

Technological Characteristics of Grain of Soy Varieties

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Abstract

35% of the vegetable oil produced worldwide is obtained from soybeans and there is no harm to the human body in this plant. The isolate, which is obtained after oil production, is the best raw material in the food industry, because 67-70% of protein is present in its composition.

Keywords: *soybean plant, soil, efficient use of water resources, soil productivity, protein, organic matter.*

INTRODUCTION

Continuous population growth is forcing selective planting of crops with a high protein content in the food grown. In the world, much attention is paid to expanding the areas of ecologically clean plants that do not contain GMO products, chemical and radioactive substances, or the cultivation of organic products. On their basis, fundamental changes are taking place in all sectors of the national economy.

The peculiarity of Uzbekistan in terms of climate and soil fertility differs sharply from other regions. Spring comes here earlier and soybeans are sown in the shortest possible time, unlike in Krasnodar and the Far East. This made it possible to analyze the change in

the chemical composition of soybeans in connection with contrasting climatic conditions. The timing of sowing and the elements of soybean agrotechnology affect the assimilation processes and the chemical composition. Of all agrotechnical practices, the most significant influence on the development of soybean varieties is provided by optimal sowing dates, according to soybean scientists (24, p. 9042-9046; 3, p.106-109; 6, p. 30-31).

In Uzbekistan in 2017, in connection with the adoption of new laws on the cultivation of soybeans and the commissioning of new soy processing enterprises, the demand for soy grain increased. Soybean in Uzbekistan is a new introduced crop, it is necessary to increase soybean production primarily through

the use of new more highly productive varieties. The potential productivity of a variety can be realized only when creating optimal growing conditions, taking into account its sowing time and biological characteristics.

The second important factor determining the quality of the soybean crop is the temperature regime and air humidity, these factors in our conditions are mitigated by the presence of artificial irrigation, but even so, changes in the chemical composition of seeds can be expected. The chemical composition of soybean seeds depends on a whole range of factors, however, it fluctuates in insignificant redistributions, since the main factor determining the chemical composition of seeds is the biological characteristics of the variety.

METHODS

To identify the complex effect of the biological characteristics of soybean varieties that differ in early maturity, experiments were carried out on meadow-serozem soils (Denov district, Surkhandarya region). A comparison of two contrasting sowing dates, spring 1/IV and summer 15/VI, showed that at these dates the chemical composition of soybean seeds changes rather slightly. The average protein content in soybean seeds during spring sowing also, regardless of the precocity group, decreases by 0,9 ... 3% compared to summer sowing. At the same time, it should be noted that mid-season varieties during spring and summer sowings, compared with early and late-ripening varieties, contained more oil and protein (2, p. 39-42).

RESULTS

The analyzes showed that in different varieties of soybeans, the yield and protein content vary depending on the timing of sowing. With late sowing of seeds, the protein content is higher, with early sowing of seeds, the oil yield is greater. For example, in the Madaniyat "B"

variety, with early sowing, the protein in the seeds varies from 39.2 to 40.7%, the oil content varies from 19.7 to 21.0%. In the Nina variety, the protein content is from 38.4 to 40.2%, the oil content ranges from 19.2 to 21.45.

As a result of the research, we came to the conclusion that the most important element of soybean agrotechnology in specific soil and climatic conditions of the southern regions of Uzbekistan is the sowing time. Since 2018, soybean sown areas in Uzbekistan have been increasing, so it is necessary to determine specific sowing dates for these varieties. For study, we took zoned varieties of Uzbek and Krasnodar selection.

The study of soybean varieties of Krasnodar breeding showed that the seeds of the Nina variety contain more oil, but the grain yield was two times lower compared to domestic varieties. The Madaniyat-B variety is early maturing, undersized, forms 34-52 beans, low-yielding in the conditions of Uzbekistan.

Soy is considered a new plant in our country, in fact, this culture has already found its place in the countries of the world. 35% of the vegetable oil produced in the world is obtained from soybeans, and this vegetable oil contains absolutely no substances harmful to the human body. Soybean oil isolate is the best raw material in the food industry, as it contains 67-70% protein.

Thus, soybean meal is an excellent protein-rich feed for livestock, poultry and fisheries. According to the latest data, the soybean area in the countries of the world has reached 107 million hectares, the main part of this area is 36.3 million hectares in the United States and 33.7 million hectares in Brazil. In 2018, 360 million hectares of soybeans were grown around the world, and 60 percent of this grain was imported to China.

DISCUSSIONS

The amount of chemicals in the grain of soybean varieties is different. For example, 40-45% proteins, 20-25% fats, 20-32% carbohydrates, micro and macro elements, as Physical and chemical properties of soybean grain

well as D. Contains vitamins of group B, E and others. It has been established that these indicators vary depending on the variety and ongoing agrotechnical measures during the development period.

Varieties	Dry grain size, mm		Weight of 1000 seeds, g	The grain is fertile ligi, ts/ha	Chemical substances, %	
	Grain length	Grain diameter			protein	oil
Madanyat-B	0,7	0,6	134,1	28,1	39,8	21,0
Do'stlik	0,9	0,7	136,2	34,5	42,4	20,6
Nina	0,6	0,5	132,5	33,6	38,7	22,8

As can be seen from the data of Table 1, the weight of 1000 grains changes little in the section of varieties, because this indicator is one of the characteristics of the variety and changes little. However, the length of the grain, depending on the weight of one thousand seeds, affected the length and diameter of the grain in the variety that was larger. The refore, the length and size of the grain confirmed that the Do'stlik variety has a thousand seeds. The weight of 1,000 seeds of the Nina variety imported from Kazakhstan was small.

In our experiments, we studied the chemical composition of Nina varieties of Kazakh selection, which are grown on large areas in Madaniyat-B, Dostlik and Denov regions, which are regionalized in the republic. The thousand-seed weight, protein and oil contents of three types of well-ripened soybeans, as well as the yield per hectare were analyzed in the section of varieties. Immature soybeans, damaged and broken soybeans were removed. weight was studied. At the same time, grain length and diameter were also measured in these grains. The chemical composition of three different soybean cultivars is given in Table 1 below.

CONCLUSION

Accordingly, the weight of the grain also decreased. When determining the amount of protein and oil in the grain of soybean varieties, it was found that the varieties related to the selection of Uzbekistan have a high protein content and a low oil content. Nina variety of Kazakhstan selection has 38.7 percent protein and 22.8 percent fat. Based on the obtained data, it can be concluded that the use of our local varieties in the food industry, the use of the seeds of the Nina variety with a high oil content as oil seed raw materials in oil factories will have a positive result.

Soybean Madaniyat-B, Do'stlik and Nina varieties can be planted in the saline soils of Denov region and it has been proven in our several years of experience. Soybean is a plant that has great importance in restoring soil fertility. Farmers in the region note that after sowing cotton or wheat, they get an additional yield of 6-8 centners per hectare. Since 2017, soybeans have been planted in the region on more than 1,200 hectares, and the development of soybeans is considered an innovative innovation in meeting the population's demand for food products.

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