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IMPROVING THE TECHNOLOGY OF CLEANING COTTON SEEDS FROM SMALL CONTAMINANTS

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Abstract
This article is about the national process of processing raw cotton with a variety of problems in cleaning large and small scum. In order to find solutions to this problem, it has been determined by the analysis of the effectiveness of the small-scale cotton-fertilization technology for other cotton fertilizers compared to other models.

Keywords: Cotton cleaning enterprise, cotton cleaning machine, cotton drying, cotton-fertilization technology.

Introduction

The increase and decrease in the efficiency of the ginnery depends on the technological processes of drying and cleaning of cotton. Nowadays, due to the increase in the number of varieties of cotton and the emergence of separate varieties, which are difficult to clean, it is necessary to improve the technology and techniques of cleaning cotton from fine impurities. To date, 6A-12M fine ginning machines are used in ginneries [1-4].

The Main Part

Structure and operation of 6A-12M cleaning machine

Here is a diagram of the cross section of this machine. The cleaner consists of 4 pile drums. The piles are 75 mm high. Under the drums there are grate bars or perforated nets. The machine delivers the ginned cotton to the SS-15A separator via an air pipe and then to the first 2 pile drums of the 6A-12M technology (1) and (2) and to the mesh surface (3) and Rubbed into (4), the seed is cleaned of fine fibers in the cotton. The cotton seed cleaned from the first pile drum is transferred to the second 2 pile drums (8). Minor contaminants in the seed cotton are removed through the contaminant hopper (7). Fine-grained cotton is transported to the next stage of production through an air pipeline [5-11].

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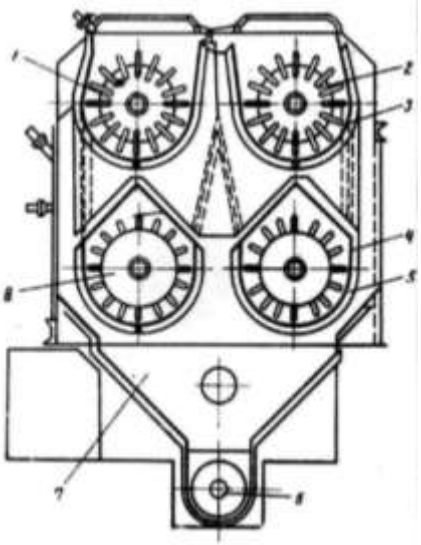

1,2,8-pile drum; 3,4,5-grid surface; 6 pollution shnegi; 7 dirt bunker.

Figure 1. Technological scheme of 6A-12M seed cotton ginner

In order to improve the technological processes of the 6A-12M fine-grained cleaning machine, scientific research was conducted and analyzed in the production environment. The results showed that in order to improve the first pile drum of 4 piles installed on the technology, a new pile drum was developed and the number of piles was increased and the results of the analysis were obtained at the ginnery [12-15].

Figure 2. Prepared fresh pile auger

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The results of the analysis of the newly prepared pile drum:

1. A 3 kg sample was taken from the S82-90 cotton seed of the enterprise to determine the moisture and contamination. A sample of 3 pieces of 40 grams was taken to determine the moisture content of the seed cotton.

We find the moisture content of cotton using the following formula:

$$W = \frac{m_H - m_C}{m_C} \cdot 100 - 0{,}6\ \%$$

m_n- mass of sample before drying, g;

m_s- the mass of the sample after drying, g.

a) 40gr=36,16=10,01
b) 40gr=36,20=9,89
c) 40gr=36,00=10,50 average humidity: W=10,1%

We determine the contamination of cotton using the following formula:

$$I = \frac{m_C \cdot 100 \cdot k_1 \cdot k_2}{m_n}\ \%$$

m_c- the weight of the separated contaminant, g;

m_n- the weight of the cotton sample, g;

k_1=1,0- the coefficient taking into account the remaining residue in the purified sample;

1. k_2=0,98- coefficient taking into account the moisture in the contaminant.

a) 300 gr minor pollution; 10,50=3,5%
b) Major pollution; 4,40=1,4%
c) 300 gr minor pollution; 11,70=3,9%
d) Major pollution; 4,70=1,5%
e) 300 gr minor pollution; 11,40=3,8%
f) Major pollution; 4,20=1,4%

Moderate pollution; I=1,3%

major pollution; I=1,4%

2. To detect fine and coarse contamination of cottonseed from a pile drum equipped with 6A-12M technology:

a) 300 gr minor pollution; 3,80=1,3%
b) Major pollution; 2,45=0,8%
c) 300 gr minor pollution; 4,10=1,4%
d) Major pollution; 2,10=0,7%

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e) 300 gr minor pollution; 2,90=1,0%
f) Major pollution; 1,80=0,6%
g) Moderate pollution; i=1,3%
h) Major pollution; i=0,7%

3. For the detection of fine and coarse contaminants in the seed cotton from the pile drum, equipped with advanced technology 6a-12m:

a) 300 gr minor pollution; 2,38=0,8%
b) Major pollution; 2,14=0,7%
c) 300 gr minor pollution; 1,84=0,6%
d) Major pollution; 2,00=0,7%
e) 300 gr minor pollution; 1,92=0,6%
f) Major pollution; 1,86=0,6%

Moderate pollution; I=0,8%
major pollution; I=0,6%

Conclusion

Currently, 6A-12M, 1XK and UXK units for cleaning raw cotton in the ginning industry are used in the process of cleaning cotton from small and large contaminants. and requires the improvement of their techniques. The 6A-12M fine-grained cleaning machine is used in ginneries. In order to improve the technological processes of the 6A-12M fine-grained cleaning machine, scientific research was conducted and analyzed in the production environment.

The results showed that 0.8% of the fine contaminants in the cotton were removed during the cleaning of the coarse cotton from the fine impurities by means of the pile drum, which was improved by the 6A-12M cotton seed cleaning technology.

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