



Effect of Increasing GleptoForte Dosage in Newborn Pigs on Sow and Litter Performance

S. Ney; H. Williams, MS; J. DeRouchey, MS, PhD.; J Woodworth, MS, PhD.; M. Tokach, MS, PhD.; S.S. Dritz, MS, PhD., DVM; R. Goodband, MS, PhD.; A. Holtcamp, DVM.



Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS; Department of Diagnostic Medicine/Pathobiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS; Ceva Animal Health, LLC., Lenexa, KS

Introduction

- Newborn piglets are more susceptible to iron deficiency due to inadequate iron stores at birth and rapid growth rate before weaning which can cause decreased number of circulating red blood cells, lethargy, and mortality.
- The injection of 200 mg of iron is commonplace in the swine industry at time of piglet processing. This iron injection results in improved growth rate and iron status of piglets, but there is some concern over the level provided with one injection as opposed to giving a booster before weaning.
- Gleptoforte is an injectable iron that contains gleptoferron and is utilized to prevent anemia in newborn piglets.
- Little data is available that confirms the appropriate level of iron injection needed with modern genotypes.

Objective

To evaluate the effects of increasing dosage of Gleptoforte in newborn pigs on sow and litter performance.

Experimental Procedures

- A total of 336 newborn pigs were used in a 21-d farrowing study evaluating the effects of increasing Gleptoforte (Ceva Animal Health, LLC., Lenexa, KS) dosage on suckling pig performance and blood parameters.
- A total of 28 litters were utilized with number of pigs per sow equalized one each day of farrowing.
- On the day of processing (approximately d 3 after birth), all piglets were weighed and six barrows and six gilts per litter were allotted to treatment in a completely randomized design for a total of 56 piglets per treatment.
- Treatments consisted of a negative control receiving no iron injection and increasing levels of iron from Gleptoforte to achieve either 50, 100, 150, 200, or 200 mg plus a 100 mg booster at d 11 of farrowing.
- Each 1 ml of Gleptoforte contained 200 mg of iron, thus injection dosage was 0, 0.25, 0.50, 0.75, 1.0, or 1.0 plus the 0.50 ml booster for each treatment, respectively.
- Piglets were weighed at processing, d 11, and weaning to calculate ADG during farrowing. One barrow per treatment per litter was utilized for blood collection via jugular venipuncture on d 3 (day of processing), d 11, and weaning (d 21).
- Blood criteria measured included: Hemoglobin (Hgb), Hematocrit (Hct), Serum Fe, and Total Iron Binding Capacity (TIBC).
- The lactation feed contained 110 mg/kg added iron from ferrous sulfate.

Experimental Results

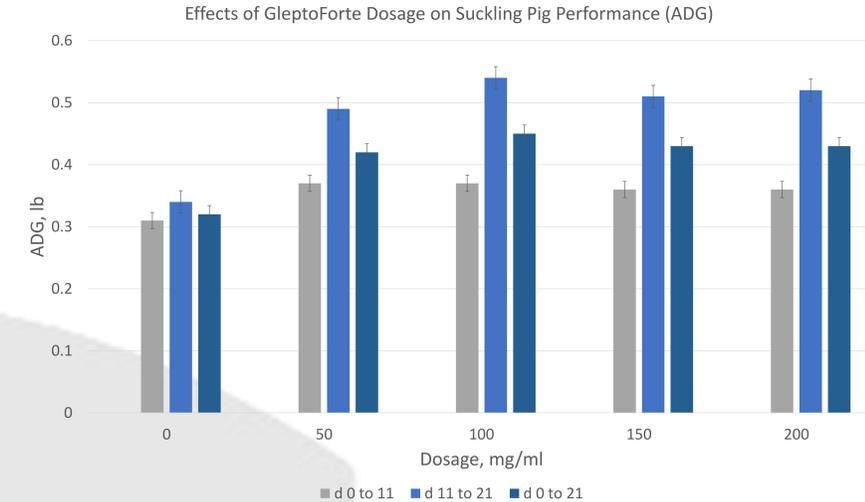
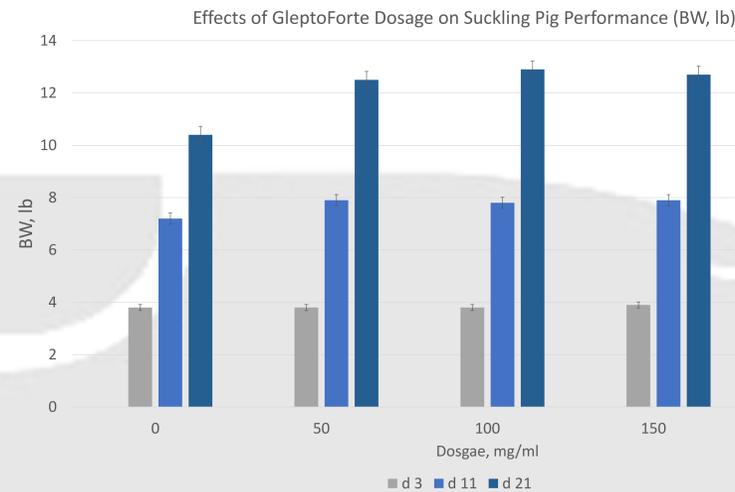


Table 2. Effects of Gleptoforte dosage on suckling pig hematological criteria¹

	Dosage, mg/ml ²						SEM	Probability, <i>P</i> <		
	0	50	100	150	200	200 + 100 ³		Linear ⁴	Quadratic ⁵	200 vs. 200 + 100 ⁶
Hgb (g/dl) ⁷										
d 3 ⁸	8.4	8.3	8.3	8.3	8.2	8.4	0.250	0.719	0.850	0.613
d 11 ⁹	5.7	8.3	9.9	10.1	10.7	10.5	0.235	0.001	0.001	0.703
d 21	4.6	6.8	9.3	11.3	12.0	12.8	0.217	0.001	0.001	0.011
Hct (%) ⁷										
d 3	28.0	27.1	27.6	27.4	27.4	28.0	0.806	0.809	0.749	0.699
d 11	20.0	29.2	34.3	35.8	36.5	36.2	0.660	0.001	0.001	0.722
d 21	16.0	23.4	30.9	37.3	38.8	40.9	0.715	0.001	0.001	0.046
Serum Fe (µg/dl) ⁷										
d 3	26	24	30	29	25	24	3.82	0.816	0.463	0.838
d 11	19	29	101	149	162	157	8.73	0.001	0.558	0.675
d 21	22	15	25	53	86	113	7.85	0.001	0.001	0.019
TIBC (µg/dl) ⁷										
d 3	252	248	216	236	242	223	13.78	0.454	0.166	0.351
d 11	698	536	442	417	406	421	22.77	0.001	0.001	0.669
d 21	726	667	519	479	415	398	27.43	0.001	0.3446	0.670

¹A total of 336 suckling pigs (DNA 241 × 600) were used in a 21 d suckling experiment with 12 pigs per sow and 2 pigs within each sow individually treated for a total of 56 pigs per treatment. All barrows were bled at each of the timepoints to measure hematological criteria.

²Gleptoforte (Ceva Animal Health, LLC., Lenexa, KS) dosage administered 3 d after farrowing.

³Pigs were administered 200 mg at beginning of trial and 100 mg 11 d after farrowing.

⁴Linear comparison of 0 mg to 200 mg dosage.

⁵Quadratic comparison of 0 mg to 200 mg dosage.

⁶Pairwise comparison between mean of 200 mg and 200 + 100 mg treatments.

⁷Trt × day interaction (*P* < 0.001).

⁸Represents 3 d after farrowing.

⁹Represents 11 d after farrowing.

Conclusions

- A lack of iron injection resulted in the poorest growth and blood parameters of iron status of suckling piglets as expected.
- The administration of 100 mg of Gleptoforte resulted in the greatest growth performance.
- The administration of 200 mg + 100 mg of Gleptoforte resulted in improved hematological criteria but did not influence suckling piglet growth performance compared to 200 mg alone.