Animal Nutrition

Birgitte Wiedemann Larsen
Danish Agricultural Advisory Service, DAAS

Danish Agricultural Advisory Service
National Centre

Basic principles of animal nutrition

The principles of cattle and sheep production:

- Cattle and sheep eat concentrates and roughages, which provides nutrients, such as energy and protein, major minerals, vitamins and trace elements.

When these nutrients are supplied in balance and above the amount needed for body maintenance, animals are able to:

- grow
- reproduce
- rear progeny
- produce milk
- grow wool (sheep)

Where nutrients are limited or provided out of balance, the animals are often not able to perform as required.

- Weight loss
- Low reproductive levels
- Poor wool growth may occur
-

Adjustments of the rations provided is necessary

Nutrient requirements - main factors

The amount of nutrients required by the animal depends on a number of factors.

- Size and age of the animal and the physiological status of the animal.

- Larger and older animals need more nutrients than younger and smaller animals,
- Lactating or heavily pregnant ewes and cows need much more nutrients than dry and non-pregnant animals.

- Age, weight and physiological status also change the balance of nutrients needed.
- Young, growing animals and pregnant or lactating animals require diets with higher levels of protein than older, empty or dry animals.
- Lactating cows and ewes need more phosphorus than non-lactating animals.

The two nutrients that have the most impact on animal performance:

- protein and energy components of the feed.
- In most cases - unless a localised mineral deficiency - poor or lower-than-required production is the result of insufficient protein and/or energy.
- Unless these primary deficiencies are fixed, supplementing with other nutrients, such as minerals, may have no impact or even make the situation worse.

Other important factors

Variation between animals because of: - genetic variation (individual, between breeds, lines), - state of health
Variation in ration because of: - Variation in primary products, mixing errors, unbalance, - processing technology, - additives (antibiotics, growth hormones), - toxins, antinutrients
Variation in the conditions of production: - housing layout, - climate, - feeding technology, - management