



The Effect of Lactipro Advance® (*Megasphaera elsdenii* NCIMB 41125) in a Conventional Versus Accelerated Step-Up Program

Introduction

Lactipro Advance® contains a patented microorganism from MS Biotec®, LLC. It is based on a naturally occurring, lactate utilizing, non-GMO rumen isolate, *Megasphaera elsdenii* NCIMB 41125, selected for its fast growth rate and ability to withstand relatively low pH. The product contains 2×10^8 cfu per mL of *Megasphaera elsdenii* and the media on which it was grown. It is used to help cattle transition to high energy rations. Cattle entering the feedlot receive a single 50 mL drench using a completely anaerobic delivery system developed by MS Biotec.

Objective

To compare the effect of Lactipro Advance when used in a conventional versus accelerated step-up program in a well managed commercial feedlot

Materials and Methods

This trial was conducted at Brookover Cattle Company, Scott City, KS during the latter part of 2015. There were four treatments consisting of a conventional, 24-day, four ration step-up program with and without Lactipro Advance compared to an accelerated, 13-day, three ration step-up program with and without Lactipro Advance, Table 1. The ration was based on steam-flaked corn, distillers grain, alfalfa hay, and corn silage, Table 2. The experimental design was a randomized complete block with eight replications for a total of 32 pens and 4164 head of crossbred, Angus-type steers with an initial weight of 914 lbs. All diets included Rumensin at 40 grams per ton and the finisher ration contained Tylan at 90 milligrams per head per day. Cattle were implanted initially with Synovex Choice and received Revalor-200 as a terminal implant approximately 70 days prior to harvest. All cattle received Optaflexx at 300 milligrams per head per day for the final 30 days with no withdrawal. Animals within a replication were fed until the conventional step-up cattle without Lactipro Advance reached the desired endpoint based on the evaluation of the feedlot manager.

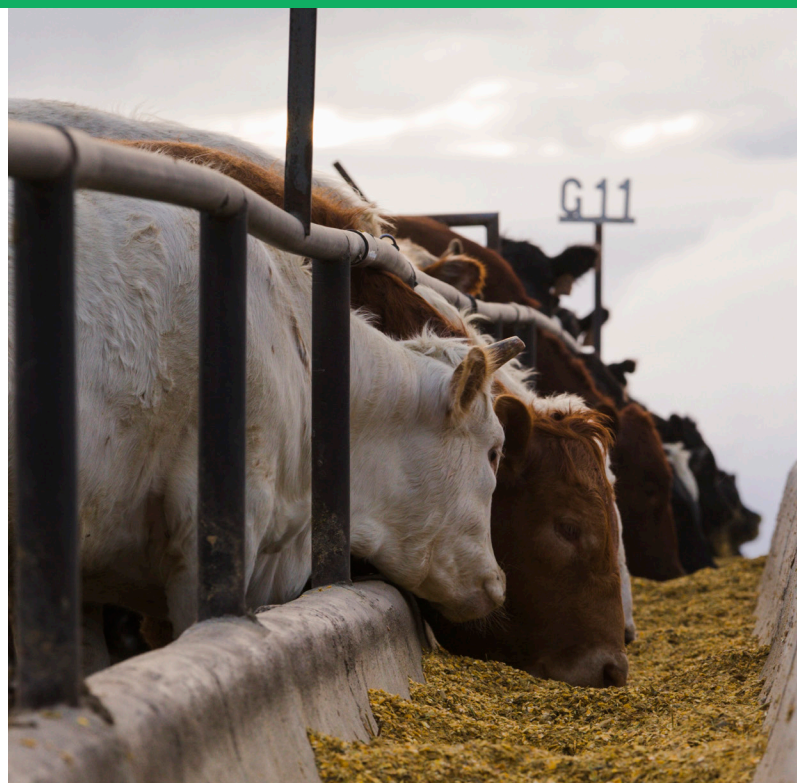
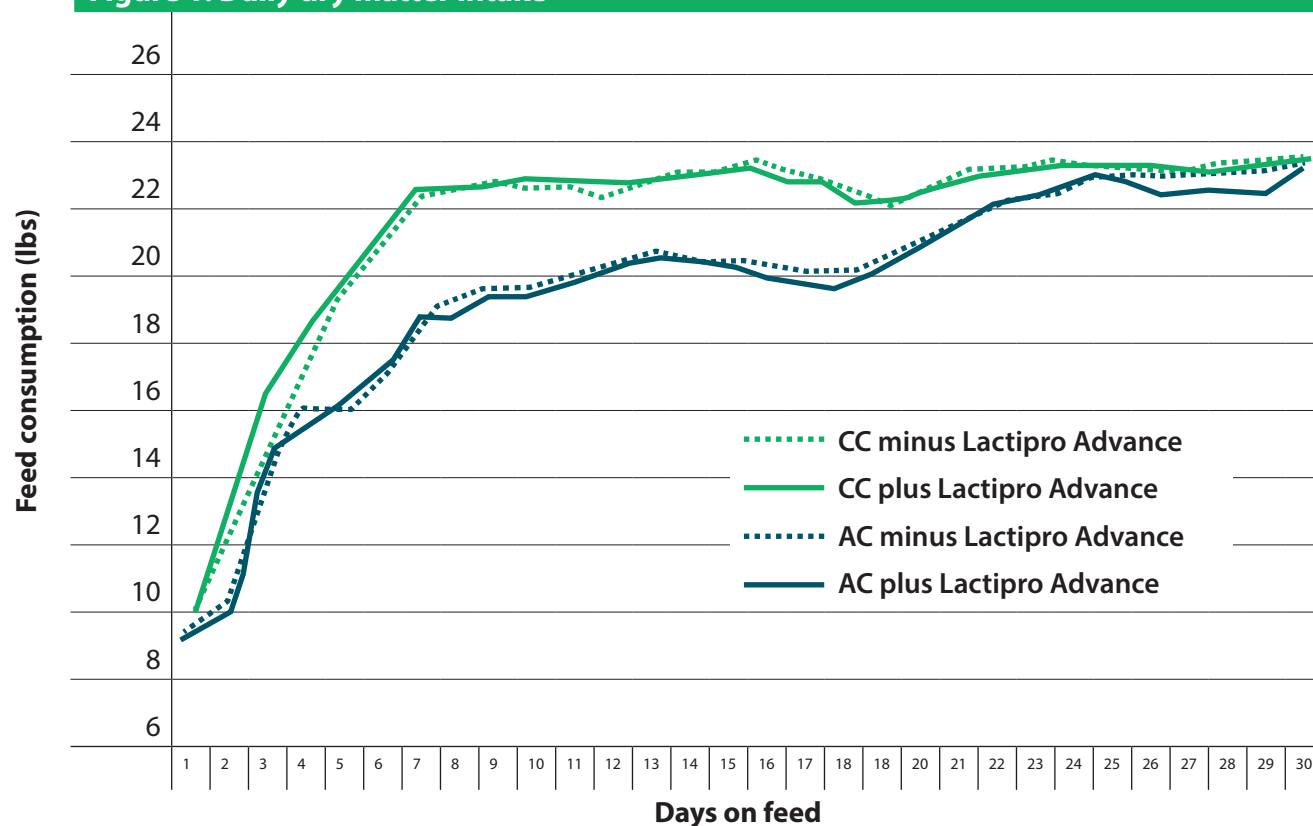


Table 1. Step-up regimen for conventional and accelerated cattle

Conventional		Accelerated	
Day 0	Hay	Day 0	Hay
Day 1-8	Ration 1	Day 1	Ration 1
Day 9-15	Ration 2	Day 2-6	Ration 2
Day 16-23	Ration 3	Day 7-12	Ration 3
Day 24-end	Ration 4	Day 13-end	Ration 4



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Figure 1. Daily dry matter intake**Table 2: Ration composition and nutrient analysis**

	Ration 1	Ration 2	Ration 3	Ration 4
Ingredient	(% as fed)			
Alfalfa hay	29.8	19.6	10.3	2.1
Wet distillers grain	28.0	27.0	26.0	25.0
Steam-flaked corn	26.3	35.9	46.2	54.1
Corn silage	11.9	12.0	11.5	11.8
Finisher supplement	3.0	3.5	4.0	4.4
Microingredient carrier	1.0	1.0	1.0	1.0
Tallow	0.0	1.0	1.0	1.6
Nutrient (DM Basis)				
Dry matter, %	62.00	61.91	61.94	61.82
Crude protein, %	17.15	16.01	15.09	14.17
NPN, %	1.31	1.53	1.74	1.92
Total fat, %	4.02	5.75	5.93	7.01
Added fat, %	0.00	1.58	1.58	2.54
NEm, Mcal/cwt	79.63	89.75	96.25	103.75
Neg, Mcal/cwt	51.27	59.56	65.23	71.43
ADF, %	18.10	14.33	10.86	7.84
Calcium, %	1.01	0.93	0.86	0.80
Phosphorous, %	0.36	0.37	0.38	0.38

Results and Discussion

Overall performance was excellent. Average final weight was 1528 lbs with average daily gain of 4.46 lbs. Feed conversion was 5.56 with 81% of cattle grading choice or prime. For the entire feeding period, daily dry matter intake (DMI) for accelerated cattle plus Lactipro Advance (AC plus Lactipro) was 0.59 lbs less ($p<0.05$) than conventional cattle minus Lactipro Advance (CC minus Lactipro), Table 3. For the first 30 days, daily DMI for AC plus Lactipro Advance was 2.15 lbs less ($p<0.05$) than CC minus Lactipro Advance, Figure 1. Average daily gain did not differ among groups; therefore, averaged over the entire feeding period, feed conversion was improved 2.7% ($p<0.05$) for AC plus Lactipro Advance compared to CC minus Lactipro Advance. Cost of gain followed the same pattern as feed conversion. Cost of gain was reduced \$1.94 per cwt for AC plus Lactipro Advance compared to CC minus Lactipro Advance. This reduction in cost does not include the cost of Lactipro Advance. There was no advantage in animal performance of CC plus Lactipro Advance over CC minus Lactipro Advance; therefore, it is recommended this type of cattle be accelerated in order to maximize the benefit of Lactipro Advance. There was no difference in carcass performance or animal health among the groups. Death loss of AC minus Lactipro Advance was greater ($p<0.05$) than AC plus Lactipro Advance or CC minus Lactipro Advance.

During the first 39 days of the trial, AC plus Lactipro Advance had an 82.9 lbs reduction in hay consumption compared to CC minus Lactipro Advance. In a typical 20,000 head feedlot with 2.5 turns per year, this would result in handling approximately 2,000 tons less hay.

Conclusions

This research trial shows that Lactipro Advance is a technology that can be used by nutritionists and feedlot managers to improve feed conversion of cattle by accelerating them to a higher energy, more digestible diet early in the feeding period. The effect is most apparent during the first 30 days on feed as cattle consume less feed during this time. Afterwards, feed intake is similar to conventional cattle minus Lactipro Advance. Because the step-up program can be altered to contain a greater proportion of more digestible feed ingredients early in the feeding period, there is the potential for significant hay savings if this is desired.

Table 3. Live Cattle Performance and Carcass Characteristics, Least Squares Means

Variable	CC Minus Lactipro	CC Plus Lactipro	AC Minus Lactipro	AC Plus Lactipro
Pens	8	8	8	8
Head	1042	1040	1041	1041
Days on Feed	140	140	140	140
In Weight, lbs	897.9	895.7	900.4	897.4
Out Weight, lbs	1528.7	1522.0	1531.0	1530.4
DMI, lbs	25.01 ^a	24.84 ^{ab}	24.59 ^{bc}	24.42 ^c
ADG, lbs	4.50	4.43	4.42	4.50
F/G	5.60 ^a	5.64 ^a	5.59 ^a	5.45 ^b
Cost of Gain, \$/cwt	73.50 ^a	74.22 ^a	73.28 ^a	71.56 ^b
Dressing Percentage	63.96	63.66	63.68	63.91
Choice or higher, %	82.00	80.50	80.70	79.90
Edible liver, %	73.8	72.6	75.1	71.5
Abscessed liver, %	12.6	13.3	12.4	12.5
Death loss, %	0.37 ^a	0.74 ^{ab}	1.05 ^b	0.38 ^a


^{a,b,c} Values within a row with uncommon superscripts are different ($p<0.05$)

How do you spell efficiency?



 **Lactipro**[®]

“**Lactipro** allows us to get cattle on finish feed ten days sooner. Cattle on feed for 110 days show like 120-day cattle, that’s why we identify them with a **Lactipro** ear tag. *I always sell these cattle first.*”

A man in a dark blue polo shirt and a white baseball cap stands next to a large black cow. The cow has an orange Lactipro ear tag with the number 803. In the background, there is a large industrial structure, possibly a feed mill. In the foreground, a group of other cattle are visible.

Danny Herrmann
Owner-Manager
Ford County Feed Yard
50,000-Head Capacity
Ford, Kansas

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