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EFFECT OF COTTON FIBER AND LINT SEPARATION PROCESS ON PRODUCT QUALITY

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ABSTRACT

The article is about the effect of ginning on the quality of the product after the technological process of cotton ginning.

Foreign impurities in the cotton fiber are the same as in seeded cotton in terms of the origin of impurities: mineral and organic, in terms of adhesion to fiber divided into active and passive impurities.

The above-mentioned dirty mixtures are complete in the process of cleaning seed cotton unseparated ginning, that is, it was added to the fiber during the separation of the fiber from the seed are impurities. In addition, it is in the process of separating the fiber from seeded cotton additional large and small impurities appear. In the fiber ginning process.

Dead and small impurities have a great impact on fiber quality. Theirs it contains: broken seeds, crushed seeds, husks, fibrous husks, small impurities and other compounds are included.

The process of cleaning the fiber from impurities, from the process of pressing the fiber is done first. If the impurities are more than the norm specified in the state standard and if they are pressed, textile factories are preparation shops complicates the operation of the equipment.

Fiber cleaning equipment for the method of cleaning fiber from large and small impurities It is divided into mechanical, aerodynamic and aeromechanical types.

Combing and beating large and small impurities when cleaning the fiber mechanically is separated from the fiber on the basis of which large and small impurities are mixed with the fiber weakens and is released through reticulate surface pores or colons.

Aerodynamic fiber cleaning is the fiber flow with the air flow carrying it together with the centrifugal force generated when passing through a curved path based on usage. However,

the cleaning of aerodynamic fiber cleaners the efficiency cannot be high, because the centrifugal forces to the fiber it can distinguish only large and small impurities that stick to it. That's why it works not widely used in production.

It came out after the technological process of ginning in cotton gins the seeds are cleaned of weeds and transferred to the lintering equipment.

Some of the properties of seeded cotton are transferred to the seed during the ginning process joins and pollutes it. The seeds that came out of the gin containlarge sand, grasses, metal fragments and small stones that fell by accident were not healthy (puch and unprocessed) seeds, which are on screw conveyors and from elevators when transferred, it crumbles and increases the degree of dirtiness of the fluff being processed.

If the ginned seed is cleaned, the lint is less polluted, the saws of the linter without damage, their service life will be extended. Therefore, linterating the seeds cleaned of impurities before the equipment.

After the ginning process, the seed contains a layer of short fibers – fluff remains. The process of separating cotton wool from the seed is lintering, this process and the equipment that performs it is called a linter. The linter equipment is the main body of work in terms of construction and the process of separating the fluff from the seed to the sawmills looks like PMP-160M, 5LP model with UMPL working chamber for fluff separation and 6LP type linter equipment is used, all of them are made of fluffy saw teeth separated by air. Linters also have aprons, seed combs, colosnik bars, etc there is a seed chamber bordered by pedestal brushes. Seeds in this chamber the linting process is performed. The linting process is similar to the ginning process. Working with a saw cylinder from the working chamber of the linter to the rotating seed roller gives The difference between these processes is that if seeded cotton is processed in a sawmill, in linters, seeds from the gin are used.

During the lintering process, the seed roller could not rotate due to the action of the saw reverse the saw to the chamber of the linters in order to assist in turning a rotary trimmer is installed. Turning the tiller seed roller After the fluff in the seed is removed to a certain extent, they are rotated separates from the roller, falls on the colosnik 10, then slides down, comb 12 and passes through the colosniks, goes to the assembly conveyor and to the next equipment is sent. The fluff in the fluff is separated under the influence of centrifugal force and is controlled by the 9th zodiac sign. The dead and small chaff separated during the separation of fluff from the saw teeth sticks are taken out of the equipment through conveyor 15. Linter's important work bodies: work (seed) chamber, colosnik grid, saw cylinder, saw fluff consisting of a separation device. Technical and technological indicators of 5LP linter given in the table. Cotton staple

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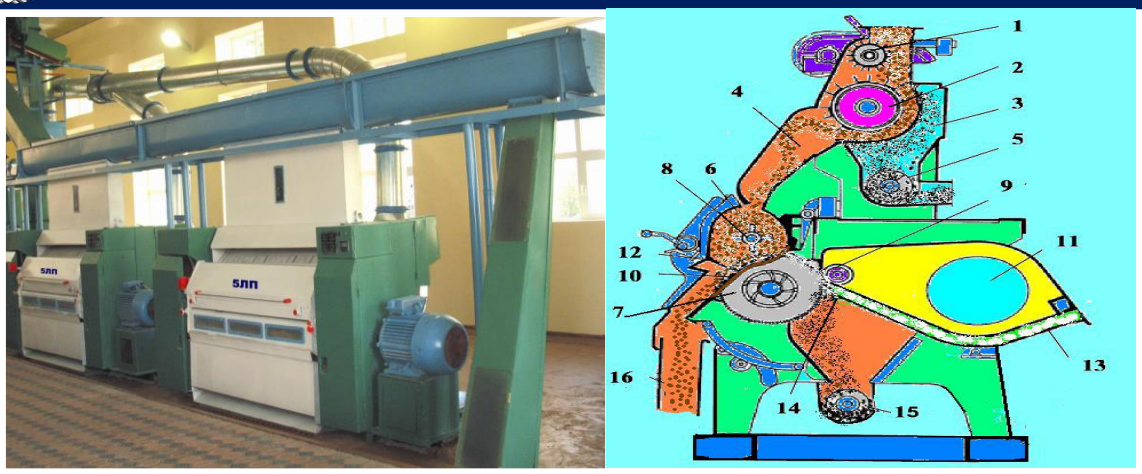

Figure 1. 5LP is a construction scheme of a branded linter and general appearance

1. Supply chain; 2. Seed flow leveling drum; 3. Dirt pit; 4. Seed descent channel; 5. Conveyor of dirt; 6. Working camera; 7. Saw cylinder; 8. Cleaner; 9. Ulyk Kozerog; 10. Kolosnik; 11. Fan; 12. Seed comb; 13. Fiber pipeline; 14. Air nozzle; 15. Conveyor of dirt; 16. Seed fall channel;

The first disadvantage of the 5LP linter is that when the gap between the seed comb and the grid is reduced, the density of the seed roll increases, which leads to an increase in removal. With the increase of this gap, on the contrary, there is a decrease in the removal of fluff from the seeds and an increase in the permeability of the linter through the seeds. It is very difficult to achieve an optimal balance between these indicators.

The second disadvantage of the 5LP linter is the use of a seed comb, which makes it impossible to get the profile of the working chamber as close to the circle as possible. In the working chamber, when the mixer rotates, the seeds are thrown against its walls by centrifugal force and form annular layers. The outer layer, denser, forms the belt of the seed roll, and the inner, sparser, is located in the rotation zone of the mixer. The height of the layers varies along the section of the chamber and depends on its profile. The outer compressed layer reaches its greatest height in the upper open part of the chamber, forming a tension surface. For the normal operation of the working chamber, the outer layer of the seed roller should have a densely connected structure and be stable in motion, and its belt should not fall when passing through the upper part of the chamber. For this, a density valve is used.

References:

1. Ungarov A., Yuldasheva D. EFFECT OF TEMPERATURE CHANGES ON FIBER QUALITY DURING STORAGE OF COTTON RAW MATERIALS //Journal of Agriculture & Horticulture. – 2024. – Т. 4. – №. 1. – С. 17-20.

2. Қабулов И., Юлдошева Д., Унгаров А. ПАХТАНИ ЕТИШТИРИШ АГРОТЕХНИКАСИ, ТЕРИМГА ТАЙЁРЛАШНИ ТАШКИЛЛАШТИРИШ ТАРТИБИ //Евразийский журнал академических исследований. – 2024. – Т. 4. – №. 1 Part 2. – С. 88-92.

3. Ungarov, A., & To‘raqulova, O. (2023). QISHLOQ XO ‘JALIGI MAXSULOTLARINI INFRA QIZIL NURLARI YORDAMIDA QURITISHNI TAKOMILLASHTIRISH. *Евразийский журнал технологий и инноваций*, *1*(10), 38-40.
4. Khujakulov F. et al. The dependence of grape feeding on the productivity indicator and harvest quality of rizamat and large dry varieties. – 2023.
5. Ungarov A., Xudayberdiev R. IMPROVING INFRARED DRYING OF AGRICULTURAL PRODUCTS //Евразийский журнал академических исследований. – 2023. – Т. 3. – №. 12 Part 2. – С. 230-233.