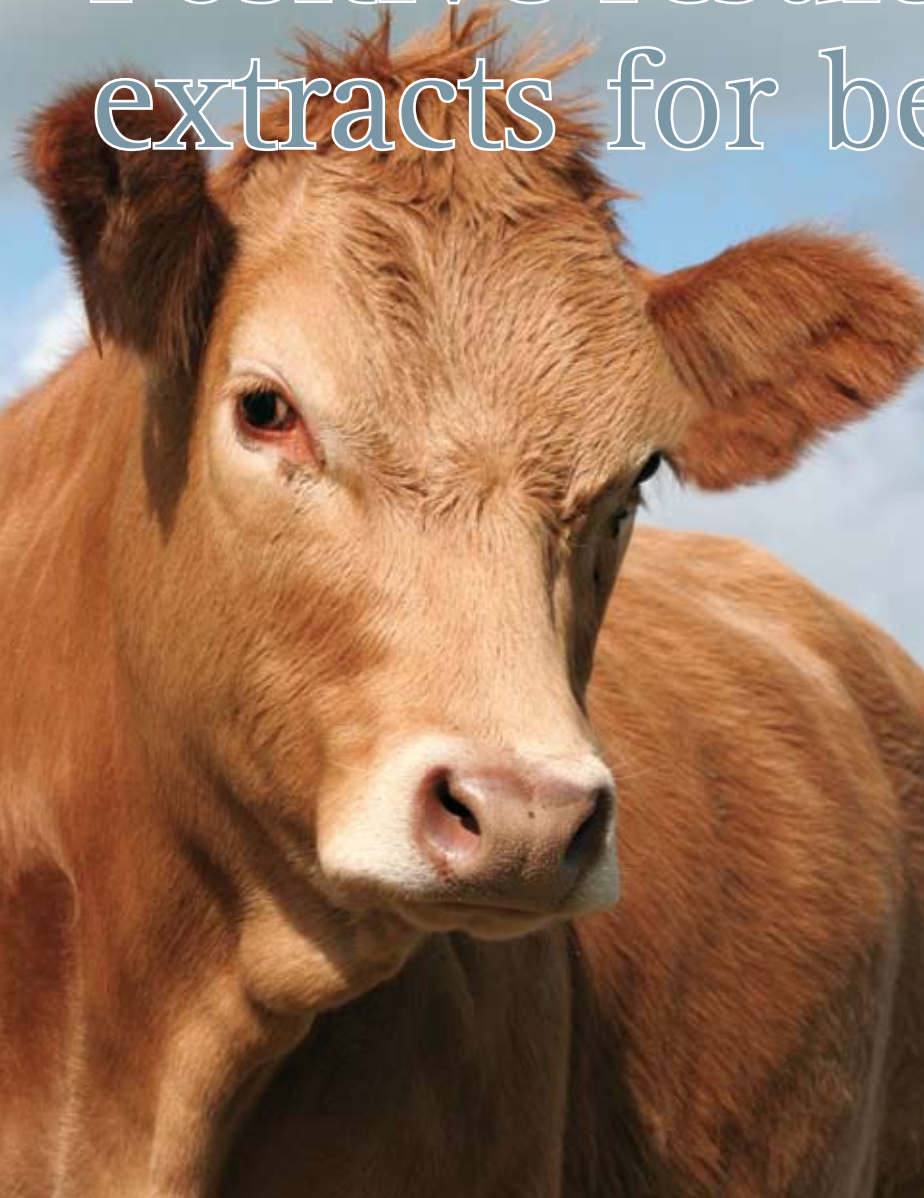


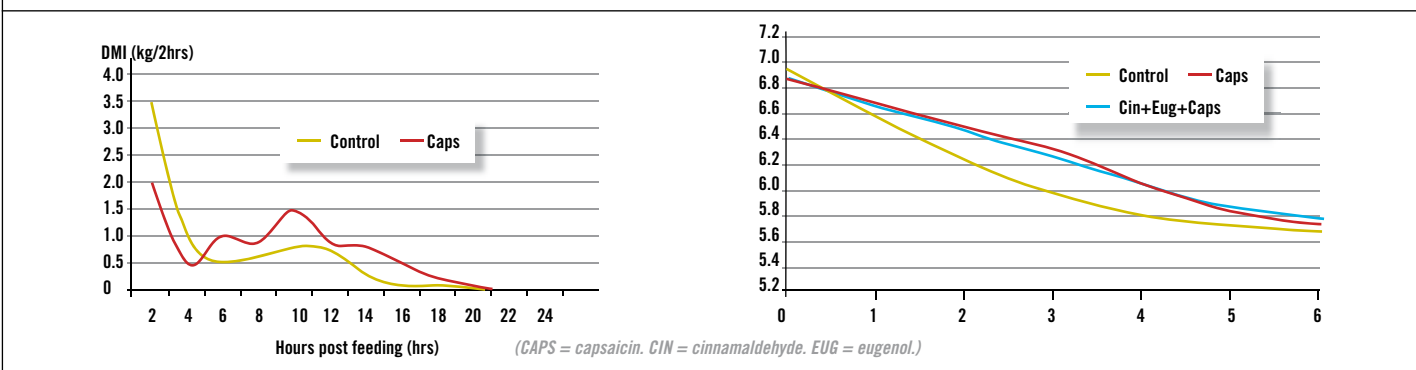
# Positive results of plant extracts for beef cattle



**JUST LIKE ANY OTHER LIVESTOCK INDUSTRY, BEEF PRODUCERS ARE CONFRONTED WITH MARKED INFLATION IN RAW MATERIAL PRICING WHICH INCREASED THE COMPETITION AND PUTS PRESSURE ON PROFIT MARGINS. A FEED SUPPLEMENT CONTAINING CLOVE, CINNAMON AND CAPSICUM COULD HELP TO REDUCE THIS PRESSURE. BY ARMIN VIKARI**

The three components of the new supplement<sup>1</sup> are the naturally occurring compounds capsaicin, cinnamaldehyde and eugenol, found in clove, cinnamon and capsicum. Already, a two-way combination of cinnamaldehyde and eugenol has been in commercial use for several years in forage-based ruminant diets. Their modes of action combine to extract more energy from a given amount of feed. Cinnamaldehyde stimulates the production of propionate, the precursor of blood glucose, thereby reducing the acetate(C<sub>2</sub>):(C<sub>3</sub>) propionate ratio resulting from rumen fermentation, while eugenol increases the total energy extracted from the diet in the form of higher volatile fatty acid production. The three component product has been developed for medium to high fermentable carbohydrate beef diets. The capsaicin also shows the effects of the other two components, but in addition also modifies the distribu-

**FIGURE 1 - IMPACT OF CAPSAICIN ON FEED INTAKE OVER 24 HOURS (LEFT) AND RUMEN PH (RIGHT) COMPARED WITH NEGATIVE CONTROL**



**TABLE 1 - PRODUCTION DATA OF 153 CATTLE (MALES AND FEMALES)**

	Control	Plant extract <sup>1</sup>	Difference
Initial weight (kg)	240.9	247.1	
Final weight (kg)	339.8	347.8	
Growing period (d)	82	83	
Daily weight gain	1.212	1.221	+0.74
DM intake (kg)	633.2	544.4	-14.0
Feed conversion ratio	6.4	5.4	-16.0

**TABLE 2 - PRODUCTION DATA OF MALE AND FEMALE CATTLE ANALYSED SEPARATELY**

	Males			Females		
	Control	Plant extract <sup>1</sup>	Difference	Control	Plant extract <sup>1</sup>	Difference
Initial weight (kg)	245.2	279.1		236.7	215.1	
Final weight (kg)	337.1	378.6		342.5	316.9	
Growing period (d)	79	81		84	84	
Daily weight gain	1.163	1.229	+5.63%	1.260	1.212	-3.77%
DM intake (kg)	643.1	583.3	-9.31%	623.2	505.5	-18.9%
Feed conversion ratio	6.998	5.860	-16.26%	5.888	4.964	-15.7%

**TABLE 3 - COMPARISON OF AVERAGE DAILY GAINS ON DIETS SUPPLEMENTED WITH PLANT EXTRACT AND MONENSIN**

Average daily gain	Plant extract <sup>1</sup>	(mg/head/day)
(as % of double negative control)	0	1000
Monensin (mg/head/day): 0	100	104.6
Monensin (mg/head/day): 200	103.4	105.1

**TABLE 4 - COMPARISON OF FEED CONVERSION ON DIETS SUPPLEMENTED WITH PLANT EXTRACT AND MONENSIN**

Feed Conversion Ratio	Plant extract <sup>1</sup>	(mg/head/day)
(as % of double negative control)	0	1000
Monensin (mg/head/day): 0	100	103.7
Monensin (mg/head/day): 200	103.4	104.9

tion of feed consumption over the course of a day. It reduces the size of the first meal after fresh feed is offered and increases consumption at visits to the feed trough later in the day (Figure 1). One advantage of this is reduced acidosis resulting from the first big feed of the day. The product's active ingredients are micro-encapsulated with hydrogenated vegetable oil. This controlled-release formulation gives the active ingredients a much longer dwell-time, and therefore duration of activity.

### IMPROVED WEIGHT GAIN

In a farm-based trial involving 153 beef cattle on barley straw and *ad-lib* concentrates, feed conversion was improved by 16%, from 6.4 to 5.4, in treated animals compared with a negative control (Table 1). Daily weight gain was similar while feed use was 14% lower in the treated group. In the same trial, male cattle receiving the supplement showed a 5.6% growth rate advantage and

9.3% lower feed consumption, while in females the corresponding figures were 3.8% lower growth rate and 18.9% lower feed use (Table 2). The resulting improvements in feed conversion were 16.3% in male cattle and 15.7% in females.

The new supplement was also compared to an ionophore supplement. In a trial on 160 cross-bred steers, the plant extract supplement performed better in terms of average daily gain (Table 3) and feed conversion (see Table 4). Also, this trial recorded the incidence of veterinary interventions, which was reduced markedly in the plant extract groups compared with the negative control.

### CONCLUSION

The use of natural growth promoting ingredients is getting more attention in commercial beef operations. The use of plant extracts such as clover, cinnamon and capicum seem to benefit the animals in showing improved feed conversion rates and average daily gain. <-

<sup>1</sup>Xtract (Pancosma)



Dr Armin Vikari studied Nutrition Sciences at the Technical University Munich in Germany, where he also received his PhD in 2004 at the Department of Animal Nutrition and Production Physiology. In 2005 he took up the position as Area Sales Manager Asia Pacific, Business Unit Animal Nutrition at JRS in Germany. Armin has been recently appointed as Product Manager Bioactives at Pancosma.