METHOD OF CLEANING FROM POLLUTIONS IN COTTON PICKING PROCESS

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Abstract: The methods of cleaning from impurities in the process of cotton picking are presented. In addition, many of our scientists have contributed to the improvement of the efficiency of cotton cleaning, we can cite a number of scientific studies as an example.

Key words: cotton cleaning technique, technology, drying-cleaning workshops, field cleaning machines

I used to read dissertations to study the techniques and technologies of cleaning cotton from dirty impurities. Today, it is commendable that the dissertations written in the 30s and 40s of the 20th century have not lost their importance.

Based on theoretical and practical research, technologies and equipment for cleaning cotton from small and large impurities, technical, geometric and technological parameters of their main working bodies, laws of interaction of working bodies with cotton, technological intermediate, geometric dimensions and cleaning of mesh surfaces A number of other issues related to the process are studied and based.

S.D. Boltaboyev[1] made a scientific hypothesis that 80-90% cleaning can be achieved by introducing the cleaning process in the cotton picking machines themselves. An important innovation for 1949 was the introduction of changes in the scheme of the technological process for the drying-cleaning shops, as well as ideas for improving the equipment.

V.N. Guseynov [2] conducted a study of drums with piles for cleaning cotton from small impurities and studied the influence of the mesh surface on the cleaning efficiency. He emphasized that the working side of the mesh surface should be turned 180 ° to cover the drum, ensuring the rotational position of the mesh. It is recommended that the optimal number of cleanings in small dirt cleaning drums does not exceed 6 times.

E.F. Budin [3] conducted research by setting the diameter of saw drum cleaners to 80, 200, 300, 480 and 700 mm, and experimented with different types of cotton at the rotation speed of each drum at 5, 7, 9 and 11 m/sec. performed the tests. Theoretically, it is recommended to make the rotation speed of the drum 5-7 m/sec so that seeded cotton does not fall into the dirt. He approached each of the drums of different diameters individually and made separate conclusions about their advantages and disadvantages. He studied in depth the cleaners used in the 1960-70s US cotton ginning factories.

A.A. Muradov [4] in his scientific work determined the influence of the frequency and sequence of cleaning cotton on the technological parameters of the fiber. It was theoretically studied that most of the cotton raw material is separated from the surface of the saw drum as a result of the elastic impact of the fibers from the center direction. In the dissertation, the effectiveness of cotton cleaning machines in the field was also studied.

Cleaning picked cotton from dust and impurities is important in the industry. This process is carried out in cotton ginning factories in our republic. This process requires a lot of work and energy. Therefore, it is an urgent issue to clean cotton from impurities in the process of picking by machine. This article presents a method of cleaning cotton from dust and impurities during the machine picking process. Hydrodynamic equations of multi-media flows were used as a mathematical model in the research of the cotton ginning process. These equations were studied by the method of numerical solution and it was shown that cotton fiber can be cleaned from dust and impurities. The Mc-Cormack finite difference scheme and the relaxation iterative method were used for the numerical solution of the hydrodynamic equations. Key words: decontamination, cotton picker, multi-media flow, Mc-Cormack's finite difference scheme, iteration.

In recent years, our government has been working on increasing the amount of cotton picking by machine in Uzbekistan. In our climatic conditions, there are a number of problems in ensuring the high efficiency of the cotton-picking machine and cleaning it from impurities. Taking this into account, a number of research and development works are being carried out in order to improve the cotton-picking machine produced in our country, to equalize and increase its performance with the performance of competing machines. In the current series of cotton-picking machines, the picked cotton is pushed through the fan and sent to the hopper of the cotton-picking machine.

In this process, along with cotton fiber, dust and various impurities (crushed cotton leaves, cotton stalks) are also sucked through the fan and sent to the hopper. In this case, the dirt that got into the cotton can cause the cotton that went to the

threshing floor to rot. In addition, due to the effect of high pressure in the threshing machine, the strength of the cotton binding increases several times. As a result, cotton gins require a lot of energy to clean such cotton. Therefore, the idea of cleaning cotton from impurities during the picking process is appropriate. According to the authors of this article, research in this direction has not been conducted. In this article, the effectiveness of the device for removing impurities installed on the cotton-picking machine is studied. This device is installed between the fan and the hopper in the cotton-picking machine.

The essence of the operation of this device is that the air flow sent from the fan enters through the pipe 1, and part of it is directed to the bunker 2, and the rest to the crop field. Due to inertia, cotton fibers move to pipe 2, that is, to the hopper. Fine dust particles are removed to the crop field through pipe 3 with the air flow. In this way, cotton fibers are partially cleaned of fine dust. In order to increase the effectiveness of cleaning cotton from impurities, it is recommended to perforate the places where the fiber hits the surface of the pipe. The reason is that after the cotton fiber is woven on the rough surface, the dirt stuck to it will go out through the holes. As a result, the cotton fibers are cleaned and directed to the bunker through pipe 2. In order for this device to work effectively, it is necessary to find its optimal geometric dimensions. For this, it is necessary to study the equations of motion of cotton fibers and dust in the device. To study these processes, we use Euler's system of multi-media hydrodynamic equations [4]. These equations do not have an analytical solution. Therefore, it is necessary to solve them numerically

In conclusion, I came to the opinion that it is necessary to continue reading such scientific works in order to get the necessary conclusions for scientific activity. At the end of the article, I can say that reading scientific works and analyzing them can be the best inspiration that can stimulate the creation of new innovative ideas, new inventions. It also serves as a great school for young scientists to choose the right direction in their scientific activities.

LIST OF REFERENCES

1. Волков Г.И., Сабликов М.В. Машины для комплексной механизации уборки хлопка. – М.: Маш.Гиз, 1951.

2. Глущенко А.Д., Ризаев А.А. Моделирование динамических взаимодействий долек хлопка и шпинделей в хлопкоуборочных аппаратах. – Ташкент: Фан, 1995. – 131 с

3. Глушенко А.Д., Шоумарова М.Ш. О воздействии кустов хлопчатника на шпиндели вертикально – шпиндельных хлопкоуборочных машин // Хлопкоуборочные машины : сб. науч. Тр. – Ташкент: ФАН, 1968.

4. Лойцянский Л.Г. Механика жидкости и газа. – М.: Наука, 1987. – 678 с.

5. Бахвалов Н.С., Лапин А.В., Чижонков Е.В. Численные методы в задачах и упражнениях. – М.: Высшая школа, 2000. – 195 с.