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Research of metabolic parameters during the change from conventional to ecological husbandry of dairy cattle

The importance of ecological husbandry grows for some years. Nowadays 4 % of all farms in Germany are running under ecological managing. The milk production has a substantial meaning in the income of ecological farms. EU-regulations for ecological production are valid on all farms under ecological management in Europe since 1999. The guidelines of private agricultural associations match with these regulations or go beyond that. Important restrictions in the ecological dairy husbandry exist with the ban of several animal food and their additions like whole meal extraction from soy and rape as well as propyleneglycole, rumen protected fats and restricted use of concentrated food (40 %) in the ratio regarding to the dry matter. The use of performance and growth stimulants is also forbidden as well as the preventive use of chemical-synthetic medicine and antibiotics. The restriction of using chemical-synthetic allopathic medicine or antibiotics up to three treatments per animal and year and the doubling of the withdrawal period regulated by law need to be respected by the veterinarian. Using chemical-synthetic medicine without a legal withdrawal period on an ecologically managed farm, a withdrawal period of 48 hours is generally given. A great challenge after conversion to organic farming is meeting the nutrition requirements of cows with high milk yields and maintaining a good health status. An optimum in husbandry and adjusted stocking rates are important management actions to prevent diseases.

From June 2003 to May 2004 regular measures of metabolism (blood/urine) and bag fat thickness were made in a dairy herd in Brandenburg, which changes to ecological farming since July 2002. The results of the monthly milk yield test and fertility measures of the herd were also analyzed. The performance of milk yield, fertility, animal health and parameters of metabolism should be obtained during the change to ecological management. On the farm 280 cows with an average milk yield of about 9000 kg milk and 250 young cows from own breeding were stapled. Food growing as well as feeding and husbandry proceeded within the ecological guidelines. Treatment of ill animals and marketing of milk and beef happened conventionally.

The converting herd showed a significant decrease of milk yield and fertility. On the basis of metabolic examinations and concentrations of milk urea and protein, a lack of energy and protein supply is perceptible. The supply with ß-carotene and trace elements is not sufficient, either. The low values of heamatocrit and haemoglobin especially with the cows in early and high lactation are indications of lactation stress.

The assessment of the body conditions by ultrasonographical measurement of back fat thickness shows a white spread of back fat thickness in the herd with underconditioned cows as well as a tendency of adiposis in the dry period. Because of regular measurement of the back fat thickness the tendency of adiposis lowers with the dry and older cows at the end of the examination period. A better adaptation to the recommended reference values is detectable.

Problems in animal health occur mostly in the fields of udder health and fertility. The increased occurrence of mastitis and placental retentions and puerperal disorders on the farm lead to a high number of treated cows. Claw diseases are important in this changing herd as well. Reasons for the decrease of milk yield and problems of fertility and animal health can be the incorrect body condition and the insufficient supply of the cows. The fundament for a strong metabolism, good yield and health is a sufficient feeding correlating to the performance of the herd. But within the ecological conditions, it is difficult to manage in herds with high milk yield.

An optimally designed feeding management is the precondition for high intakes of dry matter and therefore a higher performance from basic feeding. Food analysis is important to prevent misjudgements of ecological animal food compared to conventional animal food because of the different contents of minerals and nutrients in the food.