

FACTORS OF AGRICULTURAL CROPS AND THEIR MANAGEMENT

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Light, heat, air for plant life. water and nutrients are essential factors. Plants assimilate water and dissolved substances from the soil, as well as carbon dioxide from the air, and form compounds such as fats and proteins from the synthesis of primary organic substances in the process of photosynthesis. The success of this process depends on the extent to which the plant is supplied with life factors. Based on the achievements of science, which studies the interdependence of these factors, the impact of the plant on the soil and plants, the science of agriculture develops and puts into practice ways to manage the plant.

Under the influence of light, the process of photosynthesis in plants produces organic matter and releases oxygen into the atmosphere. When there is enough light, 1 m² of leaf surface synthesizes 10-12 g of organic matter. Lack of light leads to poor plant growth, reduced productivity and reduced product quality (low accumulation of protein, sugar, starch and other substances). Plants have different requirements for light depending on their origin and type, and therefore basically long days (wheat, rye, barley, oats, flax, potatoes, cabbage) and short days (go 'za, corn, hemp, millet, sunflower, corn, soybeans, beans, etc.). Long-day plants can grow well in the southern and northern regions, while short-day plants are grown mainly in the southern latitudes. The light regeneration of plants can be controlled in the field through measures such as moderation of seedling thickness, timely removal of weeds, orientation of the field from north to south. Protected areas (greenhouses) and greenhouses have the ability to provide different lighting regimes using different levels of light-transmitting film and windows. Heat plays an important role in plant life, ensuring good seed germination and the formation of the plant's root system and surface organs. All the physiological processes that take place in the plant organism, the metabolism between the soil and the plant, the movement of nutrients are also directly related to heat. Different plants react differently to heat. Some need a lot of heat, while others grow well at relatively low temperatures. For example, the optimum temperature for cotton growth is 25-30 °C, and a drop in temperature below 25 °C will cause its growth and development to stop. It also has a negative effect on the temperature above 35-37 °C. At a temperature of 35-36 °C, the ripening process is accelerated. 20 °C is the optimum temperature for good growth and development of grain crops. A certain temperature is also required for the seeds to germinate. If the soil temperature is low, the seeds will germinate late or will



be completely barren. The difference between the minimum temperature required for seed germination and the average daily temperature is called the effective temperature. Different plants require different temperatures for germination. For example, wheat, rye, barley, oats begin to flourish at 4-5 °C, alfalfa and alfalfa at 2-3 °C, flax at 6 °C, and potatoes at 8-9 °C. The moderate temperature for their comfortable growth is 15-20 °C, while the seeds germinate at 10-12 °C, maize, millet, oats and 12-14 °C. The average temperature for growing is 20-25 °C. In many adolescents, the process of photosynthesis begins mainly at 0-5 °C, with a moderate temperature of 20-30 °C. As the temperature rises, the process of photosynthesis also slows down and almost stops at 40-45 °C, and at 50-52 °C the plant dies.

The level of resistance to low temperatures of the plant also varies. While spring crops die at a cold temperature of 0-5 °C, autumn crops can withstand a cold of 18-20 °C. The thermal regime of the soil strongly affects the microbiological processes in it and determines the nutritional capacity of the plant. For microorganisms. the moderate temperature in the soil is 20-25 °C. When the soil temperature is below 10 °C or above 40 °C, their activity is negatively affected. The energy of sunlight is a source of soil temperature, which allows the decomposition of organic matter in it.

Weather. The growth of air, including carbon dioxide, in plant nutrition is unparalleled. Atmospheric air contains 78.08% nitrogen, 20.95% oxygen, 0.03% carbon dioxide and other substances. During photosynthesis, plants absorb carbon dioxide from the air and release oxygen. During respiration, it absorbs oxygen and releases carbon dioxide. Soil air is a life factor of plants, which contains elements necessary for plants - oxygen, carbon, nitrogen. Air is needed for aerobic bacteria in the soil and plant root to breathe. Nodular bacteria convert molecular nitrogen in the soil air into a form that is easily assimilated by plants. Oxygen is also needed for nitrobacteria, which are involved in the oxidation of ammonia. Oxygen in the soil helps plants to germinate. When there is enough oxygen, the seeds are doomed to die without sprouting.

Water is an integral part of every organ, tissue and cell of a plant, and all the physiological, chemical and biochemical processes that take place in its body and in the soil take place in an aqueous environment. Water plays an important role in the dissolution of nutrients in the soil, their absorption and movement in the body of the adolescent, in photosynthesis, in short, in all life processes. Water also plays a mechanical role in the life of the plant: when the plant is saturated with water, it is in a state of turgor, otherwise it is in a state of plasmolysis. According



to the demand for water, plants are divided into hygrophytes (extremely demanding to water), xerophytes (drought-resistant) and mesophytes (moderately demanding to water). Perennial grasses require a lot of water, sorghum is relatively less, and corn requires even less. Plant organs develop and grow depending on soil moisture. When the soil moisture is low, the root system of the plant goes into the deeper layers, and the above-ground organs do not grow well, otherwise the root system does not develop well and the above-ground organs become clogged. During the growing season, the seedlings undergo a different gradual process. Accordingly, their water consumption dynamics will also vary. In cotton, these periods are as follows: 1) before flowering; 2) flowering and fruiting, and 3) ripening and corn 1) until the emergence of the sultan; 2) the period from the removal of the sultan to the swelling of the grain and 3) the ripening periods.

Food. Soil is the main source of nutrients for plants. Through their roots, they absorb water and dissolved nutrients from the soil - nitrogen, phosphorus, potassium, calcium, magnesium and many other substances, and carbon dioxide from the air. 42-45% of the dry matter in crops is carbon, 40-42% oxygen, 6-7 "hydrogen, and the remaining 6-10% is nitrogen and other substances. The importance of nutrient UMIs in plant life varies. 'is a strong factor influencing the growth of the plant, both its deficiency and its abundance are harmful. The formation of productive organs, when involved in maturation, accelerates the metabolism of potassium, increases the disease resistance of the plant.

