Optaflexx® Research Brief 5

Effects of Optaflexx® on Performance and Carcass Characteristics in Finishing Steers: 32-trial Summary

Elanco Study No. T4VUS120012

Study overview

A meta-analysis of 32 trials was conducted to quantify the effects of Optaflexx dose level on performance and carcass characteristics in finishing steers.

Key study results

- Compared to the control, Optaflexx fed at 200 mg/hd/d:
  - Improved feed efficiency by 14.5%
  - Increased live weight gain by 15.0 lbs
  - Increased hot carcass weight (HCW) by 13.5 lbs
  - Increased dressing percent by 0.5 units
- Compared to the control, Optaflexx fed at 300 mg/hd/d:
  - Improved feed efficiency by 16.4%
  - Increased live weight gain by 22.5 lbs
  - Increased HCW by 20.3 lbs
  - Increased dressing percent by 0.7 units

Background information

TRIAL DESIGN

- Trial selection criteria
  - Experimental unit was pen or lot
  - Negative control and at least one Optaflexx treatment
  - On-label use for dose and duration
  - Period performance data (last 28 to 42 days on feed)
- A total of 32 studies met selection criteria

STATISTICS

- Data were analyzed in SAS using mixed effects regression models with Optaflexx intake (mg/hd/d) as the primary predictor
- The meta-analysis used a regression model that inversely weighted each study to its variation — the more variation there was in a study, the less weight the study was given in the analysis
- Differences were deemed statistically significant if $P < 0.05$

MATERIALS AND METHODS

- Total head — 26,483
  - Control: 10,401 head
  - 100 mg/hd/d Optaflexx: 5,160 head
  - 200 mg/hd/d Optaflexx: 9,278 head
  - 300 mg/hd/d Optaflexx: 1,644 head
- Research conducted in 12 states and three countries
- Initial weight ranged from 1,055 to 1,323 lbs
- Final weight ranged from 1,147 to 1,423 lbs
- HCW ranged from 670 to 904 lbs

Study results

Table 1. Live performance of steers comparing multiple Optaflexx doses

	Optaflexx treatment, mg/hd/d				SEM	*P*-Value	
	0	100	200	300		Linear	Quadratic
Live weight gain, lbs[a]	81.0	88.5	96.0	103.5	4.14	< 0.01	0.14
Response over control, lbs	—	7.5	15.0	22.5	—	—	—
Average daily gain, lbs[b]	2.97	3.28	3.48	3.58	0.06	< 0.01	0.01
Response over control, %	—	10.4	17.2	20.5	—	—	—
DM intake, lbs/d	21.45	21.34	21.36	21.16	0.42	0.29	—
Feed conversion[b]	7.48	6.81	6.40	6.26	0.21	< 0.01	0.01
Response over control, % Improvement	—	9.0	14.5	16.4	—	—	—

[a] Model includes adjustment to account for differences in trial duration.
[b] Model includes adjustments for linear and quadratic Optaflexx intake (mg/hd/d).

Study results

Table 2. Carcass characteristics of steers comparing multiple Optaflexx doses

	Optaflexx treatment, mg/hd/d				SEM	*P*-Value	
	0	100	200	300		Linear	Quadratic
Dressing percent	63.00	63.24	63.47	63.71	0.26	< 0.01	—
Response over control, %	—	0.24	0.47	0.71	—	—	—
Hot carcass weight, lbs	804.9	811.7	818.4	825.2	6.76	< 0.01	0.31
Response over control, lbs	—	6.8	13.5	20.3	—	—	—
12th Rib fat thickness, in	0.52	0.51	0.51	0.51	0.013	0.60	0.70
Ribeye area, in²	13.26	13.42	13.57	13.73	0.132	< 0.01	0.96
Response over controls, in²	—	0.16	0.31	0.47	—	—	—
Kidney, pelvic & heart fat, %	2.00	1.99	1.98	1.97	0.036	0.01	0.41
Calculated yield grade	3.02	2.98	2.94	2.90	0.045	< 0.01	0.26
Marbling score[a]	519	516	513	510	5.8	< 0.01	0.41

[a]Marbling score — 500=Small[00], 600=Modest[00].

Table 3. USDA quality-grade distribution of steers comparing multiple Optaflexx doses

	Optaflexx treatment, mg/hd/d				SEM	*P*-Value
	0	100	200	300		Linear
Prime, %	0.42	0.39	0.37	0.34	0.22	< 0.01
Choice, %	58.38	56.84	55.26	53.69	0.19	< 0.01
Select, %	38.61	40.01	41.43	42.84	0.19	< 0.01
Standard/No roll, %	2.59	2.76	2.94	3.13	0.20	< 0.01

Table 4. USDA yield-grade distribution of steers comparing multiple Optaflexx doses

	Optaflexx treatment, mg/hd/d				SEM	*P*-Value
	0	100	200	300		Linear
Yield grade 1, %	8.43	8.95	9.50	10.07	0.14	< 0.01
Yield grade 2, %	37.23	38.34	39.42	39.98	0.14	< 0.01
Yield grade 3, %	44.96	43.88	42.76	41.61	0.15	< 0.01
Yield grade 4, %	8.56	8.06	7.60	7.16	0.17	< 0.01
Yield grade 5, %	0.82	0.77	0.72	0.68	0.17	< 0.01

Key findings

- Live and carcass weight gain increased as the dose of Optaflexx increased
- Effects on carcass characteristics and USDA quality and yield grades changed with increasing doses of Optaflexx, resulting in slight shifts in yield- and quality-grade distributions
- In a highly dynamic marketplace, Optaflexx is the only beta-agonist that gives cattle feeders more management options,* allowing them to respond to changes in the market while optimizing both live and carcass performance

*Based on zero-day withdrawal and dose range.

The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.

Product labels vary by country.

Optaflexx: Complete feed
For increased rate of weight gain and improved feed efficiency: Feed 8.2 to 24.6 g/ton of ractopamine hydrochloride (90% DM basis) continuously in a complete feed to provide 70 to 430 mg/hd/d for the last 28 to 42 days on feed.
For increased rate of weight gain, improved feed efficiency and increased carcass leanness: Feed 9.8 to 24.6 g/ton of ractopamine hydrochloride (90% DM basis) continuously in a complete feed to provide 90 to 430 mg/hd/d for the last 28 to 42 days on feed.

Optaflexx: Top dress
For increased rate of weight gain and improved feed efficiency: Feed 70 to 400 mg/hd/d of ractopamine hydrochloride (90% DM basis) continuously in a minimum of 1.0 lb/hd/d top dress Type C medicated feed (maximum 800 g/ton ractopamine hydrochloride) during the last 28 to 42 days on feed.