

Temperature Of Cotton In The Stack During The Initial Storage Period

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Abstract: Since Uzbekistan gained independence, new equipment and technologies have been widely used in cotton production. Of course, we are well aware that significant financial costs lie behind these issues. Taking this into account, the President of our Republic and the Cabinet of Ministers are also paying great attention to equipping cotton gins with modern equipment and technologies that meet modern requirements, allocating the necessary funds from the republican budget.

Keywords: cotton storage, process, stack, harvest, sample, heating is observed.

Purpose and objectives of the research. Products obtained from cotton serve as raw materials for the cotton ginning industry, while cotton fiber serves as semi-finished products for the textile, knitwear, footwear, light, food, and other industries. All of these are necessary products for meeting the daily needs of our people in the required quantity.

Since Uzbekistan gained independence, new equipment and technologies have been widely used in the cultivation of cotton products. Of course, we are well aware that significant financial costs lie behind these issues. Taking this into account, the President of our Republic and the Cabinet of Ministers are also paying great attention to equipping cotton plants with modern equipment and technologies that meet modern requirements, allocating necessary funds from the Republican budget. Today, almost all cotton plants are being re-equipped with the latest equipment and technologies. Due to this, not only did the production capacity of these plants increase, but also some improvement in their quality was achieved.

Scientific novelty. Our task is to introduce to the public the development of a new method for storing seed cotton and preparing high-quality seeds at the level of standard requirements.

If constant control during cotton storage is poor, the cotton in the stack may overheat. Overheating mainly occurs when various wet leaves, underripe fibers, and seeds mix with cotton during harvesting. This negatively affects the quality of fiber and seeds. To prevent overheating in the stack, it is important to take a separate sample of cotton from each receiving trailer. If both dry and wet cotton are accepted into the stack, heating will certainly be observed throughout the stack.

As a result of heating, air exchange in the stack is disrupted, the degree of burning in the seeds increases, and such seeds become unsuitable even for oil and fat plants. In this case, measurements are taken from point 8 of the beam to a depth of 4 m (from 4 points in front and back, from 4 points on the sides) using a thermoscope. The thermoscope is inserted into the beam for up to 30 minutes.

Table 1

Temperature of cotton in the stack during the initial storage period.

Years	Varieties	Cotton parties	Stacking period, days, months		Stacking during temperature		Temperature measurement time	3 m Deep temperature
			from	up to	Average	max		
2022 023	S-4727	2	06.09	30.09	23,7	37,0	01.10	38,5
		5	20.09	10.10	19,9	31,8	08.10	32,1

		8	31.08	27.09	29,4	35,7	24.10	36,5
20222 023	Sulton	9	06.09	28.09	25,3	34,7	23.10	33,6
		11	13.09	29.09	26,0	34,2	25.10	33,4
		12	25.09	30.09	27,3	33,1	23.10	30,7
		6	08.10	29.09	25,9	35,4	21.10	35,2
		7	15.10	19.10	23,8	33,2	20.10	33,3

Our observations show that the maximum temperature during the stacking period was somewhat higher at the stack depth. In this case, their difference was found to be up to 50.

During the storage period of cotton for 4-5 months, a decrease in its temperature to 3-50 C was observed. Nevertheless, high temperatures persisted in the main part of the cotton, especially noticeable in the central part. This can be attributed to the complete absence of air exchange in the middle part of the haystack.

Usually, elite and first-generation seeds are stored in closed warehouses. We conducted an experiment to check the temperature of such closed warehouses. Initial cotton samples from each batch were taken as a control variant.

Table-2
Cotton temperature at different stack depths (Sulton variety)
according to) 2023 year.

Stack depth, m	Cotton temperature				
	20.10.2022	23.11.22	30.12.22	28.01.2023	20.02.23
Party No. 3					
0,5	22	16	14	13	13
1,0	30	24	21	19	18
2,0	33	30	26	22	20
3,0	36	30	26	25	24
5,0	-	-	-	-	28
7,0	-	-	-	-	31
Party No. 9					
0,5	20	15	13	13	12
1,0	29	24	17	17	15
2,0	30	26	20	20	18
3,0	32	29	24	24	22
5,0	-	-	-	-	25
7,0	-	-	-	-	29

From the table data, it can be seen that with the deepening of the cotton in the bale, its temperature also increases. Therefore, when stacking cotton according to standard requirements, it is important to pay special attention to its moisture content, grade, and picking period.

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