FEEDS AND NUTRITION COURSE 2019

ZAANDAM | THE NETHERLANDS | JUNE 3 - 7, 2019

'The course is specially designed for animal nutrition specialists'

MODULE 14 | ADVANCED DAIRY NUTRITION

Ration composition and nutrient contents have a great impact on the production performance of dairy cows. Variation in roughage and concentrate quality can have a large impact on animal performance and can be used to manipulate production levels and milk composition. Better knowledge of the effect of nutrition on dairy cow digestion and metabolism gives you the tools to improve milk yield and milk composition. On the other hand, milk production and composition can be used as a tool to evaluate the nutritional status of the dairy cow and provide information to understand deviations in milk production and/or composition. It also supports you to make better decisions in formulating concentrate feeds and complete rations for dairy farmers.

Learning objective

- To obtain further knowledge on the fermentation, digestion and metabolism in ruminants and how this information can be used to model dairy cow nutrition.
- To understand the impact of nutrients on milk production and composition, so that feeding strategies can be applied to improve production or composition.
- To learn more about specific treatments of feedstuffs for high yielding animals like bypass protein, fat and starch sources and the impact on fermentation and digestion and milk production parameters.

TUESDAY JUNE 4

14.1 Welcome and introduction

14.2 Ruminant digestion and metabolism using the E-Dairy model

In this topic the principles of nutrient oriented feed evaluation are presented. From the composition and fermentation/digestion of nutrients in the rumen, small intestine and hindgut the aminogenic, glucogenic and lipogenic nutrients are derived. From these nutrients a new Net Energy system (the E-dairy® system) has been developed. This model is compared to other international feed evaluation systems.

14.3 Bypass protein and fat sources in ruminant nutrition

High yielding animals require high energy diets containing bypass protein and fats. Many different sources of bypass protein and fat are available and differ in technological treatment. In this presentation several examples on the impact of specific treatments on rumen fermentation and intestinal digestion and the effect on nutritive value of these specific feedstuffs using the E-dairy model is presented.

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14.4 Manipulation of milk production and composition

Based on the E-dairy® system the effect of nutrients in the diet on feed intake and milk production is presented. Focus will be on milk lactose, protein, fat, fatty acid composition, free fatty acids and milk urea. The direct and indirect effects of nutrients on milk production performance will be described and discussed.

14.5 Effects of technological treatments on feeding value of grains

Grains are an important source of glucogenic nutrients for high yielding dairy cows by fermentable carbohydrates but also of bypass starch. The effect and possibilities to use grains in dairy cow diets is largely dependent on the processing of grains. Technological treatment has an impact on both degradation and passage parameters. The effect of different technological treatments (e.g. grinding, pelleting, expanding, rolling, cracking) on the nutritional value of grains in the E-dairy® model are used as example.

Trainers: Wilfried van Straalen, Ivonne Kok and Edwin Westreicher-Kristen

Remarks:

- Please be aware that SFR recommendations will not be presented during this module.
- For more knowledge on nutritional strategies it is recommended to (also) attend module 15 Applied Dairy Nutrition.
- To be able to apply the information from this module into feed and ration formulation it is advised to attend module 16 Management and Ration Formulation Dairy.