



HayKing

Trial Sheet

Feed more cows per bale

The latest trials of **BioStart HayKing** reveals how it improves both the preservation and quality of baled hay.

How it works

HayKing works by inhibiting the growth of the naturally occurring spoilage microbes that are present on forage in the paddock prior to baling. Independent laboratory studies show that **HayKing** can inhibit the growth of both yeasts and spoilage fungi typically found on hay. The yeasts are responsible for hay bales heating and certain fungi producing mycotoxins that impair animal weight gain and fertility. By suppressing these spoilage microbes, the metabolic energy of the forage is retained in the hay at a higher level. This higher energy hay feeds more animals per tonne of hay.

HayKing Trial

In a 2019 Hawkes Bay trial, **HayKing** was applied at 470 mL/T at baling to pasture hay that was baled at 20.5 % moisture content. Some of the bales were untreated to act as a control. A sample of the forage at baling was collected and sent for nutritional analysis to establish a base line nutritive value.

HayKing lowers bale temperature

The temperature of five untreated and five **HayKing**-treated bales was monitored over the next 5 weeks to determine the impact of **HayKing** on bale heating. After 5 weeks samples were taken from the untreated and **HayKing**-treated bales and these were sent for nutritional analysis.

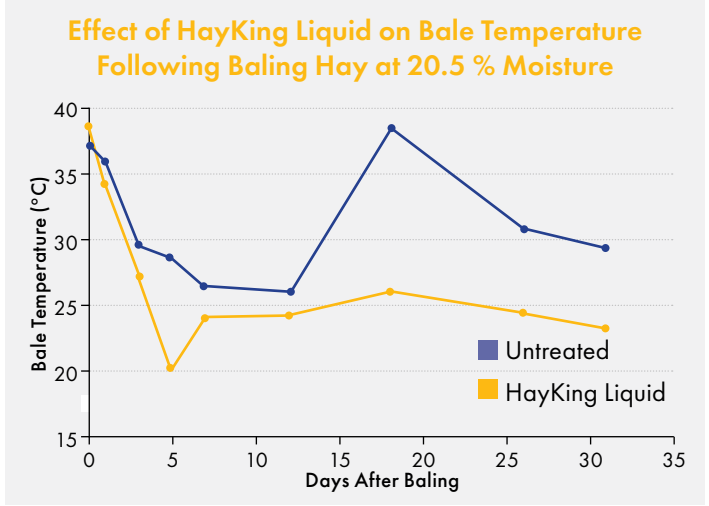
Figure 1 shows that the application of **HayKing** to hay at baling stopped the bales heating over the trial period, whereas the untreated bales heated up 2 weeks after baling and remained warmer than treated bales for ~14 days. The heating in the untreated bales was caused by the activity of the yeasts in the bale. These yeasts use up sugars in the hay to grow, and they produce heat when they metabolise these sugars.

HayKing Raises Nutritional Value

Through lowering the activity of yeast so they no longer use up the sugars, **HayKing** ensures these sugars are now retained in the hay and are available to the animal instead.

Nutritional analysis of the hay showed that the metabolizable

energy (ME) of **HayKing**-treated hay was 11 % higher than the non-treated bales (8.9 versus 8.0 MJ ME/kg DM; Table 1). Similarly, the digestibility of **HayKing** treated hay was 10 % higher than non-treated hay (59.6 % compared to 53.9 %, respectively). In the untreated hay, the heating caused by the yeasts had used up sugars and proteins in the forage, which reduced both the ME content and digestibility of the hay. In contrast, the use of **HayKing** had maintained both the ME content and digestibility of the hay and was similar to the forage prior to baling.



Results

These results show that hay treated with **HayKing** reduces losses in Metabolic energy and digestibility allowing farmers to feed more cows per tonne of hay.

Measurement	Forage	Untreated	HayKing
Metabolisable Energy (MJ/kg DM)	8.8	8.0	8.9
OM Digestibility (in-vivo; % DM)	59.3	53.9	59.6
Crude protein	12.9	9.8	13.1

HayKing is available in 20 L and 1,000 L containers.