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IN THIS ISSUE

Feed Efficiency and Genomics

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The importance of raising efficient animals

The profitability of beef production is based on both input costs and output values. **Feed costs** have a major impact on profitability as they represent about **60 to 80%** of the **total cost** of beef production systems. Improving feed efficiency by just 1% would cut feed costs by **$30 million** per year for beef production in Canada. Thus, improving feed efficiency traits offers great potential for increasing the profitability of production systems and must be included in the breeding objectives of beef cattle producers. However, while the target of improving feed efficiency is clearly defined, it is not that easy to achieve.

Figure 1. Measuring individual feed intake requires special equipment

The difficulty of selecting for feed efficiency

A major challenge for beef producers to select for more efficient animals is the difficulty in measuring individual feed intake (Figure 1). Measuring feed intake is also an expensive process, particularly if feed intake data is collected on large numbers of animals for long periods. Sophisticated technologies such as

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wireless radio frequency identification (RFID) units [i.e. Insentec© (figure 2) or Growsafe© technology] are required to measure individual feed intake accurately. Nonetheless, technology such as Growsafe© has been used to measure individual animal consumption, feeding behavior and animal weight in some beef research stations[v]. During the last few years, individual feed intake has been measured on bulls in performance testing stations in many parts of the world, including Ontario. Utilization of automated feeding technology for bull evaluation may increase the benefit obtainable from economic investment in feed intake recording equipment.

Figure 2. Automated feeding station in Elora Beef Cattle Research Centre, University of Guelph.

Measuring feed efficiency

Feed intake by itself does not accurately reflect the feed utilization efficiency of animals because animal feed intake is highly associated with body weight and the level of production. We need a method of accounting for these effects in order to identify animals that have an inherently superior ability to convert feed to weight gain, which they will be able to pass on to their progeny. The concept of **net feed efficiency** (also called **residual feed intake**, or **RFI**), possesses most of the desired properties in feed efficiency measurement. It gives us the power to select for animals which use less feed for a given rate of gain, and it evaluates feed intake independently of growth rate and body size. With RFI, an individual animal's **actual** feed intake is compared to that **predicted** to be required by an average animal of the same weight which is growing at the same rate. Residual feed intake is the difference between the animal's actual intake and what we predicted it would be. In other words, **RFI = Actual Intake – Predicted Intake**. Animals with a low RFI are desirable (more efficient) and animals with a high RFI are undesirable (less efficient).

Towards genetic improvement of feed efficiency using genomics

There is a lot of genetic variation for feed efficiency between animals of the same breed, and amongst animals of different breeds. We can maximize progress in selection for feed efficiency by combining conventional performance selection with genomic methods. With genomics, we can examine the animal's actual genetic material and use both the relationships between an animal's specific genes or genetic markers and its actual performance to calculate its genetic merit. [For an **introduction to genomics**, please see the two previous articles in this series, written by Dr. Stephen P. Miller, University of Guelph and published in earlier editions of *OMAFRA Virtual Beef*][vi]. One type of genetic marker is called a "single nucleotide polymorphism" or **SNP** for short. These are specific locations on the DNA where alternate versions of a "genetic code letter" are found in different animals. Sometimes, one version of the code letter is associated with a measurable difference in the performance of the animal. If these can be identified and mapped, then a test can be developed to screen for its presence in large numbers of animals. Those that have the favorable version of the code letter (SNP) are more likely to be higher performing animals than those that have the unfavorable versions. This can be used as a pre-selection tool to decide which animals should enter a performance testing program, or for selection of breeding stock which do not have performance records themselves.

Genomic approaches: fantasy or fact?

In the last decade, improving feed efficiency traits using genetic markers has progressed from using a few SNPs to thousands of SNPs. Earlier studies focused on using few SNPs, in particular with genes associated with the biology of feed utilization. The science supporting the usefulness of SNPs has steadily grown. Validation for the use of SNPs includes: discovery of the link between SNPs in the leptin gene with feed intake and feeding behavior; between SNPs in uncoupling protein 2 and protein 3 genes with feed efficiency; between SNPs in the gene for growth hormone receptor as well as several others. At the University of Guelph we have developed a small SNP panel for feed efficiency which includes SNPs within 9 different genes.

Increasing the number of SNPs in the evaluation of a complex trait controlled by many genes (such as feed efficiency) should improve the accuracy of genetic selection. To this end, the number of SNPs has increased to the thousands, covering the whole genome. This has resulted in great progress being made in identifying specific genes and locations on the chromosomes that are strongly associated with feed efficiency.

However, the full implementation of genetic markers identified in previous studies into selection programs is facing two barriers. The first is the lack of understanding of the interactions of the genes' effects on residual feed intake. Second, the number of animals in the validation data set is small and these data are collected from different environments.

With the advent of a 50,000 SNP panel (Figure 3) in Dec. 2007, different beef groups around the world tested their records with phenotypes available. Promising results have been obtained from 50k SNP panel". Combining phenotypes from different breeds is required as the gene responsible for the trait always has one rare allele. Of course, phenotypic (actual animal performance) data for feed intake is required to be accumulated from different breeds and from different populations within breeds.

Figure 3. The Illumina BovineSNP50© Beadchips

Genomic assisted selection for feed efficiency

The aim of adopting new technologies such DNA testing is to increase the accuracy of selection, which is a source of motivation for competition between the breed associations. Implementing genomics in the genetic evaluation programs leads to more accurate EPDs where the molecular breeding values of offspring can be accurately predicted using only their genotypes. Genomic-enhanced EPDs for all economic traits are the current and future target for beef cattle genetic improvement programs. Recently, the American Angus Association has combined different sources of information (DNA Markers, pedigree, and phenotypes) into one EPD, termed **Genomic-enhanced EPDs**. Currently Genomic-enhanced EPDs for multiple carcass traits are available for Angus breeders. On October 5, 2010 the American Angus Association and Angus Genetics Inc. released residual average daily gain (RADG) expected progeny differences (EPDs) as a selection tool for feed efficiency, using the 50K SNP panel.

Our understanding of the genetic architecture of feed efficiency will deepen dramatically in the next two years. Moving from the 50K SNP panel to an 800k panel (BovineHD©, High Density Bovine BeadChip), will provide even more accurate genomic EPDs. As well, using whole genome sequencing data in genetic evaluation is currently possible.

Genomics is the future. **The future is now!**

References

[1]Archer, J. A., E. C. Richardson, R. M. Herd, and P. F. Arthur. 1999. Potential for selection to improve efficiency of feed use in beef cattle: A review. Austr. J. Agric. Res. 50:147-161

[2]Burt, A. 2004. GrowSafe technology offers potential to monitor feed efficiency, animal behavior and illness. 164, ANGUS J., Nov.r 2004.

[3]Schwartzkopf-Genswein, K. S., C. Huisma and T. A. McAllister. 1999. Validation of a radio frequency identification system for monitoring the feeding patterns of feedlot cattle. Livest. Prod. Sci. 60:27–31.

[4]Wang, Z., J. D. Nkrumah, C. Li, J. A. Basarab, L. A. Goonewardene, E. K. Okine, D. H. Jr. Crews, S. S. Moore. 2006. Test duration for growth, feed intake, and feed efficiency in beef cattle using the GrowSafe system. J. Anim. Sci. 84 (9): 2289-2298.

[5]Archer, J. A., P. F. Arthur, R. M. Herd, P. F. Parnell, and W. S. Pitchford. 1997. Optimum postweaning test for measurement of growth rate, feed intake, and feed efficiency in British breed cattle. J. Anim. Sci. 75:2024–2032.

[6]Arthur, P. F., Archer, J. A. and R. M. Herd. 2004. Feed intake and efficiency in beef cattle: overview of recent Australian research and challenges for the future. Australian Journal of Experimental Agriculture 44:361-369.

[7]Koch, R. M., L. A. Swiger, D. Chambers and K. E. Gregory. 1963. Efficiency of feed use in beef cattle. J. Anim. Sci. 22: 486-494.

[8]Schenkel, F. S., S. P. Miller and J. W. Wilton. 2004. Genetic parameters and breed differences for feed efficiency, growth, and body composition traits of young beef bulls. Can. J. Anim. Sci. 84:177–185.

[9]Miller, S. P. 2008. Genomics - A Fast Train Coming. OMAFRA Virtual Beef.

[10]Miller, S. P. 2009. Harnessing the Power of Genomics for Beef - A Collaborative Approach. OMAFRA Virtual Beef

[11]Nkrumah, J. D., Li, C., Yu, J., Hansen, C., Keisler, D. H., S. S. Moore, S. S. 2005. Polymorphisms in the bovine leptin promoter associated with serum leptin concentration, growth, feed intake, feeding behavior, and measures of carcass merit. J. Anim Sci. 83: 20-28

[12]Kolath, W. H., M. S. Kerley, J. W. Golden, S. A. Shahid and G. S. Johnson. 2006. The relationships among mitochondrial uncoupling protein 2 and 3 expression, mitochondrial deoxyribonucleic acid single nucleotide polymorphisms, and residual feed intake in angus steers. J. Anim. Sci. 84(7): 1761-1766

[13]Sherman, E. L., J. D. Nkrumah, B. M. Murdoch, C. Li, Z. Wang, A. Fu and S. S. Moore. 2008. Polymorphisms and haplotypes in the bovine neuropeptide Y, growth hormone receptor, ghrelin, insulin-like growth factor 2, and uncoupling proteins 2 and 3 genes and their associations with measures of growth, performance, feed efficiency, and carcass merit in beef cattle. J. Anim. Sci., 86: 1-16.

[14]Abo-Ismail, M. K.; M. J. Kelly; E. J. Squires; K. C. Swanson1; J. D. Nkrumah; and S. P. Miller. 2009. Identification of single nucleotide polymorphisms influencing feed efficiency and performance in multi-breed beef cattle using a candidate gene approach.J. Anim. Sci. Vol. 87, E-Suppl. 2.

[15]Goddard, M. E. and B. J. Hayes. 2007. Genomic selection. J Anim Breed Genet.124(6):323-30.

[16]Moore, S. S., F. D. Mujibi, and E. L. Sherman. 2009. Molecular basis for residual feed intake in beef cattle. J. Anim Sci. 87: 41-47.

[17]Sherman, E. L., J. D.Nkrumah, S. S. Moore, 2010. Whole genome single nucleotide polymorphism associations with feed intake and feed efficiency in beef cattle. J. Anim Sci. 2010 88: 16-22

[18]Abo-Ismail, M.K.; E. J. Squires, K. C. Swanson, D. Lu, Z. Wang, J. Mah, G. Plastow, S. Moore and S. P. Miller, 2010. Fine mapping QTL and candidate genes discovery for residual feed intake on Chromosomes 5, 15, 16, and 19 in beef cattle. Proceedings of the 9th World Congress on Genetics Applied to Livestock Production.

[19]Lu, D., S. Miller, M. Sargolzaei, G. Vander Voort, T. Caldwell, Abo-Ismail, M.K., Z. Wang, J. Mah, G. Plastow, S. Moore Genome Wide Association Scan for Signals of Recent Selection in Angus Beef Cattle. Proceedings of the 9th World Congress on Genetics Applied to Livestock Production.

[20]Goddard, M.E. 2009. Genomic selection: prediction of accuracy and maximisation of long-term response. Genetica, 136:245–257

[21]Golden, B. L., D. J. Garrick and L. L. Benyshek. 2009. Milestones in beef cattle genetic evaluation. J. Anim. Sci. 87 (E. Suppl.):3–10.

[22]Kizilkaya, K., R.L. Fernando and D.J. Garrick (2010): Genomic prediction of simulated multibreed and purebred performance using observed fifty thousand single nucleotide polymorphism genotypes. J. Anim. Sci. 88: 544-551.

[23]Northcutt, S. 2010. Pulling it all together:Genomic-enhanced EPDs.

[24]Meuwissen, T. H.E., M.E. Goddard. 2010. Accurate Prediction of Genetic Values for Complex Traits by Whole Genome Resequencing. Genetics, 185: 623-631

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How Many Beef Cows Do You Need?

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How many beef cows you need to have a **viable operation** is an often asked question. It is also a tough question to answer since every farm has a unique set of circumstances, asset base and management style. That said, I'll try to shed some light on the subject here.

For the purposes of this discussion, the term **Gross Margin** will be used. Gross margin (GM) is sales minus your variable costs. Variable costs are those that change depending on the level of production, such as total feed required. Gross Margin primarily accounts for the direct cash costs in producing calves. GM is the money you have left over to pay the cost of owning your assets, both cash and non-cash costs like depreciation, and to cover your living expenses.

In this context, two pieces of information are key to answering the how many cows question;

1. How large does your Gross Margin need to be?
What is your current Gross Margin percentage?

To answer the first question, you need to know how many dollars of GM are needed to cover your fixed and living expenses. This is calculated as:

Gross Margin *$* = Gross sales $ - Variable Costs $

Gross Margin percentage is your GM dollar amount divided by sales dollar amount. This is calculated as:

Gross Margin % = (Gross Margin $ / Gross Sales $) x 100

For example, a 20% GM indicates that 80% of your revenue from sales is needed to pay variable costs and 20% is the margin that is left after variable costs are paid.

Table 1 walks through an example and shows a range of cow herd sizes needed to meet different GM dollar levels at different GM percentages.

Fixed Costs are costs which **stay constant** when you **increase** or **decrease herd size**. Examples include taxes and insurance on your land and buildings, and mortgage payments. The 2007 results of the Cow Calf Benchmarking Project conducted by the University of Guelph showed the average Fixed Costs per herd for the high profit group were $9,500. For our example in Table 1 this is used as the minimum GM dollar amount needed. This amount is then increased at increments of $10,000 to provide a return to cover living expenses.

The average GM% for the top herds in the cow calf benchmarking project was 11%.

To read Table 1 (page 5) you find the dollar amount of GM you need on the left hand side. You then match it with your expected GM percentage across the top of the table. For example, if you needed a GM of $9,500 and your GM percentage was 10% you would need to have 165 cows to get to $9,500. If in addition to your fixed costs of $9,500 you needed $30,000 to cover living expenses, you would now need 687 cows to achieve it. If, through different marketing channels or better control of your costs, you could attain a GM of 15% or 20% those herd size requirements start dropping.

These cow herd sizes are dependent on the assumptions made to create the table. The assumptions are spelled out at the bottom of the table; changes to any of these assumptions will of course change the herd size requirements.

If you start working backwards using these assumptions and a 10% GM, variable costs would need to be equal to $567 per cow. Here's how I arrived at that figure:

- 600 lb calf x $1.05 per lb x 95% birthing rate x 96% weaning = $575 gross sales
- $575 gross sales x 10% GM percentage = $57.50 per calf GM
- $575 gross sales - $57.50 GM = $517 variable costs

The high profit herds in 2007 had variable costs of $600 per cow.

When evaluating the economics of your beef cow herd, questions beget tougher questions, starting with:

- What is my **average market price?**
- What is my **average weaning weight?**

These become your starting point, and your next questions are:

- What are my **fixed costs** and **living expenses**?
- What do my variable costs need to be to have enough leftover to pay for those costs?
- Am I raising calves at that cost now?

If the answer is no then:

- Can I do anything on the revenue side to increase what I receive? e.g. heavier calves, increased marketing efforts.
- Can I decrease my cost of production? e.g. control feed costs using intensive rotational grazing.

How many cows you need depends on your margins: what you can get for your calves and how much will it cost you to get that

Table 1: Relationship of Gross Margin $ and Gross Margin % to number of cows required*

Total Gross Margin $ Achieved	Number of cows required			
	Gross Margin %			
	5%	**10%**	**15%**	**20%**
$9,500	331	**165**	110	83
$19,500	679	339	226	170
$29,500	1027	513	342	257
$39,500	1375	**687**	458	344

*Assumptions: 600 lb weaned calf; $1.05/lb average market price; 95% birthing percentage; 4% calf mortality rate to weaning

to market price. What your fixed and living expenses are can be a starting point to working backwards to what your cost of production is and how large your herd needs be to achieve those targets.

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Ventilation Basics for Beef Cattle

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Ventilation Principles

Good ventilation is important for the health and productivity of beef cattle. Cattle give off heat and moisture as they grow, especially feeder cattle on high energy rations. They also produce manure and urine which adds moisture to the environment, and gases like ammonia. It is important to **remove stale air with excess moisture** and **gases** and **replace** it **with fresh air** to avoid respiratory problems. When the weather is hot it is important to remove animal heat to keep the cattle comfortable. A good ventilation system will do these things.

Insulation helps improve ventilation. Insulation is used to reduce the flow of heat or cold in a barn. In cold weather a small amount of insulation under the roof steel can minimize condensation from occurring as moisture from warm moist air will condense on cold surfaces. Insulation is also important in warm weather to reduce the flow of heat into the barn and keep it cooler. Insulation under the roof steel of a single storey barn with an R-value of 5 to 10 is a good idea to reduce condensation and keep the barn cooler.

Type of Animal	Ventilation Rate CFM */ Animal	
	Cold Weather	Warm Weather
Beef Calves < 3 months	10	120
Veal Calves	12	175
Beef Feeder	15	300
Beef Cow (1,000 lbs.)	20	400

* CFM = cubic feet per minute

Table 1. Recommended Ventilation Rates for Beef Cattle

All **ventilation systems require three** basic **components**:

1. an **inlet system** to allow fresh air into a building.
2. an **exhaust system** to remove the stale air from the building
3. a **control system** to provide the correct amount of air entering and leaving the building.

The amount of fresh air required for beef cattle will depend on the size of the animal, and the time of year. The recommended ventilation rates for cattle are shown in Table 1.

Natural Ventilation

Natural ventilation relies on wind power to blow air through a building, combined with the buoyancy of warm air to exhaust air from a building. Natural ventilation works best when the barn is orientated 90^{o} to the direction of the summer winds, so they can blow through the narrowest width of the barn. Generally, in Ontario most of our **summer winds** come from the **west or southwest**, so the **barn** should be **orientated** with the ridge **running in a north-south direction**. To be effective, the barn will require large openings on both sides to let the wind blow fresh air in and exhaust stale air out on the other side (Figure 1). In cold weather natural ventilation relies more on the fact that warm air rises, so air entering in the barn is warmed by the cattle's body heat and then allowed to exhaust through some form of chimney or ridge opening.

Figure 1. Natural Ventilation Requires Large Wall Openings

In the simplest form inlets can be windows that can be adjusted or removed for ventilation. However, most old barns with stone or concrete foundations do not have enough window space or are blocked by the mow access. Where possible, the inlets should be continuous openings of 4 ft. or more that are closed using adjustable curtain material.

Air can be exhausted from a single storey barn through an **open ridge**. The size of the ridge opening is dependant on the width of the barn. It is usually 1-2 in. per 10 ft. of barn width (Figure 2). The ridge can be covered to reduce rain and snow from entering, as long as the cover does not reduce the flow of exhaust air. The ridge opening should stop 8 to 12 ft from the ends of the barn to help reduce down drafts.

The other option for exhausting stale air is with **chimneys**. Individual chimneys reduce the amount of rain and snow that can enter, and they can also be used in a two storey barn. The following thumb rules will help with the selection of chimney sizes:

- Provide ½ ft^2 of chimney opening for ever 100 ft^2 of floor space in a single storey barn
- Provide 1 ft^2 of chimney opening for ever 100 ft^2 of floor space in a two storey barn
- Always provide at least 2 chimneys
- Chimney size should never be larger than 4' x 4' to prevent down drafts
- Dampers can be used to control the exhaust of air in chimneys in two storey barns, and should be located near the top of the chimney to keep in warm, and to help it draw better.
- Should have one chimney for every 2,000 ft^2
- Chimneys should be no further than 20 to 24' apart in wide barns

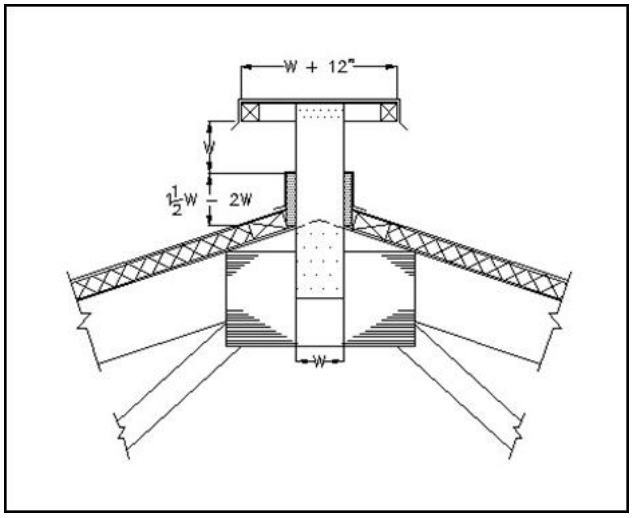

Figure 2. Open Ridge

The third aspect of a natural ventilation system are the **controls**. The wall openings need to be adjusted depending on wind direction, outside weather and size of animals. Most curtain openings are adjusted with manual winches. Automatic controls are available but only justified with sensitive livestock.

Fan Ventilation

Most structures for beef cattle are ventilated naturally, but sometimes exhaust fans are necessary, especially in old two storey barns with few windows. Fan ventilation relies on electrical power to move air instead of natural wind forces. Inlets are still required to allow for the entry of fresh air, but a fan is used to remove air from one side of the wall to the other. The **fan builds up** a **negative air pressure** in the barn, and **sucks the air out**. The fans are turned on and off using a thermostat.

Fans are not often used in cattle barns as natural ventilation is preferred because of its simplicity and minimal operating costs, but fans can be useful in older two storey barns to exhaust stale air where natural ventilation isn't possible. The minimum winter ventilation rate can be calculated from Table 1. This minimum ventilation rate may need to be increased to 4 air changes per hour to provide good air quality in cold weather. It is **better** to have **two small fans** spread out than **one large fan** to provide the minimum rate. Fans will draw air from the easiest place possible, so if there are too many cracks in an old barn or if fans are located near a leaky window they will not do an effective job of removing stale air, so its best to spread them out.

Operation of the Ventilation System
The goal of the ventilation system is to provide fresh air to **remove excess moisture** and **heat**, and **gases** without causing drafts. It is healthier to keep cattle cold and dry as opposed to closing up a barn to keep the heat in and not let it freeze. This also keeps all the moisture and gases in which can result in respiratory problems.

It is important to provide fresh air without drafts. Cattle notice air movement to be drafty, when it is moving too fast relative to the room temperature, or it is much colder than the room temperature. It is important during cold weather to bring in fresh air as high as possible on a wall, so it has a chance to mix with room air before it reaches the animals. You should try to avoid bringing in fresh air along the floor. This means that it is important to seal along the bottom of doors in the winter, or sometimes it may be necessary to cover gates with plywood to block air movement along the floor. Sometimes shade cloth (used in the greenhouse industry) can be used to allow fresh air in while slowing down the wind speed. Shade cloth is a woven material that comes in different porosities (i.e. 80% material:20% open).

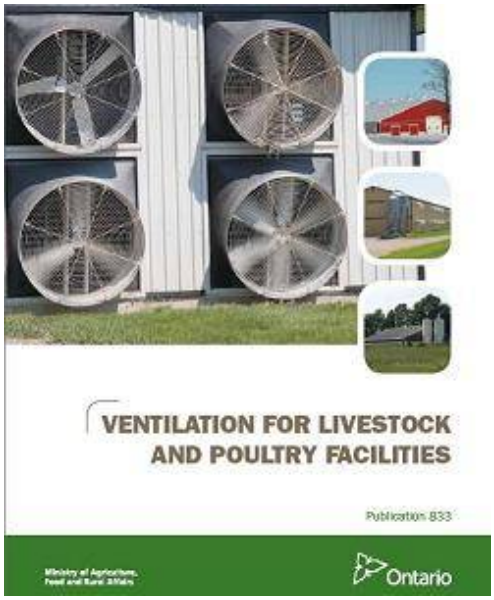

Figure 3. OMAFRA Ventilation Manual

Ventilation Manual
OMAFRA recently published a manual on Ventilation for Livestock and Poultry Facilities – Publication 833 (see figure 3).

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Marketing 101 – A Marketing Plan

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Marketing has a **direct impact** on your **overall business success**. Changing buyer demands, local and global competition and other market forces have resulted in the business of agriculture moving from being focused on production to being market driven. A marketing plan develops strategies for marketing your cattle. It challenges you to identify costs, develop price goals, consider production and price risks, and to review price and market outlooks. Like a road map, it provides the details, responsibilities, and actions for marketing your cattle. This helps to minimize the guesswork and emotion when making key marketing decisions. Market planning is a continuous task that needs to be flexible to accommodate changing market and production conditions. A marketing plan is a farm business management tool to assist in facilitating the successful marketing of your production.

Here are the seven essential elements of a marketing plan:

1. **Know your cattle and business** – Very simply, this is tying together your production and financial situation to **achieve your farm business goals**. It means fitting your production plans (type of cattle, how many and when they are available to sell) into your cash flow to ensure financial commitments are covered in a timely fashion. Consideration should be given to risk management tools (i.e. production practices, diversification, and insurance) that can be used to manage production risk. Review your current financial situation and business goals to ensure your marketing plan is in line with your overall business plan. The financial health of the business provides an indication of the amount of risk the operation can bear. Individual attitudes towards accepting and managing risk will vary. Focusing on relatively simple strategies to increase income and reduce risk could be a place to start. A simple marketing goal could be to cover the cost of production plus a reasonable return as opposed to simply trying to maximize the price received.

2. **Cost of Production** - To effectively market your cattle you need to **know your cost to produce an animal**. A cattle budget will determine the number of cattle to be produced, the costs involved, and establish a production flow. One suggestion is to break out the costs into animal replacement, feed, other variable, and fixed costs. This will be useful when establishing price targets.

3. **Market Information** – Remember this: **good market information gives the producer marketing power!** Market information includes market prices, fundamentals, analysis, outlook, and strategies. Understanding the market fundamentals helps to make informed marketing decisions to capitalize on market pricing opportunities. The ultimate challenge is to have a future market perspective that takes into consideration the current market conditions, the seasonal trends, and the historical market information. To develop your outlook there are numerous sources of market information available. These include advisors, newsletters, bulletins, websites, emails, seminars, and courses. It is critical to choose reliable information resources to provide the type of market information that your business needs. Market conditions change and a marketing plan needs to be responsive.

4. **Marketing Tools** –This is where producers evaluate the pricing and delivery opportunities available to them. This may include cash sales, forward price contracts, and hedging using futures or options. Also, check with your lender to see what tools are available to manage currency risk. The first step is to understand how each marketing tool can manage price risk. Next, review the strengths and weaknesses of using them in your marketing plan. Finally, consider any special requirements (i.e. extra credit) needed to make them work effectively. Individual attitudes towards accepting and managing risk will vary depending on the situation and resources available. It can range from a preference to avoid price risk to preferring to use a risky marketing strategy to generate potential higher returns. The challenges are to **understand how each marketing tool can manage price risk** and the pros and cons of using them in your marketing plan.

5. **Price Targets** - Knowing your cost of production helps to establish target prices to recognize acceptable market prices that are compatible with your financial situation. A marketing plan, no matter how good, may not be able to lock in prices that cover all the costs of production all the time. Key target prices that compensate for specific costs are important to have in years where opportunities to cover all costs are limited. Three price targets to consider are:

1. **Survival price:** the lowest acceptable price based on cash outflow
2. **Acceptable price:** the breakeven price based on total costs
3. **Favorable price:** the breakeven price plus a return to management and risk

6. **Take Action** – Taking action to make a pricing or marketing decision will probably be the hardest part. Having a combination of strategies and examining "what if" situations in advance as part of your planning process will help. Put **someone in charge** (i.e. yourself, spouse, etc.) of **executing your marketing plan** with support from your marketing team (i.e. yourself, spouse, market advisor, lender, etc.).

7. **Evaluate and Monitor** - Walking your cattle pens and noting the cattle performance helps to make production decisions. Similarly, a market log book can be used to record market information to assist in executing and evaluating your plan. The information could include cash prices, future prices, basis, marketing positions, and notes on why a decision was made. **Set aside** (assign) appropriate **time to review** the **markets** and your **marketing goals/targets.**

The bottom line is that a marketing plan helps to achieve your farm business goals and objectives. A written marketing plan helps the decision making process and provides discipline to execute it. Be realistic when developing the plan, keep it manageable, and monitor your progress.

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New Food Safety Resource Available from OMAFRA

In response to heightened consumer awareness about food safety, OMAFRA has created a **new user-friendly CD** to make food safety practices easier for you. The interactive *iGAP* CD contains the entire *Advantage Good Agricultural Practices* manual plus tools to help you implement food safety on any farm.

As a **producer**, the *iGAP* CD walks you through how to **get started** in **food safety**, evaluate food safety risks and what practices apply on your farm. *Advantage iGAP* explains on farm food safety in a simple straight forward manner, with great resources to help you.

- *Advantage Good Agricultural Practices* to help you manage risks on your farm
- 3-2-1 Assessment to compare your current food safety practices against best practices
- Can be tailored to any farm, and supports all food safety programs

- Customizable procedure and record templates provide proof of your ongoing commitment to food safety
- Videos on water sanitation to demonstrate proper pre and post harvest water use
- Traceability success stories featuring livestock and crop farmers who talk about how traceability has impacted profitability
- Factsheets on irrigation water quality, manure, and many more, to help you find solutions

New Workshops

OMAFRA has a number of new workshops coming to a community near you beginning early in 2011, including Food Safety for Multi-Commodity Farms and Getting Started in Food Safety.

Please check our website at www.ontario.ca/foodsafety for dates and locations.

Other Resources

The *Advantage Producer Checklist* is a tool that can help you conduct self-audits. It allows you to demonstrate to buyers what food safety practices are in place on your farm.

Contact us

Check our website for the most up-to-date information on any of our products and services, or you can call us at 1-877-424-1300 to get your free copy of the *Advantage iGAP* CD.

Upcoming Events

Growing Your Farm Profits (GYFP) workshop is the entry point to potential cost-share opportunities available through Growing Forward Business Development for Farm Businesses Click on the link for dates and locations.

18th Annual Southwest Agricultural Conference
Harvesting Success from Research & Innovation
January 5 and 6, 2011 Read More

New Products Available from OMAFRA

Factsheet 10-077: Rodent Control in Livestock and Poultry Facilities

Factsheet 10-075: Canada Pension Plan - this factsheet provides an overview of the Canada Pension Plan

Factsheets can be ordered in person at ServiceOntario Centres located throughout the province or at any Ministry of Agriculture, Food and Rural Affairs Resource Centre or by calling 1-800-668-9938.