

# Fast growing calves thanks to a healthy appetite

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Due to their proven performance enhancing effects, feed additives such as probiotics are increasingly used in feeding. But so-called 'phytogenic' additives also positively affect feed intake and growth rates as shown by the summarised results of a test performed at the University of Applied Sciences Bingen in Germany.

Feed additives for stimulating feed intake and regulating the gastrointestinal flora are most widely used in pig and poultry farming.

Their use also in the feeding of calves is quite conceivable and has already been realised widely in practice. The nutritional demands for calves are similar to those of monogastrics in a broader sense due to the incomplete development of the rumen system in animals at a young age.

## Chilli pepper for calves

In this context, an experimental study investigated whether the use of a combination of cayenne pepper extracts, as well as active substances occurring in oregano and cinnamon, leads to performance enhancing effects in calves.



The study, including 40 male Fleckvieh calves with a starting age of 21 days, lasted for 14 weeks and was performed at the teaching and research Institute for livestock farming, Neumühle in Münchweiler an der Alsenz, Germany.

The test group received a milk replacer (MR), mixed with 250g/t of the phytogenic additive Xtract Instant (Pancosma, Switzerland).

The MR concentration was 100g/L.

The control group received the same MR, but without additive. The concentrated feed (CF) in the test group was supplemented with 100g/t of the phytogenic additive Xtract 6930, while the control group was offered the same CF, but without additive.

The maximum available quantity per animal per day was 2.5kg CF. In addition, all animals had free access to water, hay and corn silage.

Xtract Instant, is a soluble version of Xtract 6930, a microencapsulated plant extract product for monogastric animals from speciality feed additives manufacturer Pancosma SA, Switzerland.

This new form, Xtract Instant, being totally soluble, is particularly suitable for use in milk replacers, liquid feed and drinking water systems for calves.

The average MR consumption in the control group was 28.0kg per animal, while consumption in the test group was 28.1kg MR. Fig. 1. shows the weekly intake of concentrated feed over the entire test

period. It can be seen that the test group had a consistently higher CF intake compared to the control group. The average CF consumption in the test group reached 935g per animal and day, while the animals in the control group ingested 828g per day on average.

This resulted in a global significantly higher concentrate intake by 126.4% for the whole trial duration. Also absolute quantities in intakes of corn silage in the two groups differed considerably.

While the calves in the control group consumed about 0.6kg per animal per day of dry matter from corn silage in week 13 and 14, the experimental animals ingested approximately 1.0kg corn silage dry matter per animal and day.

## Faster growth

With regard to growth performance it was obvious that animals in the test group grew significantly faster. The treatment animals exhibited a 4.3kg higher weight at the end of the milk-drinking period compared to the animals in the control group.

Therefore, Calves fed Xtract exhibited a daily weight gain increased by 50.57g/d when compared to the control.

This resulted in an increased weaning weight by 3.8% when fed Xtract. By the end of the study the body weight margin in the experimental group was 1.4kg.

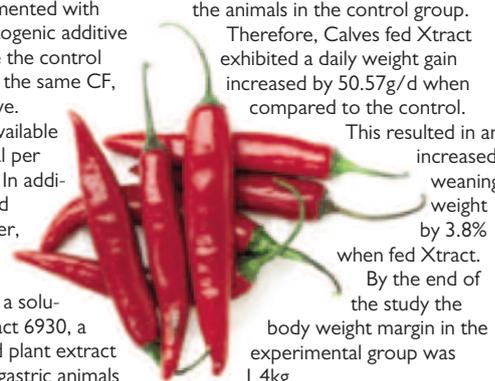
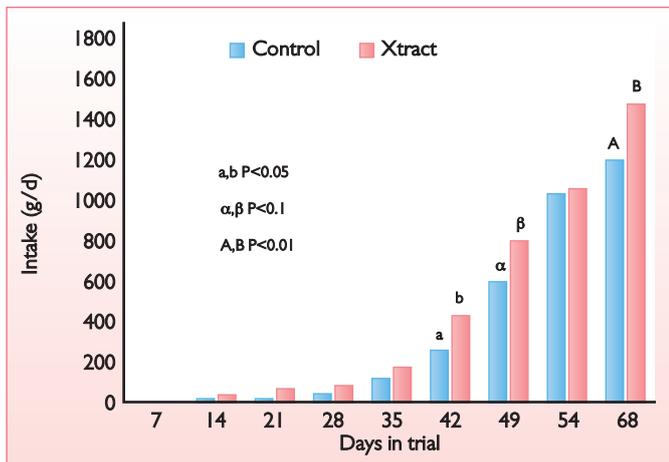
Table 1 shows the dry matter intake per calf over the entire test period, as well as the mean nutrient intake per calf per day.

It becomes apparent that the animals in the test group exhibited an CF dry matter intake increased by 9.3kg, and a dry matter intake from roughage increased by 9kg higher.

This resulted in a roughly 18kg higher total dry matter intake in the experimental group compared to

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Fig. 1. Concentrated feed intake during the trial period (g/animal/day).



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the control. The higher total dry matter intake is also reflected in the mean nutrient intake per calf per day.

### Improved rumen

As shown in Fig. 2, the treatment calves exhibited an increased ruminal concentration of propionate and butyrate (respectively +10.3% and +39.0%). The ruminal concentration of acetate was similar between the two groups. Propionate and butyrate are known to be promoters of rumen papillae development.

This suggests that calves supplemented with Xtract may exhibit a quicker development of the rumen.

The results of the study show that the supplementation of the MR as well as the CF with the phytogenic additives Xtract Instant and Xtract 6930, respectively, exhibited posi-

	Control	Xtract	Xtract minus control
<b>Dry matter intake/calf</b>			
Milk replacer (kg)	28.0	28.1	+0.1
Concentrate (kg)	70.9	80.2	+9.3
Roughage (kg)	53.5	62.5	+9.0
Total (kg)	152.4	170.8	+18.4
<b>Growth development</b>			
Initial body weight (kg)	68.03	68.63	
Final body weight (kg)	110.9	115.2	+4.3
ADG (g/d)	623.36	673.93	+50.57

**Table 1. Dry matter intake, daily nutrient intake and growth performance of the calves.**

tive effects on overall feed intake, especially a significant increase in CF intakes versus the control animals.

The increased CF intake and the associated chemical stimulation triggered in the gastrointestinal tract promotes a faster development of the rumen system of the calves. This explains partly the potential of the

calves in the test group to achieve a 9kg higher roughage dry matter intake.

The comparison of the intakes with the growth performance of the calves demonstrates the positive effect of an increased nutrient intake on the growth development of the calves during the milk feeding

period. At the end of the liquid feeding period, the calves in the test group exhibited a 4.3kg higher body weight compared to the control.

The control group, however, was able to reduce the weight difference to 1.4kg by the end of the study. The fact that young calves are not yet able to fully leverage the energetic potential of corn silage ingested at high levels is due to insufficient rumen development as shown in previous studies.

According to the modest milk replacer feeding duration, animals in both groups have not suffered from a fall-off in the growth development after weaning. Both groups ingested sufficient roughage and concentrate feed to compensate the removal of the milk replacer. The calves in the experimental group increased silage intake significantly after the milk replacer feeding period.

### Conclusion

In conclusion, the corresponding phytogenic additives (Xtract) applied in this study generated a quicker and higher intake of concentrate feed and roughage as well as an improved growth performance in calves.

Therefore, a shortening and economising of the milk replacer feeding period is conceivable leading to an improved profitability. ■

**Fig. 2. Ruminal VFA concentration.**

