NIR Technology
Saving money by keeping feed ration under control
Knowing exactly what the cow will get

Precisely controlling the presented feed ration results in high performance

It is in each dairy farmer’s interest to know exactly what he is feeding his cows. Is he feeding them the calculated feed amount?

“His rations are based on calculating the dry matter content, but this can vary greatly in the silo. Incorrectly calculated feed ration results in four major disadvantages: lower feed efficiency, metabolic problems in the cow, fluctuating milk yields and a higher proportion of feed residues that remain unused and must be disposed of.”

Everything costs the farmer money. It all adds up, and even for medium-sized herds, this can end up markedly degrading the efficiency of milk production.

Feeding based on clear facts

Delivering the feed amount to livestock by eye does not achieve the maximum milk yield per kilogramme of dry matter. When dairy farmers use the NIR System by Dinamica Generale mounted at the front on the SILOKING self-propelled’s milling head, they no longer have to guess when mixing the ration, and are now able to very accurately adjust the target components.
The SILOKING solution: NIR Technology

Precise basic feed quality monitoring is worth the effort. This is best done when extracting from the silo. The SILOKING solution for this task means: Near-Infrared Spectroscopy or NIR for short. This technology, which is available as an option for all SILOKING self-propelled, uses short-wave light to analyse dry matter in feed components. This equipment can also be retrofitted. NIR Technology allows continuous, non-contact and non-destructive real-time analysis.

Real-time analysis instead of sampling

The NIR System provides particular advantages in silos with layers of feed from different origins having different specific weight values. Unlike random dry matter measurement, this system can accurately respond based on values measured in real time, even while feed is being extracted. It knows the dry matter content of the basic feed that has just been loaded and can adjust the planned target components.
Direct accounting in the feeding system

The NIR System is mounted in the milling head of the SILOKING self-propelled. The feed is released from the silage clamp by the milling head and passes through the dry matter scanner. The scanner evaluates the current dry matter content and transmits the data to the calculating unit (Programmable weighing system DG8000-IC). The programmable weighing system calculates the target weight for each feed component compared with the planned ration in real time and shows it on the display. This ensures that the actually loaded ration corresponds exactly to the calculated one.

Technical parameters

The analysis provides very accurate results when used properly. Measurement deviations are maximum +/- 2 %.

Analysable feed components:

- Grass silage (0-79 % DM)
- Maize silage (20-49 % DM)
- Hay (87-92 % DM)
- Alfalfa (85-94 % DM)
- Soy flour (88-91 % DM)
- High-moisture maize (44-81 % DM)
- Total mix ration (32-67 % DM)

Radio-controlled data transfer

All feed data analysed as well as the loading precision are transferred from the self-propelled to the feeding software via the new 3G radio transmission. After the feeding process, this data can be used for a detailed analysis including comprehensive documentation.
A worthwhile investment

Anybody who values optimized operating costs holds every detail of feeding precious. The reason for this is because feed costs constitute 40 - 50 % of the total cost in milk production. It is therefore worth calculating the dry matter in the ration using the NIR Technology in order to properly calculate and to control it. Because having to feed livestock expensive concentrates to compensate for a lack of energy in the basic feed wastes money.

Higher feed efficiency

A simple example demonstrates the financial benefits of NIR Technology: Ideally, the ratio of milk produced (l) to consumed dry matter (kg) should have a value of 1.5. This value can be reached in practice using the SILOKING NIR System because it reduces feed loss and precisely allocates the rations. The investment will quickly pay for itself.

(Source: Laura Weisz, Cargill Feed and Nutrition, Elite Onlinemagazin 30.09.2015)
Professionals in feeding are convinced

Multiple benefits

The SILOKING NIR System has won feed professionals over. Dairy farms derive multiple benefits from more precise feeding:

Feed intake and milk yield increase while at the same time your animals are healthier and more homogeneous. Another benefit: The animals eat a constant feed amount from a constant mix. This lowers feed residues to a low value. Optimal, consistently good feed intake and digestion can be achieved. The bacteria in the rumen are not inhibited by nutrient supply and pH value fluctuations.

SILOKING SelfLine Compact 1612-13 with NIR Technology
Review from the user

Efficiency and sustainability are our top priority. On our young and modern dairy farm, therefore, fast, accurate and loss-free loading of 150 tonnes of feed per day is paramount, and this includes taking the moisture of the basic feed into account. Which is how we minimize the feed costs.

This is a great logistic challenge and we are dependent on precise amounts and energy content in the feed rations. The moisture measurement using near-infrared spectroscopy immediately suggests itself. As practitioners, we are convinced of the advantages in using NIR Technology.

I know exactly what my food input is since I can measure the quality (dry matter) of the basic feed right at the silo without getting down from the machine, and I now know which feed components I may have to mix in.

The NIR System makes it possible for me to feed more accurately, which benefits our farm by:

▶ Increasing feed intake
▶ Increasing milk yield
▶ Reducing feed residues
▶ More homogeneous, healthier animals

„As the herd manager of a large dairy cattle farm, I do not want to go without using NIR Technology in daily feeding work!“

Pavol Martinovic (herd manager)

On our farm, where the average output per cow is 30 kilogrammes, using the NIR System could achieve an increased output of 0.6 kg/day per cow. With milk prices at € 0.30 /kg and 2,600 cows, this results in an increased revenue of € 468 /day totalling € 170,820 annually.

For a 100-cow farm these figures break down into a potential revenue of 6,570 € annually, which can be realized using the NIR System in the SILOKING self-propelled.
SILOKING – the future of milk production

Changes in economic and agricultural policy not only present dairy farms with new challenges – they also offer some great opportunities. The use of modern, high-performance technology can make a major contribution to considerably and sustainably reducing production costs and ensuring competitiveness. With our feed mixing technology, SILOKING supports future-oriented dairy farmers in successfully managing their farms by optimizing production and achieving measurable cost savings. SILOKING products ensure that entrepreneurial farmers are ideally equipped to prepare their farms for a successful long-term future.