EVALUATION OF THE DEGREE OF GRINDING OF THE CEREAL PART OF PLANTS WHEN USE IN THE RECIPES OF COMBINED FEEDS FOR CATS

I. Dudarev, S. Uminsky, A. Yakovenko, V. Chuchuy, M. Korolkova, S. Dmitrieva

Odessa State Agrarian University

The efficiency of the livestock complex requires an increase in productivity, which is largely associated with the rational use of the forage base and which today can be used with great potential. The efficiency of using the feed base can be significantly increased by compiling and using rational feed mixtures. The use of the stalked part of plants (STP) in the feed makes it possible to obtain more livestock products. So, the use of traditional ingredients can be added to those less common in the preparation of feed, but possessing the necessary qualities, such as the remains of sunflower, oats, rapeseed, flax, triticale, rye, rice, corn, (which are underutilized or not used at all) and other sources a raw material base in the form of the remains of the main production. The stalked parts of agricultural crops can be used in different ways, however, their use is represented by the production of feed mixtures and compound feeds. The use of the listed feeds in practical application is subject to a general requirement related to their preparation, i.e. grinding to ensure digestibility by the animals for which they will be used.

Key words: *feed, composition, grinding, use, evaluation.*

Introduction. The main components of stem plants are characterized by their different structure and have different forage significance. In different phases of a plant their indicators change and their difference is observed, in specific weight of dry weight of a plant, and the maintenance in their structure of a set of chemical elements. The use of the stalked part of plants is widely used for feeding cattle in the composition of prescription components of feed, as well as as a substrate for growing unicellular protein, before using feed for animals of different groups. Each part of plants is characterized by features in their physical, mechanical and chemical parameters. So the leaf part of plants is characterized by the increased content of protein and vitamins in comparison with other part of a plant concentration of protein and vitamins. Part of the plant is represented by the stem is characterized by low protein concentration and high fiber content. In practical application to ensure a balanced diet should be considered the fact of the influence of physical and mechanical parameters that affect the animal's body and the absorption of nutrients and which in turn determines the development or limited productivity of livestock in general. Therefore at use of vegetable stalk raw material base their crushing is necessary. To prepare feed for cattle, it is necessary to make a balanced feed recipe to improve the nutritional properties and use them effectively in the composition of feed for cattle. The main requirement when using the stem part of plants is their preliminary grinding to particles up to 5 mm with a fractional content of at least 70%.

Problem. Qualitative assessment of the preparation of the stem part of plants for use in the prescription composition for animals.

Analysis of recent research and publications. Studies have shown that the process of grinding SCR for use in feed contributes to a significant reduction in their losses during use. [1]. An increased degree of grinding of SCR is required in cases where their content in recipes for cattle reaches 25%. It is determined that when using SCR for feeding in an insufficiently prepared state leads to its losses at the level of 20..30% [2]. Carefully prepared SCR, for cattle crushed to a state not exceeding 5 mm in practice, eaten whole, and well digested by animals [1]. In addition, the grinding of SCR is a necessary technological operation which as a component of feed has a significant impact on the homogeneity of the prepared mixture and can lead to improvement or deterioration of feed quality on this indicator. The effect of the application in the diet depends on the adopted production technology and the performance can be improved by mechanical, chemical or heat treatment, as well as through use with other components or feeds. Studies have established the most optimal size for the use of SCR feed for cattle with indicators of 3 ... 5 mm. The importance of preparation in such a way that the grinding was performed not only in the longitudinal but also in the transverse directions, which makes it easier for the animal's body to absorb the nutrients in the HRT. When preparing SCR, it is also important to control

the formation of the smallest particles, as they are not chewed by animals but swallowed, do not linger in the rumen and pass into the small intestine where protein is absorbed.

Purpose: To determine the geometric parameters of SCR for effective use in animal feeding.

Research results. Given the heterogeneous performance of the material in determining the particle size distribution and crushing of the SCP, performed a measurement of their length L and diameters D, dk, defining its diameter as the arithmetic mean: $d = 0,5(d_{max} + d_{min})$ (1)

Where: d_{max} i d_{min} - diameters at its ends.

Random values of Xi sizes were ranked into classes. In order not to disappear in the variation series features of the phenomenon, the value of the class was set using:

$$C = \frac{X_{max} - X_{min}}{1 + 3,2 \lg N} \quad (2)$$

Measurement data were included in a number of distribution by size classes. The sizes of the particles included in the class were assumed to be equal to its notation, namely their average value Xi. The frequencies of classes, samples are denoted by n and, and the frequency of class Pi was determined by:

$$P_i = ; \sum_{i=1} P_i = 1 \quad (3)$$

The number of classes is calculated:

$$K = \frac{X_{max} - X_{min}}{C} + 1 \quad (4)$$

Estimation of the geometric composition of the crushed product is proposed to apply the sieve classification. The sieves should be chosen x taking into account the modulus denoted by the ratio of the size a1, to the side of the square hole of the previous sieve to the size ai + 1. And the side of the next should be equal $\sqrt{2}$. To do this, the following numbers were sieved: 70, 50, 41, 25, 16, 10, 063, 04, 0315, 020, 016, 01. According to the results of sieving, the residue was weighed on laboratory scales. The average particle size of the treated product for each of the size classes was taken as follows:

$$d'чi = 0,5 (a1 + ai+1) \quad (5)$$

Then the average particle size of the product dchcv can be determined:

$$dчсв = \sum_{i=1}^{n} d'чi \, Pi \quad (6)$$

Where Pi = mi / m, the size of the product is the mass mi, and in the whole sample the mass is m.

Given the infinity in the finite volume of the population, and the exponent of the class decreases, the series of particle sizes can be represented graphically as distribution curves of a random variable, and which look like a model of the general population studied and shown by a partial population, with the proviso that N = 30. ..40 sample value [3].
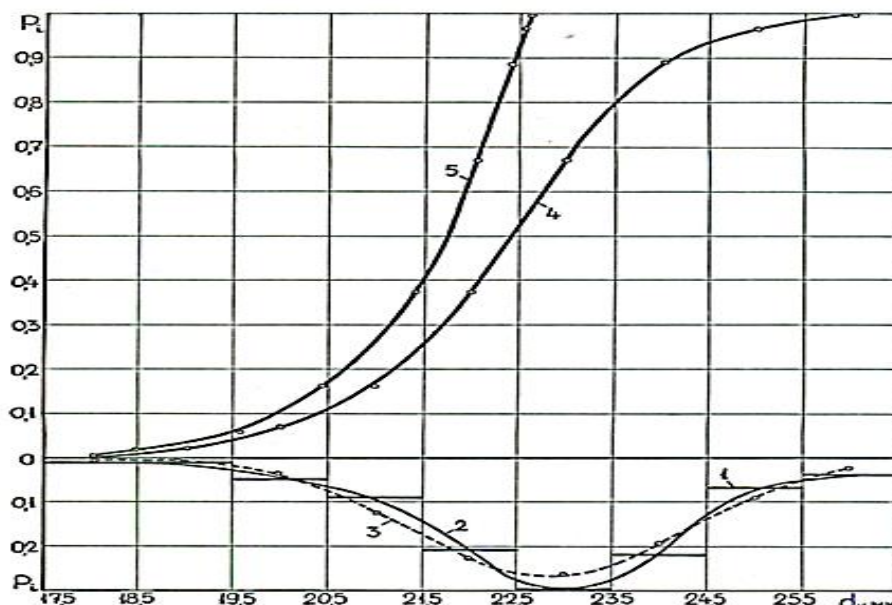
Fig. 1. Disperse characteristics of the diameter dk of crushed raw materials: 1 and 2 - histogram and polygon of empirical distribution; 3- normal distribution; 4 and 5 - cumulative curves of absolute and weighted average lengths.

Conclusions. Note that the length of the crushed samples is in the range of 25.45 ± 20 mm, and the standard deviation Slk = 8.94 mm, with a change in diameter of 18.85… 26.85 at Sdk = 1.51 mm. 50% of the original samples were 17… 20 mm long with a diameter less than 2.5 mm. Analysis of empirical and calculated theoretical distributions allows us to see that the size distributions of crushed expressions lk and dk are subject to the normal law., I%. Compared with the original samples, the alignment of the crushed rods in diameter is better because, Vdk> VD.

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ОЦЕНКА СТЕПЕНИ ИЗМЕЛЬЧЕНИЯ СТЕБЕЛЬЧАТОЙ ЧАСТИ РАСТЕНИЙ ПРИ ИСПОЛЬЗОВАНИИ В В РЕЦЕПТАХ КОМБИКОРМОВ ДЛЯ КРС

Дударев И., Уминський С., Яковенко А., Чучуй В., Королькова М., Дмитриева С.

Эффективность животноводческого комплекса требует увеличения продуктивности, что в значительной мере связано с рациональным использованием кормовой базы и которая на сегодняшний день может быть использована с большим потенциалом. Эффективность использования кормовой базы можно существенно увеличить путем составления и применения рациональных кормовых смесей. Применение в составе кормов стебельчатой части растений (СЧР) позволяет получить больше продуктов животноводства. Так к использованию традиционных составляющих могут быть присоединены менее распространенные при приготовлении кормов, но обладающие необходимыми качествами такие, как остатки подсолнечника, овса, рапса, льна, тритикале, ржи, риса, кукурузы, (которые недостаточно используются или не используются вообще) и другие источники сырьевой базы в виде остатков основного производства. Стебельчатые части сельскохозяйственных культур, могут использоваться в в разных вариантах, однако их применение представлено производством кормосмесей и комбикормов. К использованию перечисленных кормов в практическом применении предъявляется общее требование связанное с их подготовкой т.е. измельчением для обеспечения усваиваемости животными для которых они будут использованы.

Ключевые слова: корм, состав, измельчение, использование, оценка.

ОЦІНКА СТУПЕНЯ ПОДРІБНЕННЯ СТЕБЕЛЬЧАСТОЇ ЧАСТИНИ РОСЛИН ПІД ЧАС ВИКОРИСТАННЯ В РЕЦЕПТАХ КОМБІКОРМІВ ДЛЯ ВРХ

Дударев І., Уминський С., Яковенко А., Чучуй В., Королькова М., Дмитрієва С.

Ефективність тваринницького комплексу вимагає збільшення продуктивності, що в значній мірі пов'язано з раціональним використанням кормової бази і яка на сьогоднішній день

може бути використана з великим потенціалом. Ефективність використання кормової бази можна істотно збільшити шляхом складання і застосування раціональних кормових сумішей. Застосування в складі кормів стебельчатой частини рослин (СЧР) дозволяє отримати більше продуктів тваринництва. Так до використання традиційних складових можуть бути приєднані менш поширені при приготуванні кормів, але володіють необхідними якостями такі, як залишки соняшнику, вівса, ріпаку, льону, тритикале, жита, рису, кукурудзи, (які недостатньо використовуються або не використовуються взагалі) та інші джерела сировинної бази у вигляді залишків основного виробництва. Стебельчатие частини сільськогосподарських культур, можуть використовуватися в в різних варіантах, однак їх застосування представлено виробництвом кормосмесей і комбікормів. До використання перерахованих кормів в практичному застосуванні пред'являється загальна вимога пов'язане з їх підготовкою тобто подрібненням для забезпечення засвоюваності тваринами для яких вони будуть використані.

Ключові слова: *корм, склад, подрібнення, використання, оцінка.*