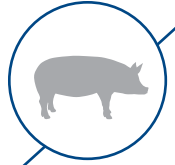


# Research Notes S-93

Arm & Hammer Animal and Food Production



## CELMANAX fed to sows helps improve piglet performance and subsequent breeding performance under commercial conditions.

### STUDY OVERVIEW

- This trial<sup>1</sup> was conducted to evaluate the effect of CELMANAX™ supplementation 35 days post-breeding until the end of the subsequent lactation period to determine the effects on sow and litter performance.
- Initially, 240 sows (PIC 1050) were enrolled into study in a randomized complete block (RCB) design based on parity (P1, P2, P3+) and were fed their respective dietary treatments:
  - Control: Control diet gestation x control diet lactation
  - Gestation: 0.01% CELMANAX SCP in gestation x control diet lactation
  - Lactation: Control diet gestation x 0.02% CELMANAX SCP in lactation
  - Gest + Lact: 0.01% CELMANAX SCP in gestation x 0.02% CELMANAX SCP in lactation
- Sow measurements:
  - Average daily feed intake (ADFI) during lactation
  - Body weight (BW) 48 hours post-farrowing and at weaning upon exiting the farrowing room to calculate lactation weight loss/gain
  - Sows were monitored for Wean-to-Estrus Interval (WEI), percent bred within 7 days and litter size in the next breeding cycle
- Piglet measurements:
  - Litter size at birth and weaning
  - Piglet weight within the first 24 hours of life and at weaning
  - Litter weight after cross-fostering, 48 hours post-farrowing (after litter adjustments and cross-fostering) and at weaning
  - Coefficient of BW variation at birth and weaning
  - Percent pigs removed
- Data were analyzed as a RCB using the PROC MIXED procedure of SAS with sow as the experimental unit, treatment as a fixed effect, and parity as a random effect. Data were reported as LS Means and contrasts and treatment comparisons were performed. Entry weight and days on test were used as a covariate.

### RESULTS

#### Sow performance:

- No significant treatment effects were noted for sow body weight loss at the end of weaning.
- Wean-to-Estrus Interval was reduced by up to 1.5 days when CELMANAX was fed to sows in the lactation, and gestation + lactation diets ( $P=0.01$ ), while supplementation in the gestation diet alone was intermediate compared to control fed sows.
- In the subsequent breeding, percent bred within 7 days was significantly higher with all CELMANAX treatments (97%-100%) compared to 86.5% in control sows ( $P=0.01$ ).

#### Piglet performance:

- No significant treatment effects were noted for litter size at birth or weaning, or litter weights at birth or weaning. However, sows receiving CELMANAX in the lactation diet had litter weights numerically higher at birth (+0.91 kg) and weaning (2.53 kg) than control sows.
- Individual piglet birth weight was not affected by treatments, but individual piglet weaning weights were significantly higher when CELMANAX was included in the sow diets ( $P=0.02$ ).
- Coefficient of variation for BW at birth or weaning was not affected by treatments. Similarly, percent pig removal (includes mortality, non-full value pigs) was also not affected by treatments.

**TABLE 1: SOW AND LITTER PERFORMANCE OVERALL RESULTS**

	Control	Gestation	Lactation	Gest + Lact	SEM	P value
<b>SOW DATA</b>						
Sows, n	61.00	64.00	64.00	55.00		
Parity average	2.40	2.50	2.40	2.40		
Lactation days	17.00	17.00	17.00	17.00		
ADFI, kg	7.79	7.46	8.03	7.82	0.19	0.17
Sow wt. diff, %	-2.71	-0.77	-3.00	-0.75	0.88	0.11
WEI, d	5.99 <sup>a</sup>	5.12 <sup>ab</sup>	4.90 <sup>b</sup>	4.49 <sup>b</sup>	0.33	<b>0.01</b>
Percent bred, %	86.53 <sup>b</sup>	97.06 <sup>a</sup>	97.85 <sup>a</sup>	100.00 <sup>a</sup>	3.24	<b>0.01</b>
Subsequent total born, n	15.43	14.79	16.00	14.70	0.58	0.31
<b>PIGLET DATA</b>						
Pig in, n	12.91	12.83	12.87	12.44	0.19	0.25
Litter wt. in, kg	19.98	19.73	20.89	19.52	0.60	0.36
Pig out, n	11.36	11.20	11.28	11.04	0.28	0.87
Litter wt. out, kg	64.68	63.91	67.21	63.64	2.13	0.59
Ind. birth wt., kg	1.37	1.40	1.39	1.39	0.01	0.29
CV of birth wt.	27.41	28.96	27.67	28.24		
Ind. wean wt., kg	5.82 <sup>b</sup>	5.87 <sup>b</sup>	5.93 <sup>ab</sup>	6.01 <sup>a</sup>	0.05	<b>0.02</b>
CV of wean wt.	21.59	20.96	21.09	20.73		
Removals, %	11.94	12.82	12.37	11.35	1.79	0.94

<sup>a, b, ab</sup> Denotes significant difference ( $P < 0.05$ )

## CONCLUSION

CELMANAX™ supplementation in sow diets reduced Wean-to-Estrus Interval by up to 1.5 days and increased the percentage of sows bred within 7 days by up to 100% in the subsequent cycle. The current (2017) cost for a non-productive day (NPD) for a sow is \$2.40. Ability to reduce NPD by 1.5 days could have major implications for sow farmers.

Improvement in weaning weight seen here is consistent with other CELMANAX studies and can lead to improved pig performance during the nursery and grow-finish phases.



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1 Thompson, *et al.* 2019. Presented at Midwest Animal Science meeting in Omaha, NE, USA Abstract #180.

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