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INFLUENCE OF DIFFERENT SEEDING METHODS AND FERTILIZATION RATES ON THE STRUCTURAL PERFORMACE OF COTTON VARIETIES

Nizami Seyidaliev, Khalig Khalilov, Mina Mamedova*

Azerbaijan State Agrarian University, Ganja, Azerbaijan

Abstract. This paper is devoted to investigation of the the development of cotton growing in Azerbaijan that is of great importance both economically and socially. The object of the study is the varieties Ganja-103 and Ganja-110. Sowing was carried out in two ways: ordinary and ridge. Fertilizers were applied in the doses: $N_{100}P_{50}K_{40}$ and $N_{120}P_{75}K_{50}$.

Keywords: *ridge sowing, ordinary sowing, fertilizer norms, cotton, variety, weight of 1000 seeds.*

****Corresponding Author:*** *Mina Mamedova, Azerbaijan State Agrarian University, 450, Ataturk avenue, AZ 2000, Ganja, Azerbaijan, e-mail: vmns@mail.ru*

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1. Introduction

Azerbaijan in order to increase employment and income opportunities in rural areas through the most efficient use of the potential of the cotton industry, as well as to strengthen the export potential, the State Program 2017-2022 was adopted.

Achieving cotton development requires an integrated approach in this area. One of the important conditions for ensuring the competitiveness of cotton production in the world market is to provide producers with better seeds.

Currently, from the point of view of agronomy and economics, the use of bare cotton seeds is more effective. Therefore, in the near future, the Ministry of Agriculture plans to take appropriate measures to expose cotton seeds in the country.

Work is underway to introduce modern irrigation systems, fertilizers, attract new technologies, train those involved in this area, improve the reclamation conditions of soils in cotton-growing areas, restore irrigation systems, introduce a cooperative system for growing cotton, and improve human resources.

Over the past 20 years, new precocious varieties with high potential have been created in Azerbaijan, which are more resistant to the environmental conditions than their predecessors. Eight new varieties of cotton were zoned, their yield is 50-55 centner per hectare (AzNIXI-195, Ganja-2, Ganja-8, Ganja-78, Ganja-80, Ganja-103, Ganja-110, Ganja-114, Ganja-160), and work was also done on their primary seed production (Aslanov, 2014).

On the eve of the regionalization of these varieties, 45-55 centners of yield per hectare were obtained on the test crops of the farms of Mil, Mugan and the districts of Central Aran. Currently, in cotton growing regions under normal agrotechnical conditions, the harvest of these varieties is 40-45 centners per hectare (Seyidaliyev, 2015).

In order to get a high and high-quality crop, first, it is necessary to grow high-quality seeds. Seed is of strategic importance. The higher its genetic potential, the higher the

product. The most important indicators are the quality of the seeds of the varieties. The higher the quality of the seeds, the greater the likelihood that the genetic characteristics of the variety may persist for a long time.

In varieties of cotton, the mass of seeds largely depends on its size and performance. The weight of the seeds can be from 50 to 200 mg and a little higher. In medium-fiber varieties, the mass of seeds is 90-160 mg, and in fine-fiber varieties, 120-150 mg. In cultivated cotton varieties, the weight of the seeds is usually determined by the weight of 1000 seeds. The larger and fuller the seed, the larger the size of the seed.

Depending on their genetic capabilities, biological and morphological characteristics, each variety has its own characteristics for fiber production. The main product of cotton is its fiber, that is, all seeds that are separated from the seeds. When using fiber, they attach great importance to its technological properties.

High fiber quality is one of the main characteristics of the variety. The main technological properties of cotton fiber are its length, fineness, strength, elasticity and curly properties. In cultivated forms of cotton, the fiber length varies from 18-20 mm to 40-50 mm and even 55-60 mm.

The strength of the fiber in the grades depends on its thickness. Therefore, the larger the cellulose layer is in the fiber wall, the stronger it is. Therefore, fibers in boxes that open to frost are more durable than immature fibers. In cotton varieties, the elasticity of the fiber is its inherent property, which is closely related to the strength of the fiber. Strong and thin fiber is the most elastic fiber (Seyidaliyev *et al*., 2018).

After the liquidation of elite seed farms existing in the republic before the agrarian reform, as well as farms engaged in the production of cotton seeds of the first and second reproductions of cotton seed, specialized cotton processing plants in the regions, seed production was not properly carried out. Therefore, today farms should be created that will directly engage in the production of cotton seeds.

Each year, due to its biological characteristics, growing the same or similar crops on the same field with the creation of a unique monoculture dramatically reduces the fertility of the fields, causing the spread of diseases and pests, and violates the ecological balance. In recent years, the continuous use of soils, an insufficient supply of mineral and organic fertilizers has led to a decrease in soil fertility. Cotton is the best predecessor in the crop rotation system. Thus, cotton is a good precursor for legumes, vegetables, melons and other crops (Aslanov, 2014).

Azerbaijan is one of the countries involved in cotton growing. Azerbaijan has great potential for the development of cotton production. Cotton growing is not only an orderly and highly profitable production sector, but also a sector that can give impetus to the development of light industry in the country. From time to time, this culture is of particular importance in the socio-economic development of our country.

2. Materials and methods

One such study is the study of the influence of sowing methods and fertilizer rates on the structural indicators of cotton varieties in the Mil Steppe. As a result of the studies, it was revealed that the structural indicators of varieties, depending on agricultural practices, were different. The applied agrotechnical ones had an impact on the number of bales, on the output of raw cotton from one box, on the weight of 1000 seeds.

With ridge sowing and fertilizer rate $N_{120}P_{75}K_{50}$, the number of boxes in the Ganja-103 variety was 10.2 units, and in the Ganja-110 variety, it was 11.6. In conventional

sowing, the variety Ganja-103 was 8.9 units, and the variety Ganja-110 – 9.8. The mass of raw cotton from one box, the mass of 1000 seeds also differed (Seyidaliyev, 2015; Seyidaliyev & Mammadova, 2018).

A complete modernization of the technologies used the introduction of high-yielding, precocious varieties, strengthening the material and technical base of cotton production, the development of effective measures to prevent diseases and pests of cotton, increasing the productivity of cotton, make cotton growing the most cost-effective area of the national economy (Tagiyev, 2015).

The economic indicators of cotton varieties differ depending on their genetic, biological and morphological characteristics. The cotton bolls is its fruit, and it opens only after ripening.

3. Results and discussion

In industrial varieties, the largest bolls are in medium staple varieties (the mass of raw cotton) and are 5-8 grams. In fine-fiber ones, they are relatively small (up to 1,8-4,0 g). The size of the bolls may vary depending on external conditions and agricultural technology, and also differ from the location on the plant. The capsules located in the lower and upper parts of the bush are much smaller than in the middle part.

Depending on the type and variety of cotton, the color of unripe bolls can be light green, dark green or red. Each box, depending on the number of nests, contains from 25 to 50 seeds. After ripening, the box dries up and opens.

The seed is of strategic importance. The higher its genetic potential, the higher the yield. The most important indicators of varieties are the quality of the seeds and their ability to develop vigorously. The higher the quality of the seeds, the more likely it is that the genetic characteristics of the variety can be maintained for a long time.

Table 1. Influence of different seeding methods and fertilization rates on number of bolls, extraction of cotton-raw material with one boll, weight of 1000 seeds and on the exit of fiber of cotton varieties

Variants			Number of bolls per bush, units	The weight of raw cotton in one boll, grams	The exit of fiber, %	Weight of 1000 seeds, grams
Varieties	**Seeding methods**	**Fertilizer rates**				
Ganja-103	**Ordinary sowing**	$N_{100}P_{50}K_{40}$	8,6	5,3	35,6	118-121
		$N_{120}P_{75}K_{50}$	8,9	5,4	35,8	119-121
	Ridge sowing	$N_{100}P_{50}K_{40}$	9,6	5,7	36,6	123-125
		$N_{120}P_{75}K_{50}$	10,2	5,8	37,1	125-129
Ganja-110	**Ordinary sowing**	$N_{100}P_{50}K_{40}$	9,2	5,4	36,0	119-122
		$N_{120}P_{75}K_{50}$	9,5	5,6	36,2	123-126
	Ridge sowing	$N_{100}P_{50}K_{40}$	9,8	5,8	36,8	125-129
		$N_{120}P_{75}K_{50}$	11,6	5,9	37,9	125-132

Plant varieties play a biological role in modern agricultural production and the introduction of intensive technologies. In addition to environmental factors, all applied agricultural techniques have a significant impact on the change in all structural indicators by category.

4. Conclusion

The seeding methods and fertilization rates used in the study had different effects on the number of bolls, fiber yield and 1000 seed weight in cotton varieties. With ridge sowing and fertilizer rate $N_{120}P_{75}K_{50}$, the number of bolls for variety Ganja-103 was 10.2 units, And for variety Ganja-110 – 11.6 units for a variety with a fertilizer rate of $N_{120}P_{75}K_{50}$ per hectare. Based on this fertilization rate, the indices for the ordinary sowing, with the same fertilizer rates, the number of bolls for the Ganja-103 variety was 8.9 units, and for the Ganja-110 variety – 9.8 units.

The weight of raw cotton in one boll, the weight of 1000 seeds, and the fiber yield were high in both varieties in the variant where the sowing was carried out by the ridge method with a fertilizer rate of $N_{120}P_{75}K_{50}$ per hectare.

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