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Natural Feeding Programs - Concepts for Tweaking Feedlot Diets

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'Natural' Programs on the Radar

With the increasing trend by North Americans towards **health conscious diets**, the trickle-down to the beef industry appears to be a growing interest in beef produced from animals with a minimum of pharmaceutical intervention. While there may be discussion about whether these products actually have health attributes beyond regular beef, there appear to be consumers willing to pay a premium for these products. Since one of the fundamental principles of marketing is to provide customers with what they want, the industry should "feed" this desire. This will help maintain or increase beef's share of the meat counter. It may achieve potential price premiums for producers who are positioned to supply that product.



Figure 1: Cattle in Feedlot

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Ministry of Agriculture,
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While cost of production may be higher, a price premium at retail can make this a winning strategy, as long as the financial benefits are shared through out the production chain. Before taking on a program, here are some nutritional factors to consider that may help clarify the consequences of going “au naturel”.

Bye-bye Implants

The ban on implants in virtually all of these programs reduces the overall lean gain potential, and may increase the partitioning towards fat. Assuming mid-potency implants (which could provide about 10% improved gain or feed-to-gain) are prohibited, a 10% loss of efficiency means about 10% more days on feed. The ration could be formulated with slightly less protein, and a little less energy too, a savings to counter reduced performance. As a result, the **premium on live weight** needs to be about **2%**, and somewhat higher for producers paid on the rail. Additional carcass settlement premiums may be required as some implants are known to increase dressing percentage by **2% to 5%**, depending on implant formulation, gender and end-point. However, some aggressive implants (eg. TBA-type) have been implicated in increased dark cutter rates, so eliminating them will lower that risk, another potential saving.

Ionophores: Be Gone!

Although not absorbed in appreciable amounts by the animal, ionophores are active as antibiotics within the rumen, where they selectively reduce the populations of some microbes. The fine points of their function is lost on consumers, who often interpret the term “antibiotic” in negative way. Energy partitioning towards fat may also be increased once ionophores are removed due to the change in rumen energy partitioning. Ionophore removal will also reduce tolerance for ration grain content, as ionophores protect against acidosis. With higher acidosis risk, we can predict a marginally higher (0.75%) death loss and the ration requires increased ration forage content as corn silage, to reduce grain content. In this scenario, increased corn silage reduces cost of gain, assuming cattle can utilize it efficiently. **Days on feed** may be **extended by 8%**, due to the loss of the accepted efficiency improvement due to ionophores. The **price premium** to compensate for this factor needs to be in the range of **1% to 3%**. In rations where high moisture corn or finely ground grains must be used, feedlot operators should consider alternatives to ionophores for the control of acidosis, such as increased levels of ground dry hay or even sodium bicarbonate (baking soda) buffers.

Say Goodbye If You've Been Needled

A zero antibiotics scenario is doable provided producers have conventional marketing channels through which treated animals can be marketed so that health intervention is not withheld. This optimizes animal welfare as well as the performance of a ‘natural’ system.

Urea

Non-protein nitrogen is a very economical way to meet protein needs in many rations. Some natural programs do consider feed grade urea as acceptable, while others rank it as an unnatural chemical. Where permissible, this product may be a good option even in rations with high protein commodities (such as distillers grains), particularly later in the feeding period when soluble N is limiting in the diet.

The Bottom Line

The **price premium required** to cover a scenario where conventional steer beef producers are to produce ‘natural’ cattle is in the range of **4% to 7%**. This requires giving up ionophores, implants and antibiotic use. Rations need to be re-built from the bottom up to consider issues like particle size and grain content as they relate to acidosis control. Ration protein also needs to be reviewed for requirement (as related to implant removal) and potential protein sources, including urea. Finally, consider the level of ration energy to avoid over-finishing, keeping in mind the energy partitioning effects of both ionophores and implants. Producers should consider a higher forage level in a ‘natural ration’. Maybe it’s time to dust off some of the results of the high forage finishing ration research that has been done here in Ontario...

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Controlling What You Can

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As the fall run of calves starts, producers always watch the **prices** with a great deal of interest. There have been years when the prices ratchet up or hold at a high level and then there are the years when the prices are watched with some trepidation. With high Canadian dollar and high corn prices this year seems to be set up for the latter.

So as a calf producer what can you do as we move into the fall calf run?

You can control **when** you sell.

Do you have to sell right now? Does the opportunity exist either on your own place or through a custom arrangement to background or even finish the calves? Even if the answer to that is yes, consider it very carefully and put pencil to paper to decide if that is a road you wish to follow. Are you taking into account the feed costs, your interest costs, health costs, possible death loss, and the tax considerations? Can you pencil out a profit? If not, then the first loss may be the best loss.

You can control **where** you sell.

Are you selling in the right place or specific sale for your type of cattle? Many specific sales are held around the province for specific breed types or styles, from Laura's Lean sales, Angus, Limo influence, black, and Char-influence.

You can control what the **vaccination/processing** protocol is for the calves.

For the last 15 to -20 years properly vaccinated, processed calves have generated a premium over equivalent non-prepared calves, if sold in large enough sale groups. One lot of prepared calves in a regular sale may not generate any extra. The market indicates a preference for Modified Live (ML) vaccine in the calves and pre-breeding to the cow herd. Age verification is another positive feature for many feedlots. The cow calf producer is the only one who can attach the information to the calf. The feedlot can't make it happen later when they need it, so do the age verification and promote this at the feedlot.

You can control **how you sell**.

That may be through an auction mart, or a cattle dealer or direct. All have pros and cons to them, however, you can do some salesmanship no matter which method you are using. Have you called the buyers of your calves from the

last few years? Have you asked them how they liked your calves? If you are talking to them you can promote the advantages of your animals, such as genetics, health, processing or started on feed. Then make sure your buyers know when and where your calves will be on offer next year. Every extra bidder is more money for you.



Figure 1: Processed calves command a premium

You can control the **age** of calves you sell.

Follow the markets. Are the heavier calves selling better or the lighter ones? Can you sell part of the crop and hold part? If heifer calves are severely discounted relative to steers, is this the year to keep more heifer calves back as replacements and sell off more of the cows? This could be an advantage if you are in an area that is short of feed. A 500 pound heifer calf eats a lot less than a 1400 pound cow. While you will be short that many calves next year, you will also be starting the next cycle with a very cheap cow.

You control your **Cost of Production (COP)**.

It isn't a pretty or popular topic to discuss, but itCost of production may be the ultimate factor deciding who stays in the business and who exits. You need to know what your COP is for your herd. Then you need to look at ways to reduce it. Depending on your outlook, this may be a case of riding out the down part of the cycle for a few years, or it may require a more long term fundamental change in your cow herds' type and keeping costs.

Ultimately, you control your **outlook, attitude** and **knowledge base** of the industry.

The CASS program (Canadian Agricultural Skills Service) is available to any producer/family that nets less than \$40,000. If you qualify, this program allows you to pursue educational opportunity that may help you to prosper in

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the industry.

A little forward planning won't change the whole cattle market, but it may help you to make the best of a less than ideal situation, as you focus on **What You Can Control!**

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Beef Herd Management Systems Research Results

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The cow-calf industry in Ontario is characterized by a unique combination of **variation** and **tradition**. Wide variety is found in the breeds, people and scale of operations involved. Its little wonder that the sector features diversity and innovation in the organization of calving and production systems. Tradition is firmly rooted in the evolution of the beef cow enterprise from the mixed-farm, where a few dual purpose cows in the barn provided both milk and meat. With only a few head to care for, calving inside the barn made total sense from a labour efficiency standpoint. Each birth was an event, and it was easy to maintain clean pens. But barn calving and intensive management started to falter as farms became specialized and the concentration of animals increased. Calf scours became an all too common feature of calving season.

Research on calving alternatives was carried out at the University of Guelph's New Liskeard Research Station between 1997 and 2004. The objective was to compare animal performance, cost of production and labour efficiency of two very different management systems. The **conventional group** was bred to calve mid-February to mid-April, with access to naturally ventilated barns during winter, calving in special indoor, but unheated pens. The **alternative group** was wintered in a similar manner, but was bred to calve in June and July, when they were on

pasture. To create the groups, the existing herd was split into two comparable sub-herds, with similar genetic make up and age structure. Each year, the same sires were used in both groups, ensuring that differences seen in performance of the groups would be due to management system, not genetics. Other experiments conducted with the herd over this time, such as estrus synchronization, were replicated in both groups. The groups were on a



common health protocol, and the same culling criteria were applied to each.

Figure 1: Cow-calf pairs on pasture

A five year summary of results showed striking differences between the systems. Pasture born calves were much less likely to receive assistance during the calving process (Table 1). In fact, **barn heifers** had an **assist rate** which was more than **three times greater** than their grass calved counterparts, while barn cows had an assist rate five times greater than pasture cows. This is likely due in part to the lower birth weights observed with the summer born calves, which averaged six pounds lighter than the winter group. Another factor may have been that the location of the calving pens made it more likely for cows to be observed during the birthing process, although pasture cows were also checked at least twice daily.

The **barn group** of calves also experienced a much **higher rate of intervention** for **health** related issues, such as hand feeding of colostrum and treatment with anti-diarrheal products (Table 2). Interventions incur both labour and product costs. Calf survival was the same for mature cows in both groups, but the pasture group heifers had a significantly higher weaning rate (92%) than the barn heifers (80%). In this calculation, weaning rate was defined as the number of calves weaned divided by

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the number of pregnant females retained from the previous season, so it included aborted calves, dead on arrivals (DOAs), neonatal deaths and any calf losses from



birth to weaning.

Figure 2: Calves born on pasture are healthier

It **cost more** to calve cows **inside** (Table 3). About 30% more bedding was required annually for the barn calving group due to their requirement for calving and post maternity pens. In addition, more labour was expended in managing the indoor calving system, and the average cost of treatments per calf was much higher for the indoor group, relative to the pasture group.

The cost of raising cattle was greater for the conventional group compared with the pasture calvers (Table 3). It cost about \$47 more per cow with the winter calving system compared with the summer system. When costs were deducted from revenues within each system, the summer pasturing calving group was a clear winner. Net

margin for the summer group was \$113 per cow exposed to breeding, 45% higher than the \$78 per cow realized for the traditional group. The **summer system** was a **clear winner** in terms of profitability.

The above research results were based on a comparison of herds of the same size, but they may be also extrapolated to the farm level based on an analysis of the factors which limit herd size. Several issues have been identified as **limiting herd size** on farms, and thus **overall profitability** of the cow-calf enterprise. One is focused around calving time. With intensively managed cows, night time calving checks and the number of calves needing birthing assistance and health treatments can be limiting. This is the most stressful time of the year in beef cow herds, and the hours of labour and degree of stress increases with the number of pregnant cows. Another potentially limiting factor is the value of capital investment in the calving facilities required for winter-early spring calving. If herd numbers are increased without concurrent facility expansion, the chances of a devastating scours outbreak increases.

Based on these research results, theoretical calculations predicted that for a given amount of labour, **25% more cows** could be kept with a **pasture calving** system compared with barn calving. More cows means more total profit is generated per farming enterprise. Based on these projections, **net enterprise margin** would **increase** by about **80%** if herd numbers could be expanded from 80 to 100 head, when switching from barn calving to pasture calving. Expanding or establishing very large cow herds (200+ cows) is a daunting challenge with a traditional management system based on confinement calving in late winter/early spring. A move to extensive management with pasture calving during late spring and summer could be a viable and profitable option.

Table 1. Calving Characteristics of Seasonal Groups

Characteristic	Winter	Summer	Probability
Birth Weight (lbs) ¹	105.6	99.5	P< .05
Calving Ease Score ²	1.4	1.1	P< .05
% Assisted Births			
Heifers	63	17	P< .05
Cows	18	3	P< .05

¹Adjusted for age of dam, sex of calf and birth type

² Scale of 1-4, 1=unassisted, 2=easy pull, 3=hard pull, 4=surgical

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Table 2. Health and Management Characteristics of Seasonal Groups

Item	Winter	Summer	Probability
Intervention Rate(%)	33	14	P< .05
Treatments Per Calf Born	2.8	0.6	P< .05
Weaning Rate ¹ (%)			
1 st Calf Heifers	80	92.2	P< .05
Cows	96.3	92.7	NS

¹Weaning rate = # cows weaning a calf / # of pregnant cows retained X 100

Table 3. Some Variable Costs Per Cow Retained, By Seasonal Groups (\$)

Item	Winter	Summer
Calving Season Labour ¹	41	30
Calf Treatment Drugs	4.21	1.28
Pasture	68	74
Stored Feed	294	293
Bedding (\$/cow)	48	37
Facilities (deprec.)	67	40
Total	522.21	475.28

¹Labour for pen or pasture checks, calving pen maintenance, calf processing and calf treatments.

Table 4. Net Margin Per Cow Per Exposed, By Management Group (\$)

Item	Winter	Summer
Revenue	611	592
Costs	533	479
Net Margin	78	113

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