

## Phytogenic feed additive increased sow lactation average daily feed intake, pig weaning weight, and subsequent conception rate when fed in summer environmental conditions.

### OVERVIEW

#### Experimental Design

- Conducted at a commercial sow farm in the United States (experimental unit = sow).
- 185 DNA 241 (Landrace x York) sows were split into two treatment groups.
- Offspring genetics were DNA 241 x DNA 600 (Duroc).

#### Treatments

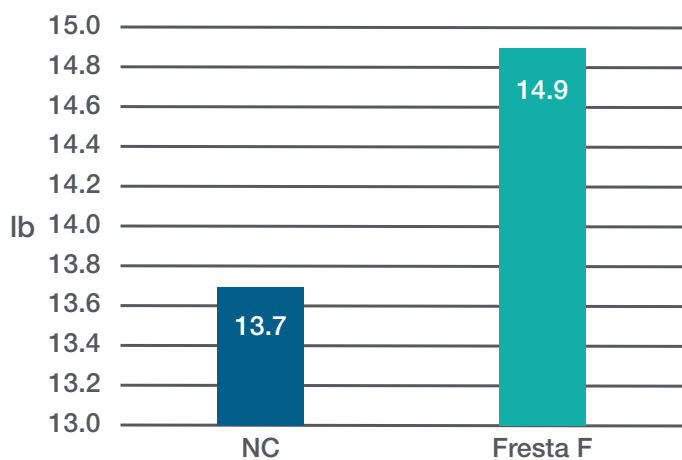
- No phytogenic additive included (NC) (n = 93 sows, average parity = 2.6).
- Phytogenic additive included (0.04% Fresta® F) (n = 92 sows, average parity = 2.7).

### RESULTS

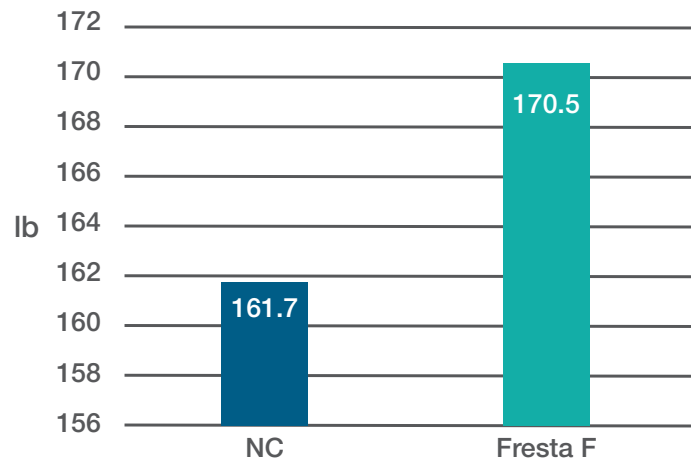
#### Sows fed the phytogenic additive (0.04% Fresta® F) showed the following benefits:

- 8.5% greater lactation ADFI ( $P < 0.01$ )
- Numerically greater backfat at weaning
- Greater subsequent conception rate ( $P = 0.03$ )
- Weaned +0.26 more pigs ( $P = 0.13$ )
- Weaned +4.0 kg heavier litters ( $P = 0.06$ )

Lactation ADFI



Litter Weight at Weaning



# Phytogenic feed additive increased sow lactation average daily feed intake, pig weaning weight, and subsequent conception rate when fed in summer environmental conditions.



Molly McGhee<sup>1</sup>, Chad M. Pilcher<sup>1</sup>, Brent Frederick<sup>1</sup>, Kory Moran<sup>1</sup> | Cargill, Minneapolis, MN 55440<sup>1</sup>

An experiment was conducted to test the hypothesis that feeding a phytogenic feed additive (Fresta<sup>®</sup> F, Delacon, Austria) to sows during lactation would increase lactation average daily feed intake (ADFI) during natural heat stress from summer environmental conditions. At time of entry to lactation facilities, 192 sows were randomly allotted by parity and within farrowing batch to one of two treatments. A basal lactation diet based primarily on corn, soybean meal, and DDGS served as the control treatment, whereas the test treatment contained 0.04% phytogenic feed additive at the expense of corn. Prior to farrowing, sows were limit fed, but once farrowing occurred, sows were provided with ad libitum access to feed. Individual feed disappearance was recorded daily, and sow was considered the experimental unit. Sow body weights and ultrasound backfat thickness were recorded at time of entry to and exit from the lactation facilities. Litter weights were recorded at birth and weaning. Litter inventories were recorded at birth, upon completion of cross-fostering within treatment, on day 5 of lactation, and at weaning. Ultimately, 185 sows completed the study and were included in statistical analyses. Data were analyzed using the lme4 package of R 4.1.2, and the statistical models included the fixed effect of treatment and the random effects of parity and farrowing batch. Data were assumed to be normally distributed, except for pig survival and conception rate, which were analyzed using generalized linear mixed models specifying a binomial distribution.

Total and live litter size did not differ at birth, nor did litter birth weight (Table 1). Inclusion of the phytogenic feed additive increased ( $P < 0.05$ ) ADFI in lactation from 6.21 to 6.74 kg per day. In turn, the phytogenic feed additive tended ( $P < 0.10$ ) to increase litter wean weight, which was driven by numerically increased piglet survival (87.47% for control and 89.37% for phytogenic,  $P = 0.126$ ) and a tendency ( $P < 0.10$ ) for increased average pig wean weight. Sow weight did not differ at entry to lactation, though sow weight at weaning tended to be greater ( $P < 0.10$ ) when the phytogenic feed additive was fed. The phytogenic feed additive also increased ( $P < 0.05$ ) subsequent conception rate from 88.7 to 97.8%.

In conclusion, feeding a phytogenic feed additive during summer conditions increased lactation feed intake, which resulted in increased weaning weight and improved subsequent conception rate.

**Table 1.** Effects of feeding a phytogenic feed additive (Fresta<sup>®</sup> F, Delacon, Austria) to sows during lactation on sow and litter performance.

| Item  | Control (n = 93) | Phytogenic (n = 92) | SE    | P-Values |
|---|------------------|---------------------|-------|----------|
| Parity <sup>1</sup>                         | 2.63             | 2.74                | 0.210 | 0.565    |
| Lactation ADFI, kg                          | 6.21             | 6.74                | 0.635 | <0.001   |
| <b>Litter size, n</b>                       |                  |                     |       |          |
| Total born                                  | 17.17            | 16.73               | 0.623 | 0.278    |
| Born alive                                  | 15.69            | 15.24               | 0.560 | 0.261    |
| After cross-foster                          | 14.07            | 14.05               | 0.611 | 0.963    |
| Weaned                                      | 12.26            | 12.52               | 0.707 | 0.464    |
| <b>Litter weight, kg</b>                    |                  |                     |       |          |
| At birth                                    | 19.39            | 19.50               | 0.884 | 0.808    |
| At weaning                                  | 73.33            | 77.34               | 6.030 | 0.058    |
| Pig survival to weaning <sup>2</sup> , %    | 87.47            | 89.37               | 1.741 | 0.126    |
| <b>Sow weight, kg</b>                       |                  |                     |       |          |
| Entry to lactation                          | 219.4            | 222.1               | 8.96  | 0.269    |
| Exit from lactation                         | 200.7            | 205.2               | 11.28 | 0.060    |
| <b>Sow backfat, mm</b>                      |                  |                     |       |          |
| Entry to lactation                          | 14.1             | 14.1                | 0.47  | 0.893    |
| Exit from lactation                         | 12.1             | 12.4                | 0.98  | 0.345    |
| Subsequent conception rate <sup>3</sup> , % | 88.7             | 97.8                | 4.03  | 0.027    |

<sup>1</sup>LSMeans presented for average parity by treatment. Parity was included in the statistical model as a random effect for all other output variables.

<sup>2</sup>Probability of survival to weaning out of pigs started per litter. <sup>3</sup>Probability of positive pregnancy out of sows bred.