Effect of increasing GleptoForte dosage in newborn pigs on sow and litter performance

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Introduction

- Newborn piglets are more susceptible to iron deficiency due to inadequate iron stores at birth and rapid growth rate before weaning.
- An injection of 200 mg of iron, within 3 days of birth, is common practice in the swine industry to prevent anemia in piglets.
- Gelptoforte (Ceva Animal Health, LLC., Lenexa, KS) is an injectable iron that contains gleptoferron and is utilized to prevent anemia in newborn piglets.
- Little date is available that confirms the appropriate level of iron injectable needed with modern genotypes.

Objective

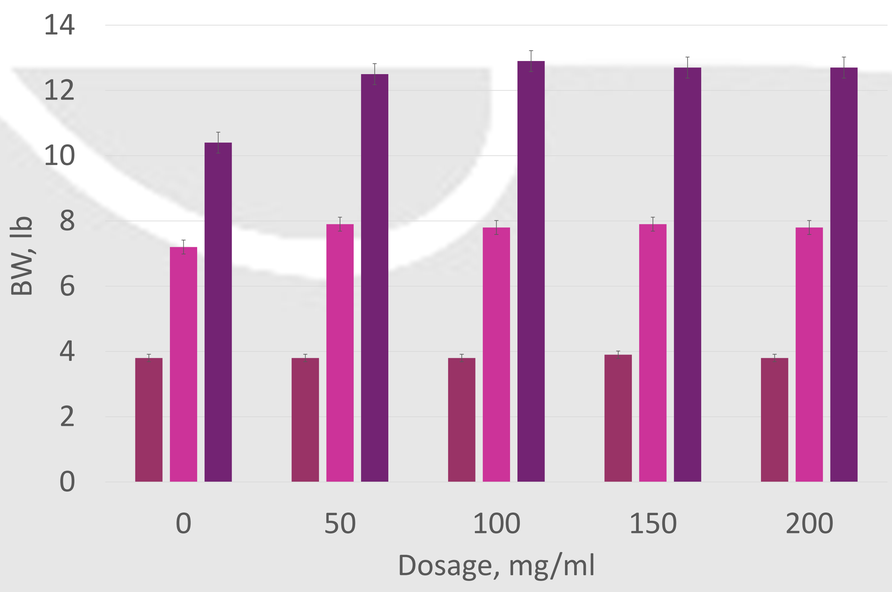
To evaluate the effects of increasing dosage of Gleptoforte in newborn pigs on sow and litter performance.

Experimental Design

- A total of 336 newborn pigs from 28 litters (DNA 241 × 600, initially 3.83 ± 0.114 lb BW) were allotted to six treatments in a completely randomized design.
- At processing (d 3 after birth), six barrows and six gilts per litter were allotted to treatments for a total of 56 piglets per treatment.
- Treatments consisted of 1) a negative control receiving no iron injection and increasing levels of iron from Gleptoforte to achieve either 2) 50mg, 3) 100mg, 4) 150mg, 5) 200mg, or 6) 200 mg plus a 100mg booster a d 11 of farrowing.
- Piglets were weighed at processing, d 11, and at weaning to calculate ADG
- One barrow per treatment per litter was utilized for blood collection via jugular venipuncture on d 3, d 11, and weaning (d 21).
- Blood criteria measured included: Hemoglobin (Hgb), Hematocrit (Hct), Serum Fe, and Total Iron Binding Capacity (TIBC).

Results

Graph 1: Effects of Gleptoforte Dosage on Suckling Pig Performance



Graph 2: Effects of Gleptoforte Dosage on Suckling Pig Performance

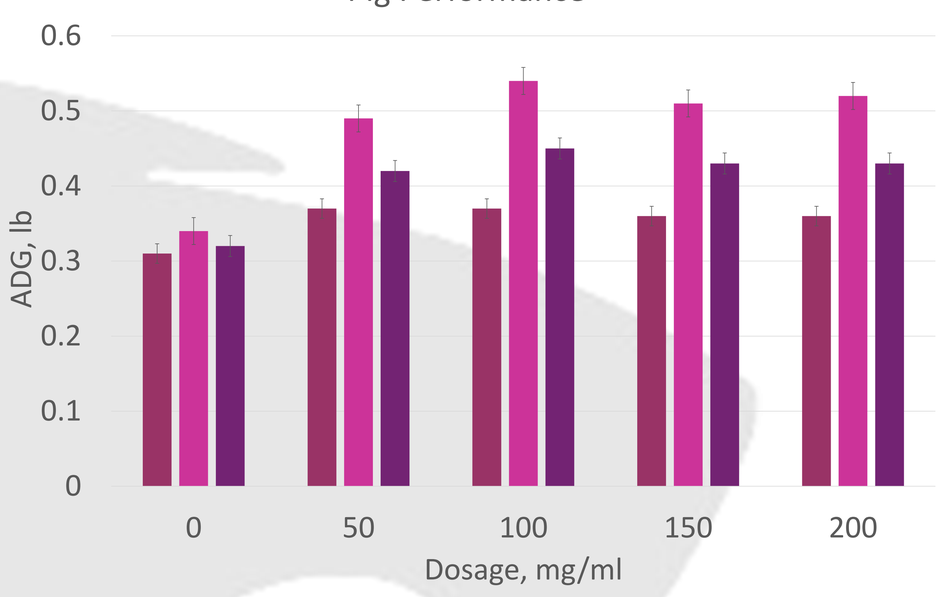


Table 1. Effects of Gleptoforte dosage on suckling pig hematological criteria

	Dosage, mg/ml							Probability, P <		
	0	50	100	150	200	200 + 100	SEM	Linear[1]	Quadratic[2]	200 vs. 200 + 100[3]
Hgb (g/dl)[4]										
d 3[5]	8.4	8.3	8.3	8.3	8.2	8.4	0.250	0.719	0.850	0.613
d 11[6]	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 (%)[4]										
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)[4]										
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)[4]										
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

[1]Linear comparison of 0 mg to 200 mg dosage; [2]Quadratic comparison of 0 mg to 200 mg dosage; [3]Pairwise comparison between mean of 200 mg and 200 + 100 mg treatments; [4]Trt × day interaction (P < 0.001); [5]Represents 3 d after farrowing;[6]Represents 11 d after farrowing.

Summary and Conclusions

- In summary, a lack of iron injection resulted in the poorest growth and blood parameters of iron status of suckling pigs as expected.
- Administration of 100 mg of Gleptoforte resulted in the greatest growth performance.
- 200 mg + 100 mg booster improved hematological criteria, but did not impact growth performance compared to 200mg.

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