

# Research Notes

Arm & Hammer Animal and Food Production



## CELMANAX enhanced daily weight gain, final carcass weight in Holstein steers.

### STUDY OVERVIEW

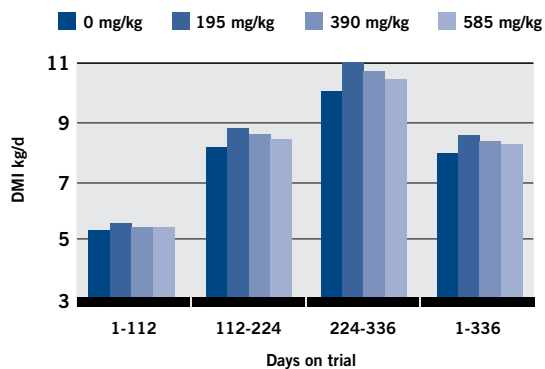
- This trial<sup>1</sup> was conducted to evaluate the influence of supplementing CELMANAX™ on growth performance in Holstein steer calves.
- The 336-day trial included 168 Holstein steer calves that were separated into 7 groups based on initial shrunk weight and randomly assigned to one of 28 pens, 6 steers per pen.
- The study included the following dietary treatments:
  - Basal diet (steam-flaked corn-based growing-finishing diet) (Table 1)
  - Basal diet + 195 mg/kg CELMANAX SCP
  - Basal diet + 390 mg/kg CELMANAX SCP
  - Basal diet + 585 mg/kg CELMANAX SCP
- Feed intake (DMI) and bodyweight were measured at the beginning and end of each 112-day period, and various carcass and retail quality assessments were conducted after slaughter.

TABLE 1		Composition of experimental diets (DM basis)			
		CELMANAX level, mg/kg diet DM			
Item		0	195	390	585
<b>Ingredient composition, % DM</b>					
<b>Sorghum Sudan</b>		8.00	8.00	8.00	8.00
<b>Alfalfa hay</b>		4.00	4.00	4.00	4.00
<b>Tallow</b>		2.50	2.50	2.50	2.50
<b>Molasses, cane</b>		4.00	4.00	4.00	4.00
<b>Distillers Grains w/ solubles</b>		10.00	10.00	10.00	10.00
<b>Steam flaked corn</b>		68.10	68.10	68.10	68.10
<b>Urea</b>		1.15	1.15	1.15	1.15
<b>Limestone</b>		1.68	1.68	1.68	1.68
<b>Dicalcium Phosphate</b>		0.10	0.10	0.10	0.10
<b>Magnesium oxide</b>		0.15	0.15	0.15	0.15
<b>Rumensin® 90</b>		0.0182	0.0182	0.0182	0.0182
<b>TM Salt</b>		0.30	0.30	0.30	0.30
<b>CELMANAX SCP, mg/kg</b>		0	195	390	585
<b>Nutrient composition, DM basis (NRC, 2000)</b>					
<b>DRY MATTER %</b>		87.9	87.9	87.9	87.9
<b>NEm, Mcal/kg</b>		2.21	2.21	2.21	2.21
<b>NEg, Mcal/kg</b>		1.54	1.54	1.54	1.54
<b>Crude protein, %</b>		14.3	14.3	14.3	14.3
<b>Rumen DIP, %</b>		62.7	62.7	62.7	62.7
<b>Rumen UIP, %</b>		37.3	37.3	37.3	37.3
<b>Ether extract, %</b>		6.70	6.70	6.70	6.70
<b>Ash, %</b>		5.76	5.76	5.76	5.76
<b>Nonstructural CHO, %</b>		58.0	58.0	58.0	58.0
<b>NDF, %</b>		17.7	17.7	17.7	17.7
<b>Calcium, %</b>		0.80	0.80	0.80	0.80
<b>Phosphorus, %</b>		0.35	0.35	0.35	0.35
<b>Potassium, %</b>		0.77	0.77	0.77	0.77
<b>Magnesium, %</b>		0.28	0.28	0.28	0.28
<b>Sulfur, %</b>		0.19	0.19	0.19	0.19

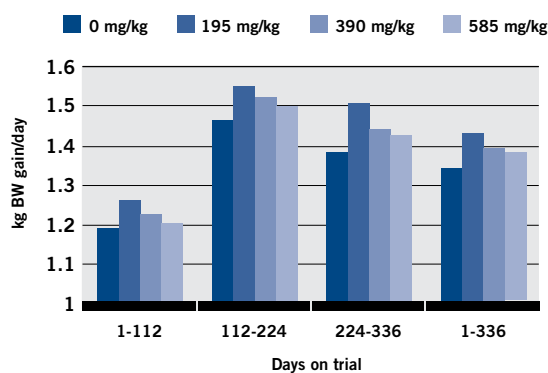
## RESULTS

- CELMANAX™ enhanced overall dry matter intake (DMI) (Fig. 1) and average daily gain (ADG) (Fig. 2).

**FIGURE 1:** DMI in steers fed Control and 3 doses of CELMANAX for each of the 112-day periods on trial (For CELMANAX vs. control with maximum response at 195 mg/kg dose,  $P<0.05$ )

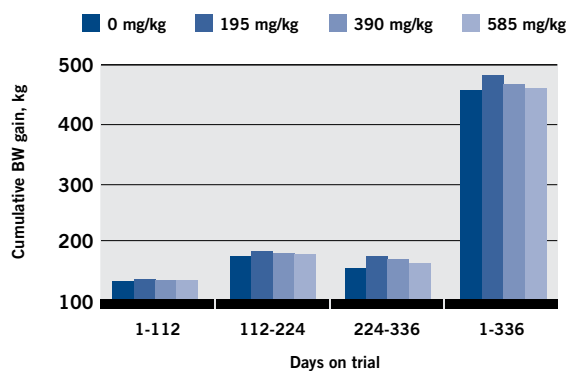


**FIGURE 2:** Average daily weight gain in steers fed Control and 3 doses of CELMANAX for each of the 112-day periods on trial (For CELMANAX vs. control with maximum response at 195 mg/kg dose,  $P<0.05$ )



- The greatest response ( $P\leq 0.02$ ) was seen when animals were supplemented at the 195 mg/kg level.
- Gain efficiency and dietary NE were not affected by CELMANAX supplementation.

**FIGURE 3:** Cumulative weight gain in steers fed Control and 3 doses of CELMANAX for each of the 112 day periods on trial (For CELMANAX vs. control with maximum response at 195 mg/kg dose,  $P=0.07$ )



- CELMANAX supplementation enhanced ( $P=0.04$ ), carcass weight gain (Fig. 3), again with the greatest response ( $P=0.07$ ) seen at the 195 mg/kg level

## CONCLUSION

- CELMANAX supplementation enhanced the DMI and ADG of calf-fed Holstein steers throughout the entire growing-finishing period.
- Improvement in daily weight gain contributed to an increase in final carcass weight.
- CELMANAX supplementation did not affect gain efficiency.



#ScienceHearted

AHfoodchain.com

1 Salinas-Chavira J, Montano MF, Torrentera N, Zinn RA. Influence of feeding enzymatically hydrolysed yeast cell wall+yeast culture on growth performance of calf-fed Holstein steers. *J Applied Anim Research* 2018;46(1):327-330. Available at: <http://dx.doi.org/10.1080/09712119.2017.1299742>.

© 2020 Church & Dwight Co., Inc. ARM & HAMMER, CELMANAX and the ARM & HAMMER logo are trademarks of Church & Dwight Co., Inc. All trademarks are the property of their respective owners. CE3459-0120

