

CHARACTERISTICS OF SOYBEAN VARIETIES BY MORPHOLOGICAL CHARACTERISTICS OF SEEDS

Khasilbekova D.

2nd Year Master's Student in the Direction of "Breeding and Seed Production"

Tangirova G. N.

Doctor of Agricultural Sciences (DSc), Associate Professor

ABSTRACT

This article presents the results of the study of 3 collection soybean varieties from the collection of South Korea early-ripening K09(339), from the collection of the Russian Federation early-ripening Seleкта 201, from the collection of the Ukrainian selection ultra-early ripening Medea, as well as the early-ripening variety Orzu as a standard in the conditions of meadow-marsh soils of the Tashkent region. A number of samples were identified that differed in a set of economically valuable traits, such as seed length and width, color and length of the scar, color and pigments on the surface of the seed coat.

The results obtained indicate that the seed coat of 3 different model soybean varieties is light yellow, and the shape of the seeds is oval. According to the morphological trait, the highest results were noted in the sample K09 (339) for the length of seeds 0.8-0.9 cm, for the width of seeds 0.7-0.8 cm, and the greatest length of the seed scar was observed in the variety K09 (339) and amounted to 3.5-4.0 mm. The seed coat of the studied varieties Selecta 201 and Medea did not show pigmentation.

These samples can be used for further breeding work to create highly productive varieties.

Keywords: soybeans, collection, varieties, seeds, length and width of seeds, color and length of scar, color and pigments of seed coat.

ХАРАКТЕРИСТИКА СОРТООБРАЗЦОВ СОИ ПО МОРФОЛОГИЧЕСКИМ ПРИЗНАКАМ СЕМЯН

Хасилбекова Д. Х.

Магистр 2-курса по направлению «Селекция и семеноводство»

Тангирова Г. Н.

Доктор сельскохозяйственных наук (DSc), доцент

Аннотация:

В данной статье представлены результаты изучения 3 коллекционных сортов сои из коллекции Южной Кореи раннеспелый K09(339), из коллекции Российской Федерации раннеспелая Селекта 201, из коллекции Украинской селекции ультрараннеспелая Медея, а также в качестве стандарта раннеспелый сорт Орзу в условиях лугово-болотных почв Ташкентской области. Выделен ряд образцов, отличающихся комплексом хозяйственно-ценных признаков, таких как длина и ширина семян, цвет и длина рубчика, цвет и пигменты на поверхности кожуры семян.

Полученные результаты свидетельствуют о том, что кожура семян 3 различных образцовых сортов сои имеют светло-желтого цвета, а по форме семян овальная. По морфологическому признаку наиболее высокие результаты были отмечены у образца K09(339) по длине семян 0,8-0,9 см, по ширине семян 0,7-0,8 см, а также наибольшая длина рубчика семян наблюдалась у сортообразца K09(339) и составил 3,5-4,0 мм. Кожура семян изучаемых сортообразцов Селекта 201 и Медея пигментации не наблюдалась. Данные образцы целесообразно использовать для дальнейшей селекционной работы по созданию высокопродуктивных сортов.

Ключевые слова: соя, коллекция, сортообразцы, семена, длина и ширина семян, цвет и длина рубчика, цвет и пигменты кожуры семян.

INTRODUCTION

In world agriculture, soybeans are fourth after wheat, corn and rice, and first among grain legumes and oilseeds. It is known that no crop cultivated by man can compare with soybeans in the chemical composition of seeds and their quality. The content of protein and fat in the seeds of some varieties reaches up to 70% [3].

Soybean seeds vary depending on the variety, soil and climatic conditions and agricultural practices. Soybean seeds after their full ripening have a spherical, oval-flat shape. The seed skin can be colored yellow, green, brown or black. At the junction of the seed with the fruit valve there is a scar of yellow, brown, gray or black color, in some rare forms - green.

The size of the seeds depends on the variety and growing conditions. The weight of 1000 seeds varies in cultivated varieties from 70 to 350 g. Large-seeded varieties are not always productive, since the productivity of the plant depends not only on the size of the seeds, but also on the number on the plant and the density of plants per unit area. In addition, from a technological point of view, small- and medium-seeded varieties are more advantageous. Their seeds are less destroyed during machine threshing, cleaning, sorting, are easier to calibrate for use in precision seeders, etc. At the same time, it is noted that larger-seeded forms, as a rule, have a higher protein content [1, 4,5].

Material and methods of research. The studies were carried out in the fields of the Research Institute of Rice Growing in the conditions of meadow-marsh soils of the Tashkent region.

The objects of the study are varieties from the selection of South Korea K09 (339), from the selection of the Russian Federation Seleкта 201, from the selection of Ukraine Медея. The Orzu variety of Uzbek selection was used as a standard. Collections of soybean variety samples were studied using generally accepted methods

Research results and their discussion. The purpose of the experiment was to study the morphology of seeds (size, shape, color, length and color of the scar) of 3 different soybean variety samples from the collection of South Korea, the Russian Federation and Ukraine.

Table Characteristics of soybean collection samples by seed morphology

1	Variety - samples	Seeds				Seed scar		Seed pigmentation
		color	Form	length (cm)	width (cm)	color	length (mm)	
2	3	4	5	6	7	8	9	
1.	To 09 (339)	light yellow	oval	0,8-0,9	0,7-0,9	black	3,5-4,0	black
2.	Selecta 201	light yellow	oval	0,7-0,8	0,5-0,6	light yellow	2,5-3,0	-
3.	Medea	light yellow	oval	0,7-0,8	0,6-0,7	light yellow	3,0-3,5	-
4.	Orzu (st)	light yellow	oval	0,8-0,9	0,7-0,8	black	4,0-5,0	-

The standard variety Orzu had a seed length of 0.8-0.9 cm, a width of 0.7-0.8 cm, oval shape, light yellow color, no pigments were found on the skin surface, the color of the scar was black, the length was 4.0-5.0 mm. The obtained results indicate that the studied collections of model soybean varieties had light yellow seed color and were close to the indicators of the standard variety Orzu (light yellow).

According to the morphological feature, the highest results were noted in the variety sample K09 (339) for the length of seeds 0.8-0.9 cm, for the width of seeds 0.7-0.8 cm and were close to the indicators of the standard variety Orzu. In the varieties Selektta 201, Medea, the length and width of seeds, respectively, were 0.7-0.8 cm and 0.5-0.6 cm; 0.7-0.8 cm and 0.6-0.7 cm. In the experiments, it was noted that the collections of model soybean varieties Selektta 201 and Medea have a light yellow scar color, and in the variety sample K09 (339) it is black and was close to the indicators of the standard variety "Orzu" (black). It was noted that the collection of model varieties K09 (339), Selektta 201, Medea had seed hilum lengths of 3.5-4.0 mm, 2.5-3.0 mm, 3.0-3.5 mm, respectively.

The majority of the collection of model soybean varieties had seed coats covered with light green, light brown, gray, and black pigments of various shades. The seed coat of the K09 (339) variety was covered with black pigments, while pigmentation was not observed in the Selektta 201 and Medea varieties.

CONCLUSION

Thus, it should be noted that according to the morphological characteristics of seeds (size, shape, color of seeds; color and length of the hilum of seeds) there was a similarity and significant difference between the collection samples of soybean varieties.

It was revealed that the seed coat of 3 different soybean varieties has a light yellow color, and the shape of the seeds is oval.

It is noted that according to morphological characteristics, the highest results were shown by the variety sample K09 (339) for the length of seeds 0.8-0.9 cm, for the width of seeds 0.7-0.8 cm, and the greatest length of the hilum of seeds was observed in the variety sample K09 (339) and amounted to 3.5-4.0 mm. The seed coat of the studied sample varieties Selektta 201 and Medea did not show pigmentation.

From a practical point of view, varieties with light-colored skin and scar are preferable, which allows for more complete use of soybean processing products not only for feed purposes, but

also for obtaining higher-quality vegetable oil, confectionery and other food industry products, since dark skin pigments create certain technological difficulties in cleaning these products [1]. Light color of the skin and scar is the most important indicator, and is widely used in the production of high-quality oilseed, confectionery and food industries. These include the soybean varieties Selecta 201 and Medea.

The study of introduced collection samples of soybeans by seed morphology in meadow-marsh soils of the Tashkent region is valuable breeding material for the creation of soybean varieties in the Republic.

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