

## PRESS ARTICLE

NEW RESEARCH HIGHLIGHTS BENEFITS OF IMPROVED FIBRE  
DIGESTIBILITY

Recent results from a trial carried out by Agriculture and Agri-Food Canada (AgCanada) have shown that application of a fibre pre-treatment to dairy total mixed rations (TMR) before feeding can significantly increase overall milk production efficiency by 11.3%.

The trial was carried out at the Lethbridge Research and Development Centre, Alberta, and used 60 early lactation Holsteins fed a silage-based TMR. Split into three groups, cows were either fed the control TMR with no pre-treatment, or the TMR following application of 0.5 or 1.0 ml/kg DM of a *Trichoderma reesei*-derived fungal extract applied before feeding.

“The pre-treatment acts to roughen and create pits in the surface of the fibre in the ration, and so increase both the rate and extent of bacterial colonisation of the fibre once in the rumen,” explains AB Vista nutritionist Dr Nicola Walker. “This reduces the lag time before fibre digestion in the rumen begins by around one hour, and leads to improved overall digestibility of the ration.”

Table 1 outlines the main results of the trial, with the cows fed the treated TMR maintaining fat-corrected milk (FCM) yield with 2 kg/day less in dry matter intake (DMI). The overall effect was a significant improvement in milk production efficiency from 1.50 to 1.67 kg FCM/kg DMI, plus a trend towards improved milk protein content.

**Table 1 – Effect of fibre pre-treatment on early lactation milk production efficiency**

	Dose of fibre pre-treatment (VistaPre-T)		
	Control	0.5 ml / kg DM	1.0 ml / kg DM
Dry matter intake (kg/d)	24.5	22.9	22.2
Milk yield (kg/d)	38.1	38.3	37.9
3.5% Fat-corrected milk (FCM, kg/d)	36.5	36.1	36.3
Milk fat (%)	3.29	3.19	3.26
Milk protein (%)	2.95	3.01	3.03
<b>Milk efficiency (kg FCM/ kg DMI)</b>	<b>1.50</b>	<b>1.58</b>	<b>1.67</b>

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“These changes are what you'd expect if energy supply increased as a result of an improvement in ration digestibility – more production from the same feed, or as in this case, the same production from less feed,” states Dr Walker. “The possible increase in milk protein is also indicative of increased energy supply to the cow.

“And these results back up the findings of other similar trials that have taken place in Europe.”

In a commercial-scale trial carried out on a UK dairy farm last year using 50 first lactation heifers, pre-treatment increased TMR D-value (63% to 67%), , milk yield (+1.3 litres/cow) and milk protein (3.58% to 3.70%). Improvements in fertility were also observed, with a higher rate of confirmed pregnancies (84% vs 64%), whilst a larger-scale trial in Bulgaria using 310 cows fed a maize silage-based TMR saw feed efficiency improvements lift yields by 1 litre/cow.

“One of the main priorities for UK milk producers at the moment is to maximise milk from all feeds, not just forage,” Dr Walker continues. “And because fibre typically makes up 45-50% of the dry matter consumed, and is the slowest digesting fraction of the diet in the rumen, any improvement in fibre digestion efficiency has a substantial impact on overall feed efficiency.

“Not only does this potentially increase productive performance, but as the UK trial shows it may also have an impact on fertility. And the impact can be particularly beneficial during early lactation, when energy requirements exceed intake and cows spend the first few weeks post-calving in negative energy balance.”

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