

FEEDS AND NUTRITION COURSE 2019

ZAANDAM | THE NETHERLANDS | JUNE 3 - 7, 2019

'The course is specially designed for animal nutrition specialists'

MODULE 2 | FEEDSTUFFS: BY-PRODUCTS OF FAT-OILS EXTRACTION, LEGUMES, ANIMAL BY-PRODUCTS AND FATS AND OILS

Formulating animal feed is a complex task. Many different feedstuffs are available with very different nutritional characteristics. Nutritional quality and feed safety of feedstuffs need to be considered in formulating animal feed next to the cost price. Many typical characteristics of feedstuffs are not considered in linear programming, so that usage greatly depends on the knowledge and skills of the persons using the least cost formulation programs. This module brings feeding value, feed quality and feed safety together.

Learning objective

- By studying the origin and characteristics of each feedstuff obtain knowhow on the nutritional value of feedstuffs, the reasons for variation in the nutritional quality and the usability in formulating feeds for different species, including quality and safety aspect.
- To obtain knowhow on how this practical knowledge can be used in quality control, purchasing of feedstuffs and formulation of feeds.

TUESDAY JUNE 4

2.1 Welcome and introduction

2.2 By-products fat and oil extraction

The by-products of fat and oil extraction are the most important plant protein sources. The characteristics, critical points, (chemical, mineral, amino acid and fatty acid) composition and nutritional value of f.i. the following by-products will be discussed. Recommendations for setting quality assurance standards for protein rich and fat rich feedstuffs will be given.

- Soy products: soybean meal, soy hulls, soy protein concentrate and soy oil
 - Soybean meal quality affected by origin and processing
- Rapeseed meal and -expellers
 - Glucosinolates and usability of rapeseed products in animal feeds
- Sunflowerseed meal
- Palmkernel meal, palm oil and palm oil fatty acids
- Coconut meal and -expellers
- Linseed meal- and expellers
- Omega-3 enriched animal products

Furthermore, the differences in fatty acid composition of the commonly used fats & oils and how this affects the fat digestion and energy value will be discussed.

- Fatty acid composition different fats & oils (n-3/n-6)



- Factors affecting fat digestions (u/s ratio, TFA and FFA content)
- Fat analysis and energy content

2.3 Legumes

The characteristics, critical points (anti nutritional factors), (chemical, mineral, amino acid and fatty acid) composition and nutritional value of f.i. peas, lupins, beans (Vicia and Phaseolus), carob and alfalfa meal will be discussed.

2.4 Products of animal origin

The legal aspects, characteristics, critical points (overprocessing), (chemical, mineral, amino acid and fatty acid) composition and nutritional value of animal by-products like meat and bone meal, blood meal, feather meal, fish meal, fish oil, insect protein and insect fat will be discussed.

Trainers: Jannes Doppenberg and Walter Van Hofstraeten

Remarks:

- To get a complete overview of relevant feedstuffs this module can be combined with module 1 Feedstuffs: Cereals, cereal by-products and industrial by-products.
- To be able to apply the information from this module into feed formulation, it is recommended to attend module 10 (Practical feed formulation poultry), 13 (Practical feed formulation swine) or 16 (Feeding management and ration formulation dairy).

