



Northern NY Agricultural Development Program 2015 Project Report

Evaluation of Tools to Increase the Competitiveness and Profitability of Stocker Operations in NNY

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Background:

Northern New York has abundant land that is not currently being farmed as dairies have migrated to land more suited to row crop production. This land produces excellent quality pasture that ruminants can cheaply convert into live weight gain. Use of pasture by weaned calves known as “stocker cattle” is a viable business model, especially given that the relatively high grain prices have created a demand for heavier cattle. Historically, the stocker cattle business has been profitable, however, there are risks associated with the market, animal health and growth rate. Market risk is to some extent out of the producers’ control, however, optimizing health and growth can be managed with existing technology.

Other than the purchase and sale price, the greatest factor affecting profit is weight gain. Growth-promoting implants are widely used in the feedlot industry, but they have not been widely adopted in Northern New York (NNY), in part because stocker operators want to access the “natural” market that disallows the use of implants. However, what is

the cost of not using growth promotion technology and will natural markets pay a premium?

Research (McCullum; Kuhl 1996; Stewart 2013) has consistently shown a 30 lb–50 lb improvement in weight for implanted over non-implanted cattle during a summer grazing season. At the current price (May 2016) of \$2.00/lb this added weight is worth \$60-\$100/head for the investment of \$3 per implant.

As dietary energy intake drives the effectiveness of implants, the pasture quality in well-managed NNY pastures should produce gains similar to that reported elsewhere.

Evaluation of performance data on NNY stocker cattle treated with growth-promoting implants will provide information for producers to use in deciding which market channel, conventional or natural, to access for their cattle business.

Methods:

Crossbred yearling steers (n = 20) and heifers (n = 20) were weighed, assigned a USDA Feeder Calf grade (frame and muscle score) and randomly treated with a growth promoting implant (Revalor G™, Merck) containing 40 mg of trenbolone acetate and 8 mg estradiol. The cattle were run on a common pasture and managed the same. Following 83 days of grazing the cattle were re-weighed and assigned a USDA Feeder Calf grade.

Results:

The Agricultural Marketing Service (AMS), a branch of the USDA, has developed three general value determining characteristics: frame size, muscle thickness, and thriftiness to describe or grade feeder cattle.

Frame size refers to the animal's skeletal size: its height and body length in relation to its age. Frame size is presented as Small, Medium, or Large, and is an estimate of weight that the animal will reach at low Choice quality grade (Table 1).

Frame score	Projected weight at low Choice, lb.	
	Steers	Heifers
Small (S)	<1100	<1000
Medium (M)	1100-1250	1000-1150
Large (L)	1250+	1150+

Thickness in feeder cattle refers to the development of the muscle system in relation to skeletal size. Thicker feeder cattle will have a higher ration of muscle to bone when fed to the same degree of fatness and will have a higher yield grade. Muscle score is presented as 1, 2, 3, or 4, with #1 being moderately thick and #4 being very light muscled.

Thriftiness refers to the apparent health of an animal and its ability to grow normally. Animals considered unthrifty would be so due to such factors as disease, parasitism,

severe emaciation, or any condition that must be corrected before they are expected to perform normally. There were no unthrifty cattle in this project.

For both Frame and Muscle score, the values are divided into percentiles. For example, an animal with a Frame score of M70 is 70% into the Medium frame, being closer to a Large frame than a M30. Likewise an animal with muscle score of 290 is 90% into the number 2 Muscle score and closer to a Muscle score 1 than a 220.

There was no difference (Table 2) in the initial weight of cattle, Frame score or Muscle score in this trial.

There also was no difference in expected weight at low Choice computed using Frame score. This is important as Frame score is an indication of mature size. Had there been a difference in Frame score, these cattle would have been in a different stage of growth, which would affect nutrient requirements that ultimately could affect growth rate.

Item	Heifers		Sig	Steers		Sig
	NI ¹	I ²		NI ¹	I ²	
	-----n-----					
	9	10		10	9	
Initial wt, lb	639 ± 36.8	657 ± 41.3	ns	722 ± 24.7	648 ± 30.8	0.08
Final wt, lb	808 ± 38.6	847 ± 28.3	ns	900 ± 21.7	858 ± 29.8	ns
ADG, lb	1.9 ± .08	2.3 ± .11	**	2.1 ± .20	2.5 ± .17	0.17
Frame score	M60 ± 24.3	M40 ± 28.3	ns	M30 ± 20.4	M50 ± 21.9	ns
Muscle score	240 ± 17.6	260 ± 21.1	ns	250 ± 6.5	240 ± 8.9	ns
Expected Fin. wt, lb	1060 ± 29.0	1040 ± 29.0	ns	1200 ± 14.2	1170 ± 18.2	ns

^{1,2}NI=non-implanted, I=implanted using Revalor-G™

After 83 days of grazing, average daily gain (ADG) was higher in heifers (P < 0.01), treated with growth-promoting implants.

There was no statistical difference in ADG in steers, but numerically the treated steers gained more than the non-treated steers (0.4 lb).

Conclusions/Outcomes/Impacts:

With cattle trading for approximately \$1.30/lb (May 2016), the extra weight gain obtained from using growth-promoting implants equates to about \$50/head increased income, which equates to a premium of \$5-6/cwt. Therefore if the natural buyer is not paying at least this much over the market, the stocker operator is leaving money on the

table. Astute farmers will evaluate specialty markets, not just for the premium, but also for what is given up to achieve this premium.

Outreach:

- Cornell Beef Management Website <http://blogs.cornell.edu/beefcattle/>
- NNY Field Day, September 2, 2015: attended by more than 50 producers
- NNY Beef Week programs (4), November 17-19, 2015: attended by 25 producers

Next Steps:

This research, while agreeing with published studies in other states, should be repeated throughout New York State to confirm the effect of this technology on increasing weight gain. Once repeated and verified, the data will be shared with farmers so they can determine which market channel best suits their profit objective.

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