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COMPUTER MODEL OPTIMIZATION OF RATIONS FOR HIGH-PRODUCTIVE LACTATING COWS

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Offers computer model development, optimization and calculation the cost of rations and premixes for lactation cows on modern exactly and advanced detail rules feed, wherein selection feeds to composition rations on nutritious and physical-chemistry indicators is conducted with most harvest for energy-protein units and cheap on cost feed crops own production the minimum quantities in purchase high-protein and mineral-vitamin food additives with using computer technics in dialog regime, and calculation nutritious and cost rations and premixes, and also cost and profitability of milk production origin in programming automatized regime on base electronics tables of Microsoft Excel.

Computer model, feed, ration, nutritious, milk, cost, profitability

Previously, the elaboration of rations was conducted through confined number of controlled animal feeding measures by the use of elementary computer techniques, personal calculators, etc. that required great time expenditures to carry this out. Along with the development of computer techniques, there appeared an opportunity of ration elaboration and optimization by using special software, which decreased time expenditures in tens of times to carry it out. The majority of current well-known ways of ration elaboration for food-producing animals by using computer techniques and its software, which are published in literature or placed

on the internet, don't imply approachable, concise, clear and reliable data concerning its practical usage and, as a rule, are quite expensive.

The objective of the research is development of optimized computer model for estimation of rations composition and value for lactating cows and the expected profitability of milk production.

The materials and methods of research. A famous Greg Harvey book "Excel 2000 for windows" is one of well known references, which enlighten all the basic technical devices of creation, editing and printing of electronic Microsoft Excel worksheets, which facilitate working on analytical data in various fields of production.

There are nearly 10 modes of data treatment for task solving with the use of computer techniques. In course of rations elaboration for lactating cows, its optimization and value estimation, we used dialogue and automatic modes at the same time. The dialogue mode provides the ultimate convenience for a user, allowing permanent control of data entries (those of applications and output data), minimal response time and an opportunity of user's operative intervention during the task solving process and operative access to the system. When using this mode, there's an opportunity for a user to interact directly with computer techniques (a computer) throughout the working process. Whether the computer techniques are present, this mode is the simplest, the most approachable and operative, because it gives a user an opportunity to initiate the dialog with a computer – PC (Personal Computer).

The results of research. The principal scheme of rations elaboration for lactating cows with using computer techniques, according to Excel electronic worksheets, includes, first of all, the usage of own-produced bulky feeds (haylage, silage), then, in order to optimize rations in regard of available energy, the grass mixture is included (50% - maize, 30% - barley, 20% - nonfood wheat). Later on, they include solvent cakes and brewing waste in order to make good a deficit of protein. Beet molasses, vitamins and not easily available dietary mineral salts are included to make good a deficit of sugar.

These are the advantages of suggested computer model of rations elaboration for lactating cows:

- Using approachable computer techniques;
- Simplicity of software while elaborating the rations;
- An opportunity of operative intervention in order to input necessary changes for rations correction during elaboration process;
- Operativity of rations elaboration;

The suggested computer model involves:

- The inclusion into the rations composition of feeds, which are own produced of feeding crops, being the most plenteous of energy and protein units gathering, and the cheapest, as for the self-cost, at minimal usage of high protein and other feed and mineral additives;
- The ultimate usage of own produced bulky rough feeds in cows feeding;
- The usage of purchased feedstuff only to supplement the deficit nutrients and bioactive materials in own produced feeds;
- Year-round feeding in the form of optimized complete ration feed mixes;
- Within the ration there is used a limited assortment of feeds, which are own produced of the most plenteous and the cheapest, as for the self-cost, feeding crops;

To confirm the last statement, there is data assuring that the methods of multipurpose programming, while optimizing the rations, came across as quite effective just enough in the context of cultivating and using the most plenteous and the cheapest feeds, as for the self-cost. The suggested method allows to estimate a complete feeding ration for cows, which is subject to 30 and more controlled measures, in operative way, by using computer techniques in both modes simultaneously: the dialogue mode and the programmed automated mode, and also to estimate its value and economic effectiveness.

Conclusions and prospects of further researches.

1. There has been suggested a computer model of elaboration, optimization and value estimation of feeding rations for lactating cows, according to modern adjusted, supplemented and detailed feeding rates.

2. The suggested model allows to estimate in the operative way, by using computer techniques in the dialogue mode and the programmed automated mode, the following: the complete feeding ration for cows, subject to 30 and more controlled measures; its value, economical efficiency, expected self-cost and the profitability of milk production.

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