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DEVELOPMENT OF TECHNICAL MEANS PREPARATION OF GRAIN FOR FEEDING ANIMALS

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The history of the development of technical means of preparing grain for feeding animals. In determining the periods of history Grain processing machinery accounted for as independence of science and practice kormopryhot uvannya and its called; Connection with the achievements of natural science and engineering.

Grain feed processing methods, feeding animals, feed, integrated mechanization, automated production lines.

The process of co-existence of man with domesticated animals primarily imposed obligation; bound life support animal part, and later completely divorced from the natural environment. First human activity was to provide feed material and organize the feeding of animals. Stockpiling forages, especially for the winter period was the result of hard work man. So for a long time the principle of rational use of feed, especially for their most valuable component - grain feed, lay at the heart of the development of means of processing. Further expansion of the use of animals has caused profound interest in the preparation of feed grain, better to use them in combination with other foods, to ensure better output of livestock products and of course reduction in labor costs. Stockpiling forages, especially for the winter period was the result of hard work man. So for a long time the principle of rational use of feed, especially for their most valuable component - grain feed, lay at the heart of the development of means of processing.

Further expansion of the use of animals has caused profound interest in the preparation of feed grain, better to use them in combination with other foods, to ensure better output of livestock products and of course reduction in labor costs. Life dictated at all stages of historical development and seek out ways to improve the technological preparation of feed grain for feeding the animals, along with other types of feed.

The purpose of the study - an analysis of the main stages of development of technical tools and machinery preparation of grain for feeding animals. Materials and methods research.

Production technology - not frozen form. It requires continuous improvement and change, not only in terms of improving the animal feed action and improve the output of animal products, but also conduct modifications according to changing demographic, social and economic factors in society and country. Therefore, before the man is always the problem of finding and reconstruction technology. Creating and using new technology requires some changes, changes in the agricultural sector, because all parts of it are closely connected with each other.

If any changes, especially in such an extremely complicated system such as agriculture, very important to not act blindly, and are relying on our experience. Therefore, it is appropriate through analysis of past technologies identified in them in common, conditions, laws This is necessary as in the general direction of cognition, learning, ordering to replenish ordered some knowledge of the field of human activity, and to analyze that part of the experience of the past, which could be useful in subsequent periods of human development.

Work on this first stage involves the selection of characteristic periods of technological methods and the means of preparation of grain for feeding animals. The basis for determining the boundaries of historical periods to be significant and important principle of direct human activity that affects all called; Relations of operation. However, each period should be limited in time in accordance with the phases of development of; research object, which are qualitatively different from each other.

First you must find objects; objective criteria expressing the internal logic and specific patterns of technical sciences; associated with the implementation of important discoveries that gave impetus to the development of practical issues on a new basis, and derive from different periods of the development of society and therefore equally suited to all historical stages [1. 2, 4]. Specific discoveries in science and technology and their practical application in production reflects the

commonality of certain type of human activities, milestones which separated in time.

This period, depending on the level of social development, general technical framework and the need arises for that matter, can have a short period of permanent and sometimes lasts a long time. It is therefore necessary to determine that this combination to be taken as a starting point in determining the stage of periodization. Zworykin demonstrates that a new stage in the history of technology should not be considered the first formulation of an idea and its practical implementation [2]. This approach complements the . Shuhardyn, believing that a new stage of development of a particular field of science and technology is not only a practical implementation of technical solutions and their wide use in production, that is the time when the production of new technology already occupies a large proportion [6

In addition to the use of technology in production. at each stage it is also necessary to study in detail the level of knowledge of nature in general and in particular the cultivation of farm animals. In determining the periods of history Grain processing machinery accounted for as independence of science and practice kormopryhotuvannya and its conditionality progress of natural science and engineering. Processing grains for animal feed and grain processing for human consumption population in organizational and technical terms are often intertwined with each other. On the one hand, to grind grain to animals often used the same device, and getting flour or meal and the difference was only in changing modes
On the other hand, animals zhodovuvalys waste in the manufacture of flour and cereals. Therefore technical solutions laid equipments for flour or cereal production'' drunk, especially until recently, often repeated intended for processing grain to animals. Due to this feature of the data on the development of joint operations for the purpose of processing of grain were accepted for consideration in the development of periodization.

Results. Considering the accumulated theoretical and practical experience in the specified issues, history of technology and engineering of grain processing conventionally divided into 4 periods.

1. The early period of the history of the and is characterized by the use of hand-

over of workers [3]. In the early period was the formation of the general scheme of corn processing devices, though their excellence was at the elementary level of development. The technology itself feeding animals remained almost unexplored. The main measure of evaluation of each technological operation were the results of observations of the growth and development of animals that are sometimes created grounds for improving the conditions and means of production. But as the exchange of information between people was not established, it is often domain specific individual performers did not find followers and forgotten. The early period is characterized by the use of feeding grains not set different cultures, and one kind of grain. This reduced the productivity of the animals did not create opportunities for rational use of animals harvested forage.

2. Period of widespread use of natural energy sources and living a draft force to drive equipment for processing grain, which began with the X - XI century. acquired and expansion as the development of new forms of energy during XII - XV century. lasted until the second half of the XIX century. The use of animals, and later water and wind power to drive farm implements formed the basis for the development of a higher civilization of humanity. Increased drive power tools and reduce muscular people work created for the sharp increase machine productivity and reduce labor costs in agriculture.

Instead of manual devices for grinding grain (zhornovym mill) and foot (stupa) with new drive types were created Burr mills increased throughput. In principle, almost all major grain processing design tools were based on the same principle and differ only in adaptation to a particular type of drive. Water mills were established near rivers and small ponds and brought into effect the energy of falling water flow. The drive was carried out on a mill water wheel via chain transfer. Subsequently waterwheel began to replace the turbine. If there is enough water on one wheel or turbine actuated two, three or four Burr posture [5].

Windmills different relative cheapness of their construction, but have a significant disadvantage as a result of volatility in wind speed could not stick to a constant rotation frequency zhornovyh posture within the optimal value. In practice

found using three types of windmills: the first building with all the wings rotated around the vertical oak pole. The second type has the peculiarity that the entire building is not returned, only its upper part, which was a shaft with wings. The third type of mill was normal storage facilities, the roof of which was set windy wheel located at a slight angle to the horizon [6]

3. The classic period of the theory and practice of grain processing began in the late XIX century. and was dominant until the sixties of XX century. This period took place against the background of rapid development of basic and applied sciences, the application of a scientific approach to the study of the physiology of animal feed and feed materials, the use of power-driven machines from corn processing engines, as well as specialty areas of agricultural production. The main events of the previous period were as follows:

XIX century industrial revolution. and as a result of - the development of advanced manufacturing industry, which was the basis for the creation and production of corn processing machines - for solving practical problems Liabilities; began involve scientific expertise related industries, formed principles of obtaining and building scientific and technical knowledge, which called directly serve production and developed methods for solving; Liabilities technological and engineering problems;

- Creation of internal combustion engines and electric motors with high levels of operational reliability, the construction of an extensive grid of electrical networks and electrification of agriculture, the creation of technical services including agricultural and livestock machines - transition to the group of large livestock production. This period is characterized by the rapid development of agriculture.

Animal gets formed and developed branch of scientific knowledge and practical production of its subject, technical devices, methods of assessment and clearly delineated area of research. In some areas, livestock production becomes specialized; associated with crop and food facilities. During this period there were quite resistant forms of interrelation; natural connection, natural and agricultural sciences. However, along with the enrichment of science is a constant differentiation of individual units

of Agricultural Sciences. Kormopryhotuvannya, and subsequently concentrated food preparation for feeding becomes a separate scientific and industrial area.

Along with zhornovymy mills, destroying the grain on the principle of friction, used cars in new physical destruction methods: cut grooved rollers, rolling to a state flakes, breaking hammer working bodies. Last Blade - Hammer crusher become most widely because of their versatility, low metalomistkosti, enerhonasychenosti and high reliability. It creates a sound base of scientific data on the regularities of grain refinement, batching and mixing in the preparation of feed for feeding.

4. The period of the emergence and consolidation of new technologies grain preparation and implementation of technology use in the composition of feed grain mix starts with the sixties of XX century. and continues until now.

In the 50-60-ies of XX century. was completed basic research on the feeding of farm animals. Households receive practical guidance on the basic principles scientifically sound use of feed, including grain. According to these developments the use of certain types of grains results in significant loss of product due to the unbalanced feed rations. Had to take a course on the use of feed grains in the main part of the balanced feed, full-feed or the mixed. To feed, in addition to various kinds of grain materials introduced protein feed, mineral supplements, additives. With regard to the physical condition of animal feed, along with animal feed in loose granular form began to produce animal feed, which is more consistent with the transportation, storage and delivery of animals. Next to the mechanical process of preparation of feed grain for feeding a growing proliferation of acquiring new complex technologies, which also include thermal processing methods, biological fabrication, using electro-technologies.

This period is characterized by the transition to the production of agricultural machines that perform complex processes, consolidation of comprehensive mechanization of livestock production, the emergence of automated flow processing lines and plants in general. Advances in information and computer technology allow the machine to replace the person in a variety of functions, including logic.

Computer aided technique used in the preparation of fodder for feeding and

distribution of animals, able to memorize; yatovuvaty, select and classify data on incoming raw materials, operating conditions of machines and their technical condition, changes in properties of feed material during processing and in automatic mode to control process parameters, to optimize the flow of processing control set quality parameters throughout the process of obtaining feed.

When creating a mechanization used modeling techniques and computer; of Computer Graphics, machine selection parameters of technical decisions of individual units of equipment and monitoring and examination of the technical documentation and sample processing machines. Continuing development of technology in engineering plant, based on new, more accurate and principles of resource creation machines.

Conclusions

Conclusions are four periods in the history of mechanization preparation of grain for feeding animals in different regions, in different sizes depending on the economy and economic status of the community of people did not have clearly defined boundaries. But the general trend of quantitative transition between them is clearly observed.

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