Gro Master

The effects of improving air quality on performance and mortality in 12 groups of nursery age piglets

Rebecca Kephart, M.S. and Marvin Wastell, Ph.D.
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Airborne dust (potentially carrying infectious agents) and ammonia negatively impact the environment inside swine barns. Additionally, poor air quality may be more detrimental to young pigs. In the past, improving air quality required increased air movement. With the recent introduction of barn-safe 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 causing them to 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 mortality in nursery age pigs, pigs were placed in curtain sided, quad room barns with tunnel ventilation. The first group was placed on February 26, 2012 and the final group finished testing on May 8, 2012. Four groups (head = 8,608) were placed in barns equipped with EPI Air® (EPI treated group) and 8 groups (control; head = 17,505) were placed in unequipped barns. At the start of test, pigs in the EPI group averaged 14.2 lbs. and the control group averaged 13.8 lbs. At the finish of testing, EPI pigs averaged 67.9 lbs. (Average days on test = 61) and control pigs averaged 67.0 lbs. (average days on test = 60).

The EPI group with the lowest ADG (0.85) was poorer than control groups 1-4, but better than control groups 5-8. Additionally, pigs in EPI groups 1-4 had better ADG than pigs in control groups 5-8 (Figure 1).

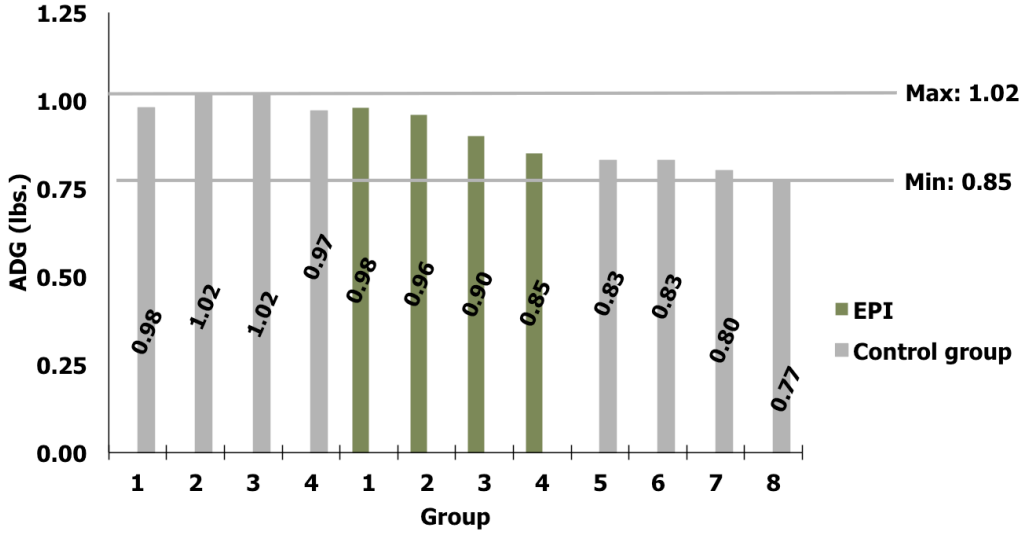

Figure 1. Average daily gain for 4 groups of EPI and 8 groups of control pigs (total head = 26,254)

The poorest feed conversion of both treatments was in the EPI group. However, the pigs in EPI group 2 had better feed conversion than control groups 1-3 and 8 (Figure 2).

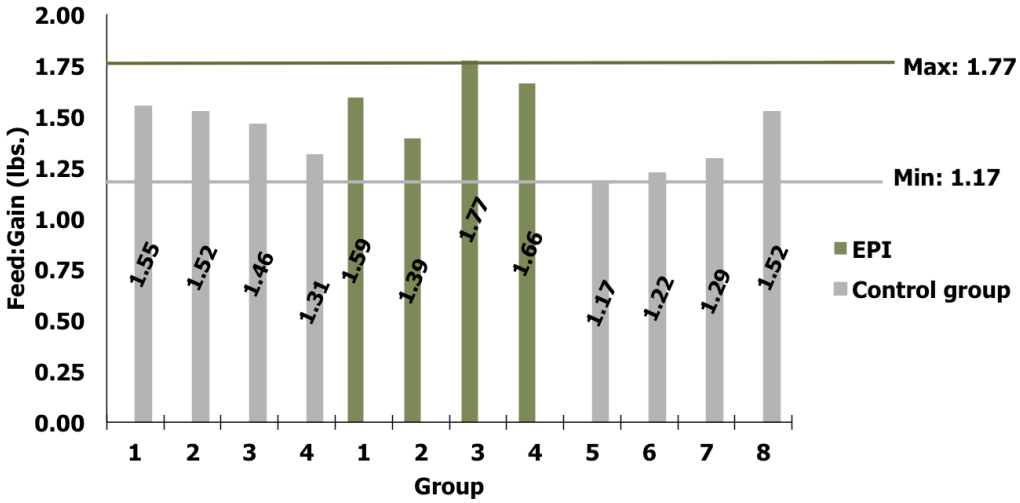

Figure 2. Feed conversion for 4 groups of EPI and 8 groups of control pigs (total head = 26,254)

The highest mortality in the EPI groups (2.2 %) was greater than control groups 3, 4, and 9, but lower than control groups 1,2 and 5-7. Mortality was lower for EPI group 4 than for any of the control groups (Figure 3).

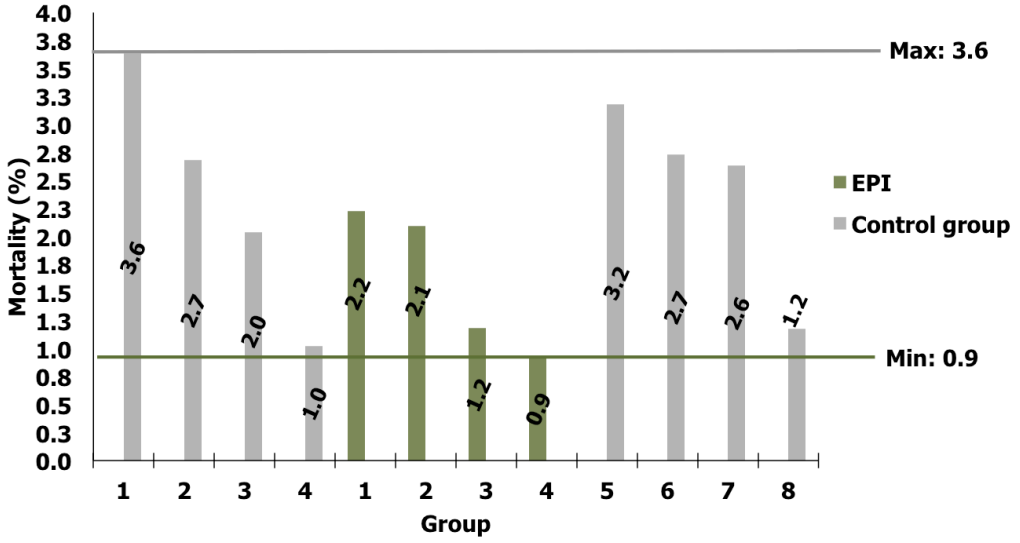

Figure 3. Mortality for 4 groups of EPI and 8 groups of control pigs (total head = 26,254)

For this data, it is important to consider the factors that contribute to variability. 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, these groups did not start on test at the same time (4 control groups

started 1 month before and 4 started 1 month after the EPI groups). Furthermore, the control group had twice as many pigs as the EPI group which may allow for outlying data points to be masked by the number of other “normal” data points. Differences in starting weight between treatments are also a potential source of variation in this data. Despite these potential sources of variation, EPI Air® seems to hold promise that, by improving air quality in the barn, mortalities can be reduced and performance enhanced.

Literature Cited

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