EMJ MS
EUROPEAN MULTIDISCIPLINARY JOURNAL OF MODERN SCIENCE
ISSN 2750-6274 https://emjms.academicjournal.io Volume: 11 | Oct-2022

The Results of the Study of Physical and Mechanical Properties of the Processed Discarded Cotton Seed

U. B. Imamkulov
Namangan Engineering and Construction Institute associate professor of the department of "General technical sciences", doctor of philosophy in technical sciences (PhD)

S. Olmasov, S. Mamasoliyeva
Namangan Engineering and Construction Institute, intern-teacher of the "General Technical Sciences" department

Abstract: This article discusses the results of studying the physical-mechanical properties of processed hairy seed seeds. In the article, the news obtained as a result of studying the scientific problem are explained with the help of tables.

Keywords: Processed seed, planting criteria, chemical drugs, physico-mechanical properties.

Since hairy seeds prepared for seeding have a natural protective agent, the dispersion and graininess index is low. This does not allow them to be planted accurately at low rates. That's why the standard for planting hairy seeds in our Republic is set at 50 kg. This planting rate is 2-3 times more than scientifically based norms, and 5-7 times more than in countries considered to be leaders in cotton cultivation. Such a high planting rate would, firstly, require additional manual labor to collect excess sprouts, and secondly, thousands of tons of seed that could be used as fodder for human consumption and livestock. causes it to be thrown into the ground in vain. In addition, along with seeds, hundreds of tons of chemical drugs are used in the soil layer, destroying the ecological situation in the soil and the environment in general.

Taking this into account, we propose a technology to increase the spreadability and graininess of hairy seeds prepared for seed and to process them with protective-nutritional compounds for planting in low rates or precise nesting [1]. Some physico-mechanical properties of hairy seeds processed on the basis of the proposed technology were studied. The study of some physico-mechanical properties of processed hairy seeds was carried out in four replicates [2].

Table I shows the results of the study of the mass of 1000 pieces of hairy seed and processed seeds.

From the results presented in the table, it can be seen that if the mass of 1000 pieces of hairy seed is 120.1 grams, after processing, its mass is 130.1 grams, that is, the mass of processed seed is compared to the mass of hairy seed An increase of 9.8 grams was observed. In addition, the mass of processed seeds is not only increasing, but they are approaching each other in terms of mass. This is clearly seen from the value of the coefficient of variation [3-10].

Table 1. Results of studying the mass of 1000 seeds

№	Name of options Variantlar nomi	Weight of 1000 seeds g	Mean square deviation, y,g	Coefficient of variation V %	Experimental accuracy R, %
1	Hairy seed	120,3	2,08	1,73	0,86
2	Processed seed	130,1	0,40	0,27	0,19

For example, the coefficient of variation of the mass of 1000 hairy seeds is 1.73%, while the coefficient of variation of the mass of 1000 treated seeds is 0.27%, that is, the coefficient of variation of 1000 treated seeds is the same as that of hairy seeds. is decreasing by 6.4 times. Therefore, processing hairy seeds with compounds that protect and nourish seeds allows obtaining seeds close to each other in terms of mass [11-15].

Table 2 shows the results of the study of the geometric dimensions of hairy seeds and processed seeds.

Table 2. The results of the study of geometric dimensions

T/R	Options name	Geometric dimensions, mm			Mean square deviation, mm			Coefficient of variation,%		
		a	*b*	*c*	y_a	y_b	y_c	V_a	V_b	V_c
1	Hairy seed	9,59	5,37	4,68	0,69	0,34	0,34	7,17	7,39	7,33
2	Processed seed	11,01	5,71	4,98	0,88	0,36	0,37	0,95	6,38	7,50

As can be seen from the results presented in the table, the geometric dimensions of the hairy seed were also changed when processed. For example, if the average length of hairy seeds is α = 9.59 mm, after processing, their average length is α = 11.01 mm, that is, the length of processed seeds is hairy seeds. 1.42 mm increase compared to that of seeds.

A similar pattern was observed for the width and thickness of processed seeds. In particular, the width and thickness of processed seeds are increased by 0.34 and 0.30 mm, respectively, compared to those of hairy seeds.

It should be noted that the processing of hairy seeds allows obtaining seeds close to each other in terms of geometric dimensions.

Table 3 shows the results of the study of the friction angles of hairy seeds and processed seeds.

Table 3. The results of the study of the angle of friction

№	Options name	Angle of friction, g	Mean squared deviation, y,g	Coefficient of variation, V %	Accuracy of experience R, %
1	Hairy seed pod	33°3r	3°13r	9,63	1,36
2	Processed seed	22°16r	3°11r	14,29	1,50

As can be seen from the results presented in the table, changes in the mass and geometric dimensions, as well as the angle of friction, were observed when the hairy seeds were processed. For example, if the friction angle of hairy seed seeds is on average φ=33º28r, after processing their friction angle is on average φ =22º16r 22º16r, that is, the friction angle of processed seeds is hairy seed compared to that of seeds decreased by 11º12r. In other words, the dispersibility of processed seeds increased by 1.5 times compared to the dispersibility of hairy seeds. This is of great importance for planting hairy seeds with a low level of precise nesting [16-20].

From the results of the study of some physical and mechanical properties of processed hairy seeds, the following conclusion can be made: when processing hairy seeds, seeds that are close to each other in terms of mass and geometric dimensions are obtained. , dispersion and granularity increase, and it is possible to plant them accurately at low rates.

REFERENCE

1. Адабиётлар ГОСТ 21820.076-ГОСТ 21820.4-76.Посевной материал хлопчатника. Методы автора проб и анализов.- М: Из стандартов, 1980. - 47с.
2. Аугамбоев М., Шванов А., Терехов Ю. Основы планирования научно-исследовательского эксперимента. -Тошкент.: Укитувчи, 1993.-336с.
3. Imomqulov, U. B., Mirzaabdullayev, M. M., & Soataliyev, D. B. (2022). QISHLOQ XO ‘JALIK EKINLARI URUG ‘INI TAKOMILLASHTIRILGAN KO ‘CHMA QOBIQLASH QURILMASIDA EKISHGA TAYYORLASH. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 2(6), 65-69.
4. Имомкулов, У. Б. (2017). УСОВЕРШЕНСТВОВАНИЕ ДРАЖИРУЮЩЕГО УСТРОЙСТВА ДЛЯ СЕМЯН СЕЛЬСКОХОЗЯЙСТВЕННЫХ КУЛЬТУР. In Научно-практические пути повышения экологической устойчивости и социально-экономическое обеспечение сельскохозяйственного производства (pp. 1221-1224).
5. Айдаров, Ш. Г., Йулдашев, О., Имомкулов, У., Аликулова, Г., & Вахобова, С. (2020). К ОПРЕДЕЛЕНИЮ ПРЕДЕЛА КОНКРЕТИЗИРУЮЩИХ ПАРАМЕТРОВ СЕМЯН ПО ВЫДЕЛЯЕМОСТИ ПОСЕВНЫХ СЕМЯН ИЗ ИСХОДНОГО МАТЕРИАЛА. In ИННОВАЦИОННЫЙ ПОТЕНЦИАЛ РАЗВИТИЯ НАУКИ В СОВРЕМЕННОМ МИРЕ: ТЕХНОЛОГИИ, ИННОВАЦИИ, ДОСТИЖЕНИЯ (pp. 30-39).
6. Имомкулов, К. Б., & Кучкоров, С. К. (2019). РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЙ ПО ОБОСНОВАНИЮ ВЫСОТЫ ВЫРАВНИВАТЕЛЯ ЧИЗЕЛЬНОГО РЫХЛИТЕЛЯ. In ПЕРСПЕКТИВНЫЕ НАПРАВЛЕНИЯ ВЗАИМОДЕЙСТВИЯ НАУКИ И ОБЩЕСТВА В ЦЕЛЯХ ИННОВАЦИОННОГО РАЗВИТИЯ (pp. 82-85).
7. Имомкулов, К. Б., & Кучкоров, С. К. (2019). РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЙ ПО ОБОСНОВАНИЮ ВЫСОТЫ ВЫРАВНИВАТЕЛЯ ЧИЗЕЛЬНОГО РЫХЛИТЕЛЯ. In ВКЛАД УНИВЕРСИТЕТСКОЙ АГРАРНОЙ НАУКИ В ИННОВАЦИОННОЕ РАЗВИТИЕ АГРОПРОМЫШЛЕННОГО КОМПЛЕКСА (pp. 148-152).
8. Мухамедов, Ж., Турдалиев, В. М., Косимов, А. А., & Кучкоров, С. К. (2017). РАСЧЕТ МОЩНОСТИ КОМБИНИРОВАННОГО АГРЕГАТА ДЛЯ ПРЕДПОСЕВНОЙ ОБРАБОТКИ ПОЧВЫ И ПОСЕВА МЕЛЬКОСЕМЕННЫХ ОВОЩНЫХ КУЛЬТУР. Вестник Науки и Творчества, (3 (15)), 93-98.
9. Имомкулов, К. Б., & Кучкаров, С. К. (2018). ИССЛЕДОВАНИЕ ДЕФОРМАЦИИ ПОЧВЫ ПОД ВОЗДЕЙСТВИЕМ РАБОЧИХ ОРГАНОВ ПОЧВООБРАБАТЫВАЮЩИХ МАШИН В УСЛОВИЯХ ДЕБЛОКИРОВАННОГО РЕЗАНИЯ. Научное знание современности, (2), 22-26.
10. X. M. Soliev, A. D. Nuriddinov, M. A. Tukhtaboev, Calculate the traction balance of the tractor leading all wheels”, *Scientific-technical journal*, 24 (2), 96-100, (2020).
11. M. A. Tukhtabayev, “Applying for wide coverage four wheel machine-tractor aggregate in row-spacing”, Proceedings of the Conf.: Modern trends in the development of the agrarian complex, 1263-1266, (2016).
12. S. H. Mirzadavlatovicvh, T. M. Akhmadjanovich, “Mathematical model of course stability wide-coverage sowing and cultivator machine-tractor aggregate”, European science review, (11-12), 143-146, (2017).
13. Косимов, А. А. (2019). КИНЕМАТИЧЕСКОЕ ИССЛЕДОВАНИЕ ЗУБЧАТО-РЕМЕННОЙ ПЕРЕДАЧИ. In ВКЛАД УНИВЕРСИТЕТСКОЙ АГРАРНОЙ НАУКИ

В ИННОВАЦИОННОЕ РАЗВИТИЕ АГРОПРОМЫШЛЕННОГО КОМПЛЕКСА (pp. 193-198).

14. Turdaliev, K. V., Lee, A., Qosimov, A., Makhkamov, G., Komilov, S., & Pulatov, J. (2020, December). Modeling the movement of onion seeds after the seeding machine. In IOP Conference Series: Earth and Environmental Science (Vol. 614, No. 1, p. 012135). IOP Publishing.
15. ТУРДАЛИЕВ, В., КОСИМОВ, А., КОМИЛОВ, С., & АБДУХАЛИЛОВА, М. Учредители: Боголюбова Елена Александровна. ВЕСТНИК МАШИНОСТРОЕНИЯ, (4), 20-24.
16. Mukhamedov, Z., Turdaliev, V. M., & Kosimov, A. A. (2020). Kinematic Nonuniformity of the Rotation of a Toothed Belt Transmission with a Composite Pulley. Russian Engineering Research, 40(9), 705-709.
17. Mamasoliyeva, S. X., & Abduvahobov, D. A. (2021, March). ANALYSIS OF REDUCED VIBRATION IN GEARED MECHANISMS. In *SCIENCE IN MODERN SOCIETY: REGULARITIES AND DEVELOPMENT TRENDS: Collection of articles following the results of the International Scientific and Practical Conference (Kaluga, March 24* (p. 49).
18. Мухамедов, Д., Абдувахобов, Д. А., Исматуллаев, К. К., & Набижонов, У. А. (2020). ОПРЕДЕЛЕНИЯ ФАКТОРОВ ВЛИЯЮЩИХ НА КАЧЕСТВЕННЫЕ И ЭНЕРГЕТИЧЕСКИЕ ПОКАЗАТЕЛИ РАБОТЫ ЗУБОВОЙ БОРОНЫ КОПИРУЮЩЕЙ РЕЛЬЕФ ПОЛЯ. ПРОРЫВНЫЕ НАУЧНЫЕ ИССЛЕДОВАНИЯ: ПРОБЛЕМЫ, ПРЕДЕЛЫ И ВОЗМОЖНОСТИ, 51.
19. Рахимжонов, А., Абдувахобов, Д. А., & Исматуллаев, К. К. (2020). СПОСОБ ОПРЕДЕЛЕНИЯ ПОКАЗАТЕЛЕЙ УСТОЙЧИВОСТИ ГЛУБИНЫ ОБРАБОТКИ ПОЧВЫ. In Научно-практические аспекты инновационного развития транспортных систем и инженерных сооружений (pp. 52-54).
20. Абдувахобов, Д. А., Имомов, М. Х., Исматуллаев, К. К., & Акбаралиев, Х. Х. (2021). ОПРЕДЕЛЕНИЕ ПОЛНОТЫ РЫХЛЕНИЯ ПОЧВЫ ЗУБЬЯМИ ЗУБОВОЙ БОРОНЫ, КОПИРУЮЩЕЙ РЕЛЬЕФ ПОЛЯ. ИННОВАЦИОННЫЕ МЕХАНИЗМЫ И СТРАТЕГИЧЕСКИЕ ПРИОРИТЕТЫ НАУЧНО-ТЕХНИЧЕСКОГО РАЗВИТИЯ, 117-120.