QUALITY PARAMETERS FOR SILAGE MAIZE

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SAATBAU LINZ has been developing its silage maize product line according to the following conventional requirements such as yield, youth development, resistance to lodging, cold hardiness and maturation but also according to cell content, type of structure (fibre) and digestibility. Below, you will find an overview of these quality parameters:

**NDF (in g/kg DM) = cell wall**

NDF (neutral detergent fibre = cell wall) is a term taken from the Van-Soest forage fibre analysis and is an important factor for calculating feed rations.

NDF (cell wall) is the limiting factor regarding feed intake, while at the same time, a minimum NDF content is indispensable in any feed ration for ruminants. By raising the cutting height of silage maize, the NDF content can be reduced.

Target value: Approx. 350 – 400 g/kg DM

**NDF digestibility (in %)**

NDF consists of cellulose and hemicellulose which ruminants can digest, as well as lignin. Lignin is responsible for the stability of maize plants and indigestible even for ruminants. NDF digestibility reflects the lignin content in NDF. Lignin content increases as the plant matures to the detriment of NDF digestibility.

Target value: min. 53 %

**Milk yield according to Wisconsin**

This calculation is based on the following parameters: DM, crude protein, NDF, NDF-digestibility, starch, crude ash, crude fats and dry matter yield/ha.

**ME (MJ/kg DM)**

Metabolisable energy is the standard of evaluation in animal feed.

Target value: min. 10.7 MJ/kg DM

**Starch (in g/kg DM)**

Starch is the ideal energy supplier. Starch content in silage maize is ideal in rations containing mainly grasses. The maize plant accumulates the sugar obtained through photosynthesis as starch in the maturing ears. Next to the DM content, the starch content is a measure for the physiological maturity of the plant. By raising the cutting height, the starch content can be increased.

The advantages of starch as compared to sugar are better rumen tolerance, excellent digestibility and reduced losses through storage. Low starch contents are often a sign of unfavourable climatic conditions during the ensiling period.

Target value: min. 350 g/kg DM

**Starch quality**

Next to the starch content, the starch quality is also a decisive parameter. It is important that part of the starch contained is resistant (the content of this so-called bypass starch is higher for flint corn and if silage features high contents of DM).

**Advantages of bypass starch**
Bypass or resistant starch is transformed directly to glucose in the small intestine. This is much more efficient than the transformation of volatile fatty acids from the rumen to glucose by the liver. Glucose is a central element in the lactose and thus milk production. When there is not enough glucose available, it is generated from amino acids, which has negative effects on the milk proteins.

One third of the starch contained in an ideal maize variety should be bypass starch. Such silage constitutes an ideal basis for basic feed and for rations with additional concentrated feed.

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