

The Influence of Different Selection Varieties of Cotton Primary Working Process on Pollution Amount

Yuldasheva M. T

Jizzakh Polytechnic Institute (Uzbekistan)

S. Yodgorov

Tashkent Institute of Textile and Light Industry

Abstract: in this article, the research work was carried out in the enterprises of the cluster system of "ZAMIN ANGOR CLUSTER" LLC and "DENOVA TEXTILE CLUSTER" LLC in Surkhandarya region. For him, the degree of contamination of the fiber of the seed obtained from promising selection varieties Surkhan-9, Surkhan-101, Termez-49, Termez-208 and Surkhan-102 grown in some farms of Denov and Shorchi districts was studied in the laboratory of the Department of "Textile materials Science".

Keywords: bruised or damaged seeds, half-seeded seeds, discolored seed kernel, seed chalaza, side and micropyle parts, mechanical damage of seed, hairiness, residual hairiness, seed coat migration with fiber, number of cracked seeds.

I. INTRODUCTION

In the current conditions, it is necessary to create cotton varieties with high productivity, quick ripening and quality indicators, which satisfy the demand of the population, for the production of ready-made products that meet the demand of the population. However, some of the newly created varieties are being withdrawn from planting in short periods. Therefore, first of all, it is necessary to pay close attention to the field of breeding. In addition, the effectiveness of cleaning from impurities in cotton ginning plants of some varieties being created is low [1].

The cotton ginning enterprises of our republic are equipped with modern equipment with maximum cleaning capabilities. However, in the processing of raw materials in this equipment, selection varieties are very important. Because, during the initial processing of cotton, the cleaning efficiency of selection varieties and changes in quality indicators are different. For example, some breeding varieties are less effective in removing small and large impurities, but the fiber quality indicators are high. Therefore, during the processing of selection varieties in cotton ginning enterprises, the optimal option for each selection variety is developed [2].

Cotton is accepted from farms to cotton processing centers according to moisture and dirtiness. If the moisture content is higher than the standard indicators, it is passed through drying-cleaning workshops before acceptance, and then accepted. If the moisture content of cotton is higher than the standard parameters, it is not well cleaned from small and large impurities, as a result, the finished products obtained may be of poor quality. Therefore, in cotton ginning plants, any amount of moisture is dried to a specified standard moisture content and only then involved in the cleaning process.

In the cotton growing fields of our republic, our breeding scientists have been creating a number of varieties of cotton that are resistant to various diseases, have high productivity, and mature in a short period of time. The changes in the quality indicators of cotton during the initial processing and spinning processes of these selection varieties are different. Therefore, cotton ginning and spinning enterprises develop optimal options for each breeding variety. However, it is also possible to obtain low-quality yarns during the spinning process of raw materials pre-processed according to the optimal option in cotton ginning enterprises. Because the yield potential of these selection varieties is also different. The ginning process is also important to maintain the quality of cotton. Because, during the cleaning process, the fiber or seed can get various injuries, as a result, the number of accidents in the subsequent processes will increase by itself, and the quality indicators of the fiber will deteriorate. Therefore, organizing the cleaning process on the basis of a fixed chain makes it possible to maintain good product quality [3].

In the process of processing cotton in cotton ginning enterprises, especially during cleaning and ginning, the number of defective seeds increases. In addition, one of the main reasons for the increase of these indicators is the long-term storage of cotton in the garm, the moisture content exceeding or decreasing the standard indicators, not cleaning well, and secondly, the level of resistance of different selection varieties to the effects of technological processes is different. Therefore, optimal conditions are determined for each breeding variety in cotton ginning enterprises. If the seed is above the established standards for the level of contamination, it is accepted for lower grades. In addition, there are oil defects in the seed, which include bruised or damaged seeds, half-kerneled seeds, and discolored or damaged kernels. This is also of great importance in determining the type of seed. Defective seeds include seeds with black kernels and seeds with dark kernels, damaged kernels with less than half of their kernels, empty kernels. Ginning is the process that most negatively affects the quality of fiber and seed in a cotton gin. The teeth of the saw will break the seeds with moisture content below the standard values or cause an increase in the number of cracks on the surface of the seed. As a result, it causes a decrease in the number of seeds and an increase in technical seeds. In addition, the seed of some selection varieties will not be strong.

When the quality of seed cotton decreases, during the separation of fiber from the seed in the gin equipment, about 40% of the fibers are mechanically damaged, and the amount of defects and waste in the fiber content increases 2-3 times. Some harmful defects, such as bark fibers and nodules, are increased. As a result, the quality indicators of finished products obtained from fiber deteriorate. In addition, the degree of damage increases as a result of improper drying of seeded cotton or drying at high temperature in cotton ginning enterprises, as a result of a decrease in the moisture content of the seed. The cotton seed has an irregular and symmetrical shape. The seed consists of chalazae, lateral and micropyle parts. For example, when we dry cotton at high temperatures, there is a greater possibility that the husks will move with the fiber, especially since the chalaza part of the seed is looser. These indicators differ in selection varieties. Therefore, some selection varieties should be dried at high humidity, some selection varieties should be dried at medium humidity.

II. METHODOLOGY

In order to study this feature of cotton seed, scientific and research work was carried out. For this purpose, the properties of the seeds of various selection varieties after the initial processing at the cotton ginning plant were studied, such as mechanical damage, hairiness, residual hairiness, the fiber transfer part of the seed husk, and the amount of cracked seeds.

The results of the scientific research are presented in table 1.

1-Table. Changes in the amount of impurities in the seed of different breeding varieties after the germination process

№	Indicators	Selection varieties				
		Termez-49	Surkhan-101	Surkhan-9	Termez-208	Surkhan-102
1.	Amount of defective seed, %	1,5	1,6	1,1	1,2	1,8
2.	Mechanical damage to the seed,%	2,15	2,34	2,12	1,96	2,76
3.	Hairiness of the seed,%	9,4	9,4	10,2	9,6	10,5
4.	Residual fiber of the seed,%	0,109	0,102	0,118	0,095	0,118
5.	The amount of mineral and organic impurities, %	0,13	0,14	0,12	0,14	0,15

III. RESULTS AND DISCUSSION

The graphs of changes in the amount of contamination of the seed of different breeding varieties after the ginning process are presented in Figures 3.5-3.7.

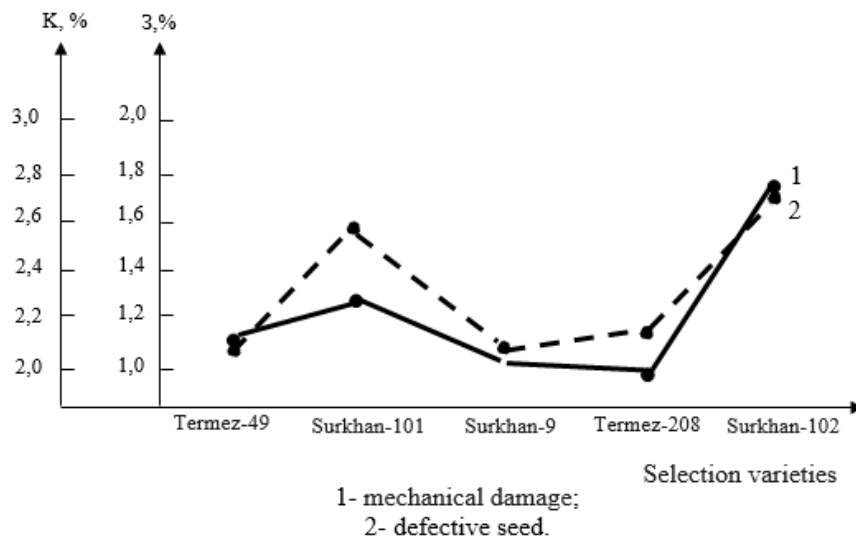


Figure 1. Changes in defectiveness and mechanical damage of seeds of different breeding varieties.

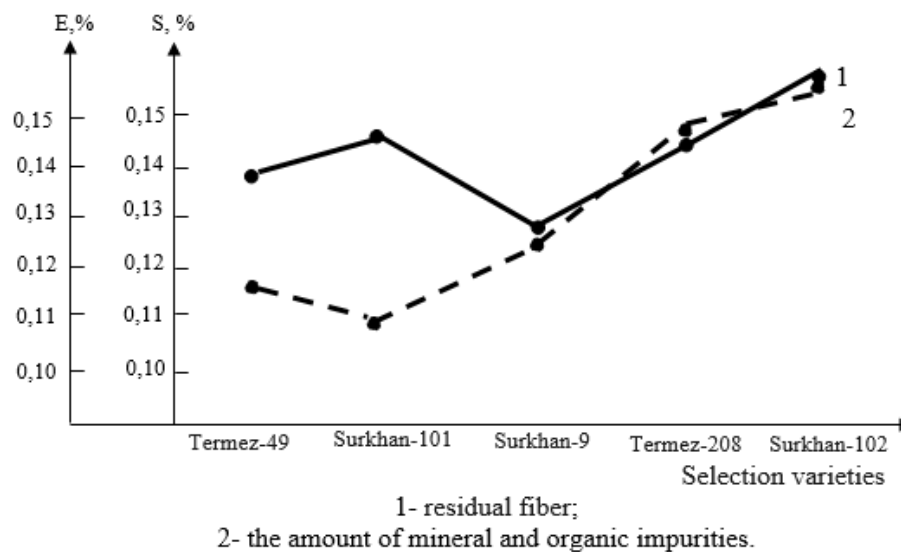


Figure 2. Changes in the amount of residual fiber and mineral impurities of seeds of different breeding varieties.

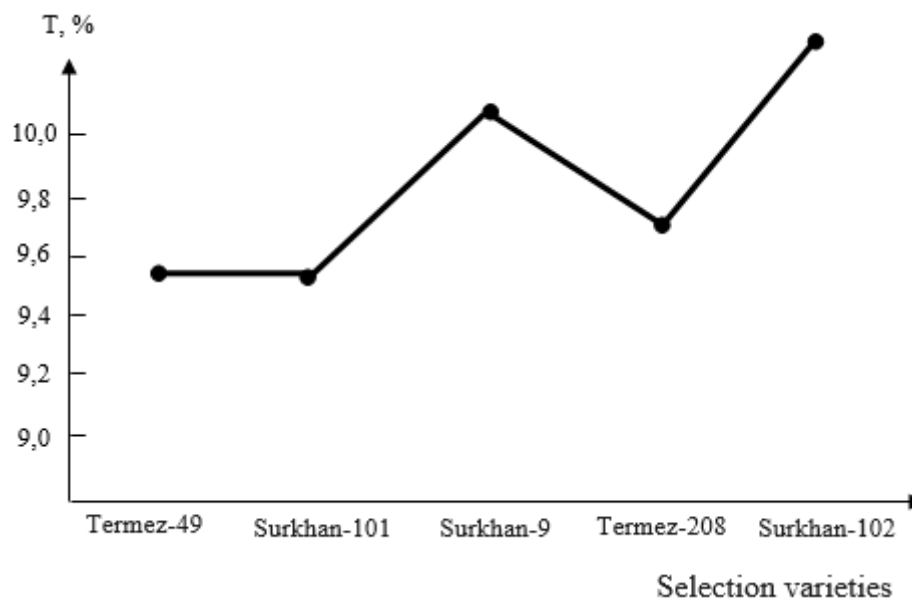


Figure 3. Changes in hairiness of seeds of different breeding varieties.

The change in the amount of impurities in the seed of different breeding varieties after the germination process was studied. If we compare the obtained test results with the parameters of cotton seed of the selection grade Termez-49, the amount of defective seed of the selection grade cotton Surkhan-101 increased by 6.2%, mechanical damage increased by 8.1%, hairiness did not change, residual fiber by 6.4% decreased, the amount of mineral and organic impurities increased by 7.1%, the amount of defective seeds of Surkhan-9 selection grade cotton decreased by 26.7%, mechanical damage decreased by 1.3%, hairiness by 7.8%, residual fiber by 7.6 increased by %, the amount of mineral and organic impurities decreased by 7.6%, the amount of defective seeds of Termez-208 selection grade cotton decreased by 20.0%, mechanical damage decreased by 8.8%, hairiness by 2.68%, residual fiber by 12 decreased by .8%, the amount of mineral and organic compounds increased by 7.1%, the amount of defective seeds of Surkhan-102 selection grade cotton by 16.7%, mechanical damage by 22.1%, hairiness by 12.1%, residual fiber By 7.1%, the amount of mineral and organic impurities increased by 13.35%.

IV.CONCLUSION

The results of the study showed that in the process of processing cotton of different selection varieties, the mechanical damage of the seed, the amount of defective seed and the hairiness of the seed were found to be higher in the Surkhan-101 and Surkhan-102 selection varieties than in other selection varieties.

REFERENCES:

1. T.Ochilov, H.Yodgorova, Sh.Shumkarova, M.Yuldasheva. Study the state of deformation of fibers with variable properties. // E3S Web of Conferences (Scopus), 2023. –P. 273–276. – T. 434. – №.4.
2. Lugachev A.E. Issledovanie osnovnykh elementov ochistiteley klopka-syrtsastselyu povysheniya kachestvennykh pokazateley procesesa: Diss...kand.techn.nauk: - Kostrama, 1981. – P.110-125.
3. Babakhanova M.R. Совершенствование процесса ochistki srednevoloknistyx navov hlopka-syrtsa vyborom rationalnykh znacheniy vlnajnosti. Dissertation na soiskanie uchennoy stepeni k.t.n. Tashkent 1987 S. 75-90.
4. Achilov T.A. Vliyanie temperature dry cotton-surface na kachestvo fiber i sodержanie porokov. Dissertatsii na soiskanie uchenoy stepi candidate tehnikeskikh nauk. Tashkent, 1989.

5. I.D. Madumarov, B.M. Mardonov, T.O. Tuychiev. Issledovanie dvizheniya letuchki hlopka-syrtsa v zone ego vzaimodeystviya s setchatoy poverkhnostyu. //Problem textiles. – 2013, No. 1. – S. 75-80.
6. Tuychiev T.O., Madumarov I.D., Mardonov B.M. Investigation of the process of release of dirt impurities in the zone of interaction of it with a netlike surface // European Science Review. Vienna,- 2017. - №9-10 (279). -P.208-210.
7. Atanafasov Muhiddin Rakhmonovich “Iplarning sifat ko‘rsatkichlarining o‘zgarishi” // Innovative Development in Educational Activities // ISSN: 2181-3523 Volume 2, Issue 4, 2023.
8. Atanafasov Muhiddin Rakhmonovich, Ochilov To‘lqin Ashurovich, Rahimjonov Husanboy Rahimjonovich “Turli tarkibli va qayta ishlangan tolalar aralashmasidan olingan piltaning notekislik ko‘rsatkichlarining o‘zgarishi” //Innovative Development in Educational Activities // Volume 2, Issue 4, ISSN: 2181-3523, 2023.
9. Atanafasov M.R., Ochilov T.A., Usmonova Sh.A., Yuldashyev J.N., Hakimov Sh.H. Influence of Cotton Fiber of Different Composition and Secondary Material Resources on Single-Cycle Elongation Deformation of Yarns // International Journal of Innovative Research in Science, Engineering and Technology – India, Volume 11, Issue 2, February 2022. pp.1135-1137.