

Developmental Variations of Soyabean “Nafis” Sort Growing in Low Salinity Soils throughout the Aral Sea

Tamara Oserbaeva

ABSTRACT

In order to develop the optimal sowing time, ensuring high and stable yields of soybeans of the "Nafis" variety in the Aral Sea region, field experiments were carried out on the experimental plot of the Karakalpak Scientific Experimental Station of the Research Institute of Grain and Leguminous Crops. The experience is multi-factorial. Sowing was carried out on three sowing dates: 1st, 2nd and 3rd ten days of April. The results of the study showed that when cultivating soybeans of the Nafis variety in the Aral Sea region, in order to obtain the highest grain yields, sowing should be carried out in the first ten days of April.

Keywords: budding phase, flowering phase, food, grain, meat, milk, oil, optimal, soybeans, sowing time, variety, yield.

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T. Oserbaeva *

Karakalpak Institute of Agriculture and Agrotechnology, Uzbekistan
(e-mail: alishermambetnazarov7@mail.ru)

***Corresponding Author**

I. INTRODUCTION

Soybeans occupy the first place among cereals, and in recent years the attention to soybeans in the Republic of Uzbekistan has been growing. The thoroughness of the soybean depends on the quality of its grain. None of your plants contain as much protein as soybeans. The cost of growing soy protein is very low, and it is high if it is obtained per hectare. When soybean meal is used as a source of nutritious protein feed in poultry, an environmentally friendly product is obtained in the food and beverage industry. Shade-planted areas improve soil microflora by providing the soil with pure nitrogen. With the introduction of soybean cultivation, the problem of protein deficiency can be solved by increasing the production of vegetable oil and providing livestock with quality, protein-rich grasses. In Uzbekistan, soy is used for food and beverages, livestock feed, oil, milk, and confectionery. Soybeans contain large amounts of minerals such as potassium (K), calcium (Ca) and phosphorus. This increases the importance of shade and thus the nutritional power of shade. Including soy is the only plant that produces artificial milk and dairy products.

II. THE PURPOSE OF THE RESEARCH

The object of research is the soybean plant, which is representative of the serdon sabers. Methodology – field greenery of soybean varieties, bush numbers, biometric measurements of plants to be determined by the National Variety Testing Method of field crops. Soil salinity level -A. Arinushkina (1970) and Kovde (1983) and the leaf page size was determined by Nichiporovich (1971).

III. RESULTS OF SCIENTIFIC RESEARCH

The planting times studied in the experiment had a direct impact on the passage of the vegetation period. The phase of 3-leaf formation of true pairs of greenery (Fig. 1) began in

14-15 days in the soybean “Orzu” (Dream) variety, and in 13 days in the “Haligant” variety. When planted late, it was observed that this period was prolonged by 1-2 days.



Fig. 1. The full become green of the soybean is the phase of emergence of the true pair 3rd leaf.

A. Branching Phase

It usually begins when 3-5 complex leaves appear. during this period the plant stalk grows rapidly, then its growth slows down, leaf formation decreases. the lateral branches develop from the lower sections of the stalk. Can be found on its own or at all unbranched varieties. In our experiment, the branching phase was 21 days when planted on April 10 in the “Orzu” (dream) variety; When planted on April 20, it was observed at 22 days, during which time it was shortened to 1 day.



Fig. 2. Time of appearance of the 3rd complex leaf.

B. Budding Period

Soybean varieties studied in our experiment The size of the stem at the time of germination “Orzu” variety 16.1 cm this is a peculiar feature in our study of the transition peculiarities of the developmental phases, the bluish phase is observed in 12-13 days in soybean varieties. the branching phase lasts 20-25 days (Fig. 4). The flowering phase lasts 28-30 days.

C. Flowering Phase

Flowering phase begins with the appearance of 5-6 leaves in early ripening varieties, i.e., when the lateral leaves begin to develop, and in late ripening varieties – 30-70 days after germination. The flowering phase lasts 15-55 days, depending on the variety, agronomic and external factors. Flowering requires intensive plant growth and a constant supply of water and nutrients. It depends on the light and temperature. Once flowering begins, the soybean grows rapidly, and the growth rate depends on the base of the seeds. Flowering begins in the lower tier and begins to slide up and sideways. The appearance and maturation of the legumes is similar. Soybean is a self-pollinating plant. During the flowering period, soybean is more resistant to adverse conditions than other plants. In our experiment, the flowering

phase was observed in 25 days when the “Orzu” variety was planted on April 10; when planted on April 20, observed in 32 days, it was found that this period was extended to 7 days; when planted on April 30, it was observed in 47 days and was found to be 22 days longer than the first period. Observed in 29 days when sown on April 10 in “Nafis” variety; observed in 30 days when planted on April 20, it was found that this period was extended to 1 day; when planted on April 30, it was observed in 47 days and found to be 18 days longer than the first period.



Fig. 3. Flowering period of soybean's.

When the “Orzu” and “Nafis” varieties were planted in the saline soil conditions along the Aral Sea, their growth periods were as follows: when planted on April 10, the “Orzu” variety ripens 7-9 days earlier than the “Nafis” variety. When planted on April 20, it ripened 1-2 days earlier, and when planted on April 30, it took 1-4 days to ripen and ripened late. The total vegetation period in 2019 was 108-112 days for “Orzu” and 117-119 days for “Nafis”. Of course, these indicators vary depending on the weather. In our experience, the weather was very dry and hot.

Plant height and their growth dynamics are directly related to the biological characteristics of the plant and external factors. Plant height is also one of the main indicators of a plant. Our research found significant differences between soybean varieties and planting times. “Nafis” is 5-8 cm taller than “Orzu”, which indicates its drought tolerance. As the sowing period was delayed, the height of the “Orzu” variety increased, and it was found that the option of sowing up to 60 kg per hectare was more suitable. The longest period of vegetation – is the ripening phase, which in our experiment lasted 60-64 days. This process begins with the formation of legumes, which then begin to ripen. (Pictures 13, 14). There seemed to be little difference in the options in 2021. “Orzu” and “Selekta-302” took 108 days to complete the growing season; “Tumaris” took 111 days and “Nafis” 114 days. It was found that there is a difference of 3-6 days between varieties in terms of total vegetation period.



Fig. 4. Studying the flowering phase of soybean.

IV. CONCLUSIONS

1. Indicators of soybean vegetation in all observations of saline soils along the Aral sea (germination, the degree of preservation of the number of bushes, the formation of leaf surface volume - leaf activity, yield, etc.) were found to be high in "Selekta-302" and "Nafis" varieties.

2. Experimental observations showed that among all the studied varieties, the stem height of "Selekta-302" and "Nafis" varieties increased. In the first and third variants ("Orzu" and "Tumaris") the stems were lower than in the second and fourth variants.

3. The low stem height of "Orzu" and "Tumaris" varieties is probably a biological feature of the varieties, because the agro-technological measures were the same for all variants (varieties).

4. The development of soybean leaf also depends on the biological characteristics of the varieties, and it was found that the second and fourth variants of the experiment were optimal.

5. In the experiment, the number of legumes of varieties "Selekta-302" and "Nafis" was 88.4 and 89.6, the weight of one seed was 0.17 and 0.18 grams, in general, compared with other varieties, they were optimal in terms of biometric indicators.

6. The quality of seeds is high in "Selekta-302" and "Nafis" varieties, and their seeds can be used for food.

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