

THE RESULTS OF PRELIMINARY EXPERIMENTS ON THE LABORATORY
STAND OF THE UChDM WITH A COMBINED SAW-BRUSH CYLINDER

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Abstract: *The thesis deals with a technical solution, the results of preliminary experiments carried out on a laboratory stand, prepared by installing a combined saw-brush cylinder instead of a saw cylinder in the upper chamber of the UChDM machine.*

Keywords: *saw, metal brush, drum, delinter, seed, sex, delintering, productivity, hairiness, damage.*

In order to check the feasibility of the proposed technical solution [1] in “Paxtasanoat ilmiy markazi” AJ laboratory conditions and the correctness of the technical solution, design equipment and drawings of the delinter stand were prepared in the industrial design department.

Based on the drawings of the delinter stand developed in the equipment design and industrial design department, the main parts of the laboratory stand of the UChDM delinter were prepared and assembled at the subsidiary "RIM Ustakhanasi" near “Paxtasanoat ilmiy markazi” AJ. An overview of the laboratory stand is shown in Figure 1.

According to the demand, saw-brush drums were placed in the upper chamber of the UChDM delinter laboratory stand, and metal brush drums were installed in the lower chamber. Based on the results of previous experiments, all necessary adjustments were made [2, 3, 4]. In particular, the gap between the drums and the shell in the upper chamber is 14 mm, the gap between the drum and the blade is 13 mm, the rotation speed of the saw brush drums in the upper chamber is changed from 750 to 950 rpm, the rotation speed of the drums in the lower chamber is set to 960 rpm. In the preliminary experiments carried out in laboratory conditions, technical seeds with residual hairiness equal to 8% and mechanical damage equal to 2.77% were used.



Figure 1. A view of the assembled state of saw-brush cylinders in the upper chamber of the UChDM machine laboratory stand

First, it was achieved to ensure the stable operation of the UChDM delinter laboratory stand. After that, the main performance parameters of the laboratory stand during stable depilation were studied - the amount of delint and the mechanical damage of seed during depilation. Table 1 shows the results of preliminary experiments conducted on the UChDM delinter laboratory bench.

From the data obtained as a result of the preliminary experiments conducted on the laboratory bench of the UChDM machine in Table 1, it can be seen that when the rotation speed of the saw-brush drum was increased from 750 to 950 rpm, the mechanical damage of the seed increased from 1.2% to 2.7%. And the amount of delint obtained on the laboratory stand decreased from 4.05% to 3.14%. This indicates that it is necessary to study the reasons for the decrease in the amount of delint obtained on the laboratory stand with the increase of the rotation speed of the drum.

Table 1

UChDM delinter results of preliminary experiments on depilation of seed in laboratory bench

Saw-brush drum rotation speed, rev/min	Initial seed		Туксизлантирилган чигит		Delinquency, %	Mech. damage growth, %
	Hairiness, %	Mex. injury., %	Hairiness, %	Mex. injury., %		
750	8,0	2,77	3,95	4,15	4,05	1,38
			5,2	3,97	2,8	1,2
950	8,0	2,77	4,04	5,47	3,96	2,7
			4,86	5,22	3,14	2,45

The results of the preliminary experiments conducted in laboratory conditions showed the feasibility of the developed technical solution and helped to determine the direction of further main experiments. In order to increase the reliability of the results obtained in the next experiments, it is planned to prepare saw-metal brushes drums in natural sizes, and to use all the planned experimental options in an industrial copy installed in the seed preparation workshop of UChDM delinter.

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