

HERD HEALTH AND PRODUCTION MANAGEMENT SYSTEM IN DAIRY COWS

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ABSTRACT - *The implementation of an integrative programme of herd health and production management in dairy cows requires monitoring a large category of data: general status of the animals, clinical exam, paraclinical exams (ultrasound, blood and urine biochemistry, bacteriological, virusological, serological), reproduction parameters, housing conditions, nutrition, milk production and its quality, veterinary actions and their results. The analysis and synthesis of all the data will allow us to establish a herd diagnostic, the influence of hazard factors on health and production and the elaboration of a plan for short and long-term action.*

Key words: herd health management, production, dairy cows

INTRODUCTION

A complex programme of health management in dairy cow farms was first implemented in the Northern Holland, in Brabant region, in 1974, on 45 farms with an effective of 500,000 cows. By the intermediary of Regional Animal Health Centres, the programme was generalized in the entire country. The programme had as results the elaboration of a card and a specific soft including the following data:

- Reproduction: the final goal was to obtain a calf per year. A special attention was paid to postpartum period and to oestrus and gestation; another goal was to obtain a pregnancy rate of 90%. A fertility card was elaborated.
- Udder health, including individual cow cell counts, test dipping, antibiotic management and control of milking machine;
- Hoofcare;

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- Young stock care, beginning with postnatal period – prevention of infectious and parasitic diseases, alimentation, preparing of the young cattle for reproduction;
- Culling and slaughtering of less productive dairy cows and using data for a preventive attitude for the herd (Jorna, 2005).

In the last years, some changes were made in the activity of the veterinarians in the countries with advanced animal breeding. The intensive breeding (new feeding systems and revised breeding programmes) had as a result the increase of milk production / cow /year, from 4000 l/year in 1960 to 10000 l/year in 2000. This required a change of veterinary services, consisting in herd approach, instead of individual approach, and elaboration of health and production management programmes, offering integrated services (Brand *et al*, 1996).

After 1990, new challenges appeared in animal breeding. The quality of production starts to prevail over the quantity. Consumer demands with regard to the methods applied, as related to animal welfare, environment protection, and quality aspects are showing an increasing impact (Noordhuizen and Welpelo, 1996).

It is a new challenge for the veterinarians to play an active role, both at the farm level and in the whole food production chain (Lieveart *et al*, 1999).

Herd health and production management programmes make an integrative approach, taking into account in the same time the problems concerning production and nutrition, udder and hoof health, young stock breeding, fertility and vaccination programmes, animal welfare, use of antimicrobials, control of residues and milk quality (Jorristma and Noordhuizen, 2005).

The main objective of the Health and Production Management Programme is to help the farmers to reach their goal, but this is different from farm to farm. The producer of organic milk will prefer a smaller production but with superior qualitative properties, specific for organic agriculture.

Implementation of the health and production management programme imposes regular visits in farms and monitoring a large category of data: general status of animals, clinical exam, transrectal exam for reproduction, status monitoring, examination of housing conditions, microclimate, hygiene, data concerning milk production and its quality, treatments, etc.

Identification and analysis of problems and hazard factors, and synthesis of the information allow us to establish a herd diagnosis and to elaborate a short and long-term plan of action.

The problem of milk quality has new connotations, beyond of food safety, the public being more interested by animal health, welfare and environment protection. In western European countries, integrative programmes of quality management and environment protection were implemented in the last years (Knudsen, 1997).

MANAGEMENT SYSTEM IN DAIRY COWS

The main objective of the Herd Health and Production Management System is to implement an integrative programme of health, reproduction and production quality management in dairy cows, identification and control of hazard factors, resulting in cows' welfare and improving of milk quality.

Taking into account the European integration of Romania, a very important qualitative parameter of milk is the reduction to the minimum of the somatic cells, ensuring the udder health. Rollin (2003) has demonstrated that the correction of the microelement deficit, especially, selenium, has significantly reduced the somatic cells from milk. At the same time, a well-balanced microelement ration improves the health status and reproduction parameters.

Milk proteins represent a qualitative parameter of milk, which become more and more important:

- *α -lactalbumin* is a major milk protein, essential for the biosynthesis of lactose at the level of mammary glands. It directly influences the quality and the volume of milk, being also directly involved in the lactose synthesis (Ashwell *et al*, 1997).

- *k-casein and β -lactoglobulin* are two of the most important proteins in the milk of mammals. The proteins are synthesized by the epithelial cells of the mammary glands and play a crucial part in ensuring the quality of milk. They have a major part in milk coagulation, an essential process for making cheese, butter, and add a great nutritional value to dairy produce. The coagulation process is important because it ensures a good absorption of the main constituents of milk. Certain genetic variants of β -lactoglobulin are linked to the presence of a high percentage of casein and milk fat. So far, 11 genetic variants, which encode different forms of the β -lactoglobulin protein have been discovered, thus influencing the quality of milk: A, B, C, D, E, F, G, H, I, J and W. Out of these, the A and B forms are of the most interest, since they are associated to milk production performances, its quality and processing. The BB homozygote individuals supply milk rich in fat and protein, very important in the process of cheese making, while the AA homozygote ones supply milk with a low percentage of fat, but at a larger quantity. K-casein influences the coagulation process of milk and its content of protein.

New genetic and infectious diseases (prionic, viral, bacterial), parasitic and metabolic diseases are new challenges, both for veterinarians and for public health.

In Romania, the individual approach of health and productivity of dairy cows still prevail, and a cohesive programme of health and production management was not yet implemented. The implementation of such a programme in some farms with different production profile (milk, in classical or biological system) will allow improving the health and productivity of dairy cows and will create the premises for progressive extension of the programme at the national level.

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