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Grazing Corn in the Northwest

Barry Potter, Agriculture Development Advisor
Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs

Bruce and Valve Forrest are constantly innovating on their beef farming operation. They have been direct marketing local beef years before local beef became a fad. They have bypassed owning a bull, using artificial insemination to get their cows pregnant, plus introduce top genetics into their herd.

Recently, another focus has been reducing feed costs. For the last few years, corn has been a big part of their nutrition package. Not grain corn, but standing corn, grazed to extend the cows' days on pasture, and reduce the amount of stored feed required to feed cows.

Figure 1. Grazing standing corn extends pasture

Bruce and Valve run a 40 head cow calf to finish operation. During the time period observed, 39 cow-calf pairs, and six replacement heifers grazed the corn. The calves were born in April, and would be 6-9 months old in the trial.

For the 2012 corn grazing season, Bruce kept complete records of the days grazing, and supplemental feed required to keep his cows out in the field until just before Christmas. Ordinarily by mid-September the cows would be getting stored forages. From September 16 to December 15, the cow calf pairs and replacement heifers on this farm grazed corn instead. The cows were strip grazed, moved daily to a new section of corn.

Figure 2. Fences were moved daily

Moving fence can be tricky with cows looking to surge past you into a new section. Bruce supplemented the cows and calves daily during fence moving time to distract the animals. The cows received 2 lbs per day of a screening pellet, and the calves 3 lbs per day of a creep ration. While they were eating this, Bruce would move his fence forward. The beefers also had access to a bale of dry hay daily, to make sure they always had gut fill.

Table 1: Forrest Grazing Corn Data		
	Per acre	**Per field**
Land rent	$30	$660
Land Preparation		
Disk 2 X	$15	$660
Spread Fertilizer	$6	$132
Seed with Grain Drill	$6	$132
Spray for weeds	$6	$132
Inputs		
Corn Seed	$71,82	$1580
Fertilizer	38.05	$837
Roundup	5.73	$126
Total Prep costs	**$193.59**	**$4259**
Supplement		
Cows, Screening Pellet	$33.13	$729
Calves, Creep	$43.09	$948
Hay, 1 bale / day	$123	$2700
Total Cost	**$392.50**	**$8635**
Grazing Days	344	7560
$ per head	$1.14	$8635
		Data supplied by Bruce Forrest

Labour to move fence daily, plus provide supplemental feed was 1 hour. This cost was not added to the direct cost total.

What were some of the direct benefits that the Forrests observed? The cows were very healthy, with lots of exercise in going out to the corn field daily. Manure was spread over the ground on a consistent basis, not piled up to be spread at a later date. The cattle gained weight. Over the 90 days, the cows gained about 1 lb/ day. The calves performed very well, averaging 2.4 lbs per day weight gain. But were there any significant savings?

The Forrests used their own equipment to prepare the ground and plant the corn. The ground was disked twice, nitrogen spread, and using their own seed drill, the corn was planted. Weed control was Roundup, a broad leaf herbicide. All costs in, the corn was $193.59 per acre to grow. Total costs, including the supplemental feed and hay rose to $8635.50.

Figure 3. Planting corn resulted in 90 extra grazing days

Planting corn resulted in 90 extra grazing days. With 39 cows, 39 calves, and 6 bred heifers, this amounted to 7560 animal grazing days. The total cost for this was $1.14, well below the alternative cost of feeding stored hay to the animals in a confined area. The number of grazing days per acre was 343.

Performance did not suffer, animals were healthy, and costs were lower. Really, as Bruce sees it, there is a lot of winning attributes to extending the grazing season with corn.

The Forrest results echo some similar trials from other parts of Canada. At the Western Canada Development Centre, corn grazing trials occurred in 2011. Costs and results are in Table 2.

Table 2: Winter Grazing Beef Cows with Standing Corn

Varieties	P7443R	DKC 27-54	P753R	HLSR06	P7213R
Action	$4.80	$4.80	$4.80	$4.80	$4.80
Harrowing	$5.66	$5.66	$5.66	$5.66	$5.66
Cultivating	$91.54	$91.54	$91.54	$91.54	$91.54
Fertilizer	$7.50	$7.50	$7.50	$7.50	$7.50
Seed	$85.09	$82.50	$90.71	$73.13	$79.84
Seeding	$15.00	$15.00	$15.00	$15.00	$15.00
Roundup	$5.10	$5.10	$5.10	$5.10	$5.10
Spraying	$2.86	$2.86	$2.86	$2.86	$2.86
Total	**$217.54**	**$214.96**	**$223.17**	**$205.58**	**$212.29**
Grazing (Days)	1893	1755	2070	810	1068
Days/Acre	305	258	318	145	205
$/Head/Day	$0.71	$0.83	$0.70	$1.42	$1.03

Western Beef Development Centre Factsheet #2012.03

References:
www.foragebeef.ca/grazingcattleoncorn

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New Collaboration as a Means to Success

Brian Pogue, Beef Program Lead
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Beef producers pride themselves on their independent nature. Compared to other industries, beef producers have control of many decisions. However, the beef industry is more segmented than most industries. This segmentation has led to distrust between the various links in the beef supply chain.

When producers decide to work together, the end result is usually that they all succeed. Simply sharing a truck to minimize transportation costs is collaboration. Neighbours may decide to share a bull. Combining resources provides an opportunity to buy a better bull. The bull sires many more calves than if only working in one herd and is likely kept longer. Ultimately more value is captured.

One good example of successful collaborations has been the special vaccinated calf sales. A group of producers have worked with their veterinarians to establish a health protocol for all of the consignors to follow. This protocol may just be the same vaccinations, but in many cases it has included more things such as:

- age verification
- weaning method
- premise identification
- ration
- similar age and weight and similar genetics

This collaboration has provided an opportunity for several small cow calf herds to offer large groups of calves to the feedlot buyers. In essence the small herds have joined together to have the same appeal as a large herd. It took agreement of several producers, a sales staff and a veterinarian(s) to offer this special sale. This would have resulted from multiple meetings and discussions. Planning, sharing ideas, adapting, building consensus and trust would all be a part of the process.

Branded beef programs are another example where a group of producers have met a set of specifications as outlined by the branded beef program. These programs may require a specific feeding program, health protocol and even common genetics. In some cases the protocol has been established by a processor with producers signing on to fulfill the requirements. In other cases, a group of producers have established a co-op or partnership to develop a program.

A value chain is an example of collaboration. This would involve a number of producers, a processor and a retailer/food service. All of the links in the value chain must have the same goal and realize that all of the partners are essential in the success of the value chain. A true value chain would share information and profit with all of the partners. Utilizing services offered by BIO and BIX can help with sharing information between partners. The information can be used to improve the product, efficiencies and consistency.

Are there collaborative opportunities that you should you pursue for mutual benefit?

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Setting the Stage for Your Grazing Season

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The first couple of weeks is when you set the stage for the coming grazing season. Pastures that are overgrazed at the beginning of the season will never reach their potential for the year. Keep a residual grass height of 3-4 inches so that there is lots of leaf area to intercept sunlight and photosynthesize into plant growth. Leaving this amount of material will also support the root system which is a mirror image of the top growth. Short plants have shallow roots and will be much more prone to drought conditions; deep rooted plants can find moisture throughout a prolonged dry spell.

Watch the growth in all your pastures and move cattle frequently enough to arrive at the last pasture before the seed heads have emerged and the plants are so large that the cattle have difficulty biting them off and swallowing. Animal intake is very much a function of bite size, a big bite of easily swallowed grass will result in higher intakes and more productivity in the form of gain and milk production.

Late May through early June is an ideal time to apply fertilizer to your pastures. Phosphorous and potassium levels should be maintained in the medium soil test range, plants, like animals, need adequate nutrition to grow. Ideally pastures will have greater than 50% legume content – alfalfa, white clover, trefoil and red clover are all excellent pasture legume species. Nitrogen applications should be made to pastures that contain less than 25-40% legume content. 50 kg of nitrogen per hectare or 45 lbs. per acre is likely the optimum rate of actual nitrogen (100 lbs. of urea/ac). Applying in late May through June while the grass is still in a strong growth phase will make for better utilization. To be effective the nitrogen fertilizer needs to be dissolved and taken into the soil by rainfall, the odds of a rain after application in May-June is very good- think about how hard it is to make dry hay in early to mid-June!
Utilizing a rotational grazing system that has the livestock moving to a fresh paddock every 1-3 days will give much more even distribution of manure and urine resulting in more consistent plant growth throughout the paddocks.

Sub-divide paddocks, ideally livestock are on a fresh patch of pasture every day and certainly every five days. Fresh pasture means better intakes, less wastage through tramping, laying and fouling with manure and urine, and less over grazing that slows the growth of those plants that have been grazed shorter than 3-4 inches. Frequent moves also improve the distribution of manure and urine on the pasture which will promote more even plant growth. Sub dividing can be easily accomplished with an electric wire on a reel and a few step-in-posts, a few minutes invested in temporary sub dividing fences will pay very significant dividends in increased pasture productivity.
Annual crops and cover crops can provide extra pasture for late summer and into the fall. Can you seed into cereal stubble after grain harvest? Did you frost seed red clover into your wheat fields – it can be grazed in September – November. Brassicas, cereals, sorghum-sudan grass, are all options to provide extra pasture or forage from fields that would otherwise be sitting idle from late summer into late fall. How you manage your pastures during May will set the course of the remainder of the year. If you keep these points as your focus - frequent rotation, graze at the proper stage, don't over graze, and maintain soil fertility you will set the stage for optimum performance of your pastures.

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How to Succeed With Beef Cows: Do Less With More

Tom Hamilton, Beef Program Lead—Production Systems,
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Background

No, the title is not a typographical error - but it does require some explanation. First, some background:

Historically, making money with a beef cow herd has been a challenge. But in spite of this, due to its very nature, the beef cow business has been a popular enterprise in Ontario, with a lot of small herds, some medium sized, and a few large ones.

Why this popularity? For farmers wanting a relatively low investment (no quota, minimal housing), low labour enterprise which can be scaled to meet their existing land base and available time (including an off farm career), beef cows provide a solution. As a trade-off, annual revenue per cow is relatively low. So to a large extent, profit potential depends on both having lower than average operating costs and/or the ability to allocate some fixed costs to either another farm enterprise or too a lifestyle choice (e.g. beef cows are a sideline to crops, the tractor is needed to clear snow off the laneway; I want to live in the country and own some land). So in some instances, beef cows have been a by-product of land ownership and lifestyle choice rather than a core economic activity. Regardless of motivation, with a low COP and good breeding and marketing programs, the cows could more than cover operating costs in all but the most dismal years (BSE), and contribute significantly to fixed costs in good years, which was enough to keep these farms in the business.

Large Herds are Different
However, there have always been some large scale beef herds where the cows are the focus of the enterprise and expected to provide enough revenue to cover all costs and provide for family living expenses. Part of their success is utilizing marketing power to capitalize on premiums from the larger groups of uniform calves and yearlings they produce, and having them feedlot ready (vaccinated, bunk adjusted etc.). So running a large numbers of cows does have some inherent advantages, but the well documented economic realities of smaller herds indicates that there must be something really different about the economic structure of large herds than just scale.. So how do they do it? Years of studying our industry and accumulating survey, research and on- farm data have led me to some tentative conclusions about how and why these cow herds are different from the average Ontario beef cow operation:

*They have achieved a production model which allows both a **larger volume** of production for a given amount of labour and capital and a **lower cost** of production per unit.*

Simply put, through innovation and wise use of capital they have changed the paradigm of cow-calf production. These large herds aren't simply bigger units using the same methods as smaller enterprises.

How Are They Different?
Here are some of the key differences which make large scale beef cow enterprises work[#]:

1. **Lots of cows**
   With relatively low net revenue per cow, a much larger than average scale of production is needed to generate sufficient net revenue and also utilize the potential of the machinery line, which reduces COP dramatically.

2. **Low labour and investment per cow**
   The management system must be very labour efficient and require a minimum investment in buildings (pasture calving, out wintering, windbreaks instead of barns).

3. **Sell yearlings**
   Retaining calves to the yearling stage increases net revenue per cow (cow costs are the same whether you sell calves or yearlings)

4. **Reduced feed costs**
   Rotational grazing improves production per acre, increasing the carrying capacity of a given land base. Extending the grazing season with stockpiling, bale grazing, grazing annual crops etc. lowers winter feeding and manure removal costs.

5. **Relatively low cost land**
   Access to land which is best suited to forage production and which has few alternative uses

[#] *note that many smaller herds also utilize one or more of strategies 2-4*

Taken all together, the large herd managers **do less with more** – that is, while they have **many more cows** than average, each cow requires far **less labour** and **investment**. On a whole farm basis, this gives the double benefit of **more profit per cow** and **more cows to profit from**. These combined factors really impact an operation's bottom line! In essence, the large herds operate on a different type of business model than the average or small herds.

Analyses of Cost and Revenue Over a Wide Range of Herd Sizes

Below are several graphs which are based on the outputs of a beef cow/yearling budget spreadsheet which was constructed to compare the economic performance of operations ranging from 25 to 300 cows.[i] The production and economic components were compiled using data and input from many sources.[ii]

Like any model, it is dependent on the input data and assumptions which underpin it. This model was constructed to give a basis for comparing across herd size, and as such it is the relative differences between scenarios which are important, rather than the absolute numbers generated. The model recognizes significant differences in production techniques between small-medium sized herds [25-100 cows] and large herds[150+ cows]; these are described below. In recognition of the two distinct production systems, trend lines were plotted separately for herds in the 25 – 100 hd range and the 150 – 300 hd range. All herds are assumed to retain calves after weaning and sell 850 lb yearlings. The model was run over 3 different price regimes to represent the wide variations the cattle market has seen in the last 5yrs (see Table 1).

Table 1. Model Description

- yearlings are sold off pasture @ 850 lbs; cow replacement rate = 15% for cow herds <150, 18% for cow herds >= 150; weaned calf crop = 92% for herds <150 cows, 88% for herds >= 150; revenue per cow = yearling sale value X 83% [accounts for heifers kept as replacements and calf and yearling death loss] + cull cow sale value X 12%;

- **Price regimes**
  - ⇒ **Low**: yearlings @ $0.90, cull cows @ $0.55
  - ⇒ **Medium**: yearlings @ $1.20, cull cows @ $0.76
  - ⇒ **High**: yearlings @ $1.60, cull cows @ $0.95

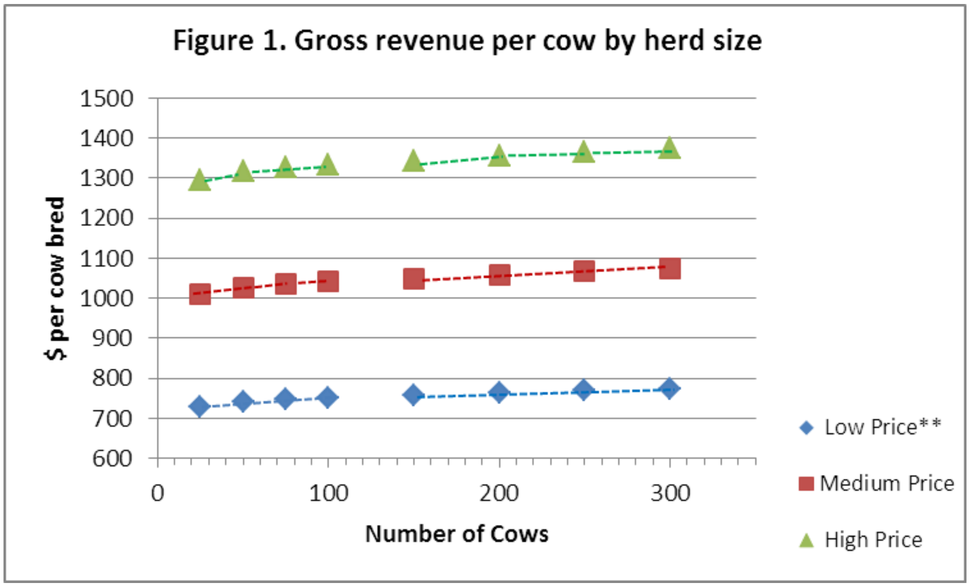
- Premiums for larger lot sizes (see Table 2.)

- Costs and revenues are given on a per cow bred basis, which includes the cost of raising replacements, death losses etc.

- Cow herds less than 150 head use some form of confinement calving system with an operating cost of $800/cow bred. Cow herds of 150 and greater use some form of extensive calving system and have an operating cost of $720/cow bred
  - ⇒ The $80/head difference is due to higher costs for manure handling, bedding, vet expenses, building maintenance etc]

- Large herds (150+) have a lower range of fixed costs on a per head basis than smaller herds due to a much lower investment in buildings and machinery on a per head basis. Within each herd size group, fixed costs/head decrease with increasing herd size as building and machinery ownership costs are spread over more cows.

Results



Low: yearlings @ $0.90, cull cows @ $0.55
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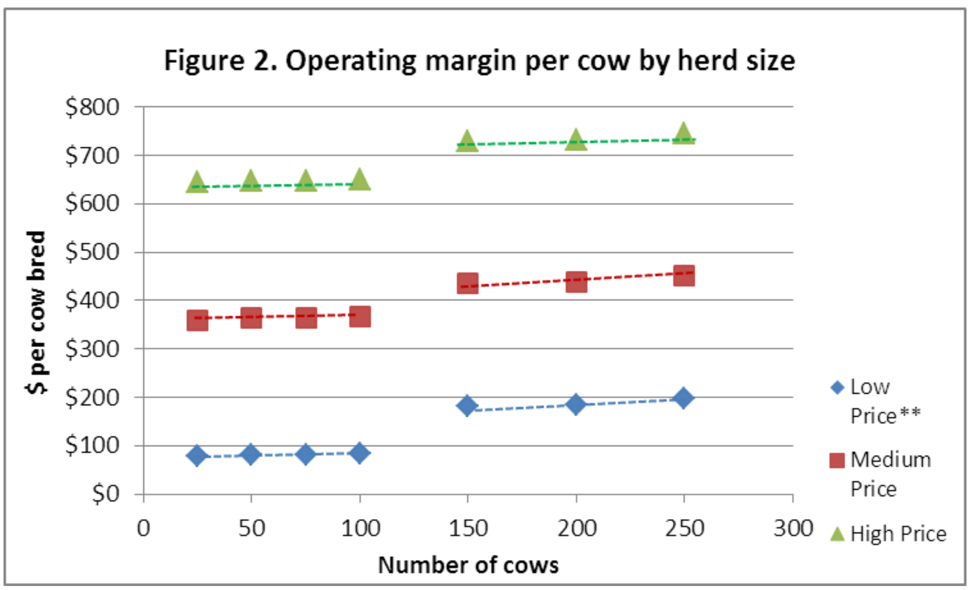

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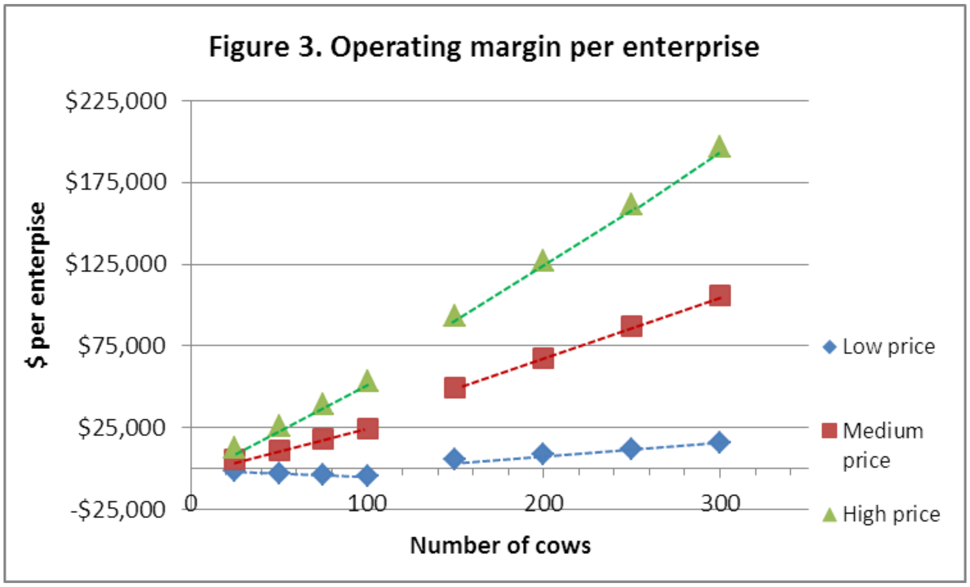

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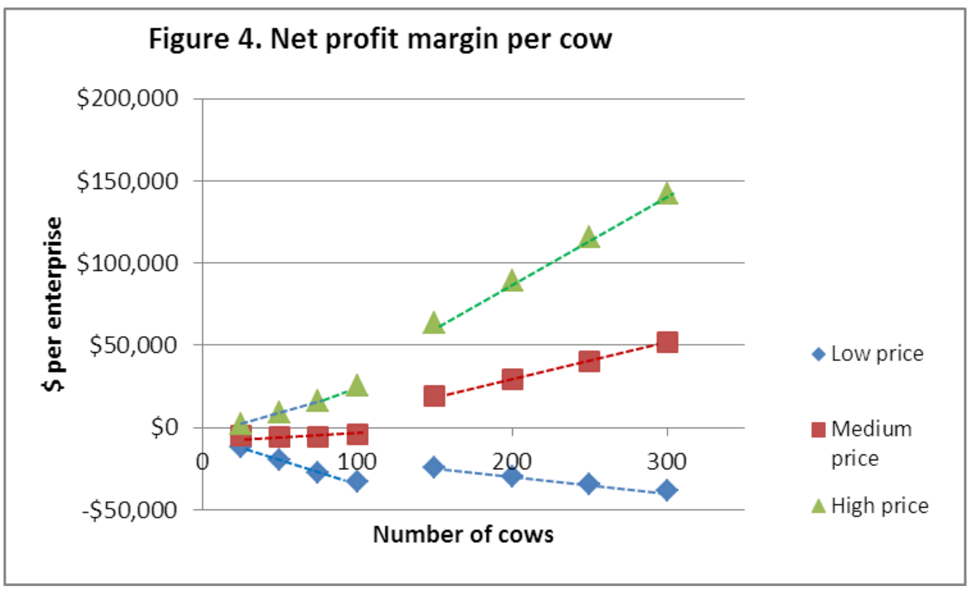

**Low: yearlings @ $0.90, cull cows @ $0.55
Medium: yearlings @ $1.20, cull cows @ $0.76
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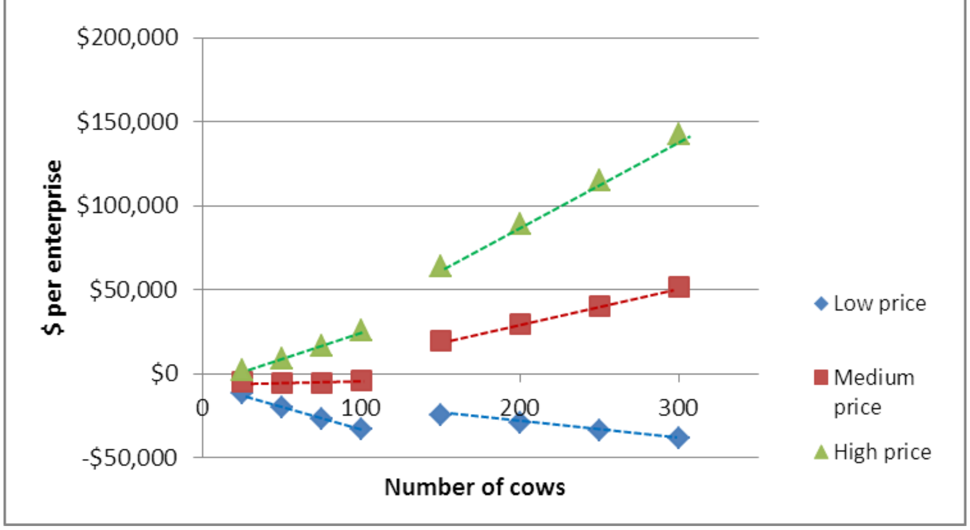
Figure 5. Net profit margin per enterprise



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Medium: yearlings @ $1.20, cull cows @ $0.76
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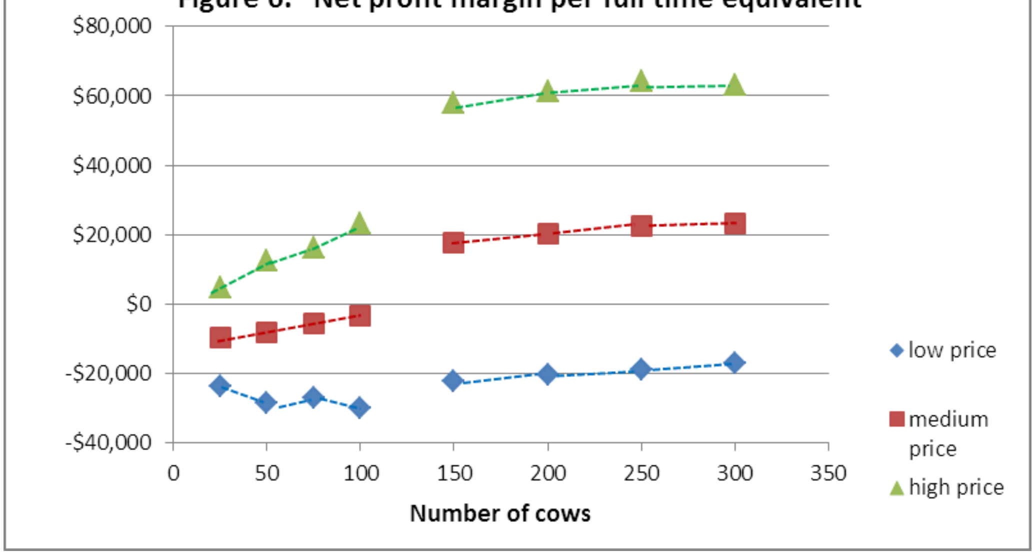
Figure 6.   Net profit margin per full time equivalent



**Low: yearlings @ $0.90, cull cows @ $0.55
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Table 2. Levels of variables by herd size.					
Number of cows in herd	**Average lot size (hd)**	**Price premium (%)**	**Variable costs/ hd ($)**	**Fixed costs/ hd ($)**	**Full time workers per herd.**
25	5	0	800	400	0.50
50	10	2.0	800	340	0.70
75	15	3.1	800	310	1.00
100	20	3.6	800	280	1.20
150	30	4.5	720	200	1.20
200	40	5.5	720	190	1.60
250	50	6.5	720	185	2.00
300	60	7.2	720	180	2.25

Discussion

Due to the length of this article, the discussion section will be presented in the next issue of this newsletter (OMAF and MRA *Virtual Beef*)

[i]*Note: most of the information used in this paper was collected prior to the initiation of and is independent of the Beef Farmers of Ontario Northern Beef Expansion consultant study of late 2013 – mid-2014. However, the author would like to acknowledge the intellectual input of Al Mussell (George Morris Center, Guelph) and Wayne Stark and Mike Farley (Pursuit Development Labs Inc, Toronto) for inspiration in the approach to this work. Thanks also to John Molenhuis (OMAF and MRA) for previous input on cost of production budgeting and analysis.*

[ii]**References**

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