Use of highly palatable feed reward to enhance gilt training to electronic sow feeders

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Introduction

The use of electronic sow feeders (ESF) to house groups of gestating gilts and sows is becoming increasingly popular. A crucial part of effectively implementing electronic sow feeding stations is the training of gilts to properly utilize the ESF. The purpose of this study was to determine whether the addition of Tonisity Px™, a highly palatable isotonic electrolyte and protein solution often used to increase piglet weaning weights, to the training paradigm would improve the learning outcomes in gilts being trained to use ESF stations.

Materials and methods

The study took place on 2 farms. Farm 1 was a 230 sow herd where three groups of 6 month old gilts (n = 36) were randomized into Tonicity (TON, n = 18) and control (CON, n = 18) groups. On farm 2, a 750 sow herd, 6 month old gilts (n = 36) were randomized to TON (n = 18) or CON (n = 18). On both farms 500 mL of Tonicity Px™, was added to the feed of TON gilts and 500 mL of water to the feed of CON gilts. Training consisted of 3 days where TON gilts were introduced to the tonicity solution in a feed pan, not in the ESF station. The gilts were then introduced to the ESF system for 7 days of training. Tonisity was substituted for water in the ESF station for the TON gilts. For each day, time eating, amount eaten, lesion score, and lameness score were observed. Gilts were introduced to the larger gilt gestation pen on day 7 of training and monitored to determine feeding behavior, feed intake, number of visits to feeder, lameness score, lesion score, and weight change for two additional weeks. Feed rank was calculated for gilts as the order in which they entered the ESF station and ate the largest portion of their feed allotment for the day. Statistics were done using Stata V 15.0. a Mann Whitney u-test was used to compare medians between the TON and CON gilts for each outcome. The results are reported as median and interquartile range.

Results

During training, TON gilts ate faster (41.1 ± 9.0 sec) than CON gilts (45.9 ± 9.5 sec) ($P < 0.05$). On farm 1, once gilts were transferred to the large group gestation pen, there was a trend for TON gilts to eat earlier in the day and have a higher feed rank (54.4 ± 13.7) than CON gilts (61.7 ± 4.6) ($P = 0.05$). There was also a trend for TON gilts to lose less weight (2.5 ± 17.0 lbs) than CON gilts (4.0 ± 16.0 lbs) ($P = 0.08$). There was no difference in lameness score, lesion score or human approach test for TON compared to CON gilts.

Discussion

In sow farms implementing ESF systems, positive reinforcement added to the training paradigm has the potential to improve training outcomes. In this study gilts ate faster during training, tended to lose less weight and tended to eat earlier than those that did not receive the positive reinforcement. In this paradigm, a single well-trained person administered the training program to all gilts, which could account for the small differences between the groups. Having such a person dedicated to gilt training would be recommended and the addition of the Tonisity Px™ may be helpful for pig farms struggling with gilt training. Regarding Tonicity Px™, further research is recommended with a larger sample size with varying gilt training methods utilized.