

With grass growth rates declining and low-yielding first cuts, farmers looking to extend their silage stocks can do so by replacing a proportion of grass silage with straw. Despite being relatively unpalatable, indigestible and low in protein, straw is an excellent base for ruminant diets where silage is in short supply. It is an excellent source of long fibre and there are several ways of improving both animal intakes and their utilisation of straw and making it into an effective substitute for silage.

This fact sheet aims to help you get the most successful results for your farm by explaining straws limitations and showing you a number of ways to overcome them.

Firstly, the feeding quality of straw can be improved by either treating it chemically, feeding other suitable feeds along with it or a combination of both. For many farmers, the chemical option can be unsuitable because:

It requires somewhere to store a large quantity of treated material that is protected from damp and vermin

- Processing equipment must be hired or bought
- The treatment chemicals themselves are costly
- The chemicals are hazardous, particularly caustic soda
- Extra manpower is required to make the treatment

In choosing suitable feeds to use with straw as a silage replacer, you are looking for ones which promote vigorous rumen fermentation. As a result, this maximises the rate of microbial growth in the rumen and makes full use of the digestible fraction of the straw.

To promote rumen fermentation this requires two crucial components in the supplementary feeds – a good supply of **fermentable metabolisable energy (FME)** together with a compatible supply of **rumen degradable protein (RDP)**.

With this in mind there are a number of molasses-based liquid feeds which are purpose made. Being very high in sugars and probably the single most palatable feed stuff for ruminants, molasses makes an ideal base for a feed to use with straw. The key to replacing silage with straw is by maximising its digestibility. Research has shown that a molasses based liquid feed can positively influence fibre digestibility beyond that of molasses or sugar on its own making it a great option when feeding straw to make full use of the nutrients available. The results are shown in Table 1 below.

	Control	CANE MOLASSES	Pure Starch	Pure Sucrose	Glycerol	Milk Whey	LIQUID FEED
<b>8h</b>	28.5	<b>31.88</b>	31.54	30.19	31.71	30.12	<b>29.75</b>
<b>24h</b>	32.7	<b>40.86</b>	35.21	33.36	34.45	32.63	<b>40.39</b>
<b>48h</b>	49.04	<b>57.69</b>	53.21	51.56	51.73	49.22	<b>61.04</b>

**Table 1:** The effect of added energy sources on fibre digestibility

Additionally, new liquid feed technology has been developed by E D & F Man Liquid Products to incorporate protein sources into molasses in a way which makes them behave ideally in the rumen from a nutritional point of view.



	Regumix	Potblack	Regupro 50
<b>Dry Matter (%)</b>	67	60	60
<b>Sugar (%)</b>	53	44	42
<b>Protein (%)</b>	27	23.5	50
<b>ME (MJ/kg)</b>	13.1	12.3	12.6

**Table 2**

Products such as Regumix, Regupro and PotBlack (see Table 2) contain **Regulated Release** protein, this releases the nitrogen at a steady rate into the rumen that is compatible with the rumen microbial activity. Coupled with a high sugar content, these feeds offer the ideal combination of FME and RDP to promote rumen fermentation and activity.

When implementing a straw-based diet, it is important to provide all animals good access to a plentiful supply of clean water. Additionally, the transition from a silage-based diet to a straw-based must be controlled, by steadily introducing more straw into the diet and less silage over a period of 1-2 weeks this will give the rumen sufficient time to adjust. Finally, straw is very deficient in minerals therefore additional mineral supplementation could be necessary. Table 3 shows how to effectively replace 10kg of grass silage with straw and a range of molasses based liquid feeds.

To replace 10kg grass silage (25% DM, 10 ME, 12% CP, 2% Sugar)				
	Grass Silage	Regumix	PotBlack	Regupro 50
<b>Straw* (kg)</b>		2.1	2.1	2.4
<b>Regumix (kg)</b>		1		
<b>Potblack (kg)</b>			1.1	
<b>Regupro 50 (kg)</b>				0.8
<b>Dry Matter fed (kg)</b>	<b>2.5</b>	2.5	2.6	2.6
<b>Sugars as fed (g)</b>	<b>50</b>	392	327	243
<b>Protein as fed (g)</b>	<b>300</b>	254	228	324
<b>MJ as fed</b>	<b>25</b>	21.2	20.5	20.2

**Table 3\*** Barley Straw (87% DM, 6.8ME, 4% CP, 2% sugar)

# Fresh-Guard

## Worried about your TMR Heating?

It is vital to produce a high quality well balanced ration, but this can quickly be undermined if the ration starts to ferment and heat. The quality can then quickly deteriorate. Feed spoilage in the trough has been identified as a significant cost to farmers.

A cow eating 1 kg less dry matter due to aerobic spoilage could be producing around 2.3 litres less milk. What makes it worse is that it is the high value nutrients that spoil most quickly. The **Fresh-Guard** option can be included in any of ED&F Man's bulk molasses products.

Effective in preventing TMR spoilage at feed out, **Fresh-Guard** is a cost effective option available to farmers looking to prevent heating/spoilage.

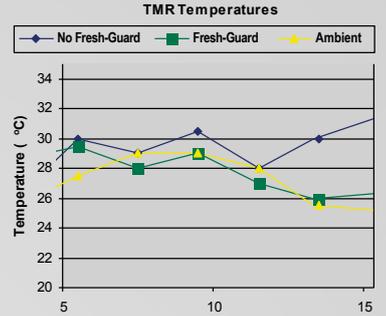
For example, a typical cow will eat around 22kg dry matter (DM) of a TMR per day.

A 5% reduction in dry matter intakes due to heating in the TMR and production of off odours would mean a loss of around 1.1kg DM per cow per day.

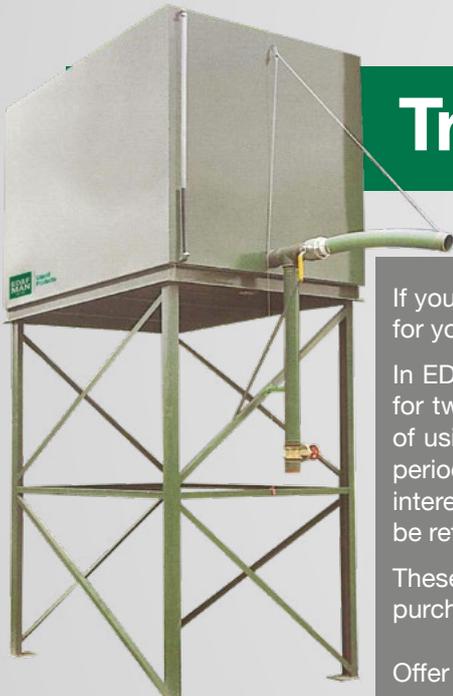
This loss in intake means the cow is receiving less high value nutrients within the ration including protein and energy.

Based on an 11MJ/kg DM ration, this 1.1kg loss would equate to a loss of 12.1MJ of energy.

That could have made an extra 2L of milk, or in a 300-cow herd that's 600L of milk lost with a value of £150 per day. Over a 100-day summer, this would be a potential loss of income of up to **£15,000!**



**Fresh-Guard** can be added to any ED&F Man liquid product



## Trial a storage tank - for free!

If you are thinking of using molasses for the first time, and you want to see if it works for you and your stock, then ED&F Man offer a tank trial scheme.

In ED&F Man's tank trial scheme, a fully-equipped storage tank is delivered on-farm for two months, you only pay for the product. During this time the beneficial effects of using ED&F Man's molasses products can be assessed. After the two month trial period, you can purchase the tank outright, or spread the payment using ED&F Man's interest free finance scheme. In the unlikely event of seeing no benefits, the tank can be returned at no cost, except that of the product purchased.

These high level tanks are convenient to use, and allow more cost-effective bulk purchases to be made.

Offer may be withdrawn at any time and is subject to terms and conditions.

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