that evaporates in the first days after irrigation and is used for the transpiration process (until the field moisture capacity is established) [26-28]. The amount of water that does not reach the appropriate field moisture capacity is calculated from the moisture in the layer where the active root system of the soil is fed, as this layer contains the active roots of the cotton plant that use the soil moisture. Only when the cotton is watered in a timely manner before flowering when the soil is moist enough, the root system develops strongly and the plant accumulates a sufficient amount of yield elements. To achieve this, it is usually necessary to irrigate 2 times before flowering cotton in deep groundwater plots, up to 3 times in areas with light and steep slopes, as well as in years of drought. In meadow fields with groundwater at a depth of 1.5–2.5 m, it is usually sufficient to irrigate once during the cotton season. In meadow-swamp soils with groundwater to a depth of 1 m, cotton may not be irrigated until flowering [29-31]. Due to the rapid growth of vegetative organs during the flowering and fruiting periods of cotton, it consumes a lot of water (65 - 70% of the total amount required during the growing season). It is during this period that the formation of productive organs must take precedence over the growth process. Accordingly, it is very important to preserve the elements of the crop, providing them with adequate amounts of water and nutrients. During this period, the plant should not be thirsty, and its growth and development should not be slowed down. Slight thirst of the plant during the harvest period leads to mass shedding of the stems and buds, which reduces the yield [32-34].

Excessive irrigation of cotton also significantly impairs productivity. In this type of irrigation, air and soil moisture increase, the ripening of the pods is delayed, the cotton buds bend to the ground, and the pods in its lower tiers begin to rot. As a result, the cotton yield decreases

and its quality deteriorates. After watering the cotton, the leaves gradually change from light green to green. The normal green colour of the leaves is maintained by timely watering of the cotton and it is not allowed to turn dark green. It should be noted that the dark green colour of the plant leaf does not always occur as a result of a lack of moisture in the soil. Infertile soils, the leaves of cotton can turn dark green. Therefore, in determining the duration of irrigation, the difference should take into account not only the change in leaf colour but also soil fertility [35,36].

The duration of watering is also determined by the turgor state of the cotton leaf. During the hottest part of the day, a partial decrease in turgor in 20-25% of plants indicates the need for irrigation. In this case, the observation work is carried out on the third leaf from the point of growth of the main stem of the plant at 14 -15 hours. The fact that the turgor in cotton is weakened can be seen from the fact that these leaves begin to wither and do not crack when their middle veins are bent. The duration of irrigation during the flowering and fruiting period of cotton can also be determined depending on the flowering joint and height.

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