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In This Issue

Vaccination Has Value!

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Cow-calf producers have struggled with **low prices** during this post-BSE period. Management strategies to maximize returns from calf sales are even more important than in the past. During previous episodes of reduced demand for feeder calves, it has been observed that buyers became more selective, and poorly prepared cattle were more heavily discounted than during times of high demand.

The concepts of presale weaning and vaccination of beef calves has been promoted in Ontario since the advent of the Red Meat Plan in 1984.

While the benefits of **improved health and performance** upon entry into feedlots have been widely recognized, the financial reward to cow-calf

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producers for their efforts and expenses have been less well documented. In the last few years, the **value of pre-sale weaning and vaccination** for common feedlot diseases has received much attention. Surveys have found that price premiums existed for pre-vaccinated calves sold at special sales, compared with prices for calves sold at regular sales held during the same week at other locations.

Procedures

This study was undertaken to determine what level of price differential existed for pre-vaccinated calves sold at sales where considerable numbers of both pre-vaccinated and non-vaccinated lots of calves were offered. We evaluated results from three feeder calf sales held at the Temiskaming Livestock Exchange£, near New Liskeard in Northeastern Ontario. The sales, held in November of 2004 included a total of 2163 hd in 726 lots (see Table 1 for details). Information collected at the sales included breed type, sex, lot size, average weight, and vaccination status for respiratory disease. The data analysis procedures used allowed the individual effect of each factor to be determined, separate from the effects of the other factors.

Table 1. General Characteristics of Cattle Sold

Sex	Total # of lots	Average lot size (hd)	Average weight (lbs)
Heifers	311	3.9	524
Males	87	3.0	523
Steers	328	4.0	548

* thanks to Temiskaming Livestock Exchange for providing sale data

The effect of vaccination on price was different for each sex class, so males, steers and heifers were considered separately. The results showed that **large significant price premiums** were paid for **vaccinated male calves** and **vaccinated steer calves**, compared with unvaccinated males and steers (see Table 2). Buyers paid an average of 13.3 ¢/lb more for vaccinated males, and 9.1 ¢/lb more for vaccinated steers, compared with unvaccinated animals On a per head basis, producers for their efforts and expenses calf, and **$50 more per steer** calf, compared with not vaccinating. Vaccinated heifers received a smaller but significant premium, 3.5 ¢/lb, which amounted to a differential of plus $18 per hd.

Table 2. Effect of Vaccination Status on Price, Within Sex Class

Sex	Price Differentials Due to Being Vaccinated*		
	Cents per lb	% of non-vaccinated price	Dollars per head**
Heifers	+ 3.5	+ 5.5%	+ $18.34
Males	+ 13.3	+ 18.2 %	+ $69.56
Steers	+ 9.1	+ 11.3 %	+ $49.87

* all differences within sex class are significantly different at P<.05 level
** based on animal weight of 530 lbs.

At these sales, heifers were severely discounted relative to steers and males. When factors such as weight and lot size were taken into account, heifers were discounted 19.8 ¢/lb relative to steers, while males were discounted 5.2 ¢/lb compared with steers (see Table 3). This amounted to a large per head price discount (- $104/hd) for heifers relative to steers, and a moderate discount per head (- $27/hd) for males relative to steers. The lack of overall demand for heifers during the fall of 2004 may explain the lower price premium for vaccinated heifers relative to males and steers.

Table 3. Effect of Sex Class on Price, Relative To Steer Price*

Sex Class	Price Differential Due To Sex Class		
	Cents per pound	Percent of Steer Price	Dollars per head**
Steers	Base price	Base price	Base price
Males	- 5.2	- 6.1 %	- $27.20
Heifers	- 19.8	- 23.3 %	- $103.75

* values reported are significant at P<.05 level
** based on sale average weights.

Lot size was another factor which affected selling price. For each 1 head increase in lot size, selling price increased by 0.9 ¢/lb. For example, if a 4 hd lot of a certain weight and type sold for 85.0 ¢/lb, a lot of 8 identical hd would have sold for 88.6 ¢/lb.

While breed type itself affected selling price, **the effect of vaccination status was independent of breed type**. This means that the premium for vaccinating was available regardless of the breed type of the calves.

The results from these sales showed that buyers recognized that **vaccinating calves prior to sale added considerable value** to them, and were willing to **pay significant price premiums** to obtain vaccinated animals. Cow-calf producers should consider vaccinating calves prior to sale and ensuring that this information is transferred to prospective buyers. Many areas have special sales for pre-vaccinated / pre-weaned calves.

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Finding Extra Pasture

Jack Kyle, Pasture Specialist, OMAF

Are you one of the many producers who will be carrying **increased livestock numbers** this pasture season? If this applies to your situation, there are a number of options to increase your pasture production this coming year. It is important to take steps early in the season to have the best opportunities to increase the amount of available pasture for the 2005 grazing season. What are the options?

Rotational Grazing

Rotational grazing will give increased forage production and **increased gains per acre**. Plants start to grow again about 5-6 days after grazing occurs. The key to rotational grazing is the rest period following the grazing. It is during this rest period that the plants have an opportunity to produce new growth and develop their root systems. The livestock should be removed from the field before this new growth is initiated. A sound rotational grazing system can result in

25-50% increased gains per acre. Gain per animal may not be any higher but the acreage will support more animals.

Figure 1. Rotational Grazing Will Increase Carrying Capacity

Apply Nitrogen to Grass

Nitrogen fertiliser will give a significant increase in grass growth in any pastures that contain less than 30% legume. Nitrogen should be applied in amounts of 40-50 lbs. per acre of actual N per application. Applications should be 4-6 weeks apart. The first application should be made in late May or early June.

Earlier applications will increase the early growth, which usually exceeds the animal needs and becomes mature. If you are prepared to use the early season growth for stored forage, then you could make the first application in late-April or early-May, soon after the grass starts to grow. It has generally been found that in a stocker cattle situation, 1 lb. of nitrogen will produce 1 lb. of beef.

Sorghum-Sudan Or Corn After 1st Cut

In hay fields where the production level has decreased, consider taking the first-cut of hay and then planting sorghum-sudan grass or corn for grazing, green chop, or silage. Sorgum-sudan and corn are warm season grasses that will produce fairly well with a mid-June planting. You will have the hay from the first-cut and the sorghum or corn for August/September feed. The corn could actually be left and then grazed in the fall/winter, until the snow is too deep for the livestock.

Turnips After Cereals

Early planted spring cereals could be harvested as forage or grazed. Then plant a brassica crop, such as turnips or fodder rape, to give late-season grazing. Cereals can also be planted later in the season (late-July to mid-August) for grazing in September and October.

Purchased Feed

Buy standing hay or baled hay to supplement your forage supply. Calculate your needs early and get your hay lined up so that it is cut at the optimum time for quality forage. First-cut hay made in July is going to have little nutritional value. Purchasing corn silage may be another option that might work for you.
Supplement your livestock with purchased grain. Currently grain prices are at a low point and grains do supply a high-energy ration supplement.

Ration Balancing

Balance your rations. Feed your livestock to their needs - do not underfeed and do not overfeed. Balanced rations are going to give you the most economical gains.

These are some ideas that can be utilised to increase your forage production in 2005. Early planning and careful utilisation of your pasture should make the grazing season a successful one, even with increased livestock numbers.

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Fall Grazing Corn

Barry Potter, Livestock Specialist, OMAF

Little boy blue
Come blow your horn
The sheep in the meadow
The cows in the corn!

This project in Temiskaming District, North-eastern Ontario, looked at **extending the grazing season** for beef cattle by planting corn in the spring for grazing in November / December. However, as the corn experienced frost damage on August 24th it was actually grazed in September. Grazing the corn in September allowed our stockpiled grass pasture to continue to regrow during the warm, dry September.

Overview

Corn was grown on 3.7 acres of clay soil, tiled at 100 ft. intervals. The cows were purebred Charolais, averaging 1450 lbs, which had calved during mid March to late May. The corn was grazed for 26 days, starting September 16. Initially, 41 mature animals with 21 calves were placed in the corn paddock. Ten cow calf pairs were removed for weaning in September 22, leaving 31 adults and 11 calves. The 10 removed adults were returned to the corn grazing group on September 25. A total of 1036 cow days and 340 calf days were accumulated in corn grazing. These were the equivalent of **280 cow days per acre and 92 calf days per acre.**

Field History

The previous crop was a trefoil-grass mixture which was plowed down in the fall of 2003. Soil test results are shown in Table 1.

Table 1. Soil Test Results

Soil Test	
pH	6.5
P	13 Medium
K	237 Very High
Mg	828 High
Texture	Fine

The field was mould board plowed in the fall of 2003. The field was disked in the spring of 2004. Fertilizer (100-40-0) was broadcast according to soil test results. The field was then cultivated and seeded on June 1 with a 20 by 6-inch spacing conventional drill. Every two out of three runs were blocked to provide in-field rows of 18 inches. Two units of corn were seeded on 3.7 acres (originally expected to be 5 acres.) Plant population count one month after planting was 41849 plants per acre. Post grazing, the field was chisel plowed. It was observed that the corn land was more compacted and harder to chisel than the canola land next to it. During the grazing period the weather was drier than normal, reducing what could have been a higher level of compaction.

Grazing Management

The crop was strip grazed using a single strand of electrified polywire to control cattle access. A three-point hitch mower was used to cut a swath about 4 feet wide in the corn to accommodate the polywire. The **mowed strip** allowed **easier placement** of the **fence wire**, and provided an opportunity for the **cows to see** the fence. Cows were allowed into a new section every two to three days, as they cleaned up the corn and residue.

Figure 1. A Strip Cut Allows Visible Placement of Polywire

Figure 2. Cows Clean Up Most of the Corn

Results and Discussion

Although the corn was grazed earlier than planned, it allowed the overall grazing season to be extended (into November) by sparing the other forages that had been stockpiled, which the cattle utilized after the corn was finished.

Animal Behaviour

Upon entering a new block, the cattle would go to the center of the area and then graze out to the sides. The **cows ate almost all of the plant**. Very little residue remained save for about six to ten inches of the corn stalk once the cows had finished grazing a block.

Figure 3. Cows Enjoy Corn on the Cob and the Stalk as Well

Costs

Project costs for machinery work, labour and materials are shown in Tables 2, 3 and 4. Total costs are summarized in Table 5, and the distribution of costs are shown in Figure 1. Our overall cost was $0.79 per cow day of grazing. For comparison, we pay pasture rent at $0.53 per cow calf pair per day at another location. The corn was more expensive to grow than traditional grass pasture but provided us with grazing during a critical interval when we would have been without pasture. Stored feed costs us approximately $1.00 per cow per day.

Conclusions

Corn fit into our overall grazing program, and provided extra grazing at less cost than stored feeds. It would be interesting to observe results in a wet fall, to see how this would affect compaction from cattle traffic. Although this project was successful, it is possible that other forage species may supply the same benefits at lower cost.

Table 2. Machinery Costs*

	$ Per Acre	**Project Cost ($)**
Plowing	18	55.50
Disking	12	44.40
Cultivating	9	33.30
Seeding	10	37.00
Spraying	7	25.90
Total		196.10

*based on custom rates

Figure 4. Project Costs by Percentage

Table 3. Seed, Fertilizer and Herbicide Costs

Item	Rate	Cost ($)
Fertilizer (100-40-0)	$55 / acre X 3.7 acres	203.50
Seed (Dekalb DKC 2712 Roundup ready, 2250 CHU)	2 units @ $179	358.00
Herbicide (Transorb Roundup, post emergent)	$9.50 / l X 0.5 l /acre X 3.7 acre	17.58

Table 4. Labour Costs

Task	Time (hours)	Cost ($) (Labour @ $10 / hr.)
Initial fence set up	1.5	15
Final fence tear down	1.0	10
Fence move-ment	8 X @ 0.25 = 2.0	20
Total	4.5	45

Table 5. Total Project Costs

	$ Per Acre	Total ($)	$ Per cow day
Machinery	53.00	196.10	0.189
Seed	96.76	358.00	0.346
Fertilizer	55.00	203.50	0.196
Spray	4.75	17.58	0.017
Labour	2.16	45.00	0.043
Total Cost	211.67	820.18	$0.79

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PI Animals Allow BVD to Remain in Cow Herds

Don Blakely, Program Lead, Beef Quality Assurance, OMAF

Bovine viral diarrhea (BVD) can have **devastating financial impacts** on a beef herd. For years we have assumed that vaccinating the calf crop at weaning and the cowherd when fall processing would eliminate BVD from the herd. However, what we have found is **that persistently infected (PI)** animals can survive and allow BVD to remain in herds with traditional vaccination programs.

Figure 1. BVD Can be Transferred from Persistently Infected Cows to Their Herd Mates

What is a PI Animal?

PI (persistently infected) calves are produced as a result of **BVD infection** of a cow or heifer when their fetus is between **day 45 and day 145 of gestation**. This period is prior to the fetus developing an immune system that can recognize a foreign virus. If the fetus survives to birth and beyond, it becomes a PI animal that will continue to shed the virus in the herd. The immune system of the PI animal is compromised, therefore most will be lost to some disease early in life due to their inability to fight infection. However, some animals can survive to become members of the cowherd. Any calf born to these cows will be PI as well, so the cycle continues. It is very important to note that a PI animal will never respond to vaccination and develop immunity to BVD. The only solution to eliminate BVD from the herd is identifying and culling all PI animals. Industry average prevalence of PI calves is estimated to be from .05-1.0 % of calves born. When PI's are present in a herd there tends to be a much higher incidence than the average herd.

Why Traditional Vaccination Programs Do Not Always Prevent PI's

Vaccination of the cowherd **at fall** processing offers **protection to the cow but not the fetus** she is carrying. None of the killed type vaccines, which are commonly used in the fall, have label claims for protecting the unborn calf. The placenta is a barrier to transmission of immunity from the cow to the fetus. However, some protection may be provided to the fetus if the cow has another pregnancy. Many years of continued traditional vaccination does offer herd immunity but if any vaccination gaps occur (i.e. animals are missed, new animals introduced into a herd or PI's are present before a vaccination program is started), BVD problems will persist in the herd. Since vaccination never works on PI animals, if one is selected as a replacement animal the BVD cycle will continue in the herd.

What is the Impact of PI Animals Beyond the Cow Herd?

PI's impact individual herds through death losses, reduced pregnancy rates, increased treatment costs and general poor performance leading to increased production costs.   **PI calves** that survive and leave the herd for placement in feedlots can have a **damaging impact on the health of all animals in the feedlot**. The first 30 days in any feedlot is the biggest stress period for any calf's health. Add a PI calf that is continually shedding BVD virus to a group of stressed calves and the consequences can be major. The PI calf will probably die within the 30-day period and possibly others infected by it. The treatment rate for the pen will be higher than normal and affected calves will have decreased performance on feed.

How Can BVD be Reduced in the Cowherd?

The following steps must be followed to eliminate BVD from the cowherd:

1. **Identify** and **eliminate PI's** from the herd.
2. Adopt a **vaccination program** for the cow herd and replacements to combat BVD.
3. Adopt a **biosecurity** program for the herd that reduces any new introduction of BVD infection into the herd.

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Calculating Yardage Expense

Dennis Martin, Feedlot Specialist, OMAF

Figure 1. Yardage Costs Include Building Maintenance and Depreciation

Do you know your yardage cost?

For a feedlot, the term **yardage** refers to the **daily overhead costs** associated with maintaining cattle in the lot (or yard). It includes such costs as building depreciation and repair, labour, taxes and hydro costs. Next to feed costs, yardage is usually the second largest expense when calculating cost of production. The industry average yardage cost is approximately **30¢ per head per day**. But this number can **vary greatly** from one feedlot to the next, especially if you compare an operation which has new facilities with one which has older, fully depreciated buildings.

Take a few minutes and calculate **YOUR yardage costs** and see how you compare to the industry average.

If you would like to participate in a feedlot yardage survey, please call or email Dennis Martin, Beef Feedlot Specialist, OMAF, Box 159, Clinton, ON N0M 1L0 Phone: (519) 482-5976; Fax: (519) 482-5031
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Table 1. Calculating Yardage Expense

Expense	**Sample Farm 500 Head Capacity (2 turns/year)**		**Your Farm # of Head Capacity ______ # of turns/year ________**	
	Per Year	**Per head/day**	**Per Year**	**Per head/day**
* Barn & Machinery @ 5% Dep. 100,000 @ 5% * (old bank barn with outside yard)	5,000	3¢		
Labour - $45/day (relating to cattle)	16,000	9¢		
Straw/bedding	11,000	6¢		
Building/equip. repairs	10,000	5¢		
Fuel/oil	3,000	2¢		
Hydro/ins./phone/taxes	5,000	3¢		
Other				
Total	50,000	28¢		

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