SYSTEM OF A COMPLEX MILK EFFICIENCY CONTROL IN COWS

SISTEM CJELOVITE UČINKOVITOSTI KONTROLE MLJEČNOSTI KRAVA

J. Pindák

Optimization of environmental conditions forms an important prerequisite of good health conditon and manifestation of the animal genotype. Any dysbalance causes various unfavourable disorders resulting in negative impact on actual productivity level; outlasting disharmony can reduce considerably animal develpment; in dairy cows weight loss eventually modifications of body organ structure (liver above all) can be found. Nutrition level is the most significant factor; it must respect all physiological requirements for maintenance and vital functions and compensate nutrients utilized for growth and milk productin. Deficit nutrition level as well as overfeeding resulting in deposition of excessive body fat (namely in pregnancy period) are faulty. Balanced ratio of individual organic and mineral nutrients is very important.

Routine methods of milk recording incorporating control of milk production level, milk fat and milk protein contents eventually somatic cell count without complex evaluation of obtained results does not enable to estimate objectively complex breeding conditions including nutrition quality. It is necessary to mention that addition working activity is associated with disturbance of animals in case of control activity in sheds; so maxsimum rationalization of these activities is desirable. Besides of genetic predispositions of dairy cows marketability of produced milk is important for the breeder. Nutrition level can be controlled sufficiently by means of milk urea eventually acetone analysis and routinely controlled milk parameters as related to lactation period; SCC evaluation completes the mentioned data set that is utilizable for an operative and objective solution of anomalies.

Reduction of milk sampling - sample evaluation interval (including proposal of effective precautions) to the shortest time requisite to analysis realization and automated data processing presents the relevant presumpton of successful interventions.

Relatively simple method respecting completely requirements of breeders has been worked out in Research Institute for Cattle Breeding Rapotin. The system has been tested in 15 breeding herds for two years. A computer progemme has been prepared too.

J. Pindák, SCC Research Institute for Cattle Breeding Rapotin, Czech Republic

In comparison to the routine method the following extra parameters are contorlled by the complex milk recording system:

- milk urea content, milk acetone content (until cca 100 days of lactation; the first two controls are sufficient),
- somatic cell count,
- titric acidity of milk (as required),
- distributin of individual cattle categories in the stable and animal turnover as compared to the previous control,
- feedstuff consumption (24 h) shed; qualitative analysis of consumed feedstuffs.

Report of the control includes:

1. Breeder's name - code of the stable, data of control realization and evaluation, name of the examiner and classifier.
2. Distribution of animals according individual categories in comparison with the previous control.
3. Survey of individual milk analysis results; values not corresponding to physiological evenetually standardized parameters of those indicating metabolic disorders are marked in this survey. Data specifying date of the latest calving, lactation order, lactation period (days), milk production since calving in individual cows complete this list.
4. Mean values, variability, and standard deviations of individual parameters in milked cow set as related to the following lactational periods:

- ≥ 100 days
- 101 - 200 days
- > 200 days
- in total (all dairy cows).

5. Classification of herd results conformably to production level distribution (10 kg, 10 - 15 kg milk etc.), analysis of individual parameters not corresponding to standardized values and indicating inadequate technological system.
6. Nutrition and feeding level specified by consumption of roughage and contrenstrates (control day as related to standards corresponding to actual milk production + other necessary supplements, and feedstuff consumption in other cattle categories in the stable.

Productive efficiency of the ration (in protein and energy components) is calculated.

The above mentioned values form the basis for recommendation specifying alternatives eliminating nutrition and feeding problems, health problems, technical defects etc. This recommendation completes the control report.

This part of the control interpreting complex of all parameters in accordance with higher quality of production is completed by more detailed specification of the programme on the basis of individual parameter relationships.

Inadequate instrumentation (precise analysis of urea and acetone above all) as well as problems approaching nutrition level evaluation and determination of real consumption of individual feedstuffs directly in sheds obstruct widespread application of the complex milk recording system. It is obvious that absence of breeding conditions - milk quality relationship evaluation prolongs and partially reduces efficiency of selective and breeding precautions. Connection of the complex system with applied central recording system attached to breeding programmes is also problematic to a certain extent. Perspectives of applied milk recording system consists in its gradual transformation into the complex system utilizing other specific parameters (SCC etc.).