Combat Heat Stress in Pigs for Improved Production Values

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Heat stress is a well-known phenomenon in animal husbandry and is responsible for $316 million annually economic losses in the US swine industry. These losses include non-productive days for sows and economic losses in growing-finishing pigs. Swine are not capable of dissipating heat in an efficient way. Reducing the effects of heat stress in swine, more specifically in high prolific sows, demands a targeted approach.

What Happens When Animals Have Heat Stress?

We know of the external signs like panting, increase body temperature and increase water intake in the acute phase; however, a net dehydration occurs as the stress continues.

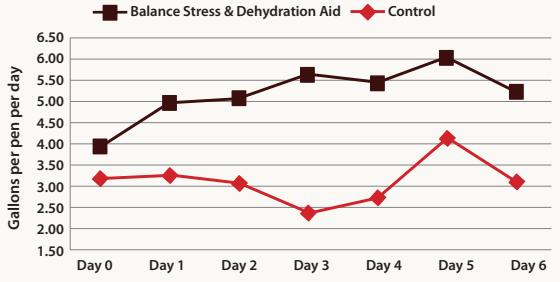
To answer the questions of what happens metabolically and how to correct the metabolic changes, we placed two groups of growers in a heated barn that mimicked a week in southern Indiana during a typical summer. Like the animals in Indiana, pigs in our study were exposed to temperatures of 105°F for five consecutive days with nighttime temperatures at 85°F. Two room vaporizers/humidifiers were used to provide high humidity as well. Clinical evaluation, rectal temperature, feed intake, water intake and blood pH, and base-excess were measured.

The objective of this trial was to evaluate the effects of pigs receiving Balance* Stress & Dehydration Aid (n=10) versus those not receiving treatment (n=5) during very high heat and humidity for five consecutive days. Balance is a nutritional/metabolic supplement formulated to balance the osmotic and the buffering effect needed to maintain hydration and corrected pH when heat stress challenges occur due to environmental heat and handling. Maintaining a stable blood pH during heat stress helps assure steady water and feed intakes.

Balance is formulated using electrolytes and buffering agents and does not use sugar as a filler. Increased carbohydrates are contraindicated due to its effect on blood pH. It contains zinc to aid in the maintenance of cellular integrity and tight junction integrity in the gut. In the face of prolonged heat periods, the buffering effect of Balance helps to reduce a metabolic alkalosis crisis that develops with heat stress, whether it is environment or transportation or processing of any sort.

The following is a list of parameters we evaluated with results:

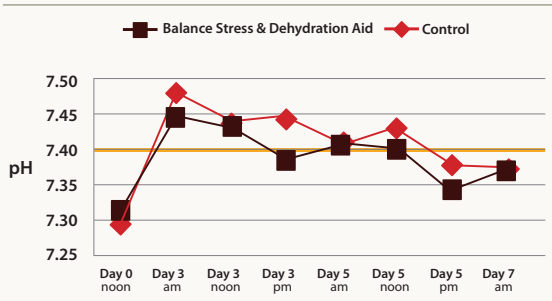
Water Intake by Treatment and Day



Control group: The pigs initially drank water at an increased rate, and then beginning on day 3, the water consumption was reduced leading to dehydrated pigs.

Balance group: Water consumption increased daily till the end of the heat period; there was no evidence of dehydration in treated pigs either by clinical observation or blood gas analysis.

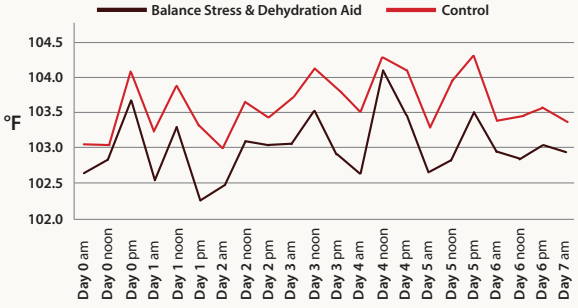
Blood pH by Treatment and Day



Control group: Consistently showed higher blood pH values and high Base-excess.

Balance group: Buffered the blood resulting in a more normal pH and base-excess as compared to the control group.

Rectal Temperature by Treatment and Day



Control group: The rectal temperatures were elevated as the environmental temperature increased.

Balance group: The rectal temperatures were consistently lower as compared to the control group.

Use Balance prior to stressful heat or handling events. The balancing and buffering effect will give your livestock:

- Increased water consumption.
- Reduction of body temperature in a high heat environment.
- Reduced panting of the heat-stressed animals, thus reducing the pH of their blood and maintaining a healthy and more responsive metabolic system. This will help meat quality in slaughter animals.
- A quicker rebound after any stress in production animals, either from excessive heat or handling.
- Less shrinkage in processed animals and a better cut out.
- Greater meat and milk production when environmental conditions are less that optimal.

* Balance (Aurora Pharmaceutical, Inc.)
For the complete study, log onto www.aurorapharmaceutical.com