

METHODS OF REDUCING FIBER LOSS IN COTTON GINNING PLANTS

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Abstract

This scientific article provides a large-scale study of trap seed machines in ginneries. Disadvantages of working machines in the plants are discussed, as well as selection varieties of cotton. In order to solve problems, experiments are given on the basis of selective varieties of seeds and the output of seeds on cotton-plated factories in areas.

Keywords: cotton, seed, short fiber, mesh surface, screw, bunker, ventilator, air.

Introduction

Since the independence of our republic, special attention has been paid to the rapid development of the production of finished products with high added value based on the deep processing of cotton raw materials, the improvement of the efficiency of production of cotton products in the domestic and foreign markets based on the modernization of the cotton ginning industry, and to ensure their competitiveness by improving quality indicators. In this regard, significant results have been achieved in the restoration of cotton ginning machinery, the establishment of the domestic production of the necessary equipment and technologies, including, today, cleaning of cotton from large and small impurities, machines for separating fiber and fluff from seeds, and packaging (pressing) equipment for cotton products, as well as for them the activities of enterprises that produce components and provide them with service have been launched. In addition to this, in the initial processing of

cotton, at each stage of the seed preparation process, including its transfer to production and air flow sorting, identifying and eliminating factors that have a negative effect on the natural properties of cotton seed, and energy-saving technologies that ensure the reduction of material and energy costs. creation and improvement is required. In the Strategy of Actions for further development of the Republic of Uzbekistan in 2017-2021, among other things, the task of "increasing the competitiveness of the national economy, reducing the consumption of energy and resources in the economy, and widely introducing energy-saving technologies into production" is defined [1-4].

Decree of the President of the Republic of Uzbekistan No. PF-4947 of February 7, 2017 "On the Strategy of Actions in Five Priority Areas of Development of the Republic of Uzbekistan in 2017-2021", No. PQ4707 of March 4, 2015 "Structural Reforms, Modernization and Production for 2015-2019 The Resolution of the Cabinet of Ministers dated January 8, 2014 No. 5 "On Additional Measures to Reduce Production Costs and Product Costs in Industry" and other regulatory legal documents related to this activity this dissertation research serves to a certain extent [5-8].

The main part

Basic physico-mechanical properties of cotton seed I.I. Novitsky, S.P. Ivanov, D. E. Kharmats, N. M. Bushuev, S. It was studied by Ismoiljanov and other scientists.

When sorting seeds in an aerodynamic sorter, the shape and size of the seeds are of great importance. Types and sizes of seeds in cotton ginning enterprises according to selected varieties are as follows. 1/1- is presented in the table.

In the table above, experiments were conducted after the ginning process in the processing of cotton raw materials for different selective varieties, and the seed quality and hairiness level were analyzed. In this case, as a result of the analyzes obtained from the experiment, the amount of seed coming out of the cotton raw material being processed during the separation of fiber from the seed from the ginning machine, the amount of seeds released during the ginning process, the amount and the percentage of incompletely ginned seeds in one selective and industrial variety of cotton, but in different classes of the selective variety, and when experiments were conducted in different classes of seeds differed sharply in terms of quality indicators. Among the listed indicators, the indicator that negatively

affects the yield of the seed is that the seeds do not separate in large quantities after full germination. Incorporation of whole seeds into the germinated seeds further reduces the yield of this germination process. In order to solve this problem, many scientists have conducted research and proposed machines for sorting seeds that have not been ginned

Table 1.1.

The main dimensions of the seed of the most common varieties of cotton

Selective variety	Seed size			
	Length (д) мм	Diameter (д) мм	1000 sow seeds mass, г	Hairiness, %
С-6524	8,0-12,25	5,5-8,75	138,2	0,5
Порлоқ-5	8,2-12,22	5,4-8,84	136,9	0,5
Наманган -34	7,25-12,3	5,6-,9,0	125,8	0,5
Наманган -77	7,8-11,4	5,4-8,6	101,6	0,5
АН-35	7,9-12,31	5,5-8,35	120,9	0,5
Порлоқ-7	8,1-,12,2	5,8-9,8	97	0,5
Порлоқ-4	8,0-12,1	6,1-8,4	126	0,5

One of the most urgent problems facing the cotton ginning industry is to preserve the natural properties of seed, which is the main product of cotton ginning enterprises. In this case, during the initial processing of cotton, it is observed that after each technological machine, the seed is released, the seed is damaged, and impurities are added to its composition. In Table 2.2 below. Fiber yield indicators for cotton varieties are given in the cross-section of tumuns.

Table 2

	Turakurgo n	Norin	Chust	Mingbul ok

	%	TO Hha	%	T OHha	%	T OHha	%	T OHha
	3	84	3	6	3	3	3	8
	5,2	07	4,6	880	6,1	715	4,0	815
	3	82	3	1	3	4	3	1
	4,8	4	3,0	56	6,9	17	2,8	264
	3	33	3	4	3	1	3	3
	4,4	1	1,3	7	5,8	43	0,2	26
	2	49	2	4	3	7	2	2
	9,7	4	7,9	1	2,2	6	8,0	68
	2	96	2	5	3	8	2	1
	7,4		6,3		3,3		6,3	27

Table 3

	Kosonsoy		Uychi		Uchkurgan	
	%	tons	%	tons	%	tons
	35.2	643	3	1926	35.3	53
		6	5			49
	33.7	755	3	181	34.4	52
			5.1			9
	30.3	242	3	156)	31.3	28
			2.6			4
	28.2	162	3	71	29	26
			0			2
	26	50	2	11	28.3	56
			6.3			

In the experiments carried out in cotton ginning factories in Namangan region, it was shown that fiber output is low in some factories.

For example, it was shown that fiber output in cotton ginning factories of Norin and Mingbulok districts is lower than the regional indicator. So, in the process of separating the fiber from the seed in those factories, there is a situation where the seeds with fiber come out. The inefficiency of the machines that capture the fibrous seeds leads to such defects. This indicates the need to improve the design of machines that hold seeds with fiber.

Seed sorting machines from the ginning process are divided into 3 types according to the working process and construction

1. Air flow separation method.
2. Separation method in mechanical devices.
3. Separation by mesh properties of the material surface.

The regenerator works in the same way: the seeds separated from the fiber, as well as full and partially ginned cotton fiber, are thrown into a belt conveyor for seeds (Fig. 1), which is transferred to the regenerator. The fibers coming out of the layer are separated from the seeds by the saw cylinders with their teeth and sent to the drum with a sieve 3, removed from the saw teeth and directed to the receiving pipes 4, connected to the separator. The seeds separated from their fibers are dropped onto the transport belts through the seed collecting auger. I. The operation of the saw cylinders and sieve drums is carried out through a special reducer of the chain feeder of the electric motor.

CONCLUSION

Based on the above results, it can be concluded that in the process of cleaning in seed sorting machines, damage to seeds was observed when separating the fiber from the seed in the gin machine. In the future, the analysis of cotton seed sorting equipment showed that all devices have disadvantages such as low efficiency and high energy consumption. Based on the analysis of the research results, the goal was to create a new sorting machine design.

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