



freshFoss

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Reduces spoilage in feed rations

**VILOFOSS<sup>®</sup>**

# FreshFoss reduces spoilage in feed rations

## FEED QUALITY IS CRUCIAL

High-quality feed rations are important for the optimisation of the yield potential in dairy cows. A fresh palatable ration ensures high dry matter intakes.

## WARM FEED REDUCES FEED VALUE AND PALATABILITY

Mixing silage with easily accessible energy, humidity, and an aerobic environment is likely to increase the temperature of the ration.

The heat is created from proliferation of mold and bacteria. The ration will soon start taking heat when silage is mixed with easy assessable energy, humidity and aerobic environment, which occurs naturally in conserved forages. A large amount of energy is used to generate heat, ultimately reducing the energy available in feed rations.

Carbohydrates (sugar and starch) are involved in the production of heat, whereas protein and fat content are less affected.

It should be noted that the fermentation and heating in the feed ration will change the taste, reducing palatability and intakes. This is crucial because cows are highly sensitive to changes in taste and ration deterioration.

## FRESHFOSS REDUCES SPOILAGE IN FEED RATIONS

FreshFoss is a combination of acid salts in powder form, which is mixed into the ration prior to feeding. The acids inhibit the growth conditions of mould and yeast, decreasing the number of nutrients being metabolised and reducing heating. This process protects the feed ration against a loss of valuable nutrients and dry matter.



## PRODUCT PROPERTIES

- Reduces feed spoilage in feed relations
- Particularly important in wet rotations and in warm and humid conditions
- FreshFoss maintains feed palatability
- Non-corrosive on mixer wagons
- Non-toxic, completely biodegradable
- HACCP not required

## DOSAGE INSTRUCTIONS

- TMR / Silage: 1 – 3 kg FreshFoss per ton feed

### GRAIN BINS / MIXED FEEDS:

- Water <15 %: 0.5 kg FreshFoss per ton feed
- Water 15-17 %: 1 kg FreshFoss per ton feed
- Water 15-20 %: 1.5 kg FreshFoss per ton feed

### STORAGE IN BUNKERS AND PITS:

- 0.25 kg FreshFoss/m<sup>2</sup>



# FreshFoss – best in test: improves aerobic stability of Total Mixed Ration

Heat spoilage in TMR is a common problem in dairy herds. Heat observed in the TMR should be considered an important feeding problem, and it is strongly recommended to regularly check leftovers for heating.

The Danish Agricultural Advisory Service (SEGES) has examined different additive solutions for stabilising aerobic stability of TMR. According to the test results, the Vilofoss product FreshFoss TMR was found to be significantly superior in terms of improving the aerobic stability of TMR, compared to propionic acid, sodium benzoate and Salvana TMR. The following outlines the main conclusions of the test.

The test was performed on a ration composed by corn silage (46.1%), canola cake and meal (25.7%), grass-clover silage (18.4%), caustic rye (8.5%), mineral premix, and salt (1.3%). The ration was added 9 L/ration.

## PALPATION TEST SHOWS DIFFERENCES IN EFFICIENCY

To evaluate the quality of the leftovers, a palpation test indicated differences between treatments (Table 1). Leftovers of TMR treated with propionic acids and sodium benzoate were found to be warm 3 out of 3 days. Leftovers from Salvana TMR were found to be warm 2 out of 3 days, and not warm 1 out of 3 days. Only the leftovers from FreshFoss were found to be “not warm” on all test days.

Table 1. Evaluation of leftovers in the feed bunk the day after feeding (approx. 18-20 hours after feeding)

Treatment day	Propionic acid	Sodium benzoate	FreshFoss	Salvana TMR
July 25 2018	Slightly warm	Slightly warm	Not warm	Slightly warm
July 27 2018	Slightly warm	Slightly warm	Not warm	Slightly warm
Aug 1 2018	Slightly warm	Slightly warm	Not warm	Not warm

(ref. Kristensen, N.B. - SEGES, 2019)





## STABILITY OF TMR CAN BE IMPROVED

FreshFoss was the only product to significantly increase the aerobic stability of TMR (Figure 1). The control TMR was stable for 8 h. Aerobic stability of TMR treated with propionic acid, sodium benzoate and Salvana TMR was very similar (11-14 h). Only FreshFoss showed a substantial improvement ( $p < 0.05$ ) in aerobic stability, keeping the ration stable for 24 hours.

Figure 1

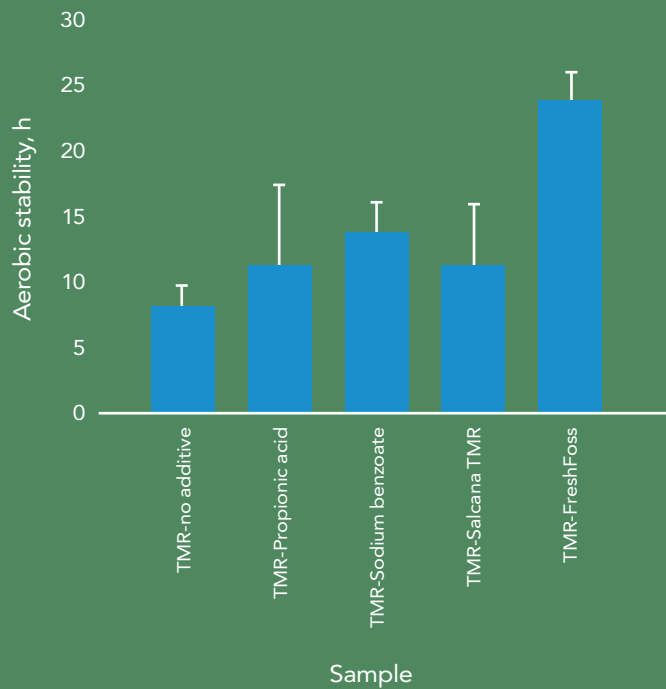


Figure 1: Exposed to different feed stabilising additives. The figure show the number of aerobic stability of TMR shown as the number of hours for centre temperature to increase by 2.5 °C, relative to chamber temperature.

(ref. Kristensen, N.B. - SEGES, 2019)

# Growth of aerobic bacteria and yeast

Only FreshFoss was observed to have an impact on aerobic stability. With FreshFoss, the increase in bacteria and yeast was numerically lower compared to the effects of incubation in Control and samples treated with other additives.

	<b>Aerobic germ</b> (log <sub>10</sub> CFU/g)	<b>Yeast</b> (log <sub>10</sub> CFU/g)	<b>Mold</b> (log <sub>10</sub> CFU/g)
TMR – Fresh	6.5 ± 0.3	5.0 ± 0.9	3.1 ± 0.2
TMR – 48 h 20 °C	> 8.4	8.1 ± 0.1	-
TMR – propionic acid (3 L) - 48 h 20 °C	8.0 ± 0.4	7.5 ± 0.3	2.3
TMR – sodium benzoate (1 kg) - 48 h 20 °C	8.4 ± 0.1	7.8 ± 0.2	2.2 ± 0.2
TMR – Salvana TMR (1 kg) - 48 h 20 °C	8.0 ± 0.4	7.7 ± 0.4	2.0
TMR – FreshFoss (1 kg) - 48 h 20 °C	7.4 ± 0.2	7.1 ± 0.3	2.3 ± 0.3

## KEY TAKE-AWAYS

- When comparing propionic acid (3 L), sodium benzoate (1 kg/t), Salvana TMR (1 kg/t) and FreshFoss (1 kg/t), FreshFoss had the greatest effect.
- Farmers should consider commercial products when detecting a need for prevention of aerobic spoilage of TMR.
- FreshFoss is easy to handle, does not require HACCP, and has a strong biological effect. More specifically, the product was found to be superior in terms of biological effect.
- A palpation test of leftovers of TMR is sufficient to detect problems with aerobic spoilage of TMR.

Sources: Kristensen, NB. Effects of additives to improve aerobic stability of TMR, 2019.

[https://www.landbrugsinfo.dk/kvaeg/foder/tilsaetningsstoffer/sider/Hi-19-5087-Effects\\_of\\_additives\\_to\\_imp\\_aerobic\\_stability\\_of\\_TMR.aspx](https://www.landbrugsinfo.dk/kvaeg/foder/tilsaetningsstoffer/sider/Hi-19-5087-Effects_of_additives_to_imp_aerobic_stability_of_TMR.aspx)



## **DALGAARD MÆLKEPRODUKTION, DENMARK.**

Christian Dalgaard experienced heat-generation in his cattle feed, so he chose to mix FreshFoss, in his compound feed as it saves him time and provides great safety.

At Dalgaard Mælkeproduktion, a dairy farm located in Skive, West Denmark, farmer Christian Dalgaard has 420 cattle. This means that the farm needs to mix large quantities of cattle feed - which takes time. So, when he experienced heat-generation in the complete feed, he began looking for a safe and efficient solution. He found it in the FreshFoss Premium dry-acid product from Vilofoss.

“We have tried using other dry acids to reduce heat generation in our cattle feed but have returned to FreshFoss as this gives us most value for money,” says Christian Dalgaard, continuing:

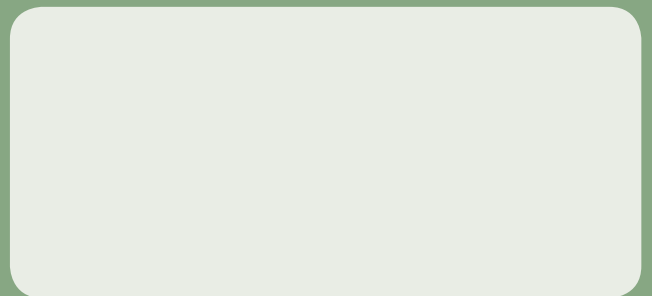
“It saves us lots of time because we don’t have to mix cattle feed that often.” In addition, FreshFoss is not a liquid product, which makes it much easier to use. And this is particularly important as we take safety very seriously.”

Vilofoss is one of the world's most productive, competitive, resource efficient and sustainable agricultural company. Our knowledge and experience has been obtained through working nutritionally within all livestock sectors, for more than 80 years.

Vilofoss creates added value solutions for the globally competitive livestock farmer, through customising farm mixes. In addition to our vitamin and mineral compounds, we have a wide range of supplementary products e.g. calf milk replacers, veterinary, welfare and disinfection products, along with unique trouble shooting solutions.

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