

CURRENT STATUS OF GROWING AND HARVESTING CORN AND CRUSHING COTTON

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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, grai

INTRODUCTION

Maize is one of the most important agricultural crops in the world and is now grown on more than 160 million hectares. Due to its high yield, which distinguishes it from other cereals, the volume of its cultivation is growing from year to year. If in 2009 817 million tons of corn were grown worldwide, in 2013-2014 it exceeded 1 billion tons. By 2016-2017, the production of corn will reach 1 billion. 150 mln. tons, this figure is 678 million tons in rice and 682 million tons in wheat. Most corn in the world is grown in the United States and accounts for 40 percent of the total harvest. China, Brazil, Argentina, Ukraine, India, Mexico, Indonesia, France, and South Africa and Nigeria follow. In Uzbekistan, corn is one of the most important agricultural crops and plays an important role in preventing food shortages and developing the fodder base of livestock and poultry. Therefore, the volume of corn production in the country is growing from year to year. If in 2010 more than 31,300 hectares were planted with maize for grain as the main crop [20; 17 b], in 2014-2017, this figure was 40,000 hectares as the main crop and about 700,000 hectares (69,954 ha) as the secondary crop. From 2018, it is planned to plant corn for grain on 138,500 hectares as the main crop and produce 1,210,900 tons of grain [2.].

This means that the demand for machinery used in harvesting corn is growing from year to year.

1. Harvesting in the form of sota;
2. Grinding of sorghum and harvesting in one grain.

Various designs of techniques have been developed to implement these methods, most of which were invented in the United States [5]. In the past, harvesting corn in the form of soybeans was

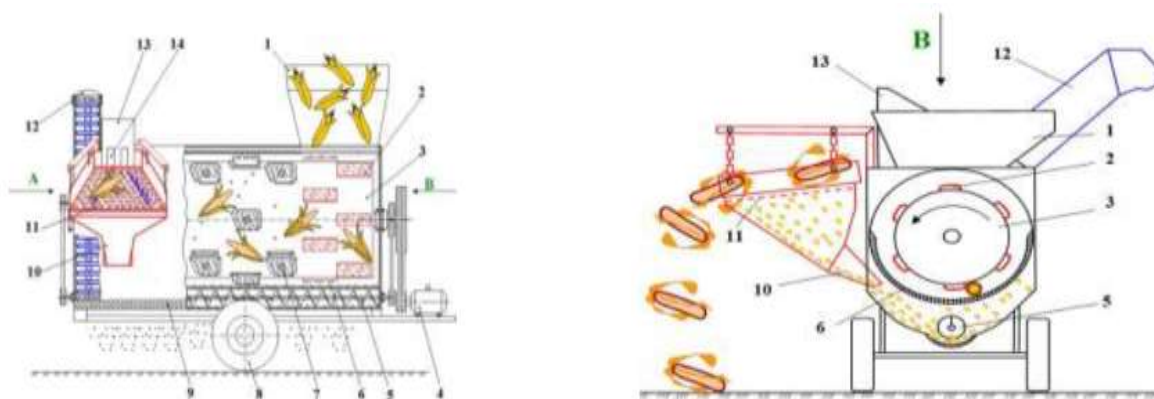
the main method. For this, manual labor or pickup machines were used. The stalks were crushed in the field as organic fertilizer using special equipment or harvested as fodder for livestock. The harvested husks were brought to the threshing floor and dried in a hospital and cleaned from the husk by machine or by hand. It was then ground in milking machines, the grains were separated and stored in warehouses [3]. The disadvantage of this method is the separate implementation of stem removal, which increases the cost and stem loss. Therefore, this method of harvesting was abandoned. Nowadays, when corn is harvested in the form of soybeans, the stalks are cut, the soybeans are separated, and they are loaded into the vehicle with or without peeling. The stalks are also crushed at the same time and loaded onto a side-by-side vehicle. This method is mainly carried out on KOP-1,4 "Khersonets-7", KKP-3 "Khersonets-9", KKP-2 "Khersonets-10", KSKU-6 "Khersonets-200" and other similar machines. Due to the fact that some of the collected sods contain high-moisture sodas, they are dried at stationary points.

The sorghum is then completely or partially removed from the husks in the husking machines, and the grains are crushed using separators [6]. As a result of drying of sorghum in stationary conditions by this method of harvesting, their moisture content is normalized and high-quality grinding of grains is achieved. In addition, the stems are also harvested without being destroyed. Until recently, this method of harvesting was widely used in Uzbekistan, and information on the technical and operational and operational quality of the equipment used in it is given in existing scientific sources [1]. In the conditions of the Republic, the method of harvesting corn directly with a combine is carried out in two different ways using grain harvesters or self-propelled corn harvesters equipped with a special harvesting device [4].

Technological work process of the advanced milking device.

The technological working process of the advanced milking machine is carried out in the following way (Fig. 3.1): shell milk is thrown through the receiving bunker 1 of the milking machine to the grinding drum 3, which has sliding bars 2 in the initial part.

The crushing drum 3 is inserted into the working groove between the drum 3 and its deck 6 with the rails 2 that drill the shell shells.



1 - receiving bunker; 2 - sliding rail; 3 - crushing drum; 4 - electric motor; 5 - don shnegi; 6 - deca drum; 7 - working part of the hammer mill; 8 - wheel; 9 - the base of the grain screw; 10 - trough; 11 - galvir; 12 - grain loading conveyor; 13 - core and shell outlet; 14 - Throwing bars

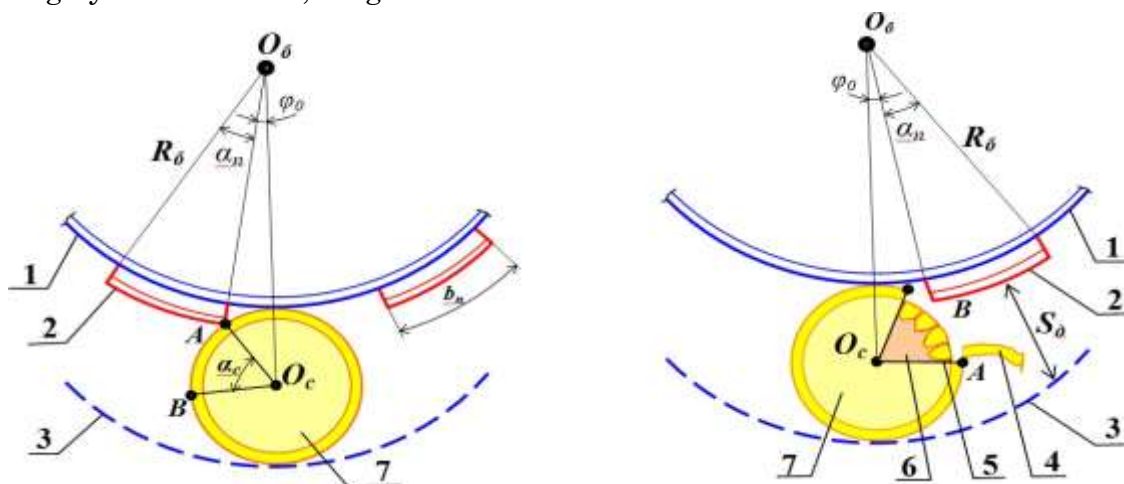
TECHNOLOGICAL SCHEME OF THE ADVANCED MILKING PARLOR

In this part, the drum's sliding bars pierce the shells of the sots and transfer them to the grinding part of the drum. Knitted grinders mounted on the surface of the drum in the working space have a mechanical effect on the 7 strings, moving them along the axis, and grinds along the entire surface of the grinding apparatus.

The sots cores and shells are exited through the outlet hole 13 by means of a lattice thrower 14 and fall onto the sieve device 11. On the surface of the sieve, the grain, which is attached to the core and the husk, is separated by means of a sieve and thrown back onto the grain auger 5 through the bar 10. The milled grains pass through the holes in the deca 6 and fall to the grain schnapps. Grain through the auger the loading conveyor is delivered to 12 and is loaded into bags or vehicles by means of it. Fine mixtures smaller than the grain size fall between the holes 9 of the bottom of the grain auger. The hammer is operated by means of an electric motor 4 or by moving the power shaft of the tractor.

Determining the parameters of the working bodies

The process of crushing the shells of the sieves, which fall between the deca and the sieve rail through the hopper of the sieve, is complicated (Figure 3.3), and the shattering of the shells depends largely on the width, length and surface of the sieves.



1 – drum; 2-sliding rail; 3-drum decas; Separated shell of 4-sota; 5 – don; 6 – core; 7-shelled sota
Investigation of the basic parameters of the grinding device that separates the crushed grains from the core and husk

When the experimental version of the threshing machine was tested, it was found that the grinding accuracy was 99.4%, grain damage was 0.9%, and grain cleanliness was 99.2%. Although these figures are at the level of established requirements, the amount of grain added to the waste from the core and husk is 4.7-5.0%. In order to overcome this shortcoming of the sieve, on the basis of research, a sieve device was installed in front of the outlet hole of the shell and the core. The process of separating grains from the shell and core is also complicated, it is necessary to separate the grain from the core and shell, which falls on the surface of the sieve, and ensure that the core and shells fall to the surface of the sieve in time without accumulating on the sieve. This largely depends on the angle of inclination, the amplitude and frequency of the oscillations.

In order to determine the completeness of grinding of soybean shells, the processed soybeans were analyzed by throwing them into the milking machine, in which the uncut shells were separated and their quantity was determined by mass. The total amount of shells was then determined by adding the unsorted shells to the total amount of shells separated from the sods by the sorter, and the completeness of the sorghum shells was determined as a percentage of the amount of shells separated from the sorrels by the sorter.

In carrying out the experiments, a laboratory-experimental version of the milking machine made by JSC "Yangiyul-Agromash" on the basis of the terms of reference and preliminary requirements developed during the research was used.

The method of harvesting the stalks along with the grain: this method of harvesting is carried out using a combine KSKU-6. Its advantage is that several technological processes are performed simultaneously and the grain is obtained directly; The disadvantage is that if the moisture content of grain and stalks is higher than 20 percent if the grain is harvested, its damage and loss will increase, and the productivity of the combine will decrease as a result of frequent clogging of the combine harvester. The next method is performed on a Keys-2166 combine. In this method, only the grain is harvested with a combine, and the stalks and stalks are sown in the field. The grains are brought to the threshing floor by truck and cleaned in grain cleaning machines and placed in warehouses for storage. The advantage of this method is that the crop is harvested as soon as possible. Also, abandoned stems, stems and bark fragments are useful as organic fertilizer for the soil. Corn residues contain 0.20% nitrogen, 0.12% phosphorus, and 0.11% potassium, leaving 20.8 kg of nitrogen per hectare of land vacated by corn [2].

However, in areas where corn stalks are used as fodder for livestock (including in our country), this method of harvesting is rarely used. Currently, the world's leading manufacturers of harvesting equipment, such as Klaas, Keys, John Deere, Deutsche Far, New Holland, are producing their combines using the latest harvesting methods [6].

In Uzbekistan, one of the best ways to harvest corn is to grind it in the form of husks during ripening, simultaneously crushing the stalks, drying the husks and then grinding them without removing the husks (Figure 1.2). To implement this method of harvesting, QXMEI has developed a new type of corn harvesting machine and milking machine [5]

The advantage of this method of harvesting is that the whole crop is harvested 10-12 days earlier than usual and at the same time completely removed from the field. As a result, the field is emptied earlier for planting or processing the next crop. According to the recommended method, when the moisture content of the soybeans reaches 35-40%, the corn stalks are cut, from which the soybeans are separated and loaded on the trailer without peeling. The stalks are crushed and loaded onto a side-by-side vehicle. The husks are dried in the threshing floor until the moisture content of the grain is 18-20%, the moisture content of the husks is 20-24%, and the grains are separated without removing the husks by grinding with a sieve. Due to the fact that the husks are not cleaned from the husks, the efficiency of the harvesting machine increases by 20%, and grain loss and fuel consumption are reduced by 10-15%. In addition to grain, coarse stalks, which are valuable fodder for livestock, are also harvested. The presence of sorghum in the husks, on the other hand, dramatically reduces grain damage and loss during

loading, transportation and unloading. In order to grind and separate the grain harvested in the form of soybeans, soybeans of various designs have been developed worldwide. However, since most of these shafts are similar to each other, it will be necessary to analyze the design and technological process of some of them.

However, despite the low cost of metal, simple and compact design, it is not designed to grind shells and separate the grain. 349 b.]. The device consists of two blocks: shell cleaning and crushing blocks. The process of technological work in the milking parlor is as follows. The sows thrown into the receiving chamber are delivered to the sieve bunker 2 using conveyor 1. The sots falling into bunker 2 are lowered into the free-standing crushing drum 3 and crushed with it. The grains separated from the milled sieves pass through the holes in the drum deck 4, are cleaned in the air stream generated by the fan 8, and are collected by the grain screw 7 and loaded into bags or capacity containers through the grain conveyor.

Light mixtures separated from the frost are mixed with the air stream through the outlet hole 6 and exited. From the end of the grinding apparatus, the core of the stalks and a part of the grains fall into a sieve mounted in front of the outlet, and they are separated from each other. When the grains separated from the core fall to the grain auger 7, the cores are removed using a conveyor 5. Until recently, this miller was widely used in Uzbekistan for grinding corn husks. However, despite the low cost of metal, simple and compact design, it is not designed to grind shells and separate the grain. 349 b.]. The device consists of two blocks: shell cleaning and crushing blocks

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