



The Effects of Iron/Gelptofopte in Anemia Susceptible Piglets



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Background

New born piglets are highly susceptible to anemia due to multiple reasons. Due to low iron levels this can cause the piglets not to reach full potential and possibly death. To lower these rates, iron injections have been used to improve growth rates as well as blood iron levels. Iron dextran has been used as an iron injectable to improve this in piglets, but concern comes with the dosage. Gelptofopte is an injectable iron that contains gleptoferron and is utilized to prevent anemia in newborn piglets. There is very little data available that conforms the appropriate level of iron injects needed for modern genotypes. This reason for this research is to understand the different levels of iron injects and the best to improve growth rates and blood iron levels.

Procedure

- 1) Negative Control: No iron injections
- 2) 50 mg (1ml of Gelptofopte contained 200mg of iron)
- 3) 100 mg
- 4) 150 mg
- 5) 200 mg
- 6) 200 mg with 100 mg booster at d 11

Results

- With increasing Gelptofopte ADG and BW of the piglets increased (quadratic; P=0.018).
- There was no evidence of difference in the three periods between the 200 mg and 200 mg + 100 mg injection of Gelptofopte.
- There was no difference in observed hematological criteria measured on d 3 prior to iron injection.
- For Hgb, (P = 0.001) observed with Hgb increasing (quadratic; P= 0.001) on d 11 and 21 with the 0 mg treatment having the lowest and the 200 mg treatment having the highest Hgb values. On d 21, a difference (P= 0.046) was observed between 200 mg and 200 mg + 100 mg.
- For Serum Fe (P=0.001) was observed which serum Fe increased (P=0.001) on d 11 and increased (quadratic; P= 0.001) on d 21 with 0 mg treatment with lowest value and 200 mg having highest value. Also, d 21 showed a significant increase for 200 mg with booster of 100mg..

In summary, a negative control of iron injection resulted in the poorest growth and blood parameters of iron status.. Injection of 100 mg of Gleptoforte had the greatest growth rate, and the injection 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.

Table 1. Effects of Gleptoforte dosage on suckling pig performance¹

	Dosage, mg/ml ²						Probability, P <			
	0	50	100	150	200	200 + 100 ³	SEM	Linear ⁴	Quadratic ⁵	200 vs. 200 + 100 ⁶
BW, lb										
d 3 ⁷	3.8	3.8	3.8	3.9	3.8	3.9	0.114	0.793	0.943	0.556
d 11 ⁸	7.2	7.9	7.8	7.9	7.8	7.7	0.214	0.012	0.018	0.702
d 21	10.4	12.5	12.9	12.7	12.7	12.6	0.322	0.001	0.001	0.800
ADG, lb										
d 0 to 11	0.31	0.37	0.37	0.36	0.36	0.35	0.013	0.002	0.002	0.409
d 11 to 21	0.34	0.49	0.54	0.51	0.52	0.52	0.018	0.001	0.001	0.881
d 0 to 21	0.32	0.42	0.45	0.43	0.43	0.43	0.014	0.001	0.001	0.611

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.

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

³Pigs were administered 200 mg at 3 d after farrowing 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.

⁷Represents 3 d after farrowing.

⁸Represents 11 d after farrowing.

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

	Dosage, mg/ml ²						Probability, P <			
	0	50	100	150	200	200 + 100 ³	SEM	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.