

Feeding strategies in Swiss organic farming to improve food quality and animal health

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Introduction

At the moment, Switzerland has about 6,500 organic farmers, with 11 % of the agriculture area managed organically. The main regulations in organic farming are The Schweizer Bio-Verordnung (Swiss Government Regulation for Organic farming). These regulations are increasingly adapted to the EU-Regulation for organic farming. The BIO SUISSE regulation has further requirements. Nearly all organic farmers are BIO SUISSE farmers. The symbol of BIO SUISSE is a bud.

Non-organic feeding components

The BIO SUISSE and the Swiss Government Regulation have an allowance for non-organic feeding components for ruminants of 10 % and for non-ruminants of 20 %. The BIO SUISSE goal is a 100 % organic feeding for ruminants by the end of 2006 and for non-ruminants nearly 100 % in the end of 2008. The realisation of this goal depends on the adaptation to the EU-Regulation. Since the beginning of 2004, the BIO SUISSE farmers are only allowed to feed non-BIO SUISSE certified components that are on a positive list of such allowed components. The list is constructed with experts in the feed industry. It is evaluated, which non-organic components are still necessary, based on animal needs and the availability. Currently, the list includes potato protein, corn gluten, forage, sugar molasses, brewer's yeast, linseed, dextrose for ruminants, wheat protein for calves, milk powder for piglets, dairy waste products and restaurants waste for pigs and juniper berries for rabbits. The list is updated every year.

Feeding guideline

We have also developed a feeding guideline. The feeding guideline is the basis for producing animal feed staffs. The guideline was created in cooperation with experts from the governmental research institution ALP, the feeding industry, BIO SUISSE staff (farmers) and FiBL experts for animal feeding.

The cooperation work gives the possibility to combine the needs of all interested parties. The list has the following contents:

- Basis of the possibility to use fodder for organic production;
- Permitted production processes;
- Permitted fodder components;
- Permitted additives;
- Permitted content of vitamins and trace elements; and
- Forbidden additives.

“90 % forage feeding”

The BIO SUISSE regulation “90 % Forage Feeding“ demands, since the beginning of 2004, that ruminants must get 90 % of their annual dry matter intake form forage. Only feeding which is appropriate to the species, can be considered as feeding for health and welfare.

In order to enforce the regulation, the BIO SUISSE had worked out a definition of forage. Forage includes fodder from permanent grassland or ley, forage crops including whole crop silage, sugar beet nuts, fodder beet, unprocessed potatoes, waste of fruit and vegetable processing, brewer’s grains and straw for feeding. The basic principle of the Swiss Government Regulation is: The fodder must be based on animals’ physiological requirements at all development stages. The feeding should aim at quality production rather than maximum production.

The main reasons for the “90 % Forage Feeding” regulation are the importance of forage for ruminants in respect of the animal health, the improvement of milk and meat quality and the ethical considerations with regard to animal food not being fed in competition to human food.

Appropriate feeding

The physiological characteristics of cows and, therefore, the demand for forage, are based on the fore-stomach growth with the structure in the fodder, with a capacity of 200l. These physiology is not compatible with concentrates. The fore-stomachs are specialized in rumen, reticulum and omasum; each with different morphological and functional organization.

Rumination would be difficult useless, if the fodder had no structure, as the necessary work of the fore-stomachs is animated and controlled by masses of sensitive receptors, which react on mechanical stimulus by hard particle with adequate size. Wholemeal is not suitable to carry out this role of stimulation and animation. Furthermore, concentrates cause a fast digestion rate in rumen, with the effect of overacidification, indigestion, displacement of the abomasum and the increase of harmful substances and enzymes in the blood.

All other organs, especially the liver have their part in the digestion. Only if the digestion works properly, the liver can work correctly, which is essential for the synthesis of hormones and therefore for the fertility, and for resistance.

Fodder rations that are not appropriate to the species lead to a disorder of the cow’s inner balance. This in turn causes stress and stress means fertility problems and lack of resistance.

Food quality

There are factors in the food quality that are based on the feeding components, especially the forage. The amount of CLA (conjugated linoleic acid) increases with increased forage feeding and is a positive food characteristic because of its anticarcinogenic properties. Similar increase can be seen in the amount of alpha linolenic acid, with a positive effect on the cardiovascular system, and in the proportion of n6/n3 fatty acids that have a positive effect on the central nervous system. Various papers report a positive effect of pasture production systems on food quality, for example Leiber *et al.*, 2004, Institute of Animal Science, ETH Zürich and Scheeder, 2004.

References

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