Journal of Contemporary Issues in Business and Government Vol. 27, No.5,2021
https://cibg.org.au/

P-ISSN: 2204-1990; E-ISSN: 1323-6903

TECHNOLOGICAL FUNDAMENTALS OF IMPROVING THE DEVICE FOR CRUSHING COATS

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Annotation

Corn is not only a feed product needed for livestock and poultry, but also the most important food product for humans. Today, in all categories of farms of the republic it is planned to plant corn as the main crop on 138,500 hectares for grain, from which 1210,900 tons of grain will be harvested. However, harvesting harvested corn for grain is one of the most difficult and arduous processes, with quality harvesting at an early stage without destroying the ripe crop in a mechanized manner.

Keywords: sorghum, corn, machinery, technology, husk sorghum, grain

In order to study the physical and mechanical properties of shellfish, information was collected on the varieties of corn grown in the Republic and experiments were conducted to study them.

To date, twenty-one varieties of corn have been recommended for planting in our country [2] Of these, three types are middle-ripening, seven types are late-ripening and eleven types are early-ripening varieties.

Changes in the dynamics of drying of sorghum varieties "Karasuv-350AMV", "Uzbekistan-601ESV", "Yugoslavia-BTs 66", "Moldavskiy 257 SV", "Uzbekistan-100", Muhabbat and GK-13 (Appendix 7) and mass parameters and physical and mechanical properties were studied [1]

In order to study the dynamics of drying, moisture, size and mass and physical and mechanical properties of the shells, late ripening varieties "Uzbekistan-601ESV" and early ripening varieties "Karasuv-350AMV" were obtained. The dynamics of change in the drying of crustaceans was studied. According to the experiments, the main crop is grain, which is grown in large quantities in the country

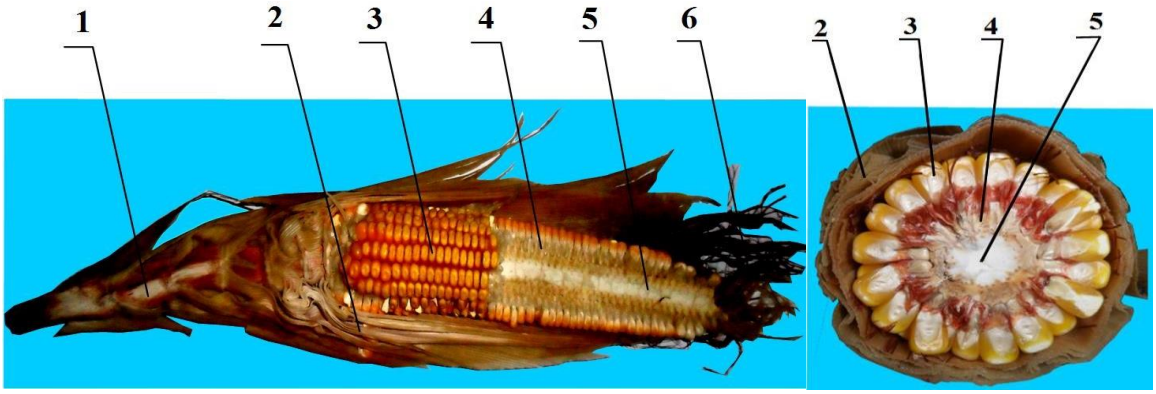
The size of husks and grains of corn of Uzbekistan-601ESV variety is larger than that of other varieties. Therefore, the results obtained on the basis of this variety are important in substantiating the optimal parameters of the milking device. In the following chapters, for the convenience of calculations, information is provided on the morphological composition, size and mass properties and physical and mechanical properties of 1 variety, ie late-ripening variety "Uzbekistan-601ESV".

Information on some biological-morphological and physical-mechanical properties of corn and grain grown on irrigated lands in our country I.Massino, A. Massino, F. In the works of Boboev, K.Azizov, G.Urinbaeva, B.Azimov, A.Abbosov, R.Khakimov, M.Nazarov, M.Isomiddinov, G.Mamadaliev, K.Ganiev, T.Ostonakulov, B.Mamatov [3] However, these data are mainly from the agronomic point of view of corn stalks, the location of the stalks on the stalks, their effect on the soil, the nutritional unit.their dimensional-mass parameters and physico-mechanical properties have not been systematically fully studied by researchers.Based on the above, the dynamics of drying of shell shells, their composition, size, mass and physical and mechanical properties were studied in detail.The dynamics of changes in the drying of corn stalks, their structure, size and mass properties and physical and mechanical properties were studied. For this purpose, shellac sots with a moisture content of 35–40 percent were obtained.

Because it is recommended that the moisture content of corn should be 35-40% in order to harvest it during the ripening period Then spread them under two different conditions, namely in the shade and in the open air, the average of the natural temperature[6]

Construction dynamics at 34–380 C were studied. To study the composition, size and mass characteristics and physical and mechanical properties of the shell soda, shell shells with a moisture content of about 12-16 percent were obtained. The experiments used electronic scales LIBROR EL-600, Wile 55 Moisture meter, meter, caliper and laboratory tubes of various sizes.The results obtained from the conducted experiments were processed on the basis of mathematical analysis methods and their statistical values (mean Mo, mean square deviation ± σ, coefficient of variation V) were determined Morphological composition and size-mass characteristics of shellfishThe experiments also studied the composition of shellfish and their size and mass. In order to study the composition of the shells, they were cut in half lengthwise and lengthwise, and their internal and external appearance were studied.The results of the study of the internal and external appearance of the shell soybean showed that an average of 6-7 shells surround the corn soybean in 3-4 layers, and the shell soybean: soybean bran 1, bark 2, grain 3, outer core 4, inner core 5 and popug 6 (Figure 2.1).

P-ISSN: 2204-1990; E-ISSN: 1323-6903



- shell band; 2 – shell; 3-don; 4 – outer core; 5 – inner core; 6 – popugFigure

2.1. Interior and exterior of the shell soot

In order to determine the dimensional-mass parameters of the shell soda and its constituents, the length, diameter, mass, together with the shell of the shell soda were first determined. The number, mass, length, width, and thickness of the shells were then measured. The mass, length, and diameter of the shellless sodas were measured separately after the shells of the sodas were separated. The soybeans were then milled, the grain separated, and the grain mass, soybean mass, and diameter in one soybean were determined.There was no need to measure the length of the cores, as the distance from the lower part of its core to the third part was measured when measuring the length of the cleaned stalks.

The main dimensions of corn grain were its length, width and thickness, which were measured and the results were processed to determine their average value, deviation from the average value and the coefficient of variation.

As a result of the study of the size and mass of shell shells, the following data were obtained (Table 2.1), ie, each component of the shells had a separate value and description, and their deviation from the average value also varied.[6]

Table 2.1 Dimensions and mass indexes of corn husks

	es of indicators			
	a band of shelled soot			
	length, mm			
	eter of soybeans together with shells, mm			
	nass of the sorghum together with the band and the			
	ber of shells, pcs			
	mass, g			

Continuation of Table 2.1

	width, mm			
	thickness, mm			
	without shell, g			
	length without shell, mm			
	eter of shell without shell, mm			
	mass in soybeans, g			
	of sota core, g			
	eter of sota core, mm			

P-ISSN: 2204-1990; E-ISSN: 1323-6903

The average length of the shells of the variety "Uzbekistan-601ESV" with the band is 286.7 mm to 317.0 mm, the deviation from the average is 67.2 mm, and their diameter is 39.4 mm on average, with a deviation of 4.8 mm from the average. formed. If we analyze the distribution area of the obtained results, we can see that the description of their distribution range is somewhat flat (coefficients of variation are around 21.2).

A somewhat uneven distribution of values can be seen in the mass of the soybean husk and the husks together, the mass of the soybean without the husk, as well as the mass of the grains and kernels in it. While the average values of these indices were 147.3 g, 136.6 g, 112.4 g, and 24.2 g, respectively, their level of variation was 3.5 per cent with the band and shells of the soybean, and 2.8 per cent with the soybean without the husk. and 37.1 per cent at its core and 31.4 per cent by grain mass, indicating a significant deviation in values.

The number of shells in the shells averaged 6.4 pieces, the mass of the shells was 10.7 g, and their deviation from the average value was 1.2 pieces and 2.8 g, respectively. The shells are located at an angle of about 1,200 to each other, and 6-7 shells densely surround the shell on 3-4 floors, with an average length of 229.6, a width of 125.8, and a thickness of 1.2 mm. the deviation from the mean is 55.5, 21.2, and 0.2 mm, respectively.After separation of the shells of the sutures, their length averaged 212.4 mm and diameter 38.2 mm, and the coefficients of deviation and variation of values from the mean were 36.9 mm and 3.2 mm, respectively, and 17.3 per cent and 8, respectively. It was 3 percent. The diameter of the suture core averaged 25.1 mm, with a deviation from the mean and a coefficient of variation of 3.2 mm and 12.7 percent, respectively. Of the soybean, 7.2 percent is husk, 76.3 percent is grain, and 16.5 percent is kernel.

The large size of the grain is its length, and experiments have shown that this figure varies from 12.8 mm to 14.4 mm, while more than 80% of the grain is from 13 mm to 14 mm in length.The average length of the grains is 13.6 mm, their average square deviation is 0.8 mm, and the coefficient of variation is 5.8% (Table 2.2).

Table 2.2 Dimensions of corn grain (Variety - "Uzbekistan-601ESV")

	nsions of the grain			
	h, mm			
	nm			
	ness, mm			

The size of the grain in width was also somewhat close to its length, averaging 8.1 mm, their average square deviation was 0.5 mm, and the rate of variation was 0.6 percent.A slightly smaller size of the corn grain was its thickness, which averaged 4.3 mm, with an average square deviation of 0.6 mm and a coefficient of variation of 13.9 per cent.[8]

Coefficient of static friction of shell soda and its components

In the process of grinding corn husks and separating and loading the milled grains from the core and husk, the constituents of the husk move longitudinally and transversely during the process, during which friction occurs between the working parts of the machine and the processed mass. It is therefore necessary to determine the coefficient of friction in the longitudinal and transverse directions of the constituents of the shell soot.

Researcher BH Kadyrov studied the friction angle of corn husk components of husk, core and grain parts on the steel surface [7]. According to him, the longitudinal and transverse friction angles of the soda shell were close to each other, 22007 'and 23002', respectively, while the longitudinal and transverse plane friction angles of the steel surface of the core were 19003 'and 13002', respectively. The friction angle of the grain on the steel sloping surface averaged 2108 ', the deviation from the average was 3005', and the coefficient of variation was 16.4%

B.Kh. Kadyrov did not study the angle of friction on the steel surface of shelled and non-shelled soybeans and the angle of friction of soybeans on shells, grain on shells, core on shells and grain on cores.[9]

We studied the angle of friction between the constituents of the shell socket with each other on the above-mentioned parameters.

During the experiments, the moisture content of the shells was in the range of 16-19 percent, as the allowable humidity level. Initially, the angle of friction was determined in the "inclined plane" device, as shown in Figure 2.4, with a steel surface, with and without shell shells.

P-ISSN: 2204-1990; E-ISSN: 1323-6903

1 device, 2 shell shells, 3 shellless shells, 4 shells, 5 cores, 6 grains.

Figure 2.2. The static friction angle of the grain mixture detection

The shells were then mounted on the surface of this device without moving, and the friction angles of the soot, grain, and core between them were studied. The cores were also fixed and the friction angles of the grain and husk between them were studied.

In this “inclined plane” device, the experimental sample was placed on the friction surface to determine the friction angles of the shell shell components, and the “slope plane” was slowly raised upwards through the lifting lever until the shell shell component in the sample began to move.

The angle of inclination of the surface relative to the horizontal plane, which corresponds to the period of the beginning of the movement of the components of the shell, is known on the angle scale, and the following expression can be used to determine the coefficient of static friction of the free mass.

General conclusions and recommendations

Based on the results of research on the dissertation of the Doctor of Philosophy (PhD) on "Improvement of the pumping device and justification of its parameters", the following conclusions were made:

1.One of the most difficult and responsible tasks in harvesting large areas of corn in the country is to harvest the crop without destroying or damaging it, and it is advisable to use highly mechanized methods and advanced machinery and equipment.

2. The study of the design and technological operation of the existing threshing equipment showed that while the existing threshing machine performs the grinding of grain at the required level, the loss and damage of grain is high. can be eliminated through.

3. Drying of late-ripening varieties of maize grown in Uzbekistan during the ripening period in 14-16 days, early ripening varieties in 9-12 days, and the moisture content of husks and grains in soybeans below 20-22%, creates the basis for crushing husks.

4. Under the influence of the impact force of the sieve bars, the silage is rotated at an angle of 3600 and processed over the entire surface, allowing the grain to be crushed, ensuring that the slag shells are completely crushed or torn. The shells are at an angle of 1200 degreesSince the slats are at least 300 times larger than the shells that surround them, their width should not be less than bp ≥ 4.8 cm in order to affect the part.

5. When the rakes were placed in rows 4 and 6, the fineness of the husk was 92.4–99.1%, the amount of crushed grain was 76.8–81.7%, and grain damage was 0.1–0.4%. and when the height of the slats is in the range of 20–25 mm, the husks are well crushed and the grains are completely crushed.

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