

## ANALYSIS OF SOME BIOLOGICAL PROPERTIES OF SOYBEAN PLANT

Amirbek Toshtemirov

Master's Student, Denov Institute of Entrepreneurship and  
Pedagogy, Denov, Uzbekistan

Fazliddin Kurbanov

Teacher, Bukhara State University, Bukhara, Uzbekistan

Nowadays, it is not a secret to anyone that soybean (*Glycine hispida maxim*) has been added to the list of plants that have high nutritional value, such as lentils, beans, peas, sorghum, wheat, barley, oats, and corn [1 -2]. Globally, today's gross production of the soy plant, which is rich in macro and microelements, equal to the above-mentioned plants, is 276,500 million tons. The cultivated area of this gross product on the world market is 111,300 thousand hectares across the globe. If we talk about productivity, it corresponds to 24.8 ts/ha [3-5].

In Uzbekistan, along with other countries, great importance has been paid to the cultivation of soybeans in recent years. Mainly, soy is widely used in food, technology, the production of milk and confectionery products, and the preparation of preserves. It is also used as a quality food for livestock and poultry. The use of soy in such a wide range of areas is related to its composition. Soybean plant contains 30-52% protein, 17-27% oil, and up to 20% carbon dioxide. Soybean protein is slightly different from other legume family representatives, that is, it is high-quality water-soluble, easily digestible, contains a lot of glycine amino acids, and is close to meat protein in terms of amino acid composition [6].

Another important aspect of the soybean plant is the extraction of oil from the grain. According to established data, soybean oil accounts for 40% of oil extracted from plants worldwide [6].

It should be said that the soybean plant does not choose a place according to its biological characteristics. It also grows in cultivated fields with saline and raised groundwater levels. It is also very convenient to care for it in a mixed way. Most importantly, it "heals" the land, and enriches the soil with nitrogen.

Being a leguminous plant, it collects 55-60 kilograms, sometimes up to 80-100 kilograms of pure nitrogen per hectare of land. In other words, it restores the power of the land used for another crop. That is why it is called "Soil Gold".

Currently, there are early-ripening, mid-ripening, and late-ripening varieties of soybeans. Early-ripening varieties ripen in 90-100 days, medium-ripening varieties in 110-120 days, and late-ripening varieties in 130-140 days. The vegetation period of a plant includes growth and development, germination, budding, budding, flowering, and ripening. Soybean requires 130-160% of their dry weight for germination and germination. In 2-3 days after sprouting, sprouts

develop. The seed leaves of the soybean plant appear on the ground 7-8 days after the seed is planted. During the first week, the rhizome and cotyledon grow by feeding on the seed. Soybeans grow slowly during the initial growing season. Germinated soybean grows to 15-20 cm in 20-25 days. Three double leaves of soybean are formed 5-7 days after the plant germinates. The next ones appear in 4-6 days [9].

Among cereal crops, only soybean can grow in high-humidity conditions. It uses 60-70% of the water consumed during the entire vegetation period during the phases of flowering, pod formation, and pod filling. Therefore, if the plant's demand for water is not met during the period of flowering and pod formation, the yield will decrease sharply [7].

According to scientists, early-ripening varieties need a temperature of 1800-2000 °C, medium-ripening varieties 2600-2800 °C, and late-ripening varieties 3000-3200 °C. The minimum temperature for seed germination is 12-14 °C, and seeds germinate evenly [6-19].

Soybean is a plant with a well-developed root system, the arrowroot of which penetrates the soil to a depth of 1-1.5 meters. The root of the plant develops mainly in the arable layer of the soil, forming a large number of lateral roots. 8-12 days after the germination of soybean seeds, the first buds begin to appear on the main root. The number and size of the tubers depend on the genotype of the plants, the microflora in the soil and its fertility, and nitrogenization before planting soybean seeds. Tuganak bacteria absorb molecular nitrogen from the air, provide the nitrogen needs of the plant and enrich the soil with nitrogenous compounds [20-35].

The leaves of the soybean plant are complex, with three leaflets per leaf band, which alternate on the stem. The shape of the leaves is different - lanceolate, heart-shaped, oval and round. The shape and size of leaves depend on factors such as temperature, light, humidity and nutrition. The length of the leaf is 5-10 cm, and the width is 3-10 cm, depending on the variety of the shade and growing conditions. The length of the leaf band varies in different varieties: 9-25 cm and the thickness reaches 0.2-0.6 cm. One plant can have 20-40 more leaves. Whether the leaf surface is flat, thick or thin, soft or hard depends mainly on the genotype of the plant. Another characteristic feature of soybean leaves is that as the pods ripen, they turn yellow in colour and fall naturally one after the other.

The flowers of soybean are very small and are placed in the axils of the leaves. The ball flower of the soya has a shingle appearance. The number of flowers in the leaf axil is 20-24, and the size of each flower is 5-6 mm. There are 5 sepals, two of which grow fused, and the lower three develop separately and are longer than the fused sepals.

The presence of non-exchangeable amino acids in the grain of the soybean plant, belonging to the legume family, which has its place in the world, determines its nutritional value. These proteins were considered to be unique to animal proteins. As a result of the tests, the composition of these proteins can be replaced by soybean plant proteins. In addition, the

economic importance of the soybean plant requires the creation of fertile varieties of this plant resistant to various abiotic influences in our country.

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