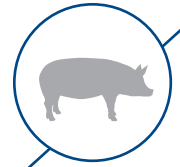


# Research Notes S-96

Arm & Hammer Animal and Food Production



## CELMANAX benefit compared to Zinc Oxide or antibiotic supplementation on nursery pig performance

### STUDY OVERVIEW

- This trial<sup>1</sup> compared the effect of CELMANAX™ supplementation with pharmacological Zinc Oxide or Mecadox® supplementation during the nursery phase, on growth and performance of nursery piglets.

TABLE 1: TREATMENTS

TREATMENT	SOW LACTATION	NURSERY PHASE 1&2*	NURSERY PHASE 3*
Control	Control	Control	Control
ZnO	Control	ZnO, 2500 ppm	Control
CELMANAX	CELMANAX SCP, 200 g/MT	Control	Control
CELMANAX +ZnO	CELMANAX SCP, 200 g/MT	ZnO, 2500 ppm	Control
Mecadox	Control	Mecadox, 50 g/ton	Mecadox, 50 g/ton

\*Piglets were fed *ad libitum*, a three-phase mash nursery diet [P1, P2, and P3, 0-7, 7-21, and 21-42, days respectively] in a 42-day trial.

- Sows received treatments as described in Table 1 in their lactation ration from five days before their expected farrowing date until weaning at 18 days of age.
- At weaning, piglets were sorted by sow treatment and group-housed (n=10/pen), seven pens per treatment and fed nursery treatments as described in Table 1.
- Individual body weights (BW) were recorded at the start, after each phase change and the end of the study. Feed consumption per period was determined for each pen and used to calculate feed efficiency.
- Health observations, animal removals, concomitant therapeutic treatments were recorded daily.
- Pen served as the experimental unit and data were analyzed statistically with model containing fixed block effects using the GLM Procedure of SAS (9.2, Cary NC). LSMmeans separated using the PDIF option of SAS (Ver 9.2, Cary NC).

### RESULTS

#### Birth to Weaning performance:

CELMANAX supplementation in sow lactation diets improved weaning weights (BW 0 of nursery phase) compared to control fed sows ( $P<0.0001$ ) (Table 2).

TABLE 2: EFFECT OF SOW DIETS ON WEANING BODY WEIGHTS

SOW TREATMENT	PIGLET BW AT WEANING (DAY 0 OF NURSERY), kg (lb)
Control	5.91 <sup>b</sup> (13.00)
CELMANAX	6.32 <sup>a</sup> (13.92)
P-value	<0.0001

a, b superscripts denote  $P<0.05$

### Nursery performance (Table 3):

- At the end of nursery phase (day 42), piglets on CELMANAX™, CELMANAX + ZnO and Mecadox® had higher BW while piglets on CELMANAX + ZnO and Mecadox had higher ADG compared to control pigs.
- Piglets from CELMANAX treatment had finishing nursery weights that were not different from piglets on ZnO or Mecadox.
- No significant differences were detected for average daily feed intake (ADFI), feed conversion (FCONV, feed/gain) or feed efficiency (FE, gain/feed) over the 42-day period. No difference between health observations were noted, however, number of pigs removed (mortality and culls) were highest in the control treatment and lowest in the ZnO treatments with all other treatments being intermediate.

**TABLE 3. EFFECT OF TREATMENTS ON NURSERY PIG PERFORMANCE**

TREATMENTS	BW, kg (lb), d42	ADG, kg (lb)	ADFI, kg (lb)	FCONV, d/gain	FE, gain/fd	Pig removals
<b>Control</b>	20.60 <sup>c</sup> (45.40)	0.35 <sup>c</sup> (0.77)	0.67 (1.48)	1.97	0.51	4
<b>ZnO</b>	21.53 <sup>bc</sup> (47.47)	0.37 <sup>bc</sup> (0.82)	0.67 (1.47)	1.81	0.56	1
<b>CELMANAX</b>	21.80 <sup>ab</sup> (48.19)	0.37 <sup>bc</sup> (0.82)	0.72 (1.58)	1.98	0.52	2
<b>CELMANAX +ZnO</b>	22.96 <sup>a</sup> (50.61)	0.40 <sup>ab</sup> (0.87)	0.74 (1.64)	1.90	0.53	2
<b>Mecadox</b>	23.10 <sup>a</sup> (50.93)	0.41 <sup>a</sup> (0.90)	0.79 (1.73)	1.91	0.53	2

a, b, c superscripts denote  $P < 0.05$

## CONCLUSION

Improving the pre-weaning enteric health status of piglets may help reduce the dependency on zinc or certain in-feed antibiotics during the nursery phase. Similar nursery pig performance can be achieved as with the addition of pharmacological zinc or antibiotic supplementation if CELMANAX is fed to sows in the lactation phase.



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1 Jakular, *et al.* 2019. Part of the data was presented at Zero Zinc Summit in Copenhagen, Denmark.

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