

STUDY OF SPACING OF PILE DRUMS WITH SUPPLY ROLLS

H. E. Turdiyev

Lecturer, Fergana Polytechnic Institute, Fergana, Uzbekistan

G.Xolmatova

Student, Fergana Polytechnic Institute, Fergana, Uzbekistan

M.Qo'ldosheva

Student, Fergana Polytechnic Institute, Fergana, Uzbekistan

Annotation. The article defines the influence of the distance between the feeding rollers and the caustic plank drum on the cleaning effect of machines. As a result of experimental studies, it was achieved on increasing the cleaning effect of machines on the 1-grade 5.0–6.0%, and in the 3-grade 7.0–8.0%.

Keywords: Cotton, handkerchief, minesweeper, cooker, arachinick, nav, class, car, selection, cigar.

Introduction

80-85% of raw cotton grown in our country is high-grade. In the high grades of cotton, there are mainly small impurities, which are in different (active and passive) connection with the fiber. A certain amount of impurities are activated during the period of picking cotton, transporting it from the field to cotton processing centers and cotton gins, ginning and transferring it to the production departments. The strength of binding of active and passive impurities to the fiber is determined by the moisture content of the raw material, the twist and stiffness of the fiber. The cleaning process takes place optimally when the humidity of the fiber is 5-6 percent. The twistiness of the fiber depends on the moisture content of the raw material and the type of selection. It is desirable to separate the structural composition of cotton into small single-seeded cotton pieces during the preparation of the raw material for the cleaning process. At the minimum indicator of the structural composition, the cotton fiber is spread, and favorable conditions are created for the separation of impurities in it.

Feedback

Side panels

History



Saved

Contributions Due to the fact that the interlinking of the cotton pieces is different, in the process of cleaning from large impurities, the cotton pieces attached to the saw drum with the help of a fixed brush hit several colossal grids, and the bond between the pieces connection decreases, and after a certain period of time, the interconnection disappears. As a result, raw materials are added to the impurities. This, in turn, leads to the installation of additional equipment and an increase in costs for the return of cotton, which is included in the composition of impurities. In order to eliminate the above shortcomings, it is proposed to ensure the minimum structural content in the processes of cleaning from small and large impurities [1; p. 63].

The main part

In several research studies, it was concluded that the smallest size of the cotton piece and the separation of the dirty compounds in the cotton in their cut state increases during the cleaning process. That is to say, the higher the level of cotton used in the process, the faster the separation of impurities in the cotton. The composition of the cotton structure is one of the efficiency criteria of the cleaning process.

The diameter has the greatest value when the fibers of a piece of single-seeded cotton are parallel to each other and perpendicular to the surface of the seed. Alignment and parallelization of fiber increases the surface area of single-seeded cotton and increases the efficiency of drying and cleaning processes [2; p. 62].

A cotton boll consists of 7 to 9 single-seeded cotton bolls. One flap at the end of a piece of cotton has connections to 2 adjacent flaps, and the others have 3, 4, and 5 connections.

As a result of cutting cotton pieces in technological processes, they become single-seeded cotton pieces. In the process of separating the pieces, single-seeded cotton fibers spread and increase in size. So, the size of a piece of single-seeded cotton depends on the number of separations of the bond between the pieces of cotton.

As the number of separations increases, the value of a piece of single seed cotton increases from 20 mm to 40 mm. When the equivalent diameter of a piece of single-seeded cotton has the largest value, the pressure of the fibers on impurities is at a minimum level. As a result, the open surface of the fiber is maximum, which accelerates the cleaning process.

Due to the fact that the interlinking of single-seeded cotton pieces is not strong during the cleaning process, the cotton pieces are added to the impurities. Under the effect of the softening brush and colosnik grid, the interlinking of single-seeded cotton pieces decreases, and when its value reaches the maximum level, it causes the interlinking of cotton pieces to break [3].

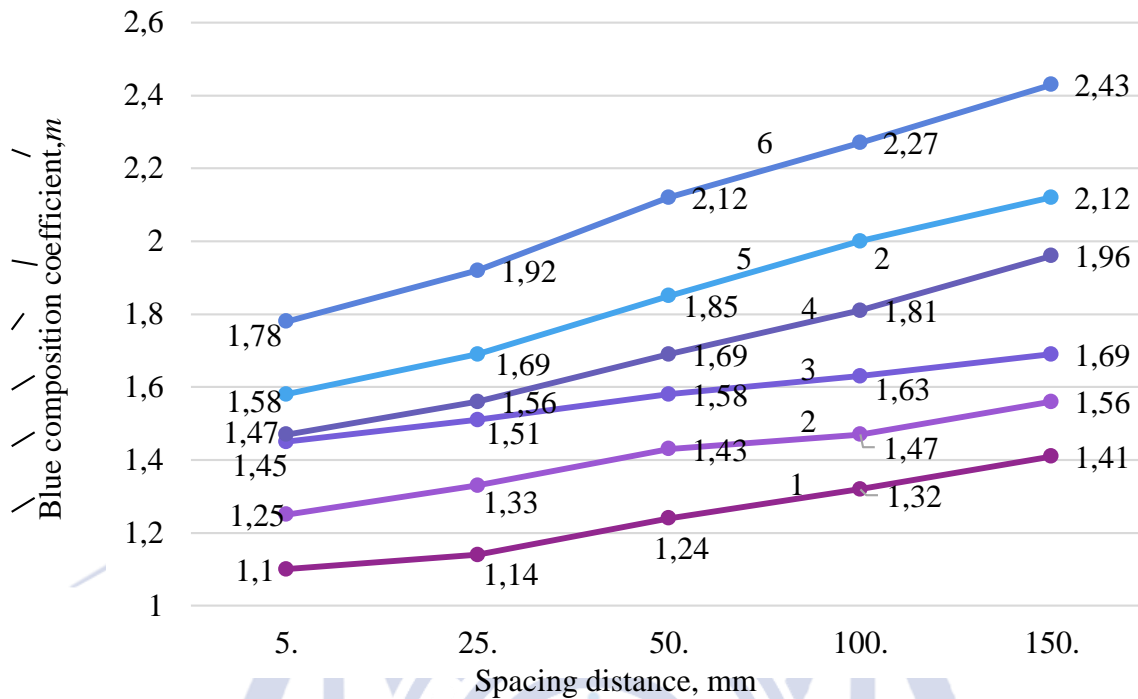
Experiments were conducted in order to study the effect of the distance between the supply rollers and pile drums on the continuous supply of cotton at the same rate, on the change in the value of the cotton structure, and on the efficiency of cleaning, while maintaining the natural quality indicators of cotton.

Experiments were conducted at a small cotton ginning enterprise under the department "Technology of preliminary processing of natural fibers". Experiments on S-6524 selection grade I and III industrial grade cotton with 6.0% and 9.0% moisture content and 4.6% and 21.0% dirt content, respectively, with equipment productivity of 5, 7, and 9 tons/hour, in order to avoid errors, the experiments were carried out in three repetitions.

Figure 1 shows the change in the distance between the supply rollers and pile drums and the change in the structural content coefficient of cotton.

It can be seen from the graph (curve 1) that in the proposed technological process, the productivity of the equipment is 5 tons/hour, and when the distance between the rollers and pile drums is 5 mm, the structural content coefficient of cotton is 1.1 lsa, when the distance is 25 mm, the coefficient of structural content of cotton is up to 1.14, and when the distance is 50, 100 and 150 mm, the coefficient of structural content of cotton is 1.24; 1.32; and is 1.41.

Research Science and Innovation House



1-2-3 - proposed technological process, in turn 5; 7; 9 - t/s.

4-5-6 – Existing technological process, in turn 5; 7; 9 - t/s.

Figure 1. The effect of the change in the distance between the supply rollers and pile drums on the change in the structural content coefficient of cotton (type 1).

When the productivity of the equipment is 7 tons/hour (curve 2), the coefficient of the structural composition of cotton increases from 1.25 to 1.56, and when the productivity of the equipment is 9 tons/hour, the coefficient of the structural composition of cotton increases from 1.45 to 1.69 is shown to decrease up to The influence of the change in the distance between the supply rollers and pile drums on the change in the coefficient of the structural composition of the cotton. the coefficient is 1.47, and the coefficient of the structural composition of cotton is 1.56 when the distances are 25, 50, 100 and 150 mm; 1.69; It is 1.81 and 1.96.

Productivity of the equipment is 5 t/h, intermediate distances are 5; 25; 50; When it is 100 and 150 mm (curve 5), the coefficient of structural composition of cotton is 1.58; 1.69; 1.85; 2 and 2.12, when the productivity of the equipment is 9 tons/hour (curve 6), the coefficient of the structural composition of cotton is 1.78; 1.92; 2.12; It is 2.27 and 2.43. So, it can be seen from the obtained results that in the proposed technological process, the productivity of the equipment is 5 tons/hour and



the distance between them is 5 mm. .47, which in turn indicates that the coefficient of the structural composition of cotton in the proposed technological process is low and the cleaning efficiency of the equipment is high.

Summary. As can be seen from the results of the experiment presented above, the distance between the supply rollers and pile drums increases the coefficient of structural composition and cleaning efficiency of the cotton conveyed to the equipment by 5.0-6.0% in 1st grades and 7.0-8.0% in 3rd grades. was found to have a significant effect.

The closer the distance is, the more efficient the cleaning is. However, it was found that when the distance is from 5 mm to 25 mm, the cotton pieces are returned to the miner-collector with the rollers providing them. A distance greater than 50 mm led to a sharp decrease in the cleaning efficiency of the equipment. Therefore, it is recommended that the optimal distance between the supply rollers and pile drums is 50 mm.

REFERENCES .

1. A. Salimov, M. Akhmatov "Preliminary processing of cotton".Study guide. Tashkent "Knowledge" 2005
2. Babadjanov MA "Technological process design" textbook, Tashkent, Cholpon-2009.
3. J. Jabborov "Technology of seed cotton processing". "Teacher" Tashkent-1987.
4. H.E.Turdiyev "Improving the performance of dust collectors VZP-1200 and adding new innovative technologies" Uzbekistan - 2023, pp. 154-160.

Research Science and Innovation House