Gro Master

The effects of improving air quality on performance and mortality in 8 groups of finishing pigs

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Airborne dust (potentially carrying infectious agents) and ammonia negatively impact the environment. In the past, improving air quality required increased air movement. With the recent introduction of barn-friendly electrostatic particle ionization devices (EPI Air®), improving air quality inside swine barns has become more feasible. When EPI Air® is implemented, particles in the air are charged. Charged particles then settle and "stick" to surfaces in the barn (Vansickle, 2013; Rosentrater, 2004). As a result, EPI Air® may improve pig performance by reducing health issues caused by poor air quality (coughing, respiratory- and gastrointestinal irritation, etc.; Colina et al., 2000).

To test the efficacy of using EPI Air® to improve performance and reduce mortality in finisher pigs, pigs were placed in curtain sided, quad room barns with tunnel ventilation. The first replication began March 1, 2013 and the final replication ended July 26, 2013. Four replications (total head = 4,174) were placed in barns equipped with EPI Air® (EPI group) and 4 replications (control; total head = 4,214) were placed in unequipped barns. At the start of test, the EPI group averaged 70.8 lbs. and the control group averaged 77.3 lbs. At marketing, the EPI group averaged 245.5 lbs. (average days on test = 108) and the control group averaged 264.4 lbs. (average days on test = 127).

The ADG was poorer for the EPI group than the control group in replications 1 and 2, but better for the EPI group in replications 3 and 4 (Figure 1).

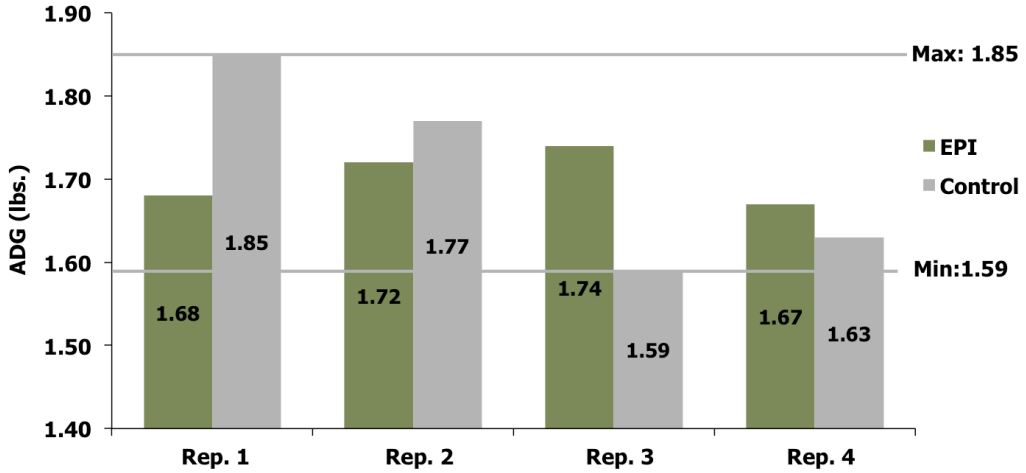

Figure 1. Average daily gain for 4 replications of each EPI and control groups (total 8,388 pigs)

Although pigs in the EPI group had poorer feed conversion than the control group during replications 1 and 4, the EPI group had better feed conversion during replications 2 and 3 (Figure 2).

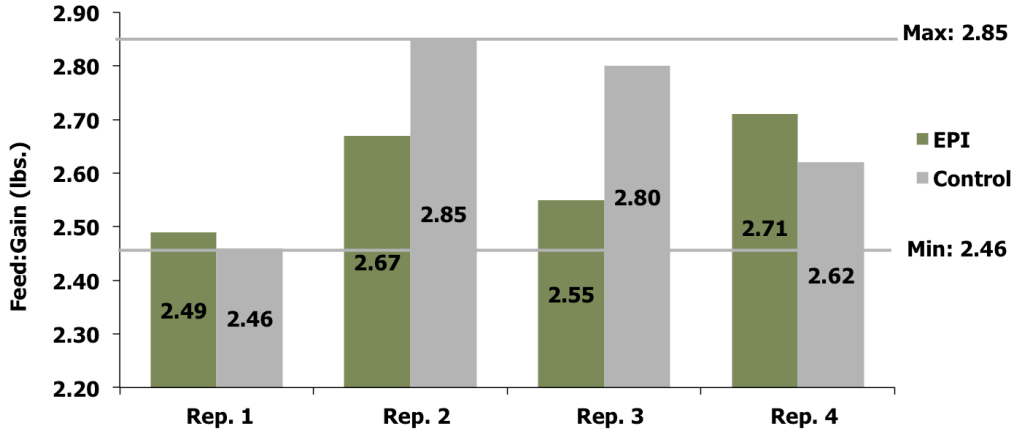

Figure 2. Feed conversion for 4 replications of each EPI and control groups (total 8,388 pigs)

Although the EPI group had greater mortality than the control group during replications 2 and 4, the mortality was less for the EPI group for replications 1 and 3 (Figure 3).

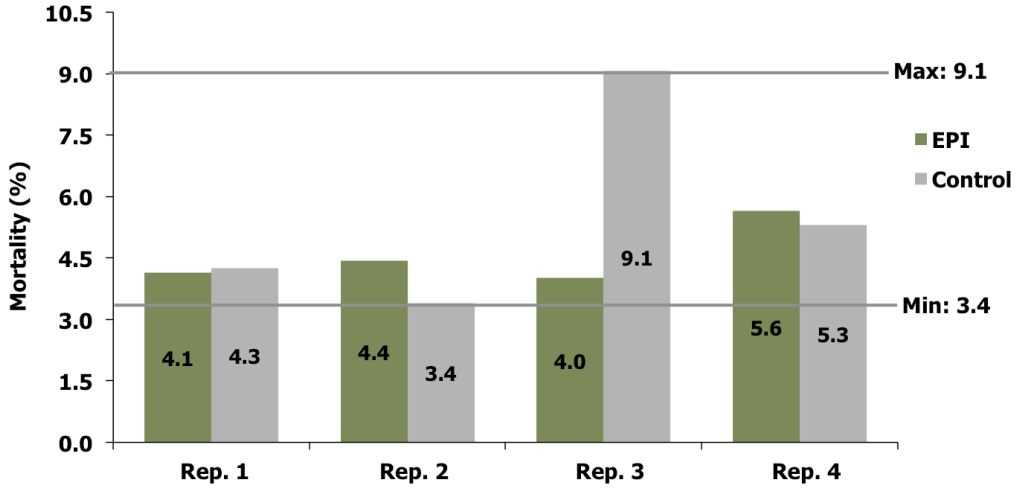

Figure 3. Mortality for 4 replications of each EPI and control groups (total 8,388 pigs)

There are several factors that contribute to the variability of this data set. First, since EPI and control were not conducted within the same barn at the same time it is not possible to rule out barn and management variation. Additionally, although the treatment groups within the same replication were started on test at the same time, days on test differed as much as 23 days. Furthermore, starting weight differed as much as 3 lbs. and weight at the end of testing differed as much as 34 lbs. between the EPI- and control groups within the same replicate. Despite these sources of data variation, there is promise in EPI Air®, that by improving air quality in barns, performance can be enhance and mortality reduced.

Literature Cited

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Vansickle, J. 2013. Stopping dirty air may stymie PRRS. National Hog Farmer. Nov. 15, 2013. Accessed: 8 Jan. 2013. http://viewer.zmags.com/publication/67fff8ad#/63979928/1