A Variety of Soy Suitable for Harvesting in a Combine

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Abstract: Based on the analysis of important economic traits like root shape, stem length, height of the first crop branch above the ground, spreadability of grains during ripening, productivity of 7 varieties and 4 samples of soybeans grown in the hot Surkhandarya region of southern Uzbekistan, the variety information regarding the suitability of samples for harvest in a combine harvester is provided.

Keywords: economic, crop, soybeans.

INTRODUCTION

The soybean is a unique crop that improves the foundation of feed for animals and addresses the issue of natural pure vegetable oil protein for human use. A special protein found in soybeans is comparable in nutritional value to animal protein. It includes vitamins, physiologically beneficial compounds, and priceless trace elements. Soybeans don't contain lactose or cholesterol [2:, 6:]. Soybean meal and oil are the primary byproducts of the soybean plant. Products like milk, bread, and sausages all include its flour. It improves the goods' potency, quality, flavor, and nutritional value. Its oil is frequently used in the culinary industry to make margarine and mayonnaise. [3:, 6:] 21.8-22. During blooming, soybeans have 4 nutrient units in their green mass, along with 100 kg of hay, 47–54 food units, and 11–15 kg of readily digested protein. [4:, 5:.] It has been shown that animals' daily weight gain double when given soybean meal to boost livestock output.

Soybean fields produce a pristine biological and ecological system while also improving the soil microflora. Recent years have seen an increase in the cultivation of soybeans as the production of fodder for food, cattle, fisheries, and poultry has accelerated [3:,5:,7:]. In light of the aforementioned, today's mission is for specialists to choose and develop high-quality and high-yielding soybean varieties.

Relevance: The biology of soybeans indicates that it produces a high level of production and grows well in climatic settings with a mild climate and high air humidity. An ideal temperature range for soybean blooming and seed development is between 20 and 240 C [3:, 6:]. The summertime temperature in the Surkhandarya area ranges from 47 °C on certain days. In addition, there is little humidity in the air. When the grain of different soybean kinds ripens under the influence of such a temperature, the pods chatnab and the seeds are dispersed. This signal typically shows up during warmer weather. [1:, 5;.] Furthermore, the blades of the combine harvester cannot collect the first crop branch if it is not 15–16 cm above the ground level. As a result, the first crop branch and its pods will stay on the ground. [2:, 3:, 8:] The crop will lose some of its production as a result. The

form of the bush and variety affect how well it can be harvested in a combine. Some plant kinds have hollow, upright-growing plant bush shapes. It is challenging to harvest the crop using a combine harvester since certain types have a bush-like spread and the side branches stay close to the ground's surface, often lying down. The vertical growth of different soybean varieties and the placement of the first harvest branch higher than the ground are both impacted by several agrotechnical parameters. Placement of 450,000 bushes at a thickness of 3–4 cm guarantees that it is positioned above as opposed to planting 350,000 soybeans per hectare. [2:, 3:, 7:] because plants that are arranged closely together grow taller than those that are arranged widely. The lying down of the soybean stem, the chattering of the pods, and the low stem are significant aspects of soybean care that are passed down from generation to generation. **[1;]**

Considering the aforementioned, the first harvest branches that have a developing stem that is erect and not lying down are 16 cm. The selection and separation of soybean varieties that are positioned at a height more than 100 m2, whose pods do not break off as the crop ripens and whose grain does not disperse, as well as those that exhibit high productivity indicators, are urgently needed.

The task of research: In order to separate the types suited for harvesting in a combine harvester, introduce them to production, and continue selection work, it is required to examine the valuable economic qualities of soybeans cultivated in the same soil circumstances.

Scientific news The appropriateness of novel kinds and samples of soybeans for harvesting in a combine harvester has not been tested in the south of Uzbekistan, that is, in the Surkhandarya area, where the climate is quite hot and the air humidity is very low.

Materials and methods: outdoor tests. It took place at the Termiz Institute of Agrotechnologies and Innovative Development's educational experimental farm. Desert sand makes up the soil in the experimental location, and the water is highly nutrient-poor (5-7 m). Two reproduction seeds of the soybean Genetic-1, Oltintoj, Beda, Slavya, Selena, and Fovarit varieties as well as samples from Vavilov, Mars, DilHUZ-100, and TAIRI-1 were planted in the experiment as objects. Paykalcha has a 48 sq. m. area. There are three returns in the experiment. The same agrotechnical conditions were established in the experimental region to ensure proper evaluation of the variety samples. UzPITI (2007y), ITI of grain and leguminous crops (2014), and generally recognized methodologies were used in the research.

Result: - Based on the data from 2021–2022, different kinds and samples of soybeans had varied morphological organs and growth period indicators. It was found that early varieties are those with a growth time of up to 100 days, while early varieties are those with a growing period of up to 110 days (Table 1).

The development of plant organs was shown to differ significantly amongst soybean cultivars. Plants of the recently researched Selena, Slavya, Vavilov and Mars, Dilhuz, TAIRI-1 types are 80 cm tall. The tested kinds and samples indicated that the pods fractured and the grain dispersion was 4-5 points following the ripening phase. It has a lengthy stem. After the ripening period, 32ts/ha of types with 5 non-scattering points of grains and 1 pod in the lower portion of the stem that is placed 16 cm above the ground level or suited for field harvesting. More crops were cultivated.

It is important to remember that the distribution of grains in beans is independent of plant height, stem form, and the height of the first harvest branch. Taking into mind the above, soybean types should have a high height, the first crop branch should be 16 cm above the ground, and the seeds shouldn't spread after the ripening stage in order to be ideal for harvesting in a combine.

Conclusion: The TAIRI-1 samples of the soybean Optima, Slavya, Selena, Vavilov, and Mars did not disperse throughout the ripening period in the low-nutrient desert sandy soils of the Surkhandarya region, and the initial harvest on the stem was 16 cm below the surface of the earth.

These kinds and samples' yields can be regarded as varieties appropriate for harvesting with a combine harvester since it is above.

A high yield may be obtained without permitting loss if soybean types that can be harvested using a combine harvester are harvested at the period of full ripening.

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Table 1

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No	Samples	Vegetation period, days	The shape of the bush	Plant height, cm	The 1st crop branch higher than the ground level league, cm.	The scattering of grain, Score	Average yield, ts/ha	Harvest. suitability for harvesting in a combine harvester
1	2	3	4	5	6	7	8	9
1	Genetic -1 (default)	86	ғуж	48	13	4	24,3	average
2	Alfalfa	104	ёйиқ	68	17	4	25,5	average
3	Altintoj	87	ёйиқ	57	12	5	28,2	average
4	Vavilov	110	ғуж	93	22	5	32,3	very good
5	Mars	92	ғуж	102	21	5	33,1	very good
6	Dilhuz-100	84	ёйиқ	91	19	5	27,8	good
7	Optimum	110	ёйиқ	77	16	4	29,4	good
8	Selena	104	ғуж	82	22	5	30,5	very good
9	Slavia	108	ғуж	88	22	5	32,4	very good
10	Favorite	101	ғуж	66	18	4	28,6	good
11	TAIRI-1	87	ғуж	108	23	5	34,7	very good
	ECAF						2,4 ts/ha	

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Page 52