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ANALYSIS OF THE USE OF CORN COMPONENTS IN THE PRODUCTION OF FEED FOR CATTLE

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Currently, the use of corn cores in the manufacture of feed goes mainly in two directions: - preservation of whole or crushed ears, including several methods (drying, ensiling, chemical preservation, ventilation with natural or artificially cooled air, and others); - preparation of crushed grain core mix (ISS) from pre-threshed ears. For preserving corn cobs, it is harvested by corn harvesters with a humidity of 40 ... 45% on the cobs. Then the cobs, whole or crushed on stationary crushers, are loaded into storage, compacted and sealed. Naybilshch consider laying them in trenches or towers in a crushed form as an attractive option for preserving ears. In this case, the size of the crushed particles should be within 3 ... 4 mm and their size should be at least 70%, with the obligatory absence of whole grains. Naybilshch consider laying them in trenches or towers in a crushed form as an attractive option for preserving ears, which contributes to the phased use of such raw materials in feed for cattle.

Key words: *feed, processing, rod, use, preparation.*

Formulation of the problem. At this time, the use of corn cobs in the manufacture of feed is mainly in two directions: - canning of whole or crushed cobs, which includes several methods (drying, ensiling, chemical canning, ventilation with natural or artificially cooled air, etc.); - preparation of crushed grain-core mixture (GCM) from pre-threshed cobs For canning of cobs of corn it is taken away by corn harvesters at humidity of cobs of 40 ... 45%. Then the cobs in whole or crushed on stationary shredders are loaded into storage, compacted and sealed. The size of the crushed particles should be within 3 ... 4 mm and they should be at least 70% in the absence of whole grains.

Analysis of recent research and publications. When harvesting corn grain-rod mixture with different ratio of grain and rods, corn is harvested by combine harvesters with threshing cobs with a moisture content of 35 ... 40% at the stage of wax ripeness, after which the mixture is crushed on crushers, In contrast to the technology of ensiling crushed corn cobs, only a part of the cores (approximately 40 ... 80% by weight in the cobs) is used in the preparation of the grain-rod mixture together with the grain. The required level of fiber in canned food is achieved by adjusting the working bodies of combines during harvesting or screening of large particles during feeding. For feeding pigs, this level is 5 ... 7%, and for cattle - 10 ... 12%. Nutrients contained in the SSS are preserved by bacterial hydrolysis of sucrose with the formation of organic acids and sugars [1,2,3]. The technology of preparation of ZSS with various ratio of grain and cores has received the name TsCM (from English SSM - Corn Cob Mix that in translation means grain-core mix). Studies have shown that the productive effect of ZSS is at the level of concentrated feed made from dried grain. An important condition for obtaining high-quality feed is the grinding of ZSS to a certain particle size distribution. After 150 days of storage, it was determined that the quality of coarse grinding was lower than that of fine grinding because it contained less acids, more alcohol with higher losses of dry matter [1,3].

The purpose of the article. Generalization of recommendations and technological sequence of use of corn cobs in feeds for cattle.

Presenting main material. There are some differences in the recommendations on the degree of crushing of the WSS. Thus, there are studies that indicate that the crushed product should be at least 80% of particles up to 2 mm in size, the rest of it should be particles with a size of 2 ... 5 mm. Other studies in [3] recommended the presence of particles up to 2 mm - not less than 60%, and in accordance with zootechnical requirements, the grain-rod mixture should be crushed so that the particles up to 2 mm (for pigs) and 4 mm (for cattle) cattle) was at least 70%. The results of research show that the presence in the WSS of hard, sharp pieces of rods larger than 2.0 mm in animals causes damage to the walls of the gastrointestinal tract, so when fattening pigs recommend the size of the crushed particles in the range of 0.6 ... 1.3 mm . The technology of preparation of grain-core mixture from cobs with wrappers (ZSOSO) is also used, in which cobs are taken away and preserved with the wrapper in crushed form. It was

established [1] that silage from crushed cobs with wrappers has a high feed value - about 720 feed units (7.4 MJ of pure energy) per I kg of dry matter. In terms of energy, 1.5 kg of such silage with the addition of 0.2 kg of soybean meal can replace I kg of compound feed for high-yield feeds. In fodder production also use a leaf-rod mixture (ZSSL), which is obtained by mowing the upper part of the corn plant in the phase of wax ripeness of the grain at the height of the attachment of the cobs, followed by grinding. The preparation of such feed requires grinding of corn mass into particles with a size of 5 ... 7 mm, and the nutrient content of 1 kg of dry matter ZSSL is 1.5 ... 1.10 feed. from for ruminants, animals [2]. It is established that when harvesting corn for cattle, the highest yield of feed units per unit area can be obtained by harvesting the biological mass of corn in the phase of wax ripeness with finer grinding, than for conventional silage. In this case, corn is harvested by forage harvesters equipped with recatters. Along with the widespread use of rods in a mixture with other components of the corn plant, they are also used separately for roughage [1,2]. Only high-quality corn cobs that are not affected by mold and rot should be used for feeding animals. Usually they have humidity of 14 ... 16%, are well stored under canopies and in other rooms of easy type. Rods with higher humidity are also suitable for fattening, but during storage they quickly mold and rot. It is recommended [2] to enrich the rods with urea before feeding, with one part of urea powder dissolved in 9 ... 10 parts of molasses and diluted with water (for one part of the solution 2 ... 3 parts of water). The rods prepared in this way are used for dairy cows of 6 ... 8 kg, cattle for fattening - 8 ... 10 kg, young cattle older than one year - 4 ... 5 kg, young animals up to one year - 3 ... 4 kg, sheep - 0.5 ... 1.0 kg per head per day. For wide application it is possible to recommend technology of preparation and feeding of cores of corn cobs when cores grind on a crusher, moisten with a solution of molasses (on one part of molasses take four parts of water with urea), mix carefully and moisten some hours during which the shares of cores possessing high hygroscopic - vigor, saturated with solution [2]. Before feeding cattle, crushed sugar beets are added to the mixture. The cores of corn cobs in natural and small species are poorly eaten by animals due to the presence of a wooden cylinder, so before feeding they should be ground into flour. It is noted that the degree of fermentation of the rods depends on the quality of the grind. Thus, rods cut into 5 mm thick are fermented by 20.5%, and medium flour - by 75%. Due to the fact that in dry form the flour from corn cobs is eaten by animals reluctantly, before feeding cattle it is recommended to moisten it with a solution of molasses (15 ... 20%) at the rate of 50 kg of solution per quintal of flour, adding the required amount table salt, cobalt and urea. In the absence of molasses, the flour from the rods is flavored with a solution of salt in water at the rate of 30 ... 50 g per head per day. Crushed rods are also used as part of feed mixtures to which, depending on the recipe, add bran, flour, grain waste, meal, molasses, chalk, salt. Positive results were obtained when using feed mixtures in the process of fattening young cattle. The rods were used in the amount of 4..6 kg, replacing them with completely coarse or concentrated feed in the first period of fattening. When fattening animals on oppression or bards in the diet, in addition to this mixture, it is recommended to introduce crushed straw legumes in the amount of 2 ... 4 kg. The average daily weight gain on this diet is 867 g at a consumption of I kg of weight gain 8.54 feed. ed. Recipes for feed mixtures for cattle using corn mixtures are given in table. 1. Such feed mixtures can be prepared in granular or placer form and used as a mixture in rations with succulent and other feeds where it contains at least 0.4 feeds. from and 25 ... 30 g of digestible protein.

Table 1. **The content of feed mixtures for cattle, %**

Components, %	Recept			
	1	2	3	4
straw	42	-	-	-
The rods are chopped	40	80	80	88,5
Bran, grain waste	5	8,5	13,5	-
meal	5	5	5	-
molasses	5	5	-	9
urea	1,5	-	-	1,5
chalk	1	1	1	1
salt	0,5	0,5	0,5	0,5

It is recommended for fattening cattle at the age of 1 2 ... 1 5 months the following proportions of the mixture (Table 2) using the cobs of corn cobs. The lack of protein in the diets during silage and pulp fattening can be filled by feeding urea. When fattening bulls also use full-fledged feed mixtures, which include corn cobs in the amount of I..2% of the total weight of the mixtures [1]. When fattening cattle and sheep, corn bran is sometimes used, which is obtained by grinding edible corn, which partly includes flour from ground rods [2]. In addition to direct use in feed, corn cobs are also used to produce feed yeast, the yield of which is approximately 150 kg per I ton of raw material [2].

Table 2. **The proportions of feed mixtures for cattle**

Component	The content of components,%		
	silage	pulp	bard
cob rods	4	5	6
corn silage	18	6	-
beet pulp	-	35	-
bard	-	-	50
sugar beet	5	-	5
concentrates	1,5	1,0	1,0
table salt	0,08…0,10	0,1	0,1
tricalcium phosphate	0,06…0,08	0,08…0,10	-
chalk	-	-	0,08
feed molasses	-	1, 0	-

Conclusions. The analysis of the performed researches allowed to establish that the crushed cores of corn cobs are widely used at production of forages both in a mix with other components of a plant of corn (grain, stalks, leaves), and as a separate component as a part of full-feed forages for fattening. cattle, as well as pigs and sheep. The expediency of their use is due to the fact that with the existing shortage of feed, the use of rods of corn cobs allows you to get an additional 350 ... 380 feed. from with I ha of corn, which significantly increases the reserve of roughage in the feed balance of the country.

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АНАЛІЗ ВИКОРИСТАННЯ СКЛАДОВИХ КОМПОНЕНТІВ КУКУРУДЗИ ПРИ ВИГОТОВЛЕННІ КОРМІВ ДЛЯ ВРХ

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У цей час використання стрижнів кукурудзи при виготовленні кормів йде, в основному, по двом напрямкам: консервування цілих або здрібнених качанів, що включає кілька способів (висушування, силосування, хімічне консервування, вентилювання природнє або штучно охолодженим повітрям і інші); заготовка здрібненої зерно- стрижневої суміші (ЗСС) з попередньо обмолочених качанів .Для консервування качанів кукурудзи її забирають кукурудзо-збиральними комбайнами при вологості качанів 40...45 %. Потім качани в цілому або здрібненому на стаціонарних подрібнювачах завантажують їх у сховище, ущільнюють і герметизиують. Найбільщ привабливим варіантом консервування качанів вважають закладку їх у траншеї або вежі в здрібненому виді. При цьому розміри подрібнених часток повинні бути в межах 3...4 мм і їх має бути не менш 70 % при обов'язковій відсутності цілих зерен. Найбільщ привабливим варіантом консервування качанів вважають закладку їх у траншеї або вежі в здрібненому виді, що сприяє поетапному використанню такої сировини в кормах для ВРХ.

Ключові слова: *корм, обробка, стрижень, використання, підготовка .*