

Substituting molasses with palatants



JOËLLE FAUGERON* presents that a multi-sensory palatant can overcome the important variable

sensorial properties of molasses, ensuring feed palatability and stimulating feed intake, improving average daily gain.

Obtained during the various extraction and refining steps of sugar production molasses is mainly produced from sugar cane or from sugar-beet sources. Thanks to its high sugar content (roughly 40 % to 50%), it is a good palatability agent appreciated by animals which, amongst other reasons, means it sees widespread use in livestock feeding. Nutritionists may also use it as source of energy.

Because molasses is extremely viscous, it is difficult to handle, which also makes it a good binding material

and anti-dust agent when making pellets. However, its composition and sensory profile may vary a lot depending on the source and the refining process used. These variations in taste and smell can be an issue when fed to livestock animals which are extremely sensitive to changes.

Molasses is not only an ingredient for livestock production, it is also a raw material resource used for ethanol production or in the fermentation industry. Demand is therefore increasing, and availability may become critical, thus leading to highly volatile prices.

For these reasons, it is understandable why there is interest to substitute molasses from diets for pigs, ruminants and horses.

Provided they are well thought out and designed, palatants can help by ensuring that the feed profile is not impaired and that animals do not perceive a difference and remain as attracted to the feed as usual.

Molasweet, a palatant specifically designed to mimic molasses

Pancosma has used its sensory panelists to describe the overall specific smell of molasses to reproduce it in an aroma (Figure 1). The combination of this flavor with an intense sweetener, has led to the creation of a product specifically designed to substitute the sensory properties of molasses, called Molasweet. In terms of sweetness equivalence, 40g of Molasweet are as sweet as 10kg of cane molasses.

Molasweet to stimulate feed intake¹

The attractiveness of Molasweet was tested on 28 dairy cows. The trial was split into 3 periods: during the first period (11 days) and the last one (13 days), cows were fed a neutral feed. During the second period, Molasweet was added on top of the feed at 160 g/t, which equates to 40 kg/t of molasses in terms of sweetness. Feed intake was recorded during the whole trial and is shown in (Figure 2).

Average daily feed intake (ADFI) was lower during the first (39.7 kg/d) and the third period (38.8 kg/d) than during the second period (40.8 kg/d) where Molasweet was added to the feed. Therefore, the animals consumed significantly (1.6%) more flavored feed than the unflavored one.

Furthermore, an addition of Molasweet led to a more consistent feed consumption, reducing feed intake variations by almost one half as compared to the unflavored feed (Figure 3).

Total or partial substitution of molasses?

An obvious question is how to best substitute molasses? Is it better to make a partial substitution or to remove it totally from the feed? To answer this question a study was performed with lambs. In this trial which lasted 46 days, 120 lambs were allocated to one of the 3 following treatments:

- Negative control: feed containing molasses 100 kg/t
- Partial substitution: feed with

¹ Inside the EU for piglets up to 4 months; outside the EU for all species

Figure 1: Profile of Molasweet.

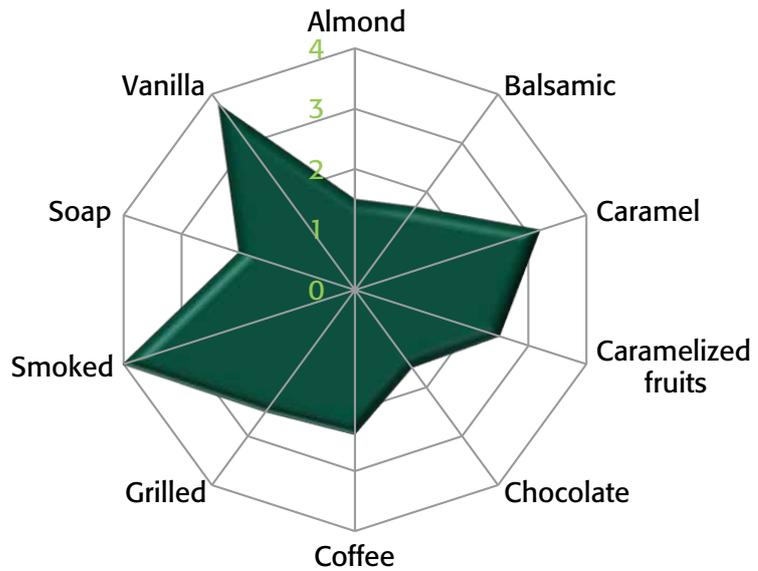


Figure 2: Evolution of average daily feed intake.

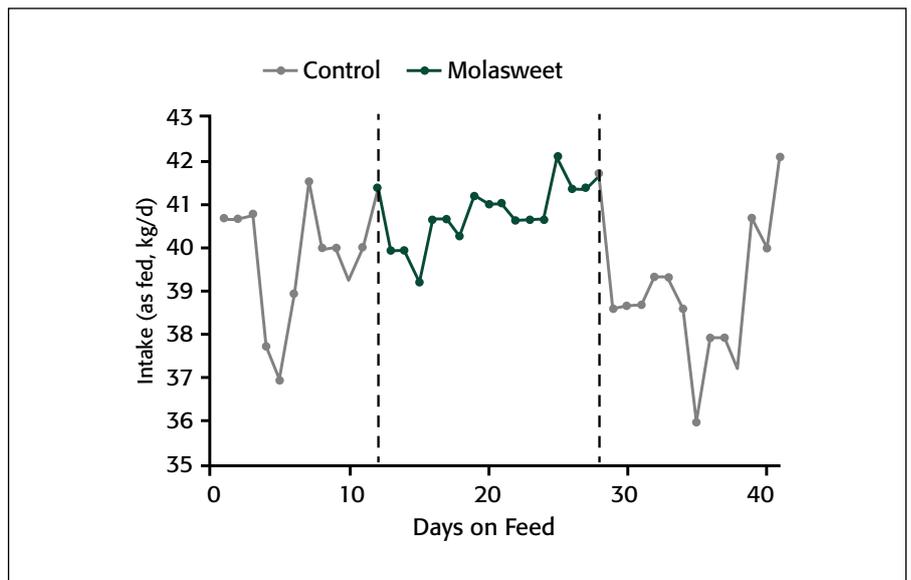


Figure 3: Variation in ADFI for treatments.

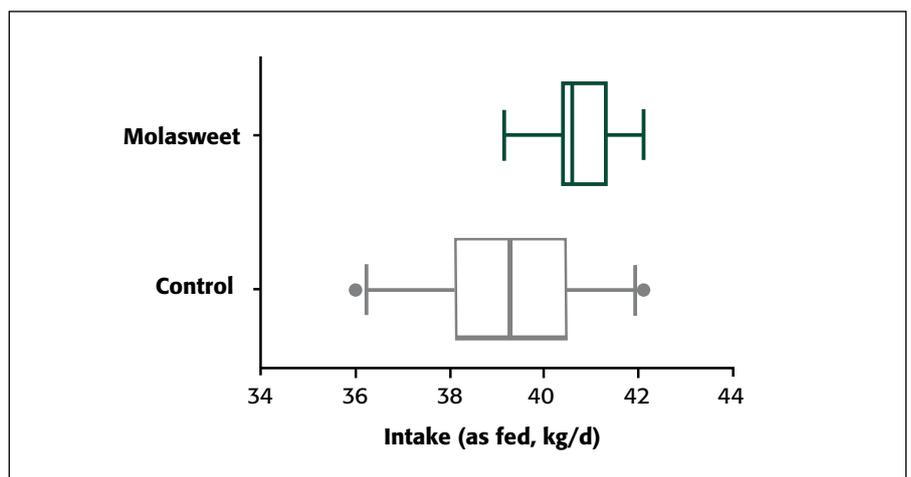
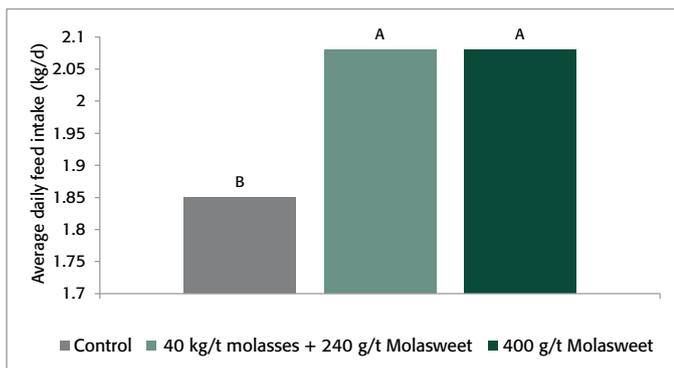
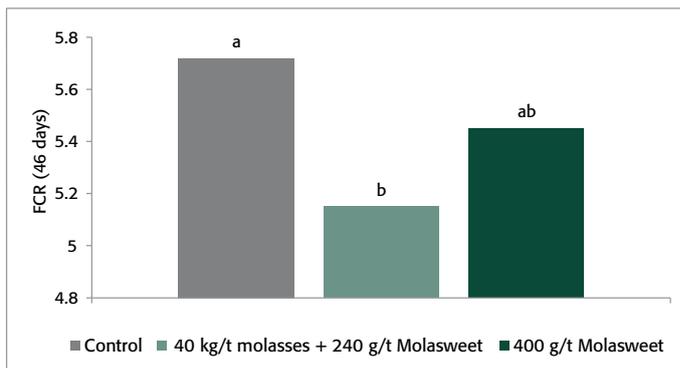


Figure 4: Average daily feed intake and FCR.



A, B: $p < 0.01$



a, b: $p < 0.1$

reduced amount of molasses (40 kg/t) + 240 g/t Molasweet

- Total substitution: feed with no molasses + 400 g/t Molasweet

Animals clearly preferred both feeds containing Molasweet compared to the Control feed (Figure 4). Feed intake as well as slaughter weight, was significantly increased with both treatments, and FCR was consequently improved.

In this trial, the partial and total replacement of molasses by the concentrated taste enhancer

Molasweet, even led to a reduction in breeding time and thus to an optimization of performance as well as a higher weight and consequently a better income margin.

Hence, the partial replacement of molasses by Molasweet at 240 g/t gave the best response.

Conclusion

The multi-sensory palatant Molasweet, combining an attractive smell close to molasses and a sweet taste, is a good alternative

to molasses. By stimulating the appetite of the animals and improving performance, it is also a cost saving solution for formulators. **AF**

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