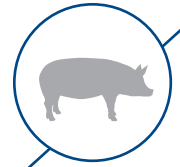


Research Notes S-52

Arm & Hammer Animal and Food Production



CELMANAX helps pigs in response to immune challenge.

STUDY OVERVIEW

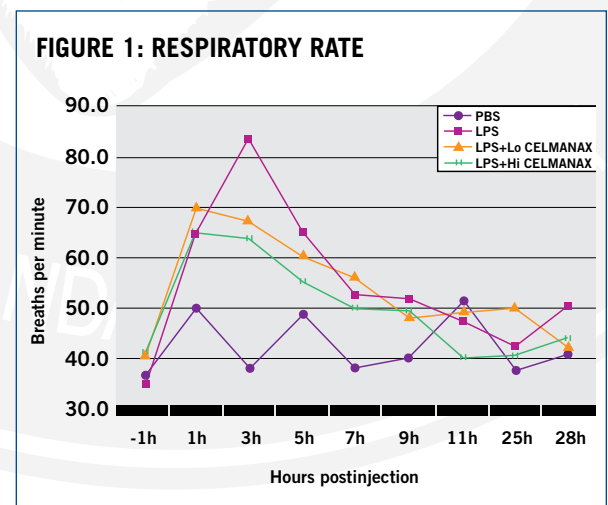
- This trial¹ was conducted to evaluate the effect of CELMANAX™ on performance, health and immune response in young pigs faced with a simulated immune challenge.
- Crossbred weaned piglets, 3 pigs per pen and 3 pens per treatment, were assigned to a control diet or one of two CELMANAX-treatment diets for 4 weeks:

	LOW CELMANAX	HIGH CELMANAX
WEEKS 1 AND 2	0.2%	0.4%
WEEKS 3 AND 4	0.1%	0.2%

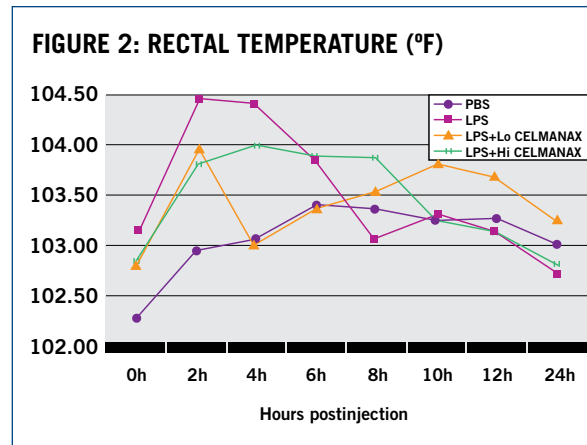
- Pig weight and feed disappearance were recorded weekly, and average daily gain, average daily feed intake and feed/gain ratio were calculated.
- After the 4-week growth performance evaluation period, 1 barrow and 1 gilt from each treatment pen were given an injection of 5 mL phosphate buffered saline (PBS) or lipopolysaccharide (LPS) at a rate of 50 µg/kg suspended in PBS to assess immune competence.
- The 4 immune treatments were:
 - o Control diet pigs injected with PBS
 - o Control diet pigs injected with LPS
 - o Low CELMANAX diet pigs injected with LPS
 - o High CELMANAX diet pigs injected with LPS
- Body weight, feed intake, temperature and respiration rate were recorded. Blood samples were taken for analysis of serum cortisol.

RESULTS

- There were no differences ($P>0.50$) among the 3 treatment groups for average daily gain, average daily feed intake and feed/gain during the 4-week growth evaluation period, which may be related to the cleanliness of the research facilities.
- LPS-challenged control pigs had lower cumulative feed intake and weight gain compared to PBS-injected pigs, but CELMANAX inclusion did not have an effect.
- Respiratory rate of LPS-injected pigs was higher than PBS-injected pigs at 3 hours postinjection, and decreased linearly with increased inclusion of CELMANAX ($P<0.01$, Figure 1).



- Pigs fed CELMANAX™ had lower rectal temperatures than LPS control pigs at 2 hours postinjection ($P=0.03$, Figure 2).
- Serum cortisol levels were not moderated by CELMANAX supplementation.



CONCLUSION

Compared to the LPS-challenged pigs in the control group, pigs supplemented with CELMANAX had lower temperature and respiratory rate during the first 4 hours postinjection, implying that CELMANAX may positively effect immune function to benefit weaned pigs during an immune challenge.



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¹Adapted from the data of: I. F. Hung and M. D. Lindemann Ph.D. Department of Animal Science, University of Kentucky, Lexington, Ky. This work was presented at the ADSA-ASAS Joint Annual Meeting, 2008, and published in the *Journal of Animal Science* Volume 86, E-Supplement 2.

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