Manitoba Rural Adaptation Council Inc.
FACILITATING AGRICULTURAL INNOVATION AND SUSTAINABILITY

COVERING NEW GROUND
MANITOBA AGRICULTURAL SUSTAINABILITY INITIATIVE

Prairies East Sustainable Agriculture Initiative

# Manitoba Forage Finished Beef Potential in Niche Markets for the Manitoba Forage Council


by

Kelwin Management Consulting

Box 40, Niverville, Manitoba, R0A 1E0
Phone: 204-388-5340 Fax: 204-388-5395
E-mail: rbaldwin@kelwin.ca


June 20, 2006

MANITOBA FORAGE COUNCIL INC.
FARMING INDUSTRY RESEARCH EXTENSION

Agriculture, Food and Rural Initiatives

# Acknowledgements

The Manitoba Forage Council in partnership with several other organizations, is very pleased to present this document which identifies some of the opportunities and challenges in the development of a Value Chain for the production, processing and marketing of Manitoba forage finished beef for niche markets.

Funding agencies that made this project possible include the Manitoba Rural Adaptation Council (MRAC) and Covering New Ground (CNG) through support from the Prairies East Sustainable Agriculture Initiative.

The committee involved in the development and guidance of the project contributed many hours of time and include representatives from the Manitoba Forage Council and other producer representatives: Don Green, Fraser Stewart, Joe Bouchard, Braggi Simundsson; Manitoba Agriculture Food & Rural Initiatives representatives: Glenn Friesen, Terry Buss, Michael Buchen, Henry Nelson, Myrna Grahn; Agriculture & Agri-Food Canada - Dr Shannon Scott; and University of Manitoba Department of Animal Science – Dr. Kim Ominski.

The committee members are very grateful to authors of the report, Kelwin Management Consulting particularly Brian Kelly and Vivian Munro with the assistance of Randy Baldwin and Lindsay MacDonald, who did an outstanding job of researching materials and organizing a document which should be a very valuable tool in the development of future Forage Fed Beef Value Chains for Manitoba forage/livestock producers.



Fraser Stewart
Executive Director
Manitoba Forage Council
PO Box 1, Group 310,RR#3
Selkirk, MB
R1A 2A8
Ph: (204) 482-6315
Fax: (204) 482-1700
Email: mfc@mbforagecouncil.mb.ca
Web: http://www.mbforagecouncil.mb.ca

# Table of Contents

# 1.0 Executive Summary

**Intended Audiences**

This report is intended for use by two types of audiences.

One is the Manitoba Forage Council, government representatives and others involved in the development of the forage finished beef sector. The recommendations for "Industry Development" and "Value Chain Facilitation and Promotion" are specifically focussed on this audience.

The second audience is the producers and marketers of forage finished beef products that wish to improve their competitive position by using a Value Chain. The information throughout the report, especially the examples of successful businesses selling forage finished beef and the extensive information on Value Chains in Section 9, are focussed on providing support to this second group (including their public and private sector advisors) that will be the ones starting new Value Chains.

The intent has been to note research reports, websites, and other information that will allow this document to act as a reference for both audiences for an extended time into the future.

**Production Manual**

In an associated project, the Manitoba Forage Council has been developing a Forage Finished Beef Production Manual, which is to be released after this study. This manual will be a communication tool to provide a wide range of information to producers on the best ways to produce forage finished beef in Manitoba. To avoid duplication with the production manual, limited information on production protocols is provided in this study. Because the **production protocols must be designed to deliver the product that consumers want (tenderness, taste, health benefits, story, etc**.), this study has numerous references to the implications of market and consumer information on the production protocols.

**Product/Market Opportunity Definition**

Forage finished beef is produced on a ration that is entirely, or nearly entirely, forage. This ration has scientific evidence to support the claims that the beef product has a number of health benefits due to the high levels of conjugated linoleic acids (CLA), Omega-3, and potentially other compounds such as beta-carotene. It also is produced in a manner that makes it compatible with telling a story about its production that is desirable to consumers.

Forage finished beef is a relatively new product, responding to relatively recent consumer market trends that create increasing opportunities to sell beef with the following characteristics:

- Story beef – a product that is sold with a story that typically includes characteristics that make the consumer feel good, e.g. identification of the local farmer that produced the meat using environmentally friendly, humane production practices, natural (defined as not using any hormones, antibiotics), etc.
- Beef with health benefits – i.e. a functional food trend with the benefits of CLA, Omega-3, and potentially other compounds found at higher levels in forage finished beef products

The first of these characteristics "make consumers feel good" when they buy the product and the second is increasingly being sought out by the baby boomer generation and others seeking improved health.

Forage finished beef is a growing industry sector/market opportunity because it offers both characteristics. All existing forage finished beef marketers researched were also producing/marketing a 'natural' product. Thus, this study has focused on '**natural forage finished' beef**, rather than just forage finished beef.

This product has significant potential because there is an increasing (both in the short term and in the longer term – say next 20 year at least) number of consumers that want to buy food products that "make them feel good when they buy the product" and that want a functional food to enhance their health.

**Market Size**

The future potential market size is difficult to confirm. A number of industry observers are surprised to find that there is a relatively large number of producers that have already been producing forage finished beef. It has been documented that there are 1,200 producers selling 24,000 head of forage finished beef annually in the US in recent years, with almost all being natural beef. This historical number is approximately 80 head per million of population. Research indicates that there has been continued expansion and a number of new Value Chains have been established that have significantly increased the volumes (e.g. Thousand Hills Cattle Co. in Minnesota marketing via 20 retail stores).

In Manitoba, 4 producers have been confirmed as currently producing/marketing this product, with an estimate of 200 animals (200 head / million of population) per year now being sold.

Thus, while the current volumes being marketed are very small, there is significant potential in the future. However, this potential will only be realized if a sophisticated marketing strategy is implemented (as described in this report) and marketing through retail outlets is expanded.

Manitoba holds potential because of the ability to produce high quality forage at low cost relative to many areas of the US. Also, not to be overlooked is the management ability of Manitoba producers, relative to other areas. Observers from outside Manitoba, familiar with a number of areas in Canada and the northern US, see Manitoba producers as having above average forage management skills due to many years of successful extension programs.

It is concluded that the volumes will grow rapidly, but that natural forage finished beef products will remain a niche market, with relatively small total market share, for at least some significant period into the future.

**Production – Must Be "Market Driven"**

As described in Section 15 - Recommendations there is still research and demonstration work to be done to confirm the optimal production protocols for Manitoba that will produce:

- A well marbled product from a young enough animal to be acceptably tender to consumers, and
- The health benefits from sufficiently high levels of CLA, Omega-3 and other compounds.

Questions regarding **production protocols must be addressed from a marketing perspective**. The title of this report includes the term "Forage Finished Beef". But, most successful businesses

in this sector, with high quality products that have high CLA and Omega-3 content, do not utilize a "purist" approach of absolutely 100% forage, but instead feed small amounts of ground flax, barley sprouts, etc. or graze standing crops that have some small amount of grain kernels. They sell a product that is both efficiently produced and meets the consumers' demands. And, these businesses are operating in an ethical and sustainable manner. There is little risk of them being viewed as not having scientific support or being viewed as misleading the consumer.

To be successful the participants in this sector should not bring a philosophical view to the development of this industry that any one production protocol is inherently "right". The production protocols must be market driven. What the consumer wants and will pay for with sufficient premium to make it profitable for the supply chain[1], while maintaining a sustainable ethical production and marketing protocol, is the way to best develop this industry sector.

For new producers to be successful with natural forage finished beef, they must start by identifying the specific details of what their direct customer (could be direct to a consumer, or could be a retailer or a distributor) and the consumer want. While this study concludes there are significant opportunities, these opportunities are only available to producers that take a different orientation than has been typical of commodities in the past. All aspects of production (breed, genetic traits, feeding program and all other aspects of the production protocols), slaughter, processing and marketing must all be researched and identified as being appropriate for the selected target market, before starting any production planning!

**Summary of Report**

Section 13 contains a summary of all parts of this study. This summary section identifies that natural forage finished beef is currently at an early stage of market development. More production capacity exists if more customers can be accessed. Currently a large portion of sales occur direct from the producer to the consumer. There is extensive use of websites to communicate the 1.) the story {local, farmer's identity, environmentally friendly, natural, etc.}, and 2.) the health benefits {CLA, Omega-3, etc.}.

This study concludes that a much larger number (but still a niche market segment) of consumers would buy natural forage finished beef if it were available in more retail outlets. For sales to expand significantly, the use of retail distribution channels must become widespread. A number of challenges exist to implement the use of retail channels instead of direct marketing, but several examples are given of recent Value Chains that have been successfully using retail distribution channels (e.g. Thousand Hills Cattle Co. in Minnesota).

A key to success for those implementing such Value Chains is to focus on successfully **communicating to the consumer the two characteristics noted above ('the story' and the health benefits)**. This must be done within the constraints of the labelling regulations, retail store policies, etc. that reduce the options available when direct marketing. Thus, while production protocols are important and required, it is the marketing that is even more important.

Based on the research with existing marketers of natural forage finished beef, and observation of the growth in both numbers of businesses producing and selling the product and the increasing volumes being sold, it is concluded that production of natural forage finished beef is feasible in Manitoba. The completion of the production research identified in Section 15.1 is needed to

[1] See Section 9.1 for the description of the term "supply chain".

confirm the optimal production protocols, and then confirm the production costs relative to traditional production. Only then will public data be available to finalize a comparison of the relative profitability of forage finished beef versus commodity beef. It is also important to note that with increased volumes, the current significant diseconomies of scale in the transportation, slaughter, processing, and marketing will be reduced and costs will be lowered. Thus, the future is likely to see increasing profits for those in this niche.

Section 15 contains recommendations on:

- Industry Development – focussed on actions needed to see this industry sector develop
- Value Chain Facilitation and Promotion – focussed on actions needed to see the development of more Value Chains in this industry sector
- Value Chain Marketing – focussed on tips for those starting Value Chains (in addition to those in Section 9)

# 2.0 Introduction

The Manitoba Forage Finished Beef – Value Chain Initiative is a multi-year project of the Manitoba Forage Council with in-kind support provided by Manitoba Agriculture, Food and Rural Initiatives (MAFRI) and funding support from Covering New Ground (CNG) through Prairies East Sustainable Agriculture Initiative and the Manitoba Rural Adaptation Council (MRAC). CNG funded the market research and market strategy (including processing) portion of the work and MRAC is funded the Value Chain portion of the work.

This project is being managed by a steering committee comprised of representatives of the Manitoba Forage Council, MAFRI, beef producers and designated persons with relevant knowledge/experience.

The Manitoba Forage Council is a non-profit organization with an annual membership base of 419 dues paying members (producers, agri-business representatives, government extension and research personnel). The 20-member Board of Directors includes representation from the general membership plus organizations such as: Manitoba Agriculture, Food & Rural Initiatives, Agriculture and Agri-Food Canada, the University of Manitoba, Ducks Unlimited, Dairy Farmers of Manitoba, Manitoba Sheep Association, Manitoba Forage Seed Association, Manitoba Cattle Producers Association and Manitoba Forage Processors.

The mandate of the association is to improve the Manitoba forage industry by providing a forum for the exchange of ideas and research information, to support policy development and to promote the optimum use of forage as part of efficient and sustainable production systems.

The Manitoba Forage Council has identified forage fed/finished beef as a potentially attractive option for a number of forage and beef producers to increase their net farm income by pursuing high value niche markets through participation in (potentially one of several) Manitoba Forage Finished Beef Value Chains that could be developed in the future.

Increased use of forage species in crop rotations has the potential to create more sustainable farming systems. This could lead to reduced soil erosion, reduced weed and disease problems, increased natural fertility for subsequent crops and recovery of leached nutrients from deep in the soil profile.

The integrated production of forage, livestock and annual crops can better utilize the total resources of the agricultural land base, including soils that would be considered marginal for annual crop production (e.g. eroded, poorly drained, etc.). Nutrient cycling using manure from livestock and nitrogen fixed by legume crops can improve the profitability of annual crop production while potentially reducing the use of commercial fertilizers, pesticides and fossil fuels.

Given that in 2001, 59% of Manitoba's cow-calf production came from farms with less than 47 cows per farm, it is apparent that beef production in Manitoba tends to be supplemental to other farm operations or to off-farm income. Forage-based cattle finishing systems generally require less capital investment than traditional (grain-based) beef feedlots. Therefore, producers may find it more feasible to add a small-scale forage finished beef finishing operation to their existing farm operation than to add a small grain-based feedlot.

Manitoba has soils and climate that make it well suited to the production of high quality forage which can be grown in crop rotations with cereal and special crops. This forage production could form the basis of a forage fed beef industry.

Beef animals that have been finished on a forage diet (without grain supplementation) produce meat with many health benefits including higher levels of Omega-3 fatty acids and conjugated linoleic acids (CLA).

For beef farmers to benefit from marketing forage finished beef there are three fundamental requirements:

1. There must be market potential in identifiable market segments of consumers
2. The production technology must exist, and be available to beef producers, that can reliably produce beef with the desired characteristics with costs (relative to the returns) that increase profits over traditional methods, and
3. The slaughter, processing and marketing channels (supply chains[2]) must provide beef farmers with the opportunity to benefit, with Value Chains holding the optimal potential.

**This report focuses on the first and last of these points.**

The Manitoba Forage Council believes that there is significant potential to develop a profitable niche market for Manitoba Forage Finished Beef through the development of one or more Value Chains. Market investigation is required to confirm the size of the potential markets and to determine the most appropriate ways to develop these opportunities.

This report has been prepared in response to a request from the Manitoba Forage Council Steering Committee.

# 3.0 Terms of Reference

The overall objectives for this overall project (of which this study and report is only a part of the work) by the Manitoba Forage Council include the following:

1. To determine the potential of Forage Finished beef as a niche market in the Manitoba and export market places
2. To identify the processing, business structure and marketing strategies that would make possible the accessing of this market (i.e. Value Chain for this product), and
3. To provide the technical information to Manitoba forage/livestock producers as to production practices to produce a product required by the industry and to identify the potential profitability of the product.

[2] Supply chain is the term used to describe all the participants and steps that a product takes to get from its origination to the end consumer. For example, a typical beef sausage has a supply chain that includes: breeding stock producer, commercial cow-calf producer, backgrounding operation, finishing feedlot, slaughter plant, processed products (i.e. sausage) plant, trucking companies, wholesaler/distributor, retailer or food service business, and consumer.

# 4.0 Forage Finished Beef

## 4.1 Product Definition

Forage Finished Beef is a concept that is practiced in many ways. Some producers claim that they feed only forages throughout the lives of their cattle. However, others have modified their feeding program somewhat. For instance, Back to Nature Beef of Chatham, Ontario[3] pastures their cattle during the summer. In the winter, the cattle are fed grass and alfalfa hay, direct cut alfalfa silage, direct cut sorghum-sudan grass, and a half pound of fresh ground flax. The flax is added to the diet to enhance the Omega-3 fat level in the meat.

The TK Ranch[4], in east-central Alberta, pastures their beef during the summer, and feed forages during the winter. Although they followed a 'hard-core' regime during the first 5 years of their 11 year-old enterprise, they have since modified their feeding program. To supplement the forage fed during the winter, TK Ranch now feeds barley sprout pellets obtained from the barley malting industry. They market their beef as "pasture raised" rather than forage finished or grass finished beef[5].

On the other hand, Muriel Creek Cattle Co. in eastern Alberta does not feed any type of grain in their beef rations at all[6]. They raise forage-finished beef in the truest sense.

**Definition – "Grass Fed"**

In the US, the minimum standard for grass (forage) fed marketing claims is that 80% of the animal's diet is provided by grass or forage. Because some feel that this definition is not stringent enough, the US Department of Agriculture is seeking comments, as of May 2006, on a new voluntary minimum standard for grass (forage) fed marketing claims. The proposed definition is:

> *"Grass (Forage) Fed – Grass (annual and perennial), forbs (legumes, brassicas), browse, forage, or stockpiled forages, and post-harvest crop residue without separated grain shall be at least 99% of the energy source for the lifetime of the ruminant species, with the exception of milk consumed prior to weaning. Routine mineral and vitamin supplementation may also be included in the feeding regimen. Grass (forage) fed claims will be verified, as provided in 7 CFR part 62, by a feeding protocol that confirms a grass or forage-based diet that is 99% or higher.[7]"*

Further information is available at www.ams.usda.gov/lsg/stand/st-pubs.htm.

---

[3] http://www.backtonaturebeef.com/FAQ.htm

[4] http://www.tkranch.com/abouttk.htm

[5] Interview with Colleen Biggs, co-owner of TK Ranch.

[6] Interview with T. Sawchuk, co-owner of Muriel Creek Cattle Co.

[7] USDA to reconsider grass-fed definition, by Pete Hisey. Daily News item, Meatingplace.com, May 16, 2006.

For the purpose of this study, a broad definition of forage finished beef will be taken in order to fully examine the possible options available.

**Definition – "Natural"**

In this study the term 'natural' is used.

For the use on labels of food products, it is defined by Canadian Food Inspection Agency (CFIA) as follows:

The use of the word "natural" on meat, poultry and fish products is not acceptable unless the products in question were raised without any human intervention. By human intervention it means that the animals were raised with minimal intervention meaning that they were never given or administered substances including vaccinations, antibiotic, medication, veterinary drugs, hormones, direct fed microbials, or formulated feeds.

CFIA uses wild turkey as an example of a meat product that would be considered natural as man has not intervened in raising these. Wild fish would be another example of products that CFIA suggests could typically be labelled as natural.

CFIA notes that where it is not possible to meet the requirements to be labelled as "natural", it may be possible to make other claims for the absence of other substances not used in raising these animals. For example, when hormones are permitted to be used for the animal in question, and if hormones are not used, claims can be made that the animals in question were "raised without the use of hormones". For those animals where hormones are not permitted, a claim such as "like other chicken these were raised without the use of hormones" may be acceptable.

More information is available at www.inspection.gc.ca/english/fssa/labeti/guide/ch4ae.shtml#4.7.

For this study, the term 'natural' is used to indicate a beef product raised without the use of any hormones or antibiotics.

## 4.2 Existing Producers

It is difficult to precisely estimate the current number of producers raising forage finished beef in Canada and the United States. The Eatwild.com[8] website lists over 700 producers who sell meat from grass-fed cattle, goats, pigs, lamb, bison, deer, rabbits, and chicken. Some of the farms listed are organically certified.

Lozier, Rayburn and Shaw (2003)[9] did a survey of North American beef producers who described their product as pasture finished. Their survey is based on 149 producers in the US and Canada and found the following:

[8] http://www.eatwild.com/products/index.html

[9] Growing and Selling Pasture-Finished Beef: Results of a Nationwide Survey by J. Lozier, E. Rayburn, and J. Shaw. Journal of Sustainable Agriculture Oct 3, 2003. www.wvu.edu/~agexten/forglvst/PFBSurvey.pdf

- 74% of these producers' calves are born in the spring;
- Angus, Angus-cross, Hereford, and Hereford-cross breeds are favoured as first choice by more than half of the respondents;
- A great majority of respondents produce animals from their own cows;
- 14% of the respondents reported that they finish their beef animals with supplementary grain on pasture. Among these, the respondents reported that the duration of grain-feeding averaged 45 ± 14 days, and daily ration averaged 7.4 ± 3.2 pounds;
- 94% of respondents reported hanging or aging the carcasses. The average number of days is 14 ± 3.7;
- About half the respondents reported that they sell seasonally vs. year-round. However, selling year-round does not necessarily imply year-round slaughter because many producers hold frozen products for year-round distribution;
- 95% of respondents reported selling to individuals, 28% reported sales to independent stores or butcher shops, and lower numbers reported sales to restaurants (16%), wholesalers (8%), and chain supermarkets (5%); and
- When asked what form their beef is sold, the respondents reported as follows in Table 1.

**Table 1: "In what form do you sell your product?"**

| | Count | Percent |
|---|---|---|
| Live animal | 45 | 30 |
| Whole carcass | 71 | 48 |
| Whole side | 110 | 74 |
| Quarter | 63 | 42 |
| Split side or mixed quarter | 85 | 57 |
| Box – different sized | 27 | 18 |
| Box – different value cuts in box | 24 | 16 |
| Individual cuts | 79 | 53 |
| Hamburger | 81 | 54 |
| Other | 10 | 7 |

- 83% of the respondents in the study said that they obtain a premium price, with 25% reporting a premium of $0.75US per pound or more for the consumer ready product
- 99% of the respondents stated that they advertise by 'word of mouth'; 45% had websites; 34% use direct mail; 27% use newspapers or magazines; 20% use e-mail advertising; and 9% use radio and/or television.

In 2005, the University of California Cooperative Extension (UCCE) surveyed livestock producers in Marin and Sonoma counties of California to determine producer interest in alternative marketing opportunities, barriers they face, and how local government and resource

agencies can help with potential changes[10]. The most popular production option was 100% grass-fed, and the most popular marketing channel was 'direct to the consumer'.

In the Maritime Provinces, most of the forage finished beef is sold as 50-60 pound variety packs rather than as quarters or halves[11]. Some producers have their own meat store and thus have vertically integrated their operation. Adorned with advertisements on the side, Linden Leas Farm sells beef out of its 5th wheel reefer trailer.

**Muriel Creek Cattle Company**[12], Ardmore, Alberta

Muriel Creek Cattle Co is located in North-eastern Alberta and direct markets 100% forage finished beef. As with many forage finished beef producers, they also market grain-finished beef (commodity beef) as well. They market their forage finished beef as 'natural' beef, (i.e. being free of antibiotics, growth hormones, and animal by-products). Although they have had to develop their production system themselves, they report that marketing has been their biggest challenge. They have marketed their beef at farmers' markets and have developed a client list which has grown through word-of-mouth advertising. Last year, Muriel Creek Cattle Company sold 25 forage finished beef as quarters, halves, individual cuts, or in sample boxes.

Situated along a busy highway leading to Meadow Lake, Saskatchewan, Muriel Creek Cattle Company plans to build a meat store on their property to sell beef to the many vacationers traveling to their cottages.

**Tallgrass Enterprises**, Beausejour, Manitoba

Tallgrass Enterprises finishes cull cows on forages, slaughters, and then sells them as hamburger at its Beausejour meat store.

**Manitoba Beef**[13]

Manitoba Beef is operated by Randy Tkachyk of southeastern Manitoba. He sells grain finished, 'natural', Angus beef directly through his website, and through farmers' markets. Most of the beef is sold frozen, as sides, hinds, and vacuum packs; however, they also sell beef jerky, farmer sausage, smokies, and Philly beef (a product that has been slow cooked for twelve hours, ready to eat, and available in BBQ or teriyaki flavours).

---

[10] Alternative Livestock Production and Marketing: A survey of Marin and Sonoma Livestock Producers by L. Gwin, St. Larson, E. Rilla, L. Bush. December, 2005.

[11] Sean Firth of AgraPoint.

[12] http://www.eatwild.com/products/canada.html

[13] http://www.manitobabeef.com/About-Us.asp

**Glenlochar Grass-Finished Beef**, Miniota, Manitoba

Don & Sandra Armitage operate Glenlochar Grass-Finished Beef and have been direct marketing their product for 5 years. Their beef animals have not been fed grain, antibiotics, nor given implants during their lives. Although they have attended farmers' market, their direct marketing approach has proven the most successful. They sell frozen quarters, halves, and variety packs of beef. As with other forage finished beef producers, they also market grain-fed commodity beef.

**Prairie Grass Fed Meats, Manitoba**

Riccardo Gorini of Lake Francis, Bragi Simundsson of Arborg, and Glen Nicoll of Fraserwood market their forage finished beef as Prairie Grass Fed Meats. Their tag line for their beef is *"A pastoral product for people who prefer their protein produced in a low impact production system."* Their beef is ionophore, synthetic hormone and antibiotic free. Prairie Grass Feed Meats is direct marketed to the consumer, but also supplies a Winnipeg restaurant (Fusion Grill) with 'natural', forage finished beef.

## 4.3 Production Protocols Required

Production protocols exist, as many producers are now raising forage finished beef, including some in Manitoba. However, research is required, as well as communication to Manitoba producers. As a part of this overall project by the Manitoba Forage Council, the development and communication of production protocols is being undertaken. A major challenge exists in the production of forage finished beef to grow the right types and species of forage, and to harvest (graze, fresh cut, hay or silage) in the right manner to generate the appropriate degree of finish on the animal at the right time in its life and the right time of year.

Consistent quality is said to be difficult to achieve. Alan Nation's new book[14] provides an excellent reference guide for an overview of many of the production challenges. It highlights the need for:

- Raising different breeds than are currently the norm for grain finished beef, with a focus on smaller animals that will finish (marble) more easily on a forage ration. The article, entitled *Genetics for low input system*[15], (Appendix 2), describes New Zealand, USA and Canadian genetics development and distribution companies that are now supplying semen for breeds specifically developed to be finished on forage[16]. This indicates that the trend to forage finished beef is being seen as a credible and growing practise worldwide. However, if the goal is to sell animals at less than 20 months of age, it may be very difficult to produce

[14] Nation, Alan, October 2005, *Grassfed to Finish – A production guide to Gourmet Grass-Finished Beef*, Green Park Press, Ridgeland, Mississippi, USA

[15] Genetics for low input system, Cattleman's Corner, Grainews Mar. 27, 2006. See Appendix 2 for article.

[16] Campbell, Georgina, *Genetics for low input system*, Grainews, Cattleman's Corner, March 27, 2006, pp. 17 & 19

carcases with sufficient marbling on forage finishing regardless of the breed that is used. In addition, there is not always a strong correlation between backfat and marbling[17].

- Growing a number of different grass and legume forages that will produce the necessary quality of forage for the needs of the animals being raised, with an emphasis on having the optimal ration available for the heavier animals that are on a finishing ration and that will produce the marbling that is desired.
- Continuous animal growth without any periods of stress. Poor taste characteristics can be caused from stress during handling prior to slaughter.
- A complete rethinking of the forage management practises and the beef production management practises, and the coordination of the two, in order to generate the right quality of forage for the animals at the right time. He suggests that this may well mean not only changes in the breed, but also in calving dates, etc. Agriculture and Agri-Food Canada researchers plan to carry out trials this year to look at the economic impact of different calving dates.

In addition to the above points, Manitoba producers face a challenge due to the seasonality of forage production. Winter grazing is not possible for finishing animals. Hay and silage must have the appropriate nutrients for a finishing animal if there is to be consistent supply of forage finished beef year round. If consistent year round supply cannot be achieved in Manitoba, then the marketing alternatives are significantly impacted.

A number of studies have dealt with the issues of seasonal grazing and forage availability. McMillin et al (1990) reported that steers finished on forages during the summer months had less fat and quality grades than did winter forage-finished steers. However, when cattle were finished on silage, there were no differences in traits of carcasses at different harvest dates[18]. A novel approach has been taken by researchers at Mississippi State University (M. Boyd and G. Triplett) using steers to graze a combination corn and soybean pasture. A group of 40 steers that grazed corn and soybeans over a 90 day period in late summer gained 1.35 kg/day[19].

The American Grassfed Association (AGA) has developed standards for the production of Certified Grassfed Ruminant animals and products destined for certification by the AGA. The program requires that a Certified Grassfed Ruminant is an animal which has received only herbaceous plant material and/or mothers milk (without confinement) as its entire food source, other than acceptable mineral and vitamin supplementation, and no grain or grain by-products (100% of diet) for its entire life[20].

Another issue for forage finished beef is that of supplementation. The question becomes one of definition: what supplements and to what extent they can be used while still falling within the definition of forage finished beef. There is an opportunity to use by-product feeds rather than

---

[17] Expert opinion.

[18] McMillin, K. W., T. D. Bidner, G. M. Hill, D. F. Coombs, C. P. Bagley, J. W. Knox, A. F. Loyacano, W. M. Oliver, D. C. Huffman, and W. E. Wyatt. 1990. Appl. Agric. Res. 5:321.

[19] Review: Forage-Produced Beef: Challenges and Potential. J.M. Martin & R.W. Rogers. Professional Animal Scientist. June 2004

[20] http://www.americangrassfed.org/Standards%20Feb.%209,%202005.htm

grains as a supplement. In a study done by Ann Wells (2004)[21], soybean hulls (soyhulls) were chosen as a supplement because they are a digestible fibre and a by-product of the food industry rather than a starch-based grain supplement in competition with the food industry. Furthermore, a fibre based supplement is preferable for ruminants as it does not interfere with the balance of rumen micro-organisms. When starch-based supplements are used, there is generally a decrease in intake and forage digestion. In addition, there is no negative impact on the fatty acid profile of the meat when fibre based supplements are used rather than starch-based grain supplements (i.e. cattle fed soyhulls did not have decreased CLA content). The interest in the issues of supplementation has spawned a great amount of research, some of which has been reported in journals such as The Stockman GrassFarmer[22].

[21] Whole Farm Planning for Production of Grass-fed Beef by Ann Wells, National Center for Appropriate Technology (NCAT). August 31, 2004.

[22] Non-grain Energy Supplements said to be Best for Ruminants, by Allan Nation. The Stockman GrassFarmer, 2005, found at www.stockmangrassfarmer.net/

# 5.0 Forage Finished Beef Markets

Forage finished beef is not just traditional beef fed with a different finishing ration. To be successful, the complex market characteristics and the related marketing strategies must be well understood before deciding how to change the entire production system. The following information is provided to create the understanding of the relevant market characteristics.

## 5.1 Relevant Market Trends and Consumer Characteristics

### 5.1.1 Quality Traits

A two-tiered grading system is used in Canada where marbling (small white flecks of fat in the lean meat) is graded as either trace (A), slight (AA), or small (AAA) which are equivalent to the minimum requirements for the USDA Standard, Select and Choice grades respectively. A second grade measures the percent lean yield of the carcass based on the proportion of muscle and fat. The top score (range from A to D) is A1. The numbers 1 to 4 refer to the amount of fat and can also be an indicator of fat colour. A B1 grade indicates inadequate finish[23].

There is grade discrimination against forage-finished beef with regard to colour (muscle or fat) and palatability (flavour or tenderness)[24]. Cattle finished on forage do not normally attain the United States "Choice" or "Canadian A" quality grades because of lower fat deposition and reduced marbling – a characteristic which commonly increases tenderness and sometimes flavour. Packers perceive that food buyers also discriminate against subcutaneous yellow fat, a characteristic commonly associated with feeding forages due to their high beta-carotene content. Grains contain negligible amounts of carotenoids.

Traditionally, meat with yellow fat and dark lean has been deemed a lesser quality product at the retail level[25]. It is possible, in the future, that health conscious consumers may associate this dark lean, yellow fat beef as more healthy if they link this product to elevated CLA and Omega-3 fatty acid levels. However, this cannot occur without a massive effort to develop a high quality, consistent product in addition to effective marketing and promotional strategies.

Unfortunately, meat that has elevated levels of polyunsaturated fatty acid, when displayed in the retail case, tends to be more susceptible to rancidity and oxidation[26]. However, meat processing technology is available and can be used within a forage finished beef production and marketing system that can reduce or eliminate many of these concerns[27].

---

[23] A Comparison of Pasture-fed and Feedlot Beef by R.W. Jannasch, T. Stewart, A.H. fredeen, and R.C. Martin. http://www.organicagcentre.ca/ResearchDatabase/res_grass_vs_feedlot.html

[24] A Comparison of Pasture-fed and Feedlot Beef by R.W. Jannasch, T. Stewart, A.H. fredeen, and R.C. Martin. http://www.organicagcentre.ca/ResearchDatabase/res_grass_vs_feedlot.html

[25] Bowling, R. A., G. C. Smith, Z. L. Carpenter, T. R. Dutson, and W. M. Oliver. 1977. Comparison of forage-finished and grain-finished beef carcasses. J. Anim. Sci. 45:209

[26] Aberle, E. D., E. S. Reeves, M. D. judge, R. E. Hunsley, and T. W. Perry. 1981. Palatability and muscle characteristics of cattle with controlled weight gain. Time on high-energy diet. J. Anim. Sd. 52:757

[27] Review: Forage-Produced Beef: Challenges and Potential. J.M. Martin & R.W. Rogers. Professional Animal Scientist. June 2004.

### 5.1.2 Market Trends

There are a number of market trends occurring that will impact the marketing and acceptance of forage finished beef.

- Value-added – using tenderization & marination techniques; precooked, portion-sized cuts to produce tender, juicy, flavourful, and convenient retail or food service products.
- Ready-to-eat beef entrees occupy a market segment that is undergoing considerable growth with recent sales (in US) of greater than US$570 million (Gaucher, 2002)[28].
- Health conscious consumers are taking note of the reported health benefits of beef containing elevated levels of CLA. Consumers are also becoming more aware of Omega-3 fatty acid levels in foods.
- North America is facing an aging population. They are more conscious of what they eat; moreover, they can afford more expensive food products.
- Consumers are becoming more environmentally conscious. Sustainable agriculture and animal welfare concerns are playing a part in the food choices of some consumers. Large feedlots are seen by some as examples of 'factory farming.'
- Trend toward single muscle cuts by major retailers in US. Flat Iron steaks, an example of this trend, is the result of muscle profiling research funded by the Beef Check-off Program of the National Cattlemen's Beef Association[29]. The Flat Iron steak is actually a top blade steak derived from the tender top blade roast. Kroger's, one of the largest supermarket chains in the US, debuted the Flat Iron Steak in Houston area stores in July 2005 and promoted them with numerous grilling demonstrations, as well as radio, billboard, and point-of-sale advertising.
- Consumers like products that make them feel like they are doing something good when they buy them, e.g. 'green products' and "humane" products. It is reported that PETA has more members in the US than there are farmers in the US!
- Consumer trend towards natural and 'ethical' food products. Third-party verification of food that has been produced sustainably is a trend which has begun in Europe and is expected to move to North America[30]. Currently in Europe, the ProTerra Certification Programme from Cert ID provides companies marketing 'ethical' food products with the opportunity to obtain recognition of their practices. In Canada, we have already seen certifications by the Winnipeg Humane Society and other organizations promoting particular practices. The trend towards natural and 'ethical' food products could embrace the marketing of forage finished beef.
- In a study done by Annette Levi[31], it was found that:

---

[28] Gaucher, B. 2002. A matter of taste. Meat Marketing Technol. 10:60

[29] www.beefusa.org/NEWSFLATIRONSTEAKGAINSTRACTIONWITHKROGERCUSTOMERS23620.aspx

[30] Certification boost for ethical food makers, by Anthony Fletcher. Food Navigator.Com Europe. April 20, 2006.

[31] Consumer Acceptability of Natural Beef, by Annette Levi, California State University, Chico, California. 1997

- While health concerns play a major role in meat consumption patterns, the ability of a product to fit into fast-paced lifestyles is also important;
- Quick-to-fix recipes and pre-packaged meals are the backbones of many families' diets;
- Women between the ages of 25 to 54 years of age are the primary shoppers for beef and are likely to be the best target group. Furthermore, these women tend to be nutrition conscious and label readers;
- Emphasize the low-fat or healthful attributes (perhaps nutrition information) on the label. In addition, the product should be labelled as being locally produced. This could be done by including a recognizable name (family or region) or the name of the ranch.
- Although this study focussed on natural beef, the same messages could hold for forage finished beef. There is a large segment of the market which is looking for easy-to-prepare food products. Secondary processing of forage finished beef could address this market segment. If the majority of meat buyers are label readers and are concerned about nutrition, promotion of forage finished beef should be targeted to that consumer. In addition, locally produced food might be preferentially chosen by this type of consumer.

- In the US, branded beef now accounts for about 20% of the beef sold in supermarkets. This trend could soon grow to more than half of the market[32]. Until recently, branded beef focussed on the strengths of specific breeds, such as Angus or Hereford, for traits like marbling.
- Traceability is a strong market trend. While this trend links the consumer with the farm, it also helps businesses manage their inventories as well as give producers feedback on carcass quality.

### 5.1.3 Consumer characteristics

Price, nutrition and variety are some of the major factors affecting shoppers' meat purchases, according to new research published by the American Meat Institute and the Food Marketing Institute[33]. The research surveyed 17,750 consumers in the US online between Jan. 31 and Feb. 6, 2006. Respondents had to be at least 18 years old, a primary food shopper for their household and not a vegetarian or a vegan. Some of the highlights of this research are:

- 70% of the shoppers primarily visit conventional supermarkets to buy groceries; 86% of those respondents also purchase their meat there. Of the supercentre shoppers (e.g. Costco), only 58.7% of them buy meat at the supercentre, while 26.6% of them buy meat at supermarkets.

[32] Beef Consumers Spark 'Revolutionary' Change for Producers by Howell Medders, University of Arkansas. http://www.uark.edu/depts/agripub/Publications/Agnews/agnews05-33.html

[33] Seeing the meat case through shoppers' eyes by Ann Bagel, Meatingplace.com 3/14/2006.

- Shoppers are extremely price-driven when purchasing meat. The majority of shoppers compare meat prices across stores before shopping, as well as the prices of different cuts of meat within the store.
- With price left out of the equation, better quality and more variety would prompt shoppers to increase their overall meat purchases, but 30% of shoppers say they simply would not buy more meat than they do now.
- More than 80% of shoppers are concerned about the nutritional content of their food. Consequently, 72.6% of shoppers check the nutrition panel for processed meats, while 54.5% check that information for fresh meat.

Forage finished beef producers describe that their customers 'care about the food their families eat.' Their customers value that the beef is locally produced, and has been raised without synthetic hormones and antibiotics.

A research report entitled Peace Country Premium Beef – Assessing the optimum price and platform for a 'natural' beef entry - provides an interesting insight to Canadian consumers' opinions on beef[34]. Based on their research, they found that:

- Most consumers have some level of discomfort with beef. These concerns were largely product, processing or husbandry related. Among the husbandry related concerns, overall health of the animal was their greatest worry. Many participants also worried about the animal's diet, i.e. namely the use of animal by-products, hormones, antibiotics and pesticides. Most felt that husbandry should revert to times gone by (when animals were allowed to graze in open pasture until ready for slaughter) because their diets would be free of 'animal by-products' and 'manipulated feed' and their lives would be less stressful.
- The use of growth promotants was quite widely known and usually a cause for concern because they believed that the growth promotants affected the hormonal balance in humans.
- Although most seemed to be aware that antibiotic use was a facet of beef production, it seemed to be a 'less top of mind' concern than the use of growth promotants.
- The term 'natural beef' was unknown to these people. While some found it confusing, others thought it simply meant 'not artificial', while the rest assumed that it meant 'organic beef.' Asked what they would be looking for in a natural beef product, these individuals listed the following expectations:
    - Of Canadian origin
    - Humanely treated free range animals (no feedlot finishing, no growth acceleration)
    - Remedial use of antibiotics only
    - Free of colouring agents/preservatives
    - Certified by a third party
    - Information on the animal's production management system
    - Lean, tender and flavourful

[34] Peace Country Beef – Assessing the optimum price and platform for a 'natural' beef entry by Actionable Market Research Limited. This report was prepared for the Alberta government and Paul D. MacInnes and Associates. Sept. 20, 2004.

- A price difference of $1.00 per pound (on a $1.99 price point for conventional ground beef) was felt to be a fair price by three out of four participants.
- The respondents preferred fresh vs. frozen beef

In the Peace Country Premium Beef study[35], the researchers tested two concepts: X & Y.

**Table 2: Concept X and Y**

| **Concept X**<br>**Peace Country Natural Beef** | **Concept Y**<br>**Natural Beef** |
|---|---|
| • Raised by a handful of dedicated families with a love of the land and a passion for husbandry<br>• Raised in an untouched wilderness where the air is crisp and time stands still.<br>• The animals are allowed to peacefully graze on nature's bounty<br>• No attempt is made to artificially accelerate their growth<br>• They are fed only a diet of grass and grains<br>• The beef is certified by an independent organization<br>*Simply Natural* | • No synthetic hormones, steroids or growth promoters<br>• Animals are fed only a diet of grass and grains<br>• Animals have space and freedom to roam…..they do not go to crowded feedlots<br>• Cattle are not fed antibiotics<br>• Pastures managed to ensure sustainability<br>• Certified by an independent organization<br>*Beef, raised the way it was meant to be* |

As can be seen from the following table, Concept Y was by far the most appealing idea.

**Table 3: Concept Evaluation for Concept X and Y**

| Concept Evaluation | For Concept X | For Concept Y |
|---|---|---|
| % Prefer | 29 | 59 |
| % Definitely Buy | 40 | 52 |
| Mean Purchasing Interest | 4.14 | 4.40 |

[35] Peace Country Premium Beef – Assessing the optimum price and platform for a 'natural' beef entry by Actionable Market Research Limited. This report was prepared for the Alberta government and Paul D. MacInnes and Associates. Sept. 20, 2004.

However, people who evaluated Concept X were more willing to pay an additional 30% or more for natural beef per se (45%) and for multiple cuts (25%), as can be seen in Table 4.

**Table 4: Willingness to pay a premium**

| % Stating they would pay 30% or more for…… | Respondents rating Product Concept X | Respondents rating Product Concept Y |
|---|---|---|
| At least one cut…….. | 45 | 37 |
| One cut | 21 | 20 |
| Two cuts | 12 | 9 |
| Three cuts | 9 | 4 |
| Four cuts | 4 | 4 |

The researchers concluded that although the animals' diet was the main reason for the appeal of both concepts, it was of far greater importance to Concept Y (than Concept X) and was by far that concept's strongest asset.

The study also examined tag line preferences, with the following results (Table 5).

**Table 5: Tag Line Preferences**

| % Stating……. | Liked Best | Weighted total |
|---|---|---|
| Base: | 660 | |
| Beef that makes you feel right | 4 | 13 |
| Beef raised the way it was meant to be | 53 | 36 |
| Naturally Yours | 13 | 20 |
| Simply Natural | 29 | 32 |

While the above research focuses on natural, grain-finished beef, there are a number of marketing and positioning messages that can be taken from it.

- Consumers are concerned about food quality and would pay more for beef that they believed was healthier for them. Of particular concern is the animals' diet and whether they were given synthetic hormones and antibiotics.
- Consumers respond favourably to pasture fed beef, believing that this is more natural and therefore more humane.
- Although the respondents preferred Concept Y because of its specific diet, they would pay a 30% or more premium for a 'beef story' which stressed a bucolic image of cattle peacefully grazing on a rich green pasture. **When marketing forage finished beef, it would be equally advantageous to incorporate this image along with the diet specifications and its health benefits to the consumer**.

During interviews with forage-finished beef producers, the producers described their clientele as people who 'cared about the food they ate.' These consumers wanted to eat meat from animals raised and finished on pasture and not finished in a feedlot. Although they valued the synthetic

hormone-free and antibiotic-free attributes of this food, they also appreciated the positive animal welfare aspect of this type of product.

In their review of research of forage-fed beef, Martin and Rogers (2004) concluded that high carcass growth could be achieved on a grass-based diet without a deleterious effect on meat quality. However, meat preparation or cultural and ethnic preferences have a considerable effect on a consumer's evaluation of flavour and tenderness[36]. Minimal intramuscular fat contents for optimal sensory quality vary between 15 and 30 g of lipid/kg of beef muscle for people from Denmark and the US, respectively[37]. Thus, the consumer's perception of quality is not just a matter of product characteristics (fat marbling, tasted and tenderness) but also dependent on consumer expectations about each of these characteristics.

## 5.2 Supporting Science

### 5.2.1 Carcass Quality

There have been a number of studies comparing the carcass quality of forage and grain finished beef. Muir, Deaker and Brown did a literature review of studies comparing forage and grain-finished beef at the same carcass weight or degree of fatness[38]. When compared at similar carcass weights or the same degree of fatness, the type of feeding system had no effect *per se* on tenderness, juiciness, lean meat colour, marbling, or pH. In eight out of twelve experiments where flavour was assessed, panellists could not distinguish an effect of diet on flavour. Effects on fat colour were variable and, in six of nine experiments where fat colour was measured, grain feeding failed to "improve" fat colour.

Muir et al., concluded that there is little scientific justification for the claim that grain feeding is necessary to produce high quality beef. Beef of comparable quality can be obtained from cattle finished on forage-based diets (i.e. pasture) provided that acceptable carcass weights and degrees of finish can be achieved at a young age.

Thus, as long as the animal has the appropriate degree of finish when slaughtered, a forage diet does not need to cause any negative quality characteristics. The challenge in some studies is that if two groups of similar animals are compared, one with grain and one with forage diets, and all management is similar other than substituting the forage for grain, the forage group have not been rated well for quality (marbling, taste and tenderness). This is because typically the forage fed group had not reached the proper level of finish at the same time as the grain fed group. The appropriate conclusion from the research and experience of producers is that forage finished beef can be high quality, but only if all the appropriate production protocols are followed for the animal to have achieved the proper finish at the time of slaughter. This requires management of

[36] Review: Forage-Produced Beef: Challenges and Potential. J.M. Martin & R.W. Rogers. Professional Animal Scientist. June 2004

[37] Wood, J. D. 1990. Consequences for meat quality of reducing carcass fatness. In Reducing Fat in Meat Animals. J. D. Wood and A. V. Fisher, Ed. p 344. Eisevier Applied Science, London, England.

[38] Effects of forage-and grain-based feeding systems on beef quality: A review. P.D. Muir, J.M. Deaker, M.D. Bown. New Zealand Journal of Agricultural Research abstracts. 1998, Vol. 41: 623-635.

the whole system (breed, diet, etc.) to ensure high enough rates of gain and degree of marbling before slaughter to ensure a high quality beef product.

The 1990 National Beef Market Basket Survey identified tenderness as being the single most important factor determining consumers' perception of taste[39]. Tenderness of beef is determined by the genetics of the animal, the feeding regimen, and the age of the animal at slaughter. Post-mortem carcass treatment also exerts a great effect on tenderness. Tenderness of beef can be enhanced by electrical stimulation of the carcass, aging of carcasses/cuts, and mechanical (blade or needle) tenderization of cuts.

In a recent Niche Marketing conference[40], Allen Williams cited the following taste panel results comparing grass-fed beef and grain-fed beef:

- California State University Taste Panels found that 16-22% of their participants preferred the taste of grass-fed beef;
- In an Auburn University taste study, it was found that 25-33% of the participants preferred the taste of grass-fed beef[41];
- A DDB study found that 27-33% of those asked preferred grass-fed beef;
- Kemker and Associates found that 25-31% preferred grass-fed beef;
- Most importantly, 50-55% of those polled did not have a preference between grass and grain fed beef.

According to Sean Firth of AgraPoint, 90-95% of the tenderness of beef is determined post-slaughter. Techniques such as Tender-Stretch hanging, and needle tenderizing can further enhance the tenderness of the beef.

### 5.2.2 Health Benefits

**Conjugated Linoleic Acid (CLA)**

Conjugated Linoleic Acid (CLA) is a unique fat, found naturally in dairy and beef products, that is showing considerable potential for human health benefits related to cancer, heart disease, obesity, diabetes, kidney disease and bone density. Studies have confirmed ruminant meats and dairy products already contain natural CLA, and there is strong potential to enhance these levels through a variety of livestock production strategies, including simple livestock dietary changes. In fact, studies have shown that natural CLA levels can be increased seven-fold in beef and 10-fold in milk with an appropriate animal feeding regime[42].

In a study done by Scott, McCaughey and Buckley (2005), it was found that the CLA content of beef increased by 50% in steers fed a supplement of sunflower seeds and decreased by 50% in

---

[39] Optimizing Palatability of Retail Beef and Determining the Value of Beef Tenderness – Two Field Studies by M.K. Patterson. Center for Quality, National Cattlemen's Beef Association, Engle wood, Colorado.

[40] http://www.leopold.iastate.edu/news/pastevents/beef/NicheBeef_011306.pdf

[41] C. Kerth et al from Auburn University polled 1,250 consumers in Tennessee, Alabama, and Kentucky to compare the taste of grass-fed beef versus grain-fed beef.

[42] http://www.clanetwork.com/

barley-fed steers[43]. The levels of CLA in meat samples taken from pasture fed beef (Kerr Farms in Ontario) are similar to those shown in this study where steers were fed sunflower seeds[44].

Scientists at the Rowett Research Institute in Scotland state that meat and dairy products with higher levels of the healthy fat conjugated linoleic acid (CLA) could be available in just three years. Research at this institute has shown that it's possible to control the microorganisms in the cow's stomach to make healthier fatty acids[45].

Synthetic forms of CLA have been developed for both commercial supplements and research purposes, but many leading scientists believe the CLA found naturally in beef and dairy products may offer the best avenue for developing CLA's health potential[46].

To date, most CLA research using mixtures of CLA isomers has concentrated on the impact of CLA in animal models for a variety of chronic diseases. There are more than 750,000 web sites promoting the benefits of CLA, including its ability to reduce the risk of breast cancer, decrease body fat and enhance the immune system[47]. However, as yet there are no reported human studies in the scientific literature to confirm that CLA is beneficial to human health. Clinical studies using humans are needed to better understand the effects of conjugated linoleic acids.[48] Nevertheless, the animal research has delivered encouraging results.

**Potential benefits of CLA**

1. **Dramatic cancer progress.** The most advanced area of CLA research is cancer treatment and prevention. Early studies show feeding CLA to animals can reduce the growth and formation of cancer - a remarkable finding for a food nutrient. Among other key findings, early research indicates the major isomers CLA 9, 11 and CLA 10, 12 appear to act differently in relation to various forms of cancer[49]. This opens the door to fighting cancer with CLA through more than one pathway. Overall, there is more work to be done in terms of cancer research in order to sort out how the different CLA isomers impact the many different types of cancer. Most studies to date have used cocktails of many different CLA isomers, but newer studies are using more purified mixtures and that trend will continue as the research progresses. As a next step, scientists are investigating CLA in human tissue studies, and human clinical trials could soon follow.

   From animal studies, it has been found that CLA prevents inflammatory damage resulting from immune response. Researchers from the University of Wisconsin-Madison have found that one of the CLA isomers is a natural regulator of the COX-2 protein, which plays a

---

[43] Effect of feeding L-carnitine and sunflower seeds on CLA content of pasture-fed beef by S.L. Scott, W.P. McCaughey, and K.E. Buckley. Agriculture and Agri-Food Canada, Brandon. http://www.backtonaturebeef.com/News.htm

[44] http://www.backtonaturebeef.com/News.htm

[45] CLA-rich meat, milk to compete with functional foods. Meat Process.com 26/01/2005.

[46] http://www.clanetwork.com/

[47] Grass-Fed or Grain? By Marian Burros. March 8, 2006. New York Times. http://www.tallgrassbeef.com/news/archive/08beef.html

[48] CLA functional role needs more studies. Food Navigator.com Europe. 21/09/2005

[49] http://www.clanetwork.com/

significant role in diseases like arthritis and cancer. Mark Cook, a professor of animal science at this university believes that CLA could be used as a natural way to prevent 'collateral damage' from the immune system's response to invading pathogens[50]

2. **Heart healthy benefits.** Cardiovascular disease is another key research front. Early animal studies have indicated feeding animals CLA improves the profile of fats in the blood, particularly reducing high levels of low-density lipoproteins (LDL), which are associated with the disease. Further animal studies are underway to examine CLA's links to guarding against heart disease, and the research effort is shifting to focus more on human studies.
3. **Anti-obesity evidence.** In the area of obesity, results are also very encouraging. Various animal studies are linking CLA to increased energy expenditure, increased body muscle and reduced body fat. Further studies are being done to confirm these results and determine how much weight can be lost and where it can be lost in humans, based on specific strategies. Also related to the obesity benefits is the positive potential for type II diabetes. Though research knowledge is very limited, there is some indication that CLA may play a role in normalizing glucose metabolism.
4. **Kidney disease potential.** One of the first animal studies published indicates that a combination of CLA isomers can significantly reduce the rate of the disease pathology.
5. **Osteoporosis significance.** Bone density is another groundbreaking area, with indications that CLA plays a role in supporting healthy bones and guarding against osteoporosis. Research is at a very early stage, with results of the first major studies yet to be published.

**The CLA Network**

The CLA Network was founded in Alberta in 2001 through a collaborative effort involving government, academia and industry. It includes representatives from many areas of expertise such as research, food industry, health and communications.

The CLA Network is made up of several modules working together towards a common goal These modules cover the areas of dairy production, beef production, animal mechanisms, human health, market research, product development and communications.

Current CLA network partners are:

- Alberta Agricultural Research Institute
- Agriculture and Food Council
- Alberta Livestock Industry Development Fund
- Alberta Agriculture, Food and Rural Development
- University of Alberta
- Agriculture and Agri-Food Canada
- Dairy Farmers of Canada
- Alberta Milk

[50] How CLA fights inflammatory disease. Food Navigator.com Europe. 19/10/2005

- Beef Information Centre
- Alberta Beef Producers
- Teagasc Irish Agriculture and Food Development Authority

A major focus of CLA research is to develop procedures that consistently produce beef with enhanced levels of CLA. The CLA Network has an important role to play in advancing this and other key goals, according to Vince Ohama, CLA Network Manager[51].

**Omega-3 & Omega-6 Fatty Acids**

Nutrition conscious consumers are well aware of the health benefits of Omega-3 fatty acids, DHA(docosahexaienoic acid), EPA (eicosapentaenoic acid), and ALA (alpha-linolenic acid) are three Omega-3 fatty acids that have been researched widely. The American Heart Association recommends patients with documented coronary heart disease consume about 1 gram of EPA and DHA per day, preferably from fatty fish[52]. These Omega-3 fatty acids also provide anti-inflammatory effects on arteries, reduce triglycerides and have positive effects on blood characteristics.

ALA is found in plants, with particularly high concentrations found in flaxseed. Studies have demonstrated that an increase in ALA intake was associated with a large reduction in risk of coronary heart disease. The feeding of flax to chickens increases the amount of Omega-3 fatty acids (ALA) in eggs; each egg must contain a minimum of 300 mg of ALA for it to qualify as an Omega-3 egg. More research is being done to expand this program to other food animals.

A healthy diet should consist of about one to four times more Omega-6 fatty acids than Omega-3 fatty acids. The typical American diet tends to contain 11 to 30 times more Omega-6 fatty acids than Omega-3[53]. It has been suggested that this is a significant factor in the rising rate of inflammatory disorders in North America. While both fatty acids are essential to the human body, the ratio between Omega 6 & 3 fatty acids must be brought in line with the body's needs.

It has been found that cattle fed primarily grass increased the Omega-3 content of the meat by 60% and also produced a more favourable Omega-6 to Omega-3 ratio than conventional grain-fed beef.

The Canadian Food and Inspection Agency (CFIA) allows food labels to include Omega-3 claims in the following ways:

- Source of/Contains/Provides Omega-3 polyunsaturated fatty acids. Polyunsaturated fat and polyunsaturates can replace the term polyunsaturated fatty acids.
- Using a quantitative claim such as "5 g of polyunsaturated fatty acids per serving of 100 g" can be used. If the claims for Omega-3 and Omega-6 polyunsaturated fatty acids are

[51] http://www.clanetwork.com/

[52] Market for omega-3 fortified products explodes, Food Business News, April 4, 2006.

[53] Added Nutritional Value of Grass-fed Meat Products by C.A. Daley, K. Harrison, A. Abbott, P. Doyle, G. Nader, L. Larson. College of Agriculture, California State University, Chico, California. Not yet published.

made, then the label of that food must comply with all the requirements of the new regulations, and must include a Nutrition Facts table.

More information is available for Omega-3 claims at:
http://www.inspection.gc.ca/english/fssa/labeti/guide/ch7be.shtml#7.19

Information on Diet and Health claims is available at:
http://www.inspection.gc.ca/english/fssa/labeti/guide/tab8e.shtml

Information regarding labelling requirements can also be obtained from Mr. Serge Deleau, of CFIA, as shown in Appendix 1.

**E. coli levels**

***The following information should not be used to say that traditional grain-fed beef has a problem. However, the potential presence of E. coli O157:H7 is a factor that may become increasingly of interest to some health conscious consumers. This is another factor that may make grass finished beef more attractive to that niche market segment of consumers. The following information is presented for that reason.***

The bacterium *Escherichia coli* (*E. coli*) is a normal inhabitant of the intestinal tracts of human beings and animals. However, some strains of E. coli, such as, are capable of causing disease in human. This strain is carried in the gastrointestinal tract of cattle and can enter the human food supply via fecal contamination of the hide during slaughter. Two attributes of the O157:H7 strain is the local infective dose for humans and acid resistance. Since it is impossible to completely prevent the microbial contamination of carcasses during slaughter, research is now focusing on reducing the prevalence of the pathogen in cattle.

The ability of bacteria to act as food-borne pathogens depends on their capacity to survive the low pH of the gastric stomach and to colonize the intestinal tract of humans. Diez-Gonzalez et al.[54]reported that switching cattle from grain to grass lowered the production of acid-resistant *E. coli* bacteria. Feeding grain to cattle makes their digestive tracts abnormally acidic. Over time, the *E. coli* in the cattle's digestive systems become acclimated to this acid environment. When humans ingest this strain of bacteria, a high percentage will survive the acid shock of our gastric juices. In contrast, however, few *E. coli* from grass-fed cattle will survive because they have not become acid-resistant. While advocates of forage finished beef point to this research as a further reason to adopt forage finishing, others merely acknowledge that this research as interesting. Although Scott et al[55] found that switching steers to alfalfa hay lowered both total and acid-resistant *E. coli* populations, they advocated that this use of forages be done for a short duration.

[54] Grain Feeding and the Dissemination of Acid-Resistant *Escherichia coli* form Cattle, by F. Diez-Gonzalez, T.R. Callaway, M.G. Kizoulis, J.B. Russell. Science 281: 1666-1668.

[55] Influence of Diet on Total and Acid Resistant E. coli and Colonic pH by T. Scott, C. Wilson, D. Bailey, t. Klopfenstein, T. Milton, R. Moxley, D. Smith, J. Gray, L. Hungerford. 2000 Nebraska Beef Report. Pages 39-42. http://ianrpubs.unl.edu/beef/mp73.pdf

**Figure 1: E. coli levels in grain-fed and grass-fed cattle[56]**

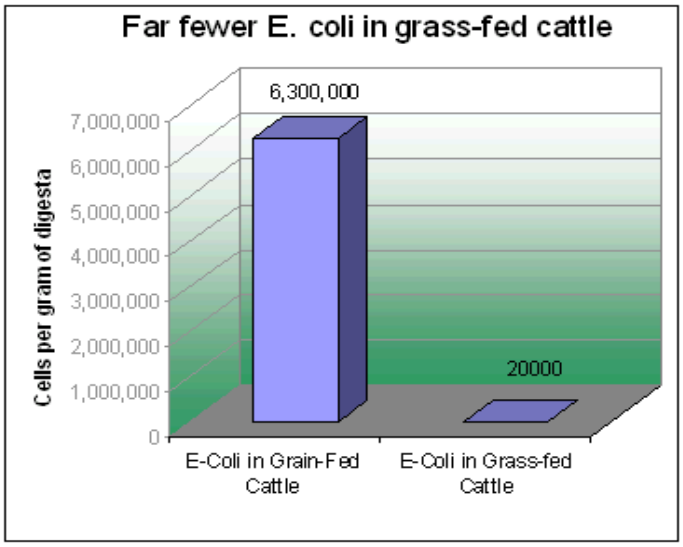
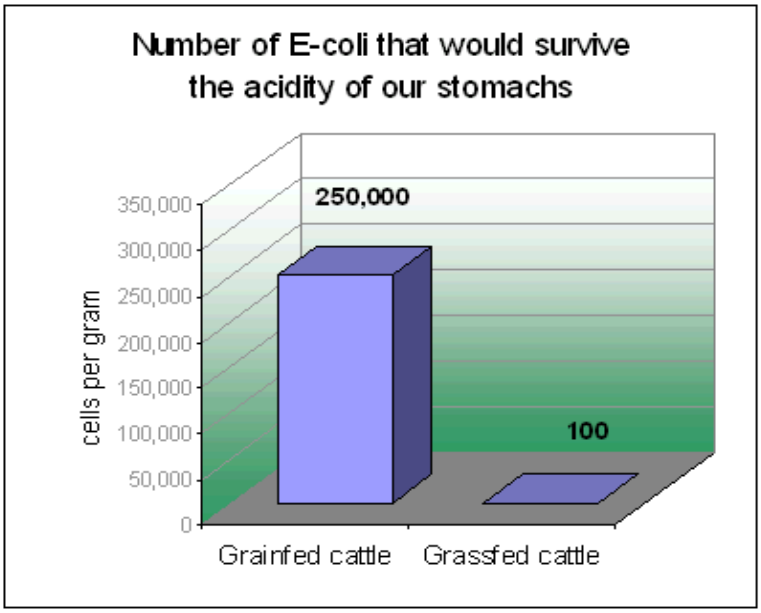



**Figure 2: Number of E. coli cells that could survive in the human stomach emanating from grain-fed and grass-fed cattle[57]**




56 "Potential Effect of Cattle Diets on the Transmission of Pathogenic Escherichia Coli to Humans" by Russell, J. B., F. Diez-Gonzalez, and G. N. Jarvis. Microbes Infect 2, no. 1 (2000): 45-53.

57 "Potential Effect of Cattle Diets on the Transmission of Pathogenic Escherichia Coli to Humans" by Russell, J. B., F. Diez-Gonzalez, and G. N. Jarvis. Microbes Infect 2, no. 1 (2000): 45-53.

## 5.3 Market Size

The rate of growth in the number of marketers of forage finished beef is significant. In 1999, Ms Jo Robinson listed on her website all the grass finished direct marketers she could find. There were 40 in all of the USA and Canada[58]. In 2006, the number of producer web links to her www.eatwild.com website has grown to over 700 and the site records over 250,000 visits/year.

Allen Williams cited the following statistics at a recent Niche Marketing conference[59]:

- Americans spend 46.4% of their food dollar away from home. This is expected to increase to 53% by 2010;
- In 2003, the major food categories and their values in the US were: conventional ($455 billion), natural foods ($46.9 billion), and organic foods ($10.3 billion);
- Consumers typically pay 30% more for 'natural' meats and 15-200% more for 'organic' meats;
- The current market for 'natural' beef is about $250 million sales in both branded and unbranded products and the 'organic' beef products total is approximately $350 million annually. The combined total is anticipated to increase to $1 billion within 5 years (Note 'natural' forage finished beef is currently only a small subset of the total 'natural' beef sales);
- California State University research indicates that the most important consumer motivations for purchasing 'natural' beef are:
  - Synthetic hormone free;
  - Ranch name;
  - Antibiotic-free;
  - Never fed animal by-products;
  - Animal care;
  - Environmental stewardship.
- There are opportunities to sell natural by-products as well. Pet food uses offal (which is 36% of live animal weight) and can be sold at $0.35 to $0.40/lb. There is also a market for offal in some ethnic markets.
- There are 1,200 beef producers who market 24,000 grass-fed beef cattle. This represents $50,400,000 in retail sales or $2,100 per animal.

Research conducted in the U.S. indicates that over 20% of surveyed American consumers preferred Argentine grass-fed beef in blind-taste tests compared to corn-fed American beef[60].

---

[58] Nation, Alan, October 2005, *Grassfed to Finish – A production guide to Gourmet Grass-Finished Beef*, Green Park Press, Ridgeland, Mississippi, USA, p. 7.

[59] http://www.leopold.iastate.edu/news/pastevents/beef/NicheBeef_011306.pdf

The historical estimate above of 1,200 beef producers who market 24,000 grass-fed beef cattle in the US is approximately 80 head per million of population. There has been continued expansion and a number of new Value Chains have been established that have significantly increased the volumes (e.g. Thousand Hills Cattle Co. in Minnesota marketing via 20 retail stores. It has stated it plans to expand sales significantly in the future).

In Manitoba, there are approximately 200 forage finished beef cattle marketed each year. This represents a current level of 200 head of forage finished beef per million of population.

Given the market trends noted it is estimated that volumes will grow rapidly, but that natural forage finished beef products will remain a niche market, with a relatively small share of the total market.

It is challenging to estimate the potential size of the future forage finished beef market. Increasing percentages of consumers want 'story' food products that make them feel good when they buy that product. And, a rapidly growing segment of aging baby boomers want functional foods that will produce health benefits.

Thus, while the current volumes being marketed are small, there is significant potential in the future. However, this potential will only be realized if a sophisticated marketing strategy is implemented and marketing through retail outlets is expanded.

## 5.4 Promotion Strategy/Product Positioning

In a survey of 149 North American beef producers who described their operation as pasture finished beef production[61], the producers were asked "What key words do you use to describe your product?" Their responses are in the following table (Table 2)

**Table 6: "What key words do you use to describe your product?" (N=149)**

| | Count | Percent |
|---|---|---|
| Grass-fed, grass-finished, pasture-finished, pasture-raised, free-range, pastured, forage-fed, pasture-fed, etc. | 84 | 56 |
| Natural | 43 | 29 |
| Antibiotic-free, drug-free | 37 | 25 |
| Hormone-free, chemical-free | 35 | 23 |
| Flavourful, tasty, juicy, delicious | 33 | 22 |
| Healthy, wholesome, nutritious, low-fat | 30 | 20 |
| Local, home-grown | 27 | 18 |
| Organic | 24 | 16 |

[60] U.S. Consumer Preference and Willingness-to-pay for Domestic Corn-fed Beef Versus International Grass-fed Beef Measured through an Experimental Auction by Wendy J. Umberger, Dillon M. Feuz, Chris R. Calkins, and Karen Killinger-Mann. Agribusiness: Autumn 2002: 18, 4. pages 491-504.

[61] Growing and Selling Pasture-Finished Beef: Results of a Nationwide Survey by J. Lozier, E. Rayburn, and J. Shaw. Journal of Sustainable Agriculture Oct 3, 2003. www.wvu.edu/~agexten/forglvst/PFBSurvey.pdf

| | | |
|---|---|---|
| Humane, stress-free, etc. | 22 | 15 |
| Lean | 15 | 10 |
| Tender | 12 | 8 |
| Clean | 7 | 5 |
| Other terms used by less than 5%: environmentally friendly, fresh, holistic, salad-bar beef, sustainable, dry-aged, predator-friendly, sweet, biologically raised, compassionate, good, grass-lean, happy cows, heart-healthy, known history, more edible pounds per pound bought, no animal proteins, no confinement, no feedlots, no force feeding, no herbicides, no radiation, raised God's way, robust, safe. | | |

Success in conventional cattle enterprise involves production efficiency and volume with low profit margins. Success in forage finished beef production and niche marketing involves adding value and improving profitability through a more direct focus on a specific market segment so that it captures a larger share of the retail dollar. The following are some points that will impact the forage finished beef market:

- Pasture raised beef vs. feedlot – feedlot is related, in many consumers' minds, to factory farming, unsustainable agriculture, synthetic hormones, stressed cattle, growth promotants, and high input agriculture.
- Pasture raised beef vs. grass-fed or grass-finished – grass finished has a negative connotation with a number of people in the industry. It is sometimes thought of as tough, gamey meat. Although it is known that properly finished forage finished beef is not tough and gamey, it creates added costs and efforts to overcome this perception for those who have had that experience.
- Grain-fed beef may have positive connotations to some consumers because they think (and are increasingly being told) grain and whole grain is good for them and thus tend to think it is probably good for beef cattle.
- Value-added – using tenderization & marination techniques; precooked, portion-sized cuts to produce tender, juicy, flavourful, and convenient retail or food service products. Techniques such as tenderization, marination and 'crock-pot' style cook-in-the-bag processes that incorporate slow cooking at 185$^{o}$ to 190$^{o}$F internal temperature can overcome concerns with tenderness and flavour[62], especially for lower quality cuts. This may eliminate the need for ageing, which tends to increase processing costs. In addition, an extended refrigerated shelf-life is possible as long as the primary package, usually a barrier bag cook-in package, remains sealed[63].
- Ready-to-eat beef entrees occupy a market segment that is undergoing considerable growth with recent sales (in US) of greater than US$570 million (Gaucher, 2002)[64].

[62] Review: Forage-Produced Beef: Challenges and Potential. J.M. Martin & R.W. Rogers. Professional Animal Scientist. June 2004

[63] Review: Forage-Produced Beef: Challenges and Potential. J.M. Martin & R.W. Rogers. Professional Animal Scientist. June 2004

[64] Gaucher, B. 2002. A matter of taste. Meat Marketing Technol. 10:60

- Health conscious consumers are taking note of the reported health benefits of beef containing elevated levels of CLA. Consumers are also becoming more aware of Omega-3 fatty acid levels in foods.
- Innovative marketing promotions can have a dramatic influence on the perceived value of food products. The Wall Street Journal has speculated a sales price of $25 for hamburgers from grass-fed cattle in certain markets such as New York City[65]. The possible health benefits of CLA and Omega-3 fatty acids in forage finished beef could be a marketing strategy for health conscious consumers.
- Another opportunity is promoting value-added products from under-utilized cuts. Menu-ready, precooked, forage-finished beef products would be marketed and promoted for virtually all cuts from the carcass.
- In the US, the labelling claims "free range," "free roaming," and "pasture raised" require livestock that have had continuous and unconfined access to pasture throughout their life cycle (cattle that have never been confined to a feedlot). In addition, "grass-fed" product labelling regulations stipulate "grass, green or range pasture, or forage shall comprise 80% or more of the primary energy source throughout the animal's life cycle)[66]
- Consumers are becoming more environmentally conscious. Sustainable agriculture and animal welfare concerns are playing a part in the food choices of some consumers.
- As was demonstrated in the Peace Country Premium Beef study[67] in Section 5.1.3, the consumers were willing to pay more for Concept X (the concept that was strong on 'painting the picture' and weaker on the 'natural' diet details) than Concept Y (no emotional messages, only factual information on diet). Certainly, consumers respond positively to 'story beef' – a message that creates an emotional response to the product. Many consumers want to feel good about the food they are buying for their family. This 'feel good' aspect can be generated by 'story beef.' Concept X's messages such as 'cattle raised by a handful of dedicated families with a love of the land and a passion for husbandry', or 'animals are allowed to peacefully graze on nature's bounty' create an emotional response to the product. This is no longer simply a meat product, but much more.

High Sierra Beef, located in the San Francisco Bay area, conducted market research in order to develop their marketing and business plan. They asked retails/restaurants and consumers to rank key attributes of beef. The following table summarizes their results:

[65] Mills, B. 2003. Carving a grass finished niche. Beef 39(7):16

[66] Federal Register. 2002. United States Standards for Livestock and Meat Marketing Claims 67(250):79554.

[67] Peace Country Beef – Assessing the optimum price and platform for a 'natural' beef entry by Actionable Market Research Limited. This report was prepared for the Alberta government and Paul D. MacInnes and Associates. Sept. 20, 2004

**Table 7: Relative Importance of Key Attributes of Beef – Consumers & Retail/Restaurants[68]**

| Attribute | Consumers | Retail/Restaurants |
|---|---|---|
| Flavour | 4.7 | 4.7 |
| Tenderness | 4.7 | 4.7 |
| Food Safety | 4.7 | 4.8 |
| Quality Assurance Certified | 4.7 | 4.1 |
| Consistent Quality | 4.6 | 4.9 |
| Nutritional value | 4.6 | 3.6 |
| Antibiotic-free | 4.4 | 3.7 |
| Hormone-free | 4.4 | 3.7 |
| Dry aging | 4.3 | 3.3 |
| Locally produced | 4.0 | 3.2 |
| Grass-fed | 4.0 | 2.8 |
| Recipes and other information | 3.5 | 2.4 |
| Breed | 3.3 | 3.0 |

From the above research, it is important to note that flavour, tenderness, food safety, quality assurance and consistency are the most important attributes for both the consumers and retail/restaurants. The consumers rank locally produced, 'natural' (antibiotic and hormone-free beef), and grass-fed beef as much more important than the restaurants/retail do. This research does not preclude 'natural', grass-fed beef to be marketed to retail outlets and restaurants. However, a considerable marketing effort is required to emphasize the importance of these attributes to the consumer. This is essentially a pull strategy in marketing, because the marketer is attempting to have the consumers ask or 'pull' the product through the supply chain. If the consumer demands the product, the supply chain will react to accommodate the consumer's wishes. While consumers can create demand for product by asking retail/restaurants to carry that item, much of the marketing strategy must be targeted to the customers themselves. The customers must be convinced to buy your product in the first place. This is essentially a push strategy in marketing terms. The marketer is pushing the product into the supply chain in order for it to be available for sale. Push strategies focus on the direct customer and may include point of sale promotion, and assurances of certainty of supply. It is paramount that both the push and pull strategies be used to market forage finished beef.

The consulting team spoke with a forage-finished beef producer in Canada who said that a large western Canadian retail chain warned that her product should not be marketed as grass-fed beef because that store would de-list her product. As a result, the producer is marketing her beef as 'pasture-raised.' While it is unlikely that the entire retail chain feels this way about the term grass-fed beef, that certainly is the case of that particular buyer. This highlights the issue of direct customer (retail/restaurant) versus consumer. In this case, the producer's direct customer is

[68] High Sierra Beef – Market Research and Development. Presentation by Dan Macon of High Sierra Beef. March 31, 2004. http://www.csuchico.edu/agr/grassfedbeef/niche-mkt/2004-proceedings/Dan%20Niche%20Market%202004%20Marketing%20HSB.ppt#286,23,Questions?

the regional meat buyer of that retail chain. While the consuming public do not seem to harbour negative feelings about forage fed or grass-fed beef, the 'gate-keeper' of this retail outlet does, Gate-keepers who harbour negative feelings about a product present a significant obstacle to a producer or marketer. Strategies to answer the gate-keeper's objections need to be developed. In the case of this producer, simply changing the product labelling to pasture-raised beef was enough to overcome the buyer's concerns.

## 5.5 Pricing

Research indicates that American consumers preferring forage-fed beef are willing to pay a premium of $1.36 USD for forage-fed beef of a comparable quality (particularly tenderness) to corn-fed American beef.[69]

In a recent Niche Marketing conference[70], Allen Williams of Jacob Alliance cited the following prices for grass-fed beef:

- Producers are typically paid $1.75/ HCWT ( Hot Carcass Weight) for 'natural' and $2.00/HCWT for 'organic' beef;
- The average wholesale price for grass-fed beef is $10.99;
- The average wholesale price for grass-fed hamburger is $3.99;
- The average cost of production for 'natural' grass-fed beef is $1.20 to $1.25/HCWT
- The average cost of production for 'organic' grass-fed beef is $1.50 to $1.60/HCWT
- The Thousand Hills Cattle Company and the Tallgrass Beef Company are currently seeking cattle for their 'pipelines' and are paying $1.75/HCWT for forward contracts. However, the cattle must meet the companies' production protocols in order to be eligible.

Ervin's Natural Beef[71] (in How to Direct Market your Beef) suggests how a carcass could be cut and how much each cut contributes to the bottom line.

**Table 8: Beef Cuts and the gross revenue from each cut**

| Cut | Lbs/carcass | Price/pound | Gross |
|---|---|---|---|
| Tenderloin | 12 | $9.60 | $115 |
| New York Strip Steak | 14 | $6.40 | $90 |
| Ribeye Steak | 24 | $5.33 | $128 |
| Fajita/Stir Fry | 6 | $3.20 | $19 |
| Round Roast | 67 | $2.76 | $185 |
| Ground Beef | 170 | $1.75 | $298 |

[69] U.S. Consumer Preference and Willingness-to-pay for Domestic Corn-fed Beef Versus International Grass-fed Beef Measured through an Experimental Auction by Wendy J. Umberger, Dillon M. Feuz, Chris R. Calkins, and Karen Killinger-Mann. Agribusiness: Autumn 2002: 18, 4. pages 491-504.

[70] http://www.leopold.iastate.edu/news/pastevents/beef/NicheBeef_011306.pdf

[71] How to Direct Market your Beef, Ervin's Natural Beef. 2003 Niche Marketing proceedings. http://www.csuchico.edu/agr/grassfedbeef/niche-mkt/2003-proceedings/case-studies/Ervins.pdf

In the Peace Country Premium Beef study[72], participants in the focus groups were asked questions in regards to the price they would pay more for 'natural' beef. Based on the notion that ground beef was $1.99 per pound, it was reported that:

- More than 3/4 felt that the product could be priced at $3.00 or more per pound;
- Just under 2/3 felt that a price of $5.00 or more a pound would be too expensive;
- Approximately 1/6 thought that the product would be cheap at a price of $2.50 to $3.00 per pound;
- About 2/3 thought that the product would be too cheap at $1.99 or less.

A 2004 study identified that natural beef often achieved 20% to 30% premium for the middle cuts, increasing the average value of the total carcass by about 10% to the producer[73].

[72] Peace Country Beef – Assessing the optimum price and platform for a 'natural' beef entry by Actionable Market Research Limited. This report was prepared for the Alberta government and Paul D. MacInnes and Associates. Sept. 20, 2004

[73] Beef Processing In Manitoba: Feasibility Analysis, October 2004, by Meyers Norris Penny LLP for MAFRI

# 6.0 Forage Finished Beef Supply Chains

**Traditional Beef**

Canada has historically consumed about 2.1 billion pounds for an average per capita consumption of about 51.5 pounds of beef products per year. These beef products move to consumers through the traditional supply chains. About 87% of total retail food sales in Canada are through supermarkets and grocery stores, including about 4% through warehouse clubs. Eight percent of sales occur through specialty food stores.[74]

Manitoba's retail sales of all beef products total approximately 58 million pounds, which is in line with the national average for per capita consumption[75]. Much of the beef consumed in Manitoba is slaughtered in Alberta.

National retail chains will typically purchase meat only from federally licensed suppliers because meat is distributed through central distribution centres across provincial boundaries, which is not allowed for meat from provincially licensed facilities.

Traditional beef products are generally marketed through distributors to the retail grocery stores and to the food service industry. Beef distributors in Manitoba include Pratt's Wholesale, Mariner-Neptune, Preferred Meats (Winkler Meats), Toledo Food Services and Northern Meat Service, among others. Sysco and Bridge Brands specialize in distributing to the food service (restaurants, hotels, institutions) industry.

Within the grocery retail channel, there are a number of market segments that are served by different types of retailers. A few of these include:

- Major Chains such as Safeway
- Midsize volume chains that in some cases will carry a product only for sale within one region/province, such as the Coop stores
- Specialty small regional chains, such as Millers Meats, Deluca's, etc.
- Ethnic markets such as specialty meat outlets serving the Halal and Kosher market
- Others.

Traditionally marketing beef products ranges in complexity from securing a contract to provide a dressed carcass through to the more complex sale of specially prepared cuts that meet a customers' unique specifications and are in consumer ready (if retail) or ready to use (if food service) packaging. Price is a dominant characteristic in the traditional beef market.

**Natural Forage Finished Beef**

There are a number of supply chains in existence that are relevant to examine because they move forage finished or natural beef (usually grain finished) products through the production, slaughter, processing and marketing levels of their supply chains.

---

[74] Food retail channel share (1996), Table 3. The Food Marketing and Distribution Sector in Canada, Market and Industry Services Branch, Agriculture and Agri-Food Canada, April 1999

[75] Cattle and Beef Sector Profile, MAFRI http://www.gov.mb.ca/agriculture/statistics/pdf/aac02s01.pdf

The first section below describes a number of Canadian examples, and the following section provides a number of US examples.

## 6.1 Existing Supply Chains - Canadian

- **Back to Nature Beef**[76], (Kerr Farms Ltd.) Chatham, Ontario

  Kerr Farms Ltd. operates two streams of beef production: grain finished and **forage** finished beef (Back to Nature Beef). The forage finished beef has been marketed as '**natural beef**' because they have never received synthetic hormones or antibiotics.

  The cows and calves are raised on a ranch near Rainy River, Ontario. The cattle are finished on certified organic pastures owned by Bob Kerr near Chatham (Kerr Farms Ltd.). The rations for the Back to Nature beef is: summer – pasture; and winter – grass and alfalfa hay, direct cut alfalfa silage, a half pound of fresh ground flax (to maintain the Omega-3), and direct cut sorghum-sudan grass.

  The meat is processed by Highgate Tender Meats (provincially inspected abattoir) in Highgate, Ontario, and is sold directly from the Kerr Farm with delivery by courier. Animals that are not suited to this program (due to genetics, or body type) or that received antibiotics due to illness are removed from this stream and put in the grain finished program. Although Kerr Farms have been marketing forage finished beef since 2001, they only sell 40 animals/year. They are fed alfalfa/grass hay and some silage, but no grain whatsoever.

  With four partners, Kerr Farms have embarked on marketing branded grain-fed 'natural' beef to two small Ontario grocery stores. This product line is sold fresh or frozen; they use a federally inspected abattoir for this beef.

- **TK Ranch, Alberta**

  Colleen and Dylan Biggs have been raising **'natural' forage finished** beef for 11 years at their ranch 240 km. east of Red Deer, Alberta. At first, the beef were finished with a 'purist' view of forage finishing, i.e. with 100% forages. However, they have since adapted their production methods to better suit a year-round beef market by using non-forages in their cattle's diet. The beef ration is supplemented with pelleted barley sprouts, a by-product from the malting industry. Although now all animals sold by TK Ranch are born and raised on the ranch, they did market a few forage finished animals from another ranch several years ago. Unfortunately, these animals were not finished properly and TK Ranch had to sell them as ground beef. TK Ranch's cattle are slaughtered 200 km. from their farm, but are hung in their own facilities. They market their beef year-round to two supermarket chains and have supported their product with hundreds of demo's (BBQ samples) in front of the stores selling their product.

  Although TK Ranch has been successful in marketing their branded beef to supermarkets, they find that marketing is a much bigger challenge than producing a high quality product. They market their beef as 'pasture raised beef' as opposed to grass finished or forage finished

[76] http://www.backtonaturebeef.com/FAQ.htm

beef. One of the large supermarket chain buyers threatened to de-list TK Ranch's beef if they marketed and labelled their product as grass finished.

- **Highland Premium Alberta Beef Alliance**[77], Vegreville, Alberta

  The Highland Premium Alberta Beef Alliance website lists 14 alliance partners including Landmark Feeds Inc., Bank of Montreal, Techweavers Inc., Feedlot Health Management Services, Computeraid Professional Services, Quantum Genetics, and Norwest Laboratories. Highland Premium Alberta Beef Alliance believes that increased coordination between Value Chain members results in increased efficiencies for each partner, and in a high quality product that can be tracked back to its primary production. Each member of the Value Chain contributes to the delivery of a final product that meets the needs of the consumer. Highland Premium Alberta Beef Alliance producers receive trace back of slaughter yield and quality grade information back to the individual animal in the herd.

  This program is now being offered to cow-calf producers. In the last two years, the program has provided over 100 producers from BC, Alberta, and Saskatchewan with individual animal information on over 7,000 cattle.

  Highland Feeders currently has a standing capacity of 36,000 head and is the sixth largest feedlot in Alberta.

  Highland Premium Beef Alliance sees a number of benefits for the cow-calf producers, feedlot, packer, retailer and consumer in the Value Chain, including:

  - An immediate benefit to the producer is the trace back of slaughter yield and quality grade information back to the individual animal in the herd
  - Producers can leverage information to improve production (i.e. data on animal health, nutrition, daily weight gains, etc.) and herd genetics.
  - Costs can be reduced (e.g. avoiding the duplication of vaccinations due to the standardized health protocols).
  - Producers work towards securing a market along with Highland.
  - The feedlot improves procurement techniques, maximizes inventory and may secure market share.
  - Packers realize greater security through greater consistency of shipments, higher valued products, and food safety through better handling and traceable carcasses.
  - Retailers or food service companies secure a reliable consistent supply. They can validate food safety controls and market a branded product.
  - The consumer receives a quality product with assurances of animal care and environmental protection (Highland has won awards in environmental stewardship) as well as food safety.

[77] http://www.highlandbeef.com/index.html

- Producers can take advantage of the strong relationships that Highland has developed with service professionals in the beef industry in areas such as computerization, banking, and nutrition.

Highland operates two streams of beef finishing: grain-finished beef and '**natural' grain-finished** beef. In both streams, beef are finished in a feedlot setting. The 'natural' beef is branded as Spring Creek Ranch Premium Beef and is certified as being antibiotic-free, growth hormone-free, as well as never having been fed animal by-products.

Within the regular beef finishing stream, Highland has developed an alliance with Cho-Won Foods to develop Kal-Bee Korean Style BBQ Beef Short Ribs. This product is distributed by Centennial Foods and is available at Costco's Edmonton store. Highland states that this product has increased the value of a short rib cut more than 3-fold.

- **Natural Valley Farms Inc.**[78] [79]**,** Wolseley, Saskatchewan

This Value Chain is comprised of prairie producers, a feedlot, a slaughter plant, and a processing plant. This Value Chain then markets to appropriate retail outlets, starting with a modest volume and allowing for expansion as the full capacity of their initial plants are realized.

Natural Valley Farms Inc. (NVF) was initiated by beef producers (Ken Piller and Cam Taylor met with a group of friends in 2002 and became the initial champions) and now has 70 shareholders, most of whom are Saskatchewan producers, with some from Manitoba and a few from Alberta. Cattle are raised on-farm and are finished on-farm or in custom feedlots. There is also a 2,000-head custom feedlot adjoining the Wolseley slaughter plant, which is owned by one of NVF's founders (Piller). This custom feedlot provides NVF with a contingency supply to fill gaps in the seasonal production cycle or replace delayed deliveries due to inclement weather. It is expected that up to 8,500 Manitoba cattle will be shipped to Natural Valley Farms in Saskatchewan during 2006.

Natural Valley Farms feeding protocol includes **natural grain finishing**. However, their protocol stipulates the following:

- Animals must NOT be implanted with growth hormone in their lifetime
- Animals must be antibiotic-free for the final 120-day finishing period
- All animals must be on a finishing ration for approximately 100-120 days
- No animal by-products are allowed in the feed
- All producers need to be enrolled in the Canadian Cattlemen's Quality Starts Here Verified Beef Program. This program ensures good production practices for food safety, quality and responsible handling.
- Once the Verified Beef Program is completed, there will be an audit to become certified.

[78] http://www.agcanada.com/custompages/stories_story.aspx?mid+31&id=498

[79] http://www.naturalvalley.ca/files/NVF%20Newsletter%20Fall%2005.pdf

Natural Valley Farms is currently using the Excel plant in Moose Jaw for slaughter. The beef processing plant in Wolseley, Saskatchewan opened on June 14, 2005 and is a federally inspected processing facility. NVF's slaughter plant at Neudorf, Saskatchewan is due to open in June, 2006 (about 20 minutes from Wolseley). In addition to killing cattle for NVF's premium brand, the Neudorf facility will also kill mature cows for the beef commodity market. 1150 producers have bought into the hook-lease program for mature animals, which was sold out one year ago. This represents two streams of beef – young finished beef and beef from mature cattle. NVF is considering building a slaughter plant in Neepawa, Manitoba once they get the Neudorf plant running properly.

The payment structure is the key feature of this Value Chain. One animal equals 20 different products, which can be sold into various markets to obtain the highest possible retail package for the grade and weights of the separate components, plus an indexed premium that floats with the market. Electronic equipment at the processing facility records the cold weight of each carcass and pins the CCIA (Canadian Cattle Identification Agency) number along with a retail par value price on the grid. Payment is based on the value of the total retail package, minus processing costs. NVF charges a percentage as its fee and the remainder goes to the producer within 30 to 45 days.

Beef produced by Natural Valley Farms is sold to supermarkets such as the Co-op stores in Saskatchewan, as well as a large Manitoba grocery chain with 60 stores. However, the beef is not yet branded to the consumer.

NVF's goal is to slaughter and process 60,000 head annually once the Neudorf plant is operational.

- **Peace Country Premium Beef,** Alberta

  Peace Country Premium Beef drew its inspiration from Doc and Connie Hatfield of Oregon Country Natural Beef. After completing a number of studies including the Peace Country Premium Beef study[80] by MacInnes and Associates, a group of 30 ranch families pursued the idea of marketing '**natural' grain finished** beef. The group currently awaits CFIA approval of their synthetic hormone, ionophore, and antibiotic free label before marketing their beef as a branded product. They are selling their beef to retail stores but it is not differentiated from other beef in the store. Peace Country Premium Beef will market 100 head per week from the 30 ranch members, using a federally inspected abattoir in southern Alberta. This Value Chain was conceived and initiated by producers.

- **Atlantic Beef Products Inc.**

  When Hub Meat Packers of Moncton, NB closed in 2002, maritime beef producers had to ship their cattle to Ontario for processing. Two years ago, maritime beef producers (50 % ownership) and Atlantic Co-op (50% ownership) built a beef slaughter plant in Albany, P.E.I.

[80] Peace Country Beef – Assessing the optimum price and platform for a 'natural' beef entry by Actionable Market Research Limited. This report was prepared for the Alberta government and Paul D. MacInnes and Associates. Sept. 20, 2004

This plant slaughters **grain finished commodity** beef although producers must meet carcass size specifications. The capacity of this slaughter plant is 26,000 animals/year and they only slaughter beef from the Maritime Provinces.

Atlantic Beef Products produces three brands of premium beef – Atlantic Tender Beef Classic for Co-op Atlantic[81], its own Atlantic Beef Products and a premium line, Atlantic Choice, for the food service industry and future retail markets. Atlantic Choice is high end AAA beef, sold only to select restaurants, including Delta Hotels[82]. The owners/members are **considering** expanding their product line to include '**natural**' grain finished beef.

Atlantic Tender Beef Classic represents a Value Chain extending from beef producers, to a jointly owned slaughter plant with one of its retail customers, who markets a branded beef product.

- **Prairie Heritage Producers (PHP)[83]**

  Prairie Heritage Producers (PHP) is a '**natural' grain finished** beef Value Chain comprised of 18 Alberta and Saskatchewan producers owning a total of 12,000 cows. This producer-run Value Chain is patterned after the Oregon Country Natural Beef group which markets over 60,000 head per year into health food stores and restaurants throughout the Pacific Northwest.

  PHP members must commit to raising cattle without growth promotants, antibiotics, and animal by-products[84]. They must complete an Environmental Farm Plan and be certified under the Canadian Cattlemen's Association-endorsed On-Farm Food Safety program. They are also expected to personally promote their beef products at retail outlets, shaking hands and answering any questions consumers might have about the beef program. This is a key part of the promotional strategy for communicating the 'story' that creates value in the consumers mind for this product and builds the brand image.

  PHP is using Rancher's Beef Limited (RBL) slaughter plant in Innisfail (formerly owned by Sunterra); the carcasses are cut and packaged at RBL's cutting facility near Balzac. RBL is scheduled to open a new slaughter plant just north of Calgary. Some of the PHP members are Rancher's Beef Limited shareholders.

  Individual PHP members own the cattle up to the point of slaughter. At slaughter, PHP takes ownership and handles the sale of the meat and paying off the members.

  The beef is marketed under the Alex Campbell Signature Series (ACSS) Traditional Beef label, named after the founder and president of Thrifty Foods. However, Thrifty Foods initially launched its natural beef line using Country Natural Beef from the Pacific northwest. Once store officials were satisfied with PHP's production protocol and the first Canadian

---

[81] http://www.coopatlantic.ca/

[82] Premium Beef Markets by Kevin Hursh, AgriSuccess. Sept/Oct., 2005

[83] Linking ranchers with the retailer. Farm Business Communications, Dec. 17, 2005. www.agcanada.com/custompages/stories_story.aspx?mid=31&id=631

[84] http://www.prairieheritage.ca/public/index.jsp

cattle were available, the Thrifty program switched to PHP as the supplier for the chain. A handshake partnership between the Canadian and American ranchers calls for them to back up each other's supply chain to cover shortages in production should they occur.

PHP's beef is not forage finished but is finished in a feedlot on a short-keep basis. When the cattle reach an 850-900 pound target, they are shipped to a PHP member's custom feedlot. After slaughter, carcasses are broken into sub-primal cuts and wet aged in cryovac bags for a minimum of 21 days. RBL buys the beef that Thrifty Foods do not buy.

PHP is currently processing 50 head/week but could move up to 100 head/week in the near future.

## 6.2 Existing Supply Chains - American

Many of the forage finished beef producers in the US sell their beef directly to the consumer. However, there are some who have accessed a broader market through selling wholesale to retail stores such as Whole Foods, Trader Joes's, other health-oriented chains, and independent grocery stores. In addition, some producers sell to restaurants and the food service sector.

### Oregon Country Natural Beef[85], Oregon

Doc and Connie Hatfield created a cooperative of producers who promised a certain number of cattle during different times of the year. These cattle are then fed out and slaughtered, with the producer retaining ownership. At slaughter, the slaughter house buys the beef for conventional prices but keeps the beef separate. Then the producers take orders for that week and then buy back as much of their beef from the processing facility as demand will allow.

The benefit of this model is that there is a steady supply of fresh beef and a guaranteed sale for all of the beef. At the very least, the producers receive the commodity price for their beef. Those who are successful in direct marketing receive a premium.

Country Natural Beef's sustainable agricultural practices are documented through third party certification from the Food Alliance. However, while this is a '**natural**' product, it is **not forage finished** beef. The cattle stay on pasture for an average of 16 months and in the gathering lot for about 3 months. Rations for the gathering lot are high-energy food bi-products from potato processing and flour milling. In fact, half this ration is made from potatoes. On the firm's website[86], it claimed that Country Natural Beef had only slightly lower Omega-3 fatty acid levels than grass-fed beef. The website further claims that Country Natural Beef's levels of CLA were significantly higher than in grass-fed beef.

### High Sierra Beef, San Francisco area, California

High Sierra Beef began when families from 6 neighbouring counties met in 2001 to discuss opportunities for marketing local beef. The group conducted market research, surveying 29

[85] http://www.oregoncountrybeef.com/mission.html

[86] http://www.oregoncountrybeef.com/mission.html

restaurants, retailers and institutional buyers, as well as 200 consumers. High Sierra Beef, Inc (HSB) was established in 2004 as a for-profit corporation following several years of feasibility studies and business planning. The vision of HSB is a producer-controlled business which markets beef products of consistent quality in order to sustain family ranches. Producers retain ownership of the beef cattle until they are delivered to the abattoir, where they are bought by HSB for $1.75/pound hot carcass weight. High Sierra Beef uses ultra-sound to candidate a beef animal for its suitability to grass-finishing and to predict when an animal is properly finished. While their goal is to market 2,000 head per year of **'natural' grass-finished** beef cattle, they have marketed 12 in the last year.

High Sierra Beef is marketing their grass-finished beef to two local food co-ops which specialize in locally grown foods. They also plan to expand their marketing to buyers' clubs, following the Joe Salatin model[87]. In a buyers' club, people in a geographic location will order their meat through the club and the producer will deliver the product to that location. The advantage of this marketing method is that the producer delivers the meat on a pre-sold basis in larger volume shipments with greatly reduced freight and handling costs, compared to orders from individual consumers. The advantage for the members of a buyers' club is that they are able to access food products that they ordinarily would have to travel considerable distance for or would have to pay high delivery charges for. Joe Salatin markets 30 to 40% of his beef through buyers' clubs.

High Sierra Beef's customers are sensitive to a number of marketing messages, including locally produced food, 'natural' product (antibiotic, ionophore, and synthetic hormone free), and the health benefits of grass finished beef (CLA and Omega-3). Another motivator for these consumers is the pursuit of food products that have a reduced reliance on petroleum in their production[88].

### Niman Ranch[89], California

Niman Ranch (located in Marin County, California) works with 500 independent family farmers who raise livestock (beef, pork, lamb, etc.) for them, following their production protocols. The protocols prohibit growth promotants, antibiotics, and animal by-products. The cattle graze on pasture for 14 to 18 months. When they weigh approximately 900 pounds, they are fed barley, corn, wheat, soy, molasses, and hay. The cattle are slaughtered at a USDA facility in Oakland, California. The centre cuts, ribeyes, and New York steaks are dry aged. Niman Ranch sells its **'natural' grain finished** beef to restaurants, retailers, and directly to the consumers (through its website) throughout the US.

Niman Ranch was launched by individuals with previous experience in the wine industry. They identified the characteristics of the farms (dispersed, small farms, not low cost, etc.) and then figured out what they needed to do to be competitive, given those characteristics. They

---

[87] Joe Salatin of Swoope, Virginia was asked by three of his customers how big would a meat order have to be so that he would deliver his product to their city. He answered $3000, and shortly after the three customers called him with such an order. This lead to him developing this new marketing approach – the buyers' club.

[88] According to expert opinion of Roger Ingram, University of California extension specialist and mentor to High Sierra Beef.

[89] http://www.nimanranch.com/

developed a Value Chain that would be very targeted in doing exactly what would allow them to compete - e.g. the extremely tight quality standards based on taste testing etc (which no one else in the meat industry was doing) that supported the premium pricing, the enforcement of the farmer image (by only allowing their definition of family farm to participate – farmers have to certify that at least 60% of the labour on the farm is from the family), by having farmers do in-store demo's of their own product from their own farm, chefs & store managers being toured to Niman Ranch farms that supply those stores, using technology to show the farmers (the people) to consumers in-store, etc. In mid 2005 their sales volume was reported to be $50 million (hogs, beef and lamb) and they were said to be quite profitable.

### Ozark Pasture Beef, LLC[90], Arkansas

Ozark Pasture Beef, LLC was started in 2003 by nine northwest Arkansas farmers who participated in a USDA-funded study of grass-fed beef production. Sales have increased 50% each year since they incorporated in 2003[91]. Ozark Pasture Beef is branded, '**natural', grass-fed** beef and is sold in several supermarkets in the frozen meats section. The beef is USDA inspected at the abattoir operated by the University of Arkansas Department of Animal Science, which harvests and packages the beef under contract with Ozark Pasture Beef, LLC

Although they originally planned to form a cooperative, their attorney recommended that they should form a limited liability corporation instead because a LLC is easier to run and less expensive to get in and out of. Using Ozark Pasture Beef's own vacuum packager and label machine, they can track every cut of beef back to the animal it came from.

### Tallgrass Beef Company[92], Kansas

The Tallgrass Beef Company was founded by Bill Kurtis, a Kansas native who worked for CBS news for 30 years. After Bill Kurtis bought a ranch in Kansas, he set out to find the most profitable production system for the future. He brings marketing expertise to Tallgrass Beef Company, and has been able to raise consumer awareness of the taste and health benefits of grass-fed beef. In fact, Tallgrass Beef Company has been successful in marketing its '**natural', grass-fed** beef to restaurants and to retail outlets. The company works with family-owned ranches to source 'natural' grass-fed beef for its program. Animals must pass ultrasound and process verification in order to qualify for the program.

### Valley Farmers Cooperative[93], New York State

Valley Farmers' Cooperative in upstate New York began when a few **'natural,' grass-fed** meat producers started doing deliveries together and sharing accounts. This cooperative was incorporated in 2000 and now has 13 members. The feature of this cooperative is that the

---

[90] http://www.ozarkpasturebeef.com/page2.htm

[91] http://www.griffin.uga.edu/sare/commongrnd/06spring.pdf

[92] http://www.tallgrassbeef.com/

[93] http://www.valleyfarmers.com/about.html

members market their meat products together. This cooperative has no employees, nor rent to pay. All tasks are performed by members, other than the slaughter and processing. The only asset the cooperative owns is a walk-in freezer. They sell meat by the box to individuals (one-third to one-half of their sales), and fresh beef to restaurants and retail stores. New York City represents 15% of their total sales; most of their sales are made in their local region.

### Thousand Hills Cattle Company (Minnesota)[94]

Thousand Hills Cattle Company based in Minnesota consists of 15 producers in Minnesota, South Dakota, Nebraska, Iowa, and Wisconsin. The producers must follow a protocol in order to assure customers of a consistent product. The 100% Grass-Fed Beef Program Protocol[95] for this **'natural' grass fed** product includes the following stipulations:

- Once calves are weaned, their diet will be any combination of:
  - Pasture forages (no chemical pesticides/herbicides applied) which can consist of grasses, legumes/forbs (alfalfa, clovers, Swedes, mangels, beets, etc.), and herbs;
  - Whole flax seed (no chemical pesticides/herbicides applied);
  - Grazed summer and winter annuals (corn, rye, oats, barley, triticale, etc.). However, the seeds must not be developed when grazed, only non-GMO annuals can be grazed, and annuals must be grown without chemical pesticides/herbicides;
  - Any combination of the above list can be fed as stored forage (hay, balage, silage);
- Prohibited from the diet are: grains (except flax seeds as listed above), corn silage, any GMO organism, animal/fish by-product, antibiotics, and growth promotants;
- Only British breed cattle are acceptable;
- Food Alliance Midwest[96] is the certifier for Thousand Hills. All finishers/custom grazers as well as cow/calf operations must be certified by Food Alliance);
- Average Daily Gains are outlined.

The Thousand Hills Cattle Company's beef is slaughtered at Lorentz Meats, a regional sized USDA inspected plant in Cannon Falls, Minnesota. Beef is marketed as fresh product, year-round to 20 health food stores in the Minneapolis area. It is also sold directly to consumers as frozen product in premium vacuum sealed packaging; orders are shipped in a reusable heavy-duty insulated cooler.

Another product marketed by Thousand Hills Cattle Company is a line of organic BBQ sauces.

---

[94] http://www.thousandhillscattleco.com/

[95] http://www.thousandhillscattleco.com/protocol-2006.pdf

[96] Food Alliance Midwest, based in Saint Paul, Minn., was established in 2000 by the Land Stewardship Project and Cooperative Development Services. Food Alliance farms and ranches are certified for using environmentally friendly and socially responsible agricultural practices.

### New England Livestock Alliance[97]

New England Livestock Alliance (NELA) developed an initiative called 500 Farms which aimed to do the following:

- Help producers in north-eastern US to produce **'natural', grass-fed** meat products;
- Provide them access to heritage breeds of animals that are better adapted to northeastern livestock farming and grass finishing;
- 500 Farms then purchased the animals at premium pricing for slaughter and resale to high-end markets;

Although this enterprise was able to sell their 'natural', grass-fed beef to high-end distributors, white tablecloth restaurants, and to food service operations, they felt that they should become involved in the slaughter as well. They chose to operate a USDA organic-certified slaughterhouse in Stafford Springs, Connecticut and hoped to achieve the security of controlling the supply chain all the way from the farm to the distributor's trucks. Unfortunately, this new business became the 'undoing' of 500 Farms and NELA. Although sales were good and growing, difficulties in slaughter plant management resulted in severe financial losses and they stopped operating the plant in March, 2006. The plant has since been sold by its owners. In retrospect, 500 Farms and NELA believe that they embarked on the slaughter plant operation without the capitalization and management expertise they needed[98].

[97] http://www.nehbc.org/NELA.html

[98] http://www.slowfoodforum.org/archive/index.php/t-1325.html

# 6.3 Slaughter and Processing Plants

## 6.3.1 Slaughter Plants

Slaughter plant capacity in Canada has expanded since the mad-cow situation occurred in 2003, growing to 100,000 head per week. This capacity represents virtually all Canadian cattle marketed. However, as at May 2006, these Canadian slaughter plants are only processing 70,000 to 74,000 head per week because of large numbers of both fed cattle and feeders being exported to the US.[99] It is estimated that modern plants of all sizes need to run at 85% of capacity in order to remain economically viable.

Appendix 5 lists the abattoirs in Manitoba. Although there are 24 abattoirs in Manitoba, Winkler Meats in Winkler, Manitoba is currently the only federally inspected plant in Manitoba.

A number of industry participants have noted frustration with the Canadian regulations that do not allow meat products from a provincially licensed plant to be sold in another province.

Natural Valley Farms Inc. has a processing plant operating at Neudorf, Saskatchewan and a slaughter plant opening at Wolseley, Saskatchewan in mid 2006. It is planned that another slaughter plant will be built at Neepawa, Manitoba as soon as the volumes are sufficient for the first slaughter plant at Wolseley. This would be a federally inspected plant and it is expected that producers could access this plant by leasing hook spaces. Because this plant is not yet confirmed, there is uncertainty regarding the final arrangements that may be needed to access it. Until it is available, it may be possible for Manitoba producers to ship to the Wolseley slaughter plant. However, the specific arrangements to access the Wolseley plant will have to be confirmed, under the terms available from Natural Valley Farms Inc.

Ranchers Choice plans to build a slaughter plant in Dauphin that may be accessible in the future.

In keeping with changing ideas about how beef cattle are raised and finished, it may also be worthy to consider adjusting how the animals are killed and processed. There are some market commentators who look to New Zealand for a different approach to slaughtering and processing. The New Zealand-style processing is different than traditional North American-style beef kill and processing plants. The potential for this to be used in Manitoba will depend upon each business and their strategy. To assist in provoking thoughts about change, the following key differences are noted[100]:

- **Prior washing**. Dirty animals never arrive on the kill floor, reducing possibilities of *E.coli* bacteria contamination during the skinning process.
- **Slower kill speed**. New Zealand plants are three times slower than U.S. systems, allowing for disinfecting knives, boots and workplace between animals.

[99] Canada's Slaughter Capacity Underutilized, by Rae Groeneveld. Farm Credit Canada, May 5, 2006. http://www.fcc-fac.ca/newsletters/en/express/articles/20060505_e.asp

[100] Down Under New Zealand style by Mikkel Pates. Agweek, Monday, August 8, 2005.

- **De-boning on the rail**. Major muscle groups are removed on the rail and each carcass is processed individually by a skilled team into final cuts. (U.S. style is to move the animals along a conveyor, break the animal into quarters and process as piecework.)
- **Source identification**. Final cuts are boxed and labelled with an identifying UPC code, allowing tracing back to the ranch of origin. (A U.S. system is being developed.)
- **Smaller plants**. New Zealand plants typically handle fewer than 60,000 animals per year, much smaller than U.S. plants, many of which handle one million or more (e.g. the two large Alberta plants).
- **Water conservation**. Plants use less water and produce less wastewater.
- **Centralized location**. New Zealand plants typically are closer to beef operations to reduce producer transportation costs.
- **Employee turnover**. New Zealand-style plants are more career-oriented and worker friendly than U.S. plants, where the work force is mostly unskilled, low wage and have a high turnover.

### 6.3.2 Processing Plants

Aging of grass-fed carcasses has been shown to increase tenderness. While some producers age the carcass as long as four weeks, others believe that two weeks is adequate. A concern to be considered is how much fat cover does the carcass have, and what kind of 'shrinkage' is experienced as the carcass dries out while hanging in the freezer.

Sean Firth of AgraPoint suggests that beef should be hung using the tender-stretch method as is done in Australia. The carcasses are hung farther back on the hip, rather than by the Achilles tendons, as is done in North America. The tender-stretch method results in the muscles being stretched to a greater degree than the traditional method, thereby yielding a more tender beef product. Other processing techniques such as marination and needle tenderization will also enhance the tenderness of the product.

Much of the natural and forage finished beef product processing is done at the same businesses that slaughter the animals. Most abattoirs provide both services. Some businesses, such as Toledo Meats provide processing and also can distribute the products.

# 7.0 Forage Finished Beef - Key Success Factors

The key success factors (KSFs) for the existing and future supply chains for forage finished beef appear, based on all information available to date, to include:

1. Research must be conducted and Manitoba specific production protocols must be developed and proven. These must then be made available to interested producers.
2. If a commercial scale of production/slaughter/processing/marketing Value Chain is to be undertaken, professional advisors with relevant experience should be retained to develop a sound business plan, before investing significant amounts. In addition, a manager with relevant successful business experience and good references should be hired to run the business, reporting to the Board of Directors.
3. Economies of scale are a major challenge for small and midsize businesses. The economies of scale must be appropriate relative to the target market segment's competitors and degree of premium pricing. The economies of scale needed to compete with traditional beef products must be clearly understood before investing. The economies of scale apply at each of the production, transportation, slaughter, processing, wholesaling, and retailing or food service levels of the supply chain. For each different target market segment the requirements for economies of scale will vary, due to the different competition faced in each different target market segment. (For example, past experience by one forage finished beef business marketing 400 head per year from 10 ranches found that their slaughter/processing costs were triple[101] the level for the traditional high volume traditional beef product.)
4. Pursue target markets with an appropriate size of potential demand. The right size is such that if successful in penetrating the market, the producers can supply the customers. Many business ventures initially target market segments that are too large (e.g. going after a major retail chain.)
5. Markets/customers must be available for all of every animal slaughtered, shortly after slaughter, especially if marketing fresh rather than frozen products. The high value cuts typically will move rapidly, but many previous meat businesses have found the lower value cuts are more challenging to move. Inventory build-up must be avoided. Typically these cuts are made into burger and sold at the burger price.
6. Even in the premium markets for natural, forage finished products, the price pressures are significant, creating a challenging business environment. The target markets and product promotional strategies must be well executed and appropriate for each target market segment.
7. Finance the initial business with high levels of equity and modest debt, to be able to withstand the inevitable downturns that occur for a new, expanding business.
8. Nutrition testing is required, to have the scientific documentation to support the marketing claims regarding levels of CLA, low fat, etc.

---

[101] Sourced at http://www.agmrc.org/agmrc/business/strategyandanalysis/romancevsreality.htm Romance vs Reality: Hard Lessons Learned in a Grass-fed Beef Marketing Cooperative - Tallgrass Prairie Producers Co-op, p. 1

9. Identification of the individual producer of the product is needed for marketing reasons to maximize returns in a number of potential target market segments.
10. Fresh product is perceived by the consumer as better than frozen, with a higher price. But, fresh has a short shelf life, so rapid turnover is a requirement. For lower volumes, it may not be possible to manage the flow and inventory to offer fresh product.
11. Most markets with significant potential volume will require consistent year round supply of a product with consistent characteristics. The volume required will vary by season, and must be matched to the consumer demand. Production costs for winter finished animals will be a challenge.

# 8.0 Feasibility of Forage Finished Beef

The feeding of high energy, grain based diets to beef animals prior to marketing is a relatively new practice. Prior to World War II, beef was primarily finished on forage. Beef animals were developed relatively slowly on forage based diets, were significantly older at slaughter, and aged post-mortem to enhance tenderness. The majority of these animals were marketed through small, community based packing plants.

In the past, the interest in forage finished beef often coincided with either low cattle prices or high grain prices. Presently, the interest in this program is fuelled by an ongoing long term trend in consumer preferences creating a consumer demand.

As noted previously, consumer trends that support the growth in volume of this product are likely to increase for the long term. While human trials on CLA health benefits are not yet completed, and negative results could impact the future prospects for forage finished beef, the science available to date is encouraging.

The Tallgrass Prairie Producers Co-op operated from 1995 to 2000, raising and marketing grass-fed beef from ten Kansas ranches. In an article entitled *Romance vs. Reality: Hard Lessons Learned in a Grass-fed Beef Marketing Cooperative*,[102] Annie Wilson describes the lessons learned from this endeavour. The group's members proved very effective in personally marketing their beef. However, this activity was both time-consuming and expensive. At their peak, they were marketing their beef in 23 states through three large natural food distributors. They also marketed beef locally, but it was low volume and demanded greater servicing.

The Tallgrass Prairie Producers Co-op (TPPC) production peaked at 400 head annually. They found that their volume was too low to obtain processing at a competitive rate. Moreover, they were unable to access volume markets because of their inadequate supply. Buyers want to have a supplier provide a quality product with no interruptions in supply. TPPC found that their consumers wanted fresh product rather than frozen. Since a fresh product has such a short shelf life, it requires a steady, consistent volume of product turnover.

TPPC learned the following:

- Don't automatically believe everything you read and hear about marketing projects. There is often a 'positive spin' put on new marketing projects, if not outright exaggeration.
- Hire a trained experienced professional to develop and manage the business.
- Account for the cost of your time in the business.
- Grants may be helpful but are not the answer. They can mask the real need for sufficient capital (with high percentage equity) and a solid business plan.
- Maintain the highest ethical level regarding production claims and following C.F.I.A. rules.
- Price and convenience are important to consumers.

[102] Romance vs Reality: Hard Lessons Learned in a Grass-fed beef Marketing Cooperative by Annie Wilson, June 2002. http://www.agmrc.org/agmrc/business/strategyandanalysis/romancevsreality.htm

- There are contradictions in the natural foods market. One of the largest sectors of natural products is not foods, but pills! Following the trend in conventional foods, the most profitable food products in the natural foods industry are heavily processed, packaged items. In addition, the natural foods industry is becoming dominated by large players.
- The food service industry is a potential market for grass-fed beef. However, this is a demanding market and will not tolerate supply shortfalls.
- They did not encounter any markets willing to accept only a seasonal supply. (Some others have found seasonal markets however.) They found that producing off-season grass-fed beef was expensive.
- Consumers did not understand the concept and benefits of grass finished beef. They question how much education of the consumer you can afford to do? The consumers need to understand the nutritional differences of marbled, grain-fed and grass-fed beef. Since the consumer associates 'grain' with wholesome, healthy food, the message to the consumer may become confusing. In addition, dwelling on the environmental concerns of feedlots may cause a strong negative backlash from the conventional beef industry.

Ed Rayburn (2003) identified some key action steps for successful pasture-finished beef production and marketing[103]. They are:

- Identify the portion size and degree of finish (fat content) desired by customers.
- Identify what carcass weight will give the desired portion size and meat fat content.
- Identify the animal genetics (frame size, gender, breed) that will provide this acceptable combination of carcass weight and degree of finish.
- Develop a forage production system that matches forage VALUE to the nutritional requirements of the growing and finishing animal so that the animal is harvested at a young enough age (gain per day of age) to ensure tenderness and profitability.

Production protocols are an important consideration in designing a successful forage finished beef production system. Av Singh from AgraPoint recommends that Manitoba producers calve in the fall, wean calves in the spring, and then pasture the animals during the spring/summer/fall period. During the winter, they are given forages, and then pastured in the spring/summer for the finishing phase. He favours this protocol because it maximizes the use of pasture. Mr. Singh recommends that the pasture be used to its full potential by sequencing the grazing throughout the season. During the first lush growth of grass in the spring, the animals entering the finishing phase are allowed to graze first, followed by the weaning calves, and then the dry cows. In addition, the pastures must be managed carefully in order to protect the pasture asset as well as to maximize pasture productivity.

[103] Meeting the Challenges of Pasture-finished Beef by Ed Rayburn, Extension Service, West Virginia University. February 2003.

Although some consumers will accept the claims of beef producers that their forage finished beef is truly forage finished, there will come a time when standards will need to be formalized. The Marin-Sonoma Counties in California developed a Grass Fed Livestock Certification Program[104]. The purpose of this certification program is:

- To provide the local livestock industry with the incentive to pursue innovative and sustainable animal agriculture principles
- To encourage sustainable agricultural and land management practices
- To increase marketing opportunities
- To promote more natural animals management practices.

The Grass Fed Livestock Certification Program is locally based and any livestock producers in the counties of Marin and Sonoma may participate. In order to participate in the program, the participant must be able to comply with the standards outlined, which include:

- Livestock must have been under grass fed management from birth to harvest in the counties of Marin and/or Sonoma;
- Producers must have a method of identifying individual animals;
- Antibiotics can never be fed and/or administered to animals on this program;
- All animals should be vaccinated;
- Animals can never receive supplemental hormones from birth to harvest;
- Livestock diets shall primarily consist of forage. No rendered products can be fed;
- Livestock shall have continuous and unconfined access to pasture from birth to harvest. Livestock cannot be raised in feedlots.

It is interesting to note that the standards do not preclude some non-forages being fed.

While the Manitoba market does not require third party certification of forage fed beef at this time, it may in the future. This certification program can become an initiative of groups such as the Manitoba Forage Council. In the Marin-Sonoma Counties' program, producers pay an application fee and an on-site inspection fee of $70/hour.

**Cost of Production**

Research conducted by Veloso et al at Kansas State University[105] compared the performance and beef carcass characteristics of cattle raised under traditional practices with those of cattle raised according to a natural production protocol. In this study, traditional-raised steers were implanted with synthetic hormones (trenbolone acetate and estradiol), and received ractopamine-HCl in the last 33 days of feeding. They were also fed antibiotic performance enhancers. The 'natural' steers were not implanted and were not given feed additives. Steers in the traditional group had higher daily bodyweight gain (4.8 versus 4.2 pounds); higher feed efficiency (5.5 versus 6.5),

[104] Marin-Sonoma Counties' Grass Fed Livestock Certification Program from 2005 Proceedings of Niche Marketing Conference. www.scuchino.edu/agr/grassfedbeef/niche-mkt/index.html

[105] Meat News Daily, May 5, 2006.

heavier carcasses (842 versus 817 pounds), and larger ribeyes (16.1 versus 15.1 square inches). 'Natural' cattle had better carcass quality grades, but would require a $3 per cwt carcass premium to offset the performance advantages of traditional cattle.

**Costs of Slaughtering/Processing**

Economies of scale will play a large role in the feasibility of the forage finished beef market. Research has identified the following costs of slaughtering/processing in Manitoba facilities[106]:

- $0.08/lb to slaughter (charged on dressed weight) with plant keeping the hide
- $0.04/lb to dispose of offal (charged on dressed weight)
- So, subtotal of $0.12/lb. for slaughter
- $0.45/lb to cut carcass into primal cuts and cryovac product (charged on dressed weight)

Thus, the total cost for slaughtering, cutting the carcass into primal cuts and wrapping these cuts in cyrovac is $0.57/lb (based on dressed weight).

**Feasibility of Natural Forage Finished Beef Production in Manitoba**

All of the above factors have an influence on the feasibility of natural forage finished beef from the perspective of a beef producer and for establishing Value Chains. The consultants' analysis has taken note of the production cost, slaughter/processing cost and the marketing challenges in a developing niche market. The price premiums that are available for either a portion of the cuts with the remainder sold as ground burger has been analyzed based on existing producers and marketers experiences.

The conclusion of this study is that production and marketing of natural forage finished beef products in Manitoba is feasible and has the potential to be quite successful, **but only if the sophisticated marketing strategies identified in this report are successfully implemented.**

[106] Expert opinion.

# 9.0 Value Chains

There are a number of reasons that producers would want to seek out Value Chain partners to help them in the forage finished beef market, including:

- Economies of scale – these can be significant, even for small scale operations. Most of the existing forage finished beef producers market only a portion of their total animals into this market niche, with the bulk of their production being sold as grain-fed beef at commodity prices.
- Year round supplies – consumers and restaurants usually want a year-round supply. Therefore, retailers will demand this. A group of producers using a diversity of production management systems are more likely to create a consistent supply that can match seasonal market volume demands;
- Sharing of slaughter, processing and marketing tasks – producers can share the 'load' with others who have expertise and resources in each of the levels of the Value Chain (e.g. slaughter, processing);
- Resources (dollars and time) – significant industry development work and investment is required that can be better conducted by a Value Chain with a number of participants than by any one producer on his/her own; and
- Ultimately to increase profits.

## 9.1 Supply Chains versus Value Chains

Before defining Value Chains, it is appropriate to define the broader category, of which Value Chains are a subset. This broader definition is for the term "supply chain."

Supply chain is the term used to describe all the participants and steps that a product takes to get from its origination to the end consumer. For example, a typical supply chain that delivers a beef steak to a consumer would include: a breeding stock producer, a cow-calf producer, a feedlot, trucking companies, a slaughter plant, a further processor, a wholesaler/distributor, and a retailer.

The term supply chain management (SCM) is widely used in many industries around the world to describe the focus on management techniques for improving the efficiency of supply chains to provide value to consumers.

The SCM term is <u>not</u> the same as supply management, which is used in the Canadian dairy and poultry production sectors. The term supply management refers to a horizontal cross section of farmers operating in the production stage of their industry's supply chain. The term supply management only applies to the production sector, and thus is a <u>horizontal</u> grouping. Supply chains are the opposite of this, because they are a <u>vertical</u> grouping, including producers, processors, and marketers to deliver the product to the end consumer.

Typically the term Value Chain would only be applied when the vertical alliance includes three or more companies in the supply chain. If only two companies are involved, it would typically be

referred to as a "**strategic alliance**[107]".

Supply chain management includes the body of knowledge and business management activities focussed on improving the efficiency and function of supply chains. There are a variety of forces at work that are causing increasing attention to supply chain management. Almost all are the same forces that are driving the creation of Value Chains.

It is valuable to recognize that the trend to improved supply chain management and Value Chains is not specific just to agriculture or food, but applies to all products marketed anywhere in the world. A large number of businesses in many different industries are undertaking supply chain management initiatives.

In a number of parts of the world, the term Value Chain is not used. Instead the term SCM is utilized. For the purposes of this document the two terms are defined separately, because within Canada a body of knowledge has developed that considers Value Chains as a special type of supply chain; one with the characteristics described in this document.

There are unique supply chains for every product that is sold into each market segment. Examples of short supply chains include farmers' market or direct to consumer chains. An example of a longer supply chain includes seed farm to farmer to grain co. to Canadian Wheat Board to ocean shipper to Japanese flour mill to bakery to retail store to end consumer.

There are so many supply chains because each serves a specific market segment of consumers who have different wants and needs, as well as handling different products and services. It is important to note that there is no one "average consumer". There is great diversity and complexity amongst consumers. And, each consumer may have different attitudes for different products. A common example of this type of complexity is the consumer that will purchase a discount airfare and stay in a premium hotel on the same trip. He/she does not value the additional services that higher priced airlines offer, but does value what premium hotels offer. This may be because he/she is travelling alone (no need to impress anyone), but meeting business associates at the hotel (where a certain standard of luxury is expected). Or there may be a number of other motivating factors (e.g. maybe there are "bragging rights" in finding the cheapest possible airfare).

Every business faces continuous pressure to improve, and every supply chain faces similar pressures. Therefore, a continuous process must exist of asking, "What activity/steps add more value in the eyes of the consumer, and what do these steps costs?" This process has led to

---

107 As used in this document, the term "Strategic alliance" is defined as a mutually agreed-upon commercial collaboration between two businesses. These businesses maintain their own separate entity, in addition to being a member of the Strategic Alliance. A Strategic Alliance is not just a contract. Strategic Alliances are strategic, long term, and have a significant influence on the success (or failure) of the businesses that are parties to the Strategic Alliance. The businesses pool, exchange, and/or integrate or coordinate selected business resources or activities/functions for their mutual benefit. Strategic Alliances can consist of many forms from joint ventures, to new corporations or coops, to partnerships or to other legal forms. The legal structures may involve contractual agreements, equity investment, cross-licensing agreements, supply agreements, purchase agreements, marketing agreements, joint ownership of manufacturing or marketing assets, or other forms.

constantly evolving and improving supply chains with improved logistics (freight and inventory management), new structures with new players, etc.

Because the competitive pressures exist for all supply chains throughout the world, a large number of role models have developed in the food industry and in other industries. Examples of supply chain role models include Wal-Mart, 7-Eleven, and Dell Inc.

Wal-Mart is an example of improved supply chain management (focussed on low cost) including just in time delivery direct to stores (product is often sold before Wal-Mart pays the supplier). Wal-Mart was among the first companies to use Value Chain philosophies. It began sharing sales tracking information with suppliers many years ago to allow the suppliers to better manage inventories and to meet Wall-Mart's needs.

As part of its strategic changes to its supply chain management, 7-Eleven has outsourced much of the transportation/logistics for its stores. Suppliers are responsible for making sure products arrive when needed at each retail store. Many suppliers deliver more than once per day to each store to ensure optimum freshness.

Dell Inc. has structured a supply chain where it only performs those functions that it is the best at. It has strategic partners, each of which is the best in the world at what it does (e.g. circuit board manufacturing, logistics management, etc.) that conduct each of the other functions in their world wide supply chain.

Supply chains and their structure and operations are complex. Most of the public media does not do a good job of providing information or understanding of what is actually occurring with businesses in many industries, including the agriculture and food industry. For example, the media image of Wal-Mart is quite different from the reality regarding the specific details of what characteristics of their supply chain assist in creating their success.

## 9.2 Definitions

The term "Value Chain" is relatively new – it has become widely used within the last decade. It is NOT related to Supply Management, which is legislated horizontal groups of producers – one level in a Supply Chain. A Value Chain is structured vertically, with multiple levels of the supply chain working together.

The term has come to be associated with producers being involved "further up the supply chain"

A number of definitions of Value Chains exist. They all contain similar concepts, but differ slightly. A selection of definitions include:

- "By *working as interdependent, rather than independent organizations, members of a Value Chain alliance can ensure that the end product satisfies the demand of consumers more than the competition*." (Roberts, R., Gregory, D., Cornwell, F., O'Keefe, M., (2002); Value Chains: A Project Management and Mentoring Guide; Agri Chain Solutions Limited; Canberra, Australia)
- "*Value Chains are vertical, strategic alliances, involving at least three independent/separate business units between the consumer and the producer. The main purpose of chains is meeting a specific market opportunity for the long-term benefit of all parties. Unlike*

*"vertical integration", most participants in Value Chains are independently owned*." (Agriculture and Food Council, Alberta)

- "*Value Chains are consumer or market driven, rather than commodity or supply driven. Value Chains seek collaborative optimization of the whole chain system, not maximization of the individual profits of chain members.*" (Agriculture and Food Council, Alberta)
- "*Value Chains are a tool for more effective response to the marketplace – not an end in itself*" (Agriculture and Food Council, Alberta)
- "*A Value Chain is an alliance of enterprises collaborating vertically to achieve a more rewarding position in the market*." (Agriculture and Food Council, Alberta)
- "*The entire 'chain' of activities: from production on farm … through to processing, distribution, and retailing to the consumer … (organized as a vertical alliance or strategic network between a number of independent business organizations.*" (Hobbs, Cooney & Fulton (2000) – Via George Morris Centre)

The Value Chain concept is global and is used in all industries. The term used more commonly in industries outside of agriculture and food and in other countries, is "Supply Chain Management" (SCM). As an example of how well the concept has become established, many universities, including the Asper School of Business at the University of Manitoba now offer business management degrees with a major in "supply chain management". Also, Harvard Business Review has begun a new globally marketed publication titled "Supply Chain Management".

The creation of increased value in the eyes of the end consumer is the typical objective of Value Chain but a Value Chain may also reduce the total costs of the entire chain.

The difference between a very well managed supply chain and a Value Chain can be quite small. The term Value Chain typically applies where the exchange of information between players in the chain is very high, is strategic and is not the typical amount of information for a supply chain. This sharing of this volume of confidential information requires the relationships between the players to be very strong and on-going. This sharing of information so that each participant understands the situation of all other participants allows **the players to think and act as if the whole Value Chain was a single entity**, rather than a number of independent businesses negotiating one-off buy-sell transactions, as typically happens in a poorly managed supply chain (e.g. the traditional farmer selling grain to an elevator company after shopping around to find which company would give him the best price).

The traditional agricultural commodity supply chain is typically based on the principle of one-off transactions, rather than on-going relationships. There is very limited exchange of information, so the producers tend to obtain little feedback on the performance of their product (e.g. grain, cattle, etc.) in the processing and marketing parts of the supply chain. Thus the producers have little opportunity to use information to improve their product and its value to the end consumer or other participants (e.g. processor or marketer) in the supply chain.

Each party in the traditional supply chain tends to view the supply chain as an adversarial zero-sum game. Using the example of a livestock sale by a farmer; the animal is seen as a fixed value

and the negotiations during the sale transaction occur with both the buyer and the seller trying to maximize the profit for themselves from this one transaction.

In a Value Chain, these are not one-off transactions, but part of a relationship, with sufficient information flow both ways that the farmer and the livestock buyer understand each other's situation and challenges. They do not view this transaction as a zero sum game, but rather are focussed on how to work together to create greater value for the end consumer, and thus have a bigger pie to share, with both winning a larger piece than if they did not jointly work together in the Value Chain. This different view of the world (zero-sum versus a pie that can be made bigger and everyone get a larger piece) is difficult for many individuals to accept, but it is an essential requirement before anyone should attempt to participate in a Value Chain.

The main objective of the proponents starting a Value Chain is typically to use the Value Chain to gain a competitive advantage over the existing supply chain for the target product and market segment. Every product being sold to a customer has an existing supply chain that moves that product from its origination to its end user. There is potential to increase the profits and to create a competitive advantage for the Value Chain participants if a Value Chain can achieve results (product or service characteristics) that the end customer values more highly than those from the existing supply chain, and if the customer is willing to pay for this higher value.

Agri-food Value Chains are designed to increase competitive advantage. They typically do this by linking producers, processors, marketers, food service companies, retailers and supporting groups such as shippers, research groups and suppliers.

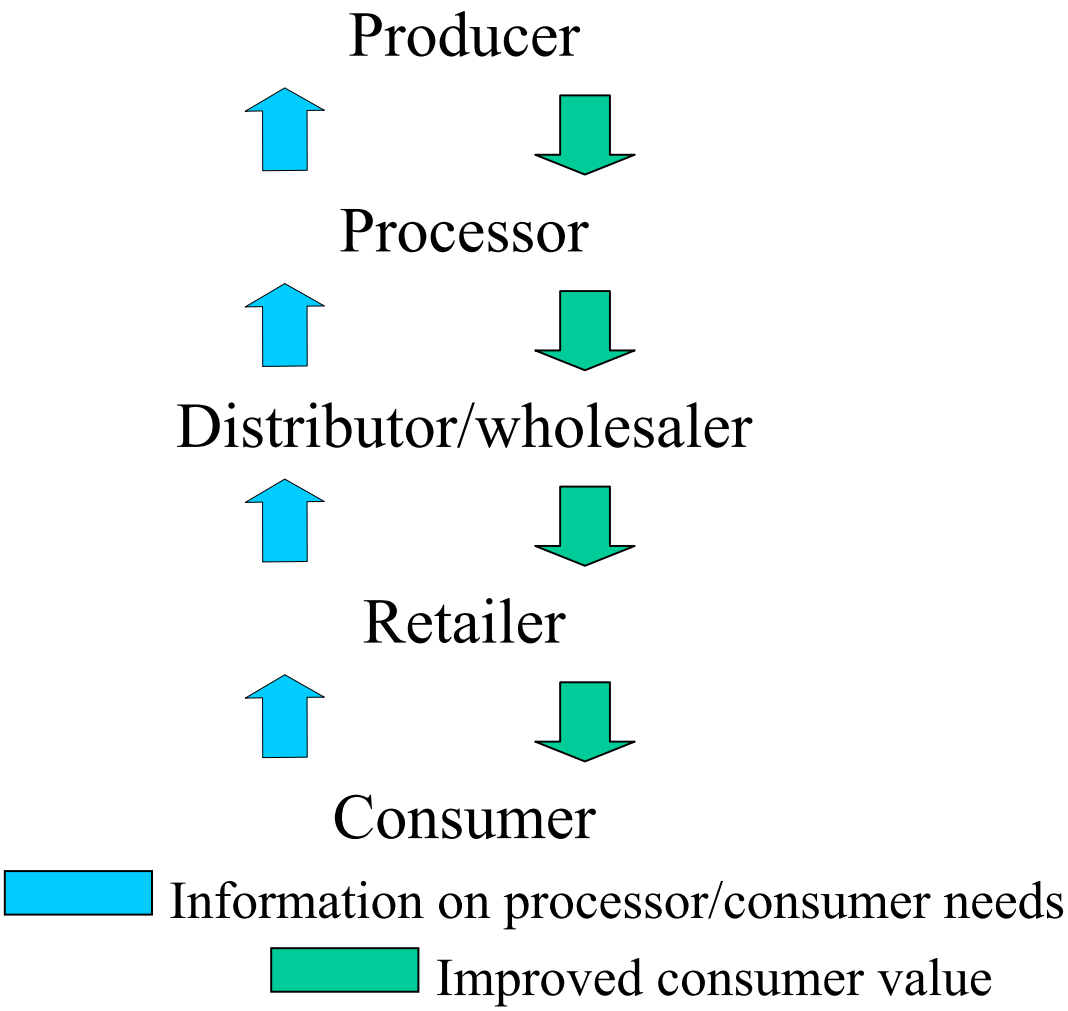
A Value Chain is formed to be a business arrangement that is in competition with other supply chains for market share (customers). The key, from a business perspective, is that the Value Chain assists the participants to gain a competitive advantage.

It doesn't always involve contractual arrangements – it can be based on Letters of Intent, Memorandums of Understanding or even as informal as a "handshake". Generally the more complicated the supply chain is, the more important it is to have key details written down and agreed to by all parties.

The key difference between a regular supply chain and a Value Chain (which is a type of a supply chain) is that a Value Chain has **relationships** between the participants in the supply chain that allows an **exchange of a large volume of strategic information**. In the typical traditional supply chain this information is considered proprietary and not exchanged between businesses. This information typically will **allow each participant in the Value Chain to coordinate their activities** with the activities of all other participants, thus creating a higher value end product (in the eyes of the consumer), or lower costs, or both.

The benefits of Value Chains are largely based on the exchange of large volumes of strategic information; information that is typically viewed as confidential. This better market/consumer information flowing back to processor and producer allows improved value to the end consumer and allows more efficient production to better serve the end consumer at lower cost. The following diagram displays how the product moves in one direction and the key market/customer information moves in the opposite direction.

**Product and Information Flows in a Value Chain**




As shown in the diagram above, in a Value Chain, the product moves from the producer through other players in the Value Chain towards the consumer.[108]

A key and defining characteristic of Value Chains is the volume of strategic information that flows in the opposite direction from the way the product moves. Beginning at the consumer, each level feeds information to the next level about how to improve value for the consumer.

This information allows improvements to be made at one or more levels to increase the value of the end product to the consumer and/or to maintain the same quality while reducing costs.

[108] As the product moves toward the consumer it increases in value as each player makes its contribution. The increasing value of the product, as it moves towards the consumer is common to supply chains and Value Chains. This increase in value, as the product moves through each player, is not a defining characteristic of Value Chains, as it always occurs, even with inefficient traditional supply chains. It increases in value to a greater degree in a Value Chain.

Reducing costs is not the main goal. For successful Value Chains, there is a continuous on-going process of improvement.

## 9.3 Examples of Value Chains Benefits for Producers

An example of the value that is created by sharing strategic information would be Niman Ranch in the USA which runs taste panels with consumers on each farm's pork cuts and provides that information back to the processor, slaughter plant and hog farmer. Based on this information other farms adapt their breeding and nutrition programs to match the farms that have the best results in the consumer tests, and the slaughter and processing businesses change the way they operate to achieve the best test results. This exchange of large volumes of strategic information is one of the reasons why Value Chains can create competitive advantages that cannot be achieved any other way. Typically close, long lasting relationships are required to achieve the degree of trust needed to share this much information and to respond constructively to the information. Value Chains are about long lasting relationships, while the traditional supply chain is about one-off transactions.

Natural Valley Farms Inc. at Wolseley, SK is another example of the benefits that are created from having strategic information flow between Value Chain participants. They pay producers based on the value of the cuts, not just the carcass. This information allows the cow-calf producer to know which bull and cow produce the calves with the best ratio of high value muscles to bone and low value cuts. Natural Valley beef has said they see up to a **$390/head difference in value of the cuts** they can sell amongst animals of the same weight, even where they are produced with the same production protocols and meet the Natural Valley standards. Think what this means over a decade to the cow-calf operator, the feedlot, the slaughter plant, the processing plant, and the distributor when they sell these to the retailer. If they can consistently generate even ¼ of this – an **EXTRA $100/HEAD!!!!** And the retailer does not get this; the Natural Valley Value Chain gets this because there are more high value cuts to sell to the retailer. If, after 5 years, even 1/3 of the 60,000 head they target gets this increase in value, it is 20,000 head x $100 = an **EXTRA $2 million/year**!!!

This displays the value of the strategic information flow that has not occurred in the past in the typical traditional supply chain, and shows the potential for all participants in a Value Chain to benefit.

The objective of this increased strategic information flow, and of the Value Chain itself, is, "To repeatedly satisfy consumers and achieve a consistent profit for all involved members of the alliance by reducing risks and achieving a consistent level of quality."

## 9.4 Factors Driving Value Chain Trend

There are a number of relevant trends in the competitive factors in the global food industry that are driving more of the agricultural and food industry players to increase their focus on implementing Value Chains. To assist in maintaining a broad perspective on the situation faced by beef producers and processors in Manitoba, a few of these global trends are very briefly discussed.

All businesses are in competition, either with other nearby businesses, or with businesses in more distant locations. All businesses must create a competitive advantage if they are to succeed in the long term. As the market, technology and other aspects of the business environment change, each business must adapt in order to be able to retain a competitive advantage.

**Evolution and Economics**:

"*It is not the strongest of the species that survives, nor the most intelligent, but the ones most responsive to change*." -- Charles Darwin, Theory of Evolution based on Theory of Economics

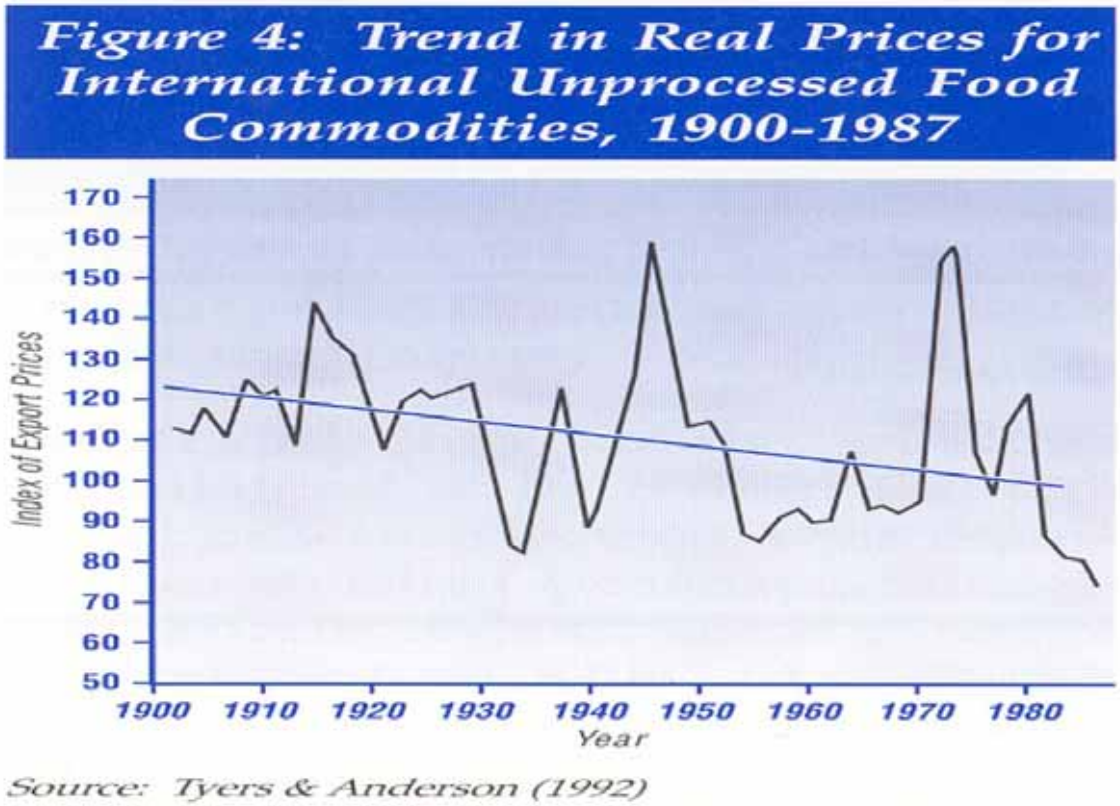
I.e. those that are the first to adapt to the new forces that are at work, will gain a greater benefit, and for a longer time, than those that are late to adapt.

The ***sources of competitive advantage*** vary significantly depending on whether products are:

- **Commodities**: There is a tendency for products to become commodities, which means that the businesses must compete on the basis of being low cost, or
- **Differentiated/Branded Products**: These businesses can compete with different product and/or marketing and/or service/location and/or price strategies, rather than having to compete solely on price. Often these businesses are able to (and need to) market a branded product at a premium price. While these businesses are able to access many more opportunities, they also face many more complexities.

  An example of a differentiated product would include beef direct marketed as being local, produced using environmentally friendly practices, grown by John Smith 3rd generation, etc. Often the key attribute is the "story" about the farm and farmer, as much as the product itself. These differentiated products are continually changing, e.g. organic used to be only available in specialty stores, with small volume, not "mainstream". Now Wal-Mart has announced a major move into marketing organic products, as have some of its competitors. Certified organic products face the challenge of becoming a commodity, especially when there are government standards that are widely accepted. This is leading to greatly increased price pressures on organic products.

As noted in the diagram below, commodity prices have tended to fall over the long term.




A number of **Traditional Business Forces** are at work in food companies (and in other industries as well) including:

- Competitive price pressures requiring cost reduction by:
  - Increasing volumes sold to achieve economies of scale (lowering fixed costs per unit), by:
    - Aggressively pricing products to increase market share and to achieve market domination, and/or
    - Acquisitions leading to concentration and control of a market segment

    These forces have led to a current situation where there is tremendous concentration in grocery retailing. In the US the largest five retailers now control 40% of the market, dramatically up from 15% only a few years ago. In Western Canada, the three largest grocery retailers control 85% of the market volume.
  - Cost cutting by using technology or automation to reduce labour costs. For example, farmers producing commodity products – produce much larger volumes per farm and per person, and have used automation (bigger tractors, etc.) and technology (e.g.

automated dryers, computerized automated feeding, automated temperature/fan controls,) to reduce labour costs. These examples are in response to the same pressures and responses as in the food processing industry.

Increasing and changing **Consumer Forces in the Food Industry** include:

- Safe, nutritious, convenient, good value food: This is a basic requirement expected for all products and sellers. They are not sufficient to gain a competitive advantage. To gain a competitive advantage requires doing something more for the consumer.
- Differentiation is serving consumer "wants", rather than needs
- Consumers wants to "feel good" when they buy food
- There is no average consumer – only market segments and niches of groups of consumers with specific wants.
- Consumers like to buy food that is closely associated with the farmer who produced it (i.e. the farm fresh, wholesome image)
- Consumer wants to know where the food came from – e.g. traceability, identify farm source. Extensive market research on a variety of food products shows that consumers trust farmers much more than food companies. Therefore, a Value Chain which allows for large enough volumes to create economies of scale efficiencies, and which involves the farmer so that the consumer knows this product came from a 'system' that farmers own/control/participate in, via the Value Chain, is a marketing advantage.
- The above factors create a convergence of interests, from both consumers and producers on the topic of Value Chains
- The above creates an opportunity for Value Chains with farmer involvement bringing extra value.

More **Recent Business Management Techniques to deal with the competitive forces** include:

- There is a considerable effort by food businesses to transform commodities into brands (don't want a commodity – price is its only competitive tool). Efforts to **transform commodities into brands** remain a focus of many food companies. It is well recognized that commodities, by definition, are standardized products, whether it be 1CWRS wheat, all-purpose flour or white bread. Because of this, these products compete and are sold almost entirely on the basis of price. It is nearly impossible to gain a price premium on a commodity product. Thus, in the industries that produce and market commodities, the only way to have satisfactory profits is to have costs that are lower than the competitors' average costs. Thus, for grain and livestock farmers who sell commodities, they are forced to use new technologies, economies of scale, cost cutting and all the other management practices that will reduce costs. This is very unfortunate, and damaging to rural societies, but it has occurred for at least the last 80 years in Canada, and will likely continue for the foreseeable future.

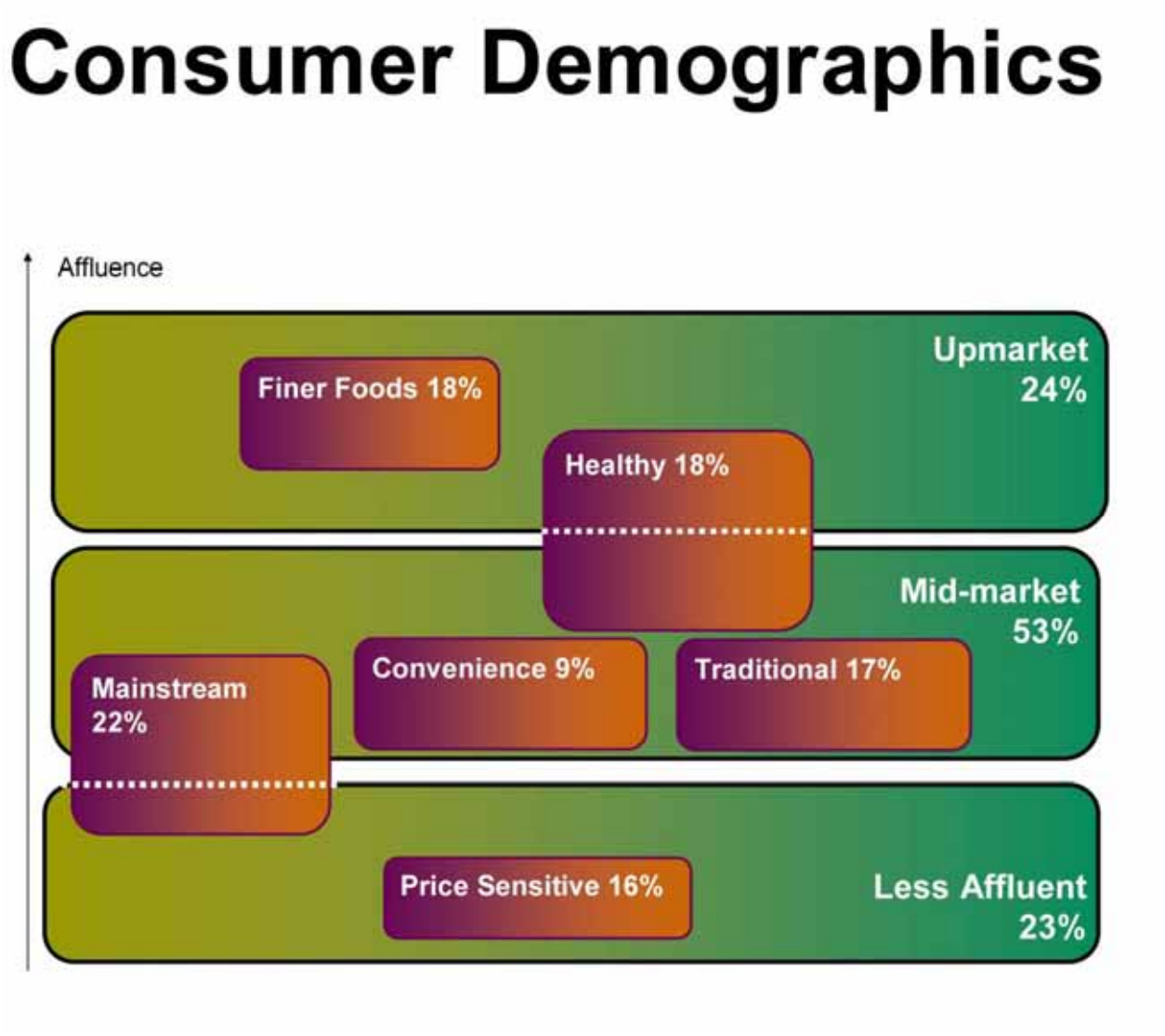
The differentiated or branded product business, by definition, is not about just producing a "standard product". Instead it is about producing what the customer (and processor) want, what few others can offer, and what products can be branded (e.g. Prairie Harvest Organic Pasta). This allows for some level of premium prices from consumers who want to feel good about what they buy. With branded and differentiated products, the seller can gain a price premium and can be successful even if they do not have the lowest cost. This will only happen if consumers see enough value in the product (and service) to pay the higher price. If the product can be positioned to serve niche markets, then a business can often be competitive with smaller volumes.

Large volume, commercial scale, branded product businesses typically still require economies of scale, the latest technologies, professional management, and other sound management practices that maximize their competitive advantages, in order to be successful. Thus, they often must process significant volumes while also providing products and services that are seen to be of added value to consumers.

- Repositioning product lines from one consumer market segment to another. Repositioning their product lines through shifting to higher and lower priced positions in the minds of consumers, or from eliminating or adding products and product lines, is being undertaken by many companies. Many global companies are undertaking major revisions to their product lines. For example, Unilever[109] publicly announced in 2000 that they would eliminate over 1,000 brands (each of which may include a number of products) of the 1,500 they own, to concentrate on those where they maintain a true competitive advantage.
- Contributing increased resources and attention to supply chain management (Value Chains), which are complex competitive strategies but which appear to hold the greatest potential for gaining competitive advantage, because cost cutting and gaining economies of scale have already been so widely used that the easy gains are no longer available.
- Increased use of Strategic Alliances.

An example of market segmentation is Tesco's market segmentation of their customers. Tesco (a large UK food retailer) has categorized its customers into 17 customer segments (based on demographics and other buying-decision determinants). The key categories are shown on the following diagram.

[109] Milling and Baking News, *Slow sales called "ground zero" for food sector difficulties,* February 1, 2000, Pages 1, 26, 28, and 30.




**Trends in the Beef Industry**:

Several trends in the beef industry are driving the need for increased use of Value Chains. Not only are customers increasingly looking for a "story" to be told of where the beef product came from, but also major food service customers are requiring traceability. For example, McDonalds audits suppliers' documentation to ensure that they are complying with food safety regulations, in particular related to BSE. For this to occur, the meat processors, feed suppliers, the cow-calf producers and all participants in the supply chain must work together in a coordinated manner. This is most readily accomplished through a Value Chain.

1. The following food industry trends are driving the increased use of Value Chains:
    a. Consumers desire to "feel good" when they buy food (e.g. product categories such as 'natural', organic, humanely produced, etc.)
    b. Concerns with environmental sustainability

c. Increasing concerns and awareness of food safety issues

d. Risk management by food retailers

e. Issues related to traceability

f. Pressures on farm incomes and a desire for farmers to increase their share of the retail dollar

g. Desires to increase the volume and value of processed food products rather than just exporting commodities. When exporting commodities, the processing jobs, economic activity and tax generation occur in other locations rather than being created locally.

h. Agriculture and Agri-Food Canada's Agricultural Policy Framework (APF) contains initiatives that are very compatible with the increased creation and use of Value Chains

i. A number of other jurisdictions around the world have undertaken and continue to undertake Value Chain initiatives to increase the use of Value Chains. The Netherlands is a world leader. Speakers from the UK, the US and other countries presented on the topic at the "Global Links – The Truth about Value Chains" conference in May 2005, in Calgary.

None of these trends is diminishing. The portion of food sales that are organic, natural and are traceable by the consumer back to the individual farmer continues to increase. Value Chains can assist in serving consumers' wants and creating a benefit to all participants in the Value Chain.

The above trends and competitive forces explain many of the strategic moves being undertaken by participants in the agriculture and food industry, both in Canada and around the world. These trends also explain and support the motivation and rationale for The Manitoba Forage Finished Beef – Value Chain Initiative.

# 9.5 Types of Value Chains

## 9.5.1 Based on - Consumer/Market Types

1. Every Day Low Price (EDLP) marketers – two objectives:

   1. Low costs 2. Assured on-shelf availability

   EDLP = every day low prices (e.g. Wal-Mart, Zellers) A limited number can be successful
   Not all big-box stores promote themselves as EDLP (e.g. Costco and Home Depot do not)

2. Niche Players – premium focus, strong branding (e.g. M&M Meat Shops is a niche marketer)
3. Middle Group – not focussed, not growing, not doing well. (Challenge to do a VC)

   The greatest risk is to be "stuck in the middle" (e.g. Sears, The Bay, Safeway, etc.)

   It is easier to do a Value Chain if there is a clear focus on either EDLP or Niche (otherwise it is a huge challenge). To participate in an EDLP Value Chain, requires being one of the lowest cost businesses with that product in the country or world! The Value Chain must be capable of large volumes. Thus, for most, especially including a newly developing industry sector like forage finished beef, the Niche is where the opportunities lie.

   The middle-of-the-road markets are disappearing[110] . Budget supermarkets and premium retailers are responding to new consumer trends while the stale supermarket centre-ground has reached the saturation point.

## 9.5.2 Based on - Who Initiates

The Value Chain can also be categorized based on who initiates it.

1. Retailer Initiated
2. Processor Initiated
3. Farmer/Producer Initiated

Whoever initiates the Value Chain:

- Creates the Vision/Culture and Business Competitive Strategy
- Selects the "partners"
- Faces the greatest challenges, and
- Tends to gain more market information, control and a larger share of the profits

[110] Middle-of-the-road retail dries up, article, Food & Drink Europe Oct 25/05

## 9.6 How to Develop a Value Chain

Goal = Create Competitive Advantage

There is a considerable body of knowledge available about how to create a competitive advantage and there is a significant volume of information available about how to start Value Chains. It is not within the scope of this document to cover this topic (How to start a Value Chain) properly. Therefore this report just touches on a few key points.

For those seeking more detailed information, they can contact Manitoba Food, Agriculture and Rural Initiatives and be referred to the individuals who can provide information on Value Chains.

Also, at the time of writing of this report there are two websites that are especially useful:

1. Information Alberta Agriculture and Food Council
   www.agfoodcouncil.com/serve/chainindex.html
2. George Morris Centre
   www.georgemorris.org/GMC/Publications/DomesticandInternationalMarketing.aspx#

### 9.6.1 Strategy to Create Competitive Advantage

The basic strategy for creating successful Value Chains is to create a competitive advantage for the Value Chain versus competitive supply chains by using what you have, or can obtain. The primary factors are:

1. Start with what consumers want
2. Determine what you can deliver (with a Value Chain). I.e. identify what you have or can have – that is different than what others have – then figure out how to make that into a competitive advantage
3. Select partners (to provide what you can't). Selection of the right partners and the right channels are critical:
   a. The right partners have to be able and willing to adapt their management systems and revise business processes to suit the new VC initiative, and
   b. They have to be able to be part of the right distribution channel into the right market segment. It has to be one that will be profitable; one that the VC can be successful at penetrating and one that others will not be easily able to "piggy-back" their way into.
4. Partners own their own businesses, but the Value Chain functions like one corporate entity
5. Big Vision – balanced with Small Steps

### 9.6.2 Steps to Take

A very brief indication of the typical steps to take when starting a Value Chain includes:

1. Research the market

   a. Overall trends
   b. Demographics
   c. Competitors
2. Identify a target market(s)
   a. Carcass balance
   b. Utilize entire carcass
3. Identify correct production techniques
   a. Genetics
   b. Production practices
   c. Processing
   d. Packing / preparation / marketing
4. Competitors
   a. Benchmark current practices
5. Find the correct partners
   a. Culture, Values, People – these are the most critical aspects

## 9.7 Lessons from Value Chain Failures

Studies of failed Value Chains from around the world indicate the following are lessons that can be learned:

1. Lack of market focus & understanding - following assumptions, not 'known' facts
2. Lack of clear objectives - insufficient commitment to a single goal
3. Incorrect partners:
   a. Culture
   b. Vision
   c. Structure
4. Poor communication
   a. Strategy vs. operations
   b. Did not celebrate wins
   c. Lack of info sharing & meetings
5. Incorrect governance
   a. Wrong 'chain leader(s) / champion'
   b. No CRM: for when times get tough (CRM = Customer Relationship Management)

   c. Incorrect sharing of rewards
   d. Protocols not enforced
   e. Lack of responsibility & accountability
6. Poor operations
   a. Inefficient or ineffective logistics
   b. Poorly managed operations
   c. Decisions not implemented with precision
7. Monitoring
   a. Lack of benchmarking & measurement
   b. Lack of reporting & timely adjustment
   c. Failure to identify & adapt to market changes

## 9.8 Successful Value Chain Characteristics

All Value Chains that have achieved long-term success have some common key characteristics, including:

- Participants are **compatible** with each other (common objectives, values, etc.).
- There is a **common focus** on efficiently meeting the needs of the consumer;
- All actions are **driven by** the needs and wants of the **consumer**; and
- There are **incentives** for all participants to be coordinated in their focus on efficiently creating added value, as perceived by the end user/consumer.

The characteristics required for success are driven, to a large extent, by the fact that the sharing of information is the basis of creating a competitive advantage:

1. Share extensive strategic, confidential information so all VC parties can plan, coordinate and improve their performance/product
2. That requires – TRUST
3. That requires – RESPECT & UNDERSTANDING
4. That requires – Shared personal and professional values and shared vision and belief it will succeed
5. So, the VC must start with PEOPLE, VALUES, ATTITUDES. Attitudes are very important – more than skills. Skills can be learned more easily than attitudes can be changed. Value Chains are like a marriage – people must be compatible (meet, date, get engaged, married, hopefully not divorced).

6. Also - Leadership is required, both by a champion to get the Value Chain started and to manage the Value Chain in its ongoing operations.
7. Also – Commitment is a requirement for participants. Typically there will be growing pains, and commitment is required to get through the tough spots and emerge successfully.

Value Chains are really hard to organize and even harder to execute well – that is why there are so few really successful ones and why the successful ones are hard to replicate.

**Three Key Questions** which can help in the creation of a successful Value Chain that is differentiated from its competitors are:

1. Do you have a real sense of how you will differentiate your Value Chain to the customer?
2. Do you have strategic language to explain to others why you are different from competitors?
3. If you went out of business tomorrow, who would miss you and why?

Answering the latter question is key to differentiating the business and product (i.e. what is the story that the consumer will buy that will make them feel good – when they buy your product?) And, the story must be able to be backed up with facts.

Most producers look at VC's with the Question, "what can it do for me?" That is not the way to achieve outstanding long-term success! Answering the three questions above is the way to long-term success, as they bring a focus on creating value for customers.

## 9.9 Benefits of Value Chains

A number of benefits exist for Value Chains, including:

1. Reduced risk
2. Improved, more consistent quality
3. Enhanced marketing opportunities
4. Reduced production costs
5. Improved longer-term planning
6. Greater information flow & sharing (knowledge)
7. Increased (more stable) returns
8. More opportunities than if 'going it alone'
9. Opportunities to innovate & adapt

# 9.10 Value Chain Examples - Structured Analysis

There are many examples of Value chains that have been established in Canada and the US in recent years. Many of these Value Chains were developed to deliver specialty livestock products to consumers, including natural beef and forage/grass finished beef products.

The following provides an analysis of some of the key characteristics of a number of examples of Value Chains that are marketing natural beef (much of which is grain finished) or natural forage/grass fed beef.

A wide variety of characteristics are shown in the following examples. Some common characteristics are:

- Many of the Value Chains were initiated by a few beef producers
- All forage/grass fed beef products are also 'natural' (i.e. produced without hormones or antibiotics, and sometimes other items), and
- The 'natural' grain finished beef volumes are larger than the forage/grass finished beef volumes

The following list is presented in an approximate order from the most forage/grass finished to the least forage/grass finished:

**1.0 High Sierra Beef** (California) (For a more detailed description, see Section 6.2)

- Initiated By: 6 beef producers
- Number of Levels Within Value Chain: Producers + abattoir + local retailers (and vertically integrated to market via buyers clubs)
- Size/Volume: 12 head/year currently with a target of 2,000 head/year
- Market/Product Strategy: locally produced "**natural grass finished**" beef sold via local specialty retailers with dedicated consumers wanting locally produced 'story' beef

**2.0 Ozark Pasture Beef, LLC** (Arkansas) (For a more detailed description, see Section 6.2)

- Initiated By: 9 beef producers
- Number of Levels: Producers + slaughter + processing + retailers (and vertically integrated as the Value Chain does the packaging)
- Size/Volume: Formed in 2003 and has been growing 50%/year since. Still not large volume.
- Market/Product Strategy: "**Natural grass fed"** beef
- Information is provided to producers on every cut which is traced back to each animal

**3.0 Back to Nature Beef** (Chatham, ON) (For a more detailed description, see Section 6.1)

- Initiated By: One beef producer
- Number of Levels Within Value Chain: Vertical integration with (direct) marketing, + two levels of producer and slaughter/processor in Value Chain
- Size/Volume: 40 hd/yr. of FFB. One dominant player (Kerr) is a producer/marketer
- Market/Product Strategy: "**Natural forage finished**" + grain finished products, direct marketing (Chatham, ON)
- Expansion underway with 4 other producers of grain finished natural beef to two retailers
- All information on carcass yield and values flows to both producers for every animal
- Ration includes flaxseed, with all the rest being forage, so is a 'practical' production protocol, not 'purist'.

**4.0 Tallgrass Beef Company** (Kansas) (For a more detailed description, see Section 6.2)

- Initiated By: One beef producer/marketer
- Number of Levels Within Value Chain: A Value Chain including many producers (who agree to follow the production protocols), slaughter and processing plants (that follow the specified procedures), distributors, retailers and food service, including restaurants.
- Size/Volume: Unknown – appears to be rapidly growing
- Market/Product Strategy: "**Natural grass fed"** product, with sufficient volume to obtain economies of scale in the slaughter, processing and marketing
- Extensive information on each animal's tenderness (ultrasound all animals before shipping to slaughter), carcass yield and value of cuts flows back to producers

**5.0 Thousand Hills Cattle Company** (Minnesota) (For a more detailed description, see Section 6.2)

- Initiated By: One beef producer
- Number of Levels Within Value Chain: Producers + slaughter/processing + retailers
- Size/Volume: 15 producers. Volume not available
- Market/Product Strategy: "**Natural grass fed**" beef, marketed through 20 local health food stores
- Tight production protocols allow grazing of annual crops (including corn, oats, etc. that may include grain in the grazed material) and include feeding of flaxseed. The beef product is still promoted as "grass fed" and the health benefits from high levels of CLA, etc. are promoted.

**6.0 Oregon Country Natural Beef** (Oregon) (For a more detailed description, see Section 6.2)

- Initiated By: One beef producer
- Number of Levels Within Value Chain: Producers + slaughter plant + distributors + retailers and restaurants
- Size/Volume: Now 65 ranches with more as prospective members, volume unknown but is quite large, based on the retail outlets being served
- Market/Product Strategy: **Natural, humane, mostly grass finished** beef (80% reduction in grain fed and claim CLA levels are "nearly as high as grass fed" beef – finishing ration is largely potato processing wastes).
  Slaughter plant buys all beef not sold by Value Chain at commodity beef prices.
  Have distributors serving nearly 100 retail stores in the Pacific Northwest, Idaho, Colorado, California, Texas, Kansas, New Mexico and Louisiana, including a large number of Whole Foods (largest specialty food retailer of high end 'natural' and related high quality foods) stores. Have Sysco (the largest) as the distributor to the food service industry in Washington, Oregon and Idaho, serving a list of 25 restaurants and chains.

**7.0 Peace Country Premium Beef** (Alberta) (For a more detailed description, see Section 6.1)

- Initiated By: 30 beef producers
- Number of Levels Within Value Chain: Producers + federally inspected abattoir + retail chains
- Size/Volume: 100 head/week
- Market/Product Strategy: "**Natural grain finished"** beef; awaiting CFIA approval of their label - branded Peace Country Premium Beef that is hormone, ionophore, and antibiotic free

**8.0 Natural Valley Farms Inc**. (Wolseley, SK and MB) (For a more detailed description, see Section 6.1)

- Initiated By: A few beef producers (2 key)
- Number of Levels Within Value Chain: Vertical integration of custom feedlot + slaughter and processing + producers and some retailers in Value Chain
- Size/Volume: Target 60,000 hd/yr. Owners = 70. Hook leases = 1,150
- Market/Product Strategy: "**Natural" grain finished** + traditional beef. Sell via small chains initially and regional (e.g. Coops). Not branded yet, but is planned.
- Extensive information on carcass yield and value of cuts flows back to producers for each animal

**9.0 Highland Premium Alberta Beef Alliance** (Vegreville, AB) (For a more detailed description, see Section 6.1)

- Initiated By: Beef producer (feedlot owner)
- Number of Levels Within Value Chain: Producers, slaughter, processing and retail in Value Chain, as well as suppliers (e.g. vet services)
- Size/Volume: over 100 producers, up to 36,000 head
- Market/Product Strategy: "**Natural" grain finished** branded beef
- Offers producers trace back of slaughter yield and quality/grade information for individual animals

**10.0 Prairie Heritage Producers** (Alberta and Saskatchewan) (For a more detailed description, see Section 6.1)

- Initiated By: 18 beef producers, patterned after Oregon Country Natural Beef
- Number of Levels Within Value Chain: Producers + feedlot + slaughter + retail
- Size/Volume: currently 50 head/week
- Market/Product Strategy: "**Natural" grain finished** beef sold under the 'Alex Campbell Signature Series' brand in Thrifty stores. The slaughter plant that is part of the Value Chain buys the parts of the carcass that Thrifty does not buy.

**11.0 Niman Ranch** (California) (For a more detailed description, see Section 6.2)

- Initiated By: Entrepreneurial marketers
- Number of Levels Within Value Chain: All levels – genetics, production, slaughter, processing, retailing are members of the Value Chain
- Size: $50 million in sales (hogs, beef and lamb); 500 farms in 15 states
- Market/Product Strategy: **Natural grain finished** beef (and other products) marketed via specialty chains, near national coverage, from small family operated farms, etc. position. E.g. (certify family does > 60% of labour) (Taste test products - pork, etc.)

**12.0 Atlantic Tender Beef Classic** (Albany, PEI) (For a more detailed description, see Section 6.1)

- Initiated By: Beef producers & Retailer (50 – 50 ownership)
- Number of Levels within Value Chain: Producers and retailer vertically integrated slaughter & processing. I.e. all in Value Chain
- Size/Volume: 26,000 head/yr

- Market/Product Strategy: Production protocols for **traditional grain finished** beef. Considering grain finished natural beef
- Extensive information on carcass yield and value flows back to producers on each animal

**Other Examples – No Longer Operating:**

**1.0 New England Livestock Alliance** (Connecticut and New England states in USA) (For a more detailed description, see Section 6.2)

- Initiated By: a few beef producers
- Number of Levels Within Value Chain: Producers + federally inspected slaughter and processing + distributor + restaurants and retailer
- Size/Volume: No longer operating
- Market/Product Strategy: "**Natural grass fed**" beef marketed to high-end distributors, white tablecloth restaurants, and to food service operations
- No longer operating because they decided to vertically integrate by operating a USDA organic-certified slaughterhouse in Stafford Springs, Connecticut. They were successful prior to this with satisfactory sales volume. The strategy was sound; to operate and thus have greater control of the supply chain all the way to the distributor. But, a lack of management expertise or experience in the slaughter plant business created such severe financial problems that they no longer are in business.

**2.0 Tallgrass Prairie Producers Co-op** (For a more detailed description, see Section 8.0)

- Started by producers as a grass fed beef Value Chain, but halted operation due to lack of profits

**Other Examples of Natural Beef Marketers (not Value Chains)**: (For a detailed description, see Section 6.1)

1. T K Ranch – not Value Chain as direct market only their own beef
2. Muriel Creek Cattle Co. – not a Value Chain as direct market only their own beef

# 10.0 Long List - Options

**Not Value Chains**:

- Direct sales by producer – not a Value Chain. E.g. Glenlochar Grass-Finished Beef, Don Armitage
- Producer sells to slaughter plant – traditional supply chain – not a Value Chain
- Packer or retailer contract production, but not strategic – not a Value Chain
- Packer owns cow-calf and backgrounding operations – not a Value Chain

**Value Chains – Who Initiates:**

- Producer
- Slaughter plant/processor
- Marketer – retailer or food service

**Value Chains – Number of Levels in VC:**

- Producer (one or two levels) –e.g. cow-calf plus backgrounder and finisher
- Slaughter and processor
- Marketer – retail (specialty or chain) or food service (e.g. Toledo)

**Value Chains – Size/Volume:**

- Small – Kerr Farms is 40 head/year (Others are smaller)
- Larger – Natural Valley – aiming for 60,000/yr.
- Niman Ranch – already big ($50 million/yr.)

**Value Chains – Marketing Strategy:**

- Product – "Purist"
- Product – Practical, e.g. "Pasture Raised"
- Supply Consistency – year round, likely sell fresh (but can finish quality be maintained?)
- Supply Consistency – seasonal, likely sell frozen during winter

# 11.0 Evaluation Criteria

The following criteria were developed to use in evaluating what Value Chain options held the most merit:

1. Manitoba producers' ability to produce (technical, seasonality, genetics, forages, etc.)
2. Access to slaughter/processing capacity & capability (e.g. federally inspected plant is required if selling outside Manitoba) – at reasonable costs
3. Able to overcome marketing/consumer challenges in target niche market segment (using scientific evidence of health benefits and/or piggybacking on education done by others)
4. Creates competitive advantage vs. existing supply chains

# 12.0 Assessment of Merit

The information provided above shows that when the evaluation criteria are utilized to identify the highest priority options for Value Chains, there are a large number of potential options that hold merit.

To narrow the focus to the extent possible, the consulting team reviewed all the options against the criteria, keeping in mind all of the marketing and other information previously provided. For the typical Manitoba forage finished situation anticipated in the foreseeable future it was identified that:

- There are a few that appear to hold a higher than normal potential for competitive advantages
- There are some that hold little merit, and
- There are many that appear to not hold potential for competitive advantage under the correct circumstances.

**High Potential**:

The few that hold higher potential include Value Chains that include the following characteristics:

- **Producer Initiated** – The highest rated Value Chains are those initiated by one or more producers, because then the producers will develop the Value Chain culture, select the players, gain a significant portion of the market information, and thus may gain a greater share of the overall benefits
- **Previous Marketing Experience** – Highest rated if the Value Chain includes a player that is already an existing marketer (distributor, retailer, etc.) that has experience and resources to overcome the specific market challenges that exist. This Value Chain member must be able to convey the 'story' and health benefits to consumers, in addition to all the normal challenges of marketing a food product.
- **Start Small & Grow** – Due to the need to coordinate the market volume requirements with the supply, the initial marketing channel (direct to customer or via retailers) cannot require large volumes. However, this can (and will need to) grow over several years. The initial market niches that are currently being supplied are not yet large.
- **Practical Product (vs. Purist)** – Practical (e.g. allowing flax, sunflower seed, or barley sprouts) is the highest rated as it will allow increased health characteristics in the final product sold to consumers. However, research is required to develop the protocols needed to ensure how much non-forage can be safely fed without causing the product to loose its health benefits.
- **Supply Consistency** – year round supply of fresh product is the highest rated option (in the future) because fresh beef sells for a higher price and there are more marketing channels available. However, this may only be possible after a few years of further research, extension and demonstration of the necessary production protocols (subject to further research of Manitoba production techniques to confirm the cost and feasibility of satisfactory finishing/marbling of slaughter ready animals on forage in the winter).

At least in the short term, (and possibly for the long term - if satisfactory profits are not achieved when finishing slaughter animals in the winter), the recommended option will be to market fresh product when it is available and frozen product during the rest of the year. This could be achieved by building an inventory of frozen beef cuts in the fall that will last until slaughter recommences in late winter or early spring. This is not the preferred option, due to the lower price for frozen product.
Another option for the short term is to sell limited volumes of fresh product seasonally (spring through fall) and to supply no frozen product.

**Little Merit**:

There are some options for Value Chains that do not have merit. The characteristics of these Value Chains include the following:

- **Lack of Marketing Experience** – If the producers do not have marketing experience, or expertise or resources, then a Value Chain that does not include a marketer (e.g. retailer) would be considered to have little merit.
- **Large Initial Size** – If a large customer (i.e. a direct customer requiring large volumes, such as a national chain that requires the product to be listed in all its stores, or even across all its western stores) is the only initial target customer for a Value Chain, it is expected that it would be difficult and risky to assure the direct customer that the required volumes would be available.
- **Supply Consistency** – In the short term, until the production protocols (breeds, forage management, feeding & finishing management, etc.) are demonstrated to a number of producers, there will be uncertainty in assuring a direct customer of a year round supply of fresh product.

**Other Value Chain Options Holding Potential**:

All other Value Chain options hold merit, subject to the production, slaughter, processing and marketing system being designed to serve the target market niche.

# 13.0 Summary and Conclusions

The key points from the large volume of information provided in this document are summarized in this section, to set the stage for the following two sections. These next two sections 1) identify the barriers and challenges and 2) identify the Recommendations for overcoming these barriers and challenges allowing the development of the forage finished beef industry sub-sector and related Value Chains.

## 13.1 Summary/Conclusions – Marketing

### 13.1.1 Strategic Importance of Being Market Driven

The summary of the marketing related information is provided first because the marketing considerations must drive all decisions including:

1. Individual producers' planning for all aspects of the production, slaughter, processing and sales/marketing activities they will take to enter the forage fed beef market
2. The overall high level planning of the development of this industry sub-sector, and
3. The overall high level planning for the promotion and facilitation of producers (and others) to form Value Chains.

In fact, to show the extent of the change in mind set that is needed, the authors note that the title of this study and the name used to describe the product being studied, is fundamentally flawed. It is called forage finished beef, or as noted throughout the previous marketing information, the product is often called grass fed or other similar terms.

These are all conceptually flawed.

The product and its benefits need to be defined/described in terms that mean something (convey an understanding of the benefits) to the end consumer. As shown in the previously reported market research, the consumer does not know much about beef rations (diets) and does not particularly care about this aspect of the beef they buy. To say the product has not been fed grain is not desirable for two reasons. First, it implies something negative about traditional beef and it is almost always unwise to criticize another product to try to build up one's own image. Second, consumers are being told that they should consume more 'whole grains' because the 'whole grains' create health benefits (in the US, health claims are allowed on products that contain sufficient whole grains). Therefore, conveying a message that this beef product has not been fed grain can backfire, and will confuse the consumer.

The key attributes are the 'story' and the 'health benefits'. These need to be the focus of the terminology for the product in the future. In addition, those interested in forage finished beef must stay up-to-date with research involving the health benefits. Researchers such as Dr. Carla Taylor at the University of Manitoba who is researching CLA are worthy of maintaining contact with.

### 13.1.2 Two Attributes That Create Premium Value

Consumers care about the 'story' (which has been described previously) that is being told extremely well by most of the farmers that are successfully direct marketing their product. Thus, the term 'pasture raised' (used by TK Ranch) is a better fit, as it conveys an image that fits with the 'story' that is being communicated to the consumer.

This beef product under study becomes a marketable product at a premium price when the consumers in the target market segment perceive one or both of the two benefits that make them feel good when they buy it. These are:

1. A 'story'. A review of the websites noted in the footnotes and in the appendices will provide considerable insight into this 'story'. Currently it is mainly the story that makes this product marketable, and makes it a premium product.
2. A health benefit. When the consumer comes to understand the CLA, Omega-3, and other health benefits of this product, it becomes a functional food. This is a slightly different aspect of the product.

### 13.1.3 Health Benefits

A degree of scepticism is needed when reviewing health claims for compounds which have not had sufficient numbers of human clinical trials to be accepted by the medical community. The health benefits for CLA and Omega-3 are now well documented, as shown in the previous information in this report. For example the government of the Province of Alberta has established the CLA Network and the California State University has an initiative to develop the forage finished beef industry sub-sector. In both of these examples they are at least partially motivated by their review of the available credible scientific studies that show health benefits from forage finished beef.

The information reviewed by the authors is sufficient to conclude that it is likely that the human clinical trials, when sufficient numbers are completed in a few years, will show sufficient health benefits to justify health claims for forage finished beef that contains the anticipated levels of CLA, Omega-3 and potentially other health promoting compounds.

### 13.1.4 Market Confirmation

It has been documented that there are hundreds of farmers now producing and marketing forage finished beef products, across the US and Canada, including in Manitoba. Thus, it is documented that a niche market already exists. It has also been shown that a number of consumer trends are almost for sure (nothing is absolutely certain about the future) going to cause this market niche to continue to expand for an extended time period, as more consumers develop the characteristics that will place them in this market niche and cause them to purchase natural forage fed beef products. Thus, it is almost certain that the market volume seeking to buy natural forage finished beef will grow over time.

Most of the past and current marketing is in very small volumes done by the individual beef farmer as direct marketing to end consumers, without distributors or retailers involved. Some is

marketed to restaurants, e.g. Fusion Grill, in Winnipeg. There are growing, but still limited volumes being offered in mostly specialty retail stores, e.g. Thousand Hills Cattle Company supplying 20 health food stores in Minnesota. A few producers are already marketing to mainstream retailers, including T K Ranch supplying Western Canada retail grocery chains in Alberta.

Thus it appears reasonable to expect that the sales volumes will grow significantly as the geographic market coverage expands through additional retailers. An example of this growth is occurring with Tallgrass Beef Company, described in Section 6.2.

Examples of significant volumes of high quality (taste, tenderness, marbling, etc.) forage finished product exist. There are also many documented international examples that the authors have seen, for example from Argentina. While the consumer in Argentina has a different history and is imprinted differently from the US and Canadian consumer, Canadian and American beef industry experts who have travelled extensively in Argentina have documented the high quality tender product that is available from a pure forage ration.

While the above confirms that a market exists, it is still a marketing challenge to market all of each animal. Every time an animal is slaughtered, a large number of different products are created. Most customers will not take the entire animal. Currently many farmers who are direct marketing sell quarters, or boxes of mixed cuts (typically in 'variety packs'), and in this way move all the different cuts. With expansion, and more sales to retailers, the challenge is to use pricing and promotions to be able to sell all the cuts from every animal on a continuous basis. A number of beef businesses have failed due to building up excess inventory of low value cuts, and running short of working capital due to the costs of financing this excess inventory. A significant portion of the lower value cuts is typically being successfully moved as ground beef.

### 13.1.5 Future Growth Marketing Challenges

An unusually large majority of producers have been using a direct marketing strategy. It has been identified that one of the factors leading to this is that it becomes significantly more difficult to both tell the 'story' (natural, local, family farm, etc.) and to communicate the health benefits (CLA, Omega-3, etc) when the marketing channel shifts from direct marketing to using a retailer. With direct marketing, a great deal of information is typically provided on a website and word of mouth. But, when a retailer is used, the communication of the 'story' and health benefits must occur through the packaging, point of sale materials, in-store demonstrations, and advertising/promotions. All these are limited by labelling regulations and by what the retailer will accommodate.

To communicate the 'story' in a retail channel, often the producer of the natural forage fed beef conducts in-store demonstrations. But, this is time consuming, can only be conducted for a limited number of days per month and reaches a limited number of consumers. Because the human trials that will likely lead to health benefits being allowed on the label are at least several years away, other strategies to communicate the information to consumers is needed for those wishing to convey this message and not wanting to be restricted to direct marketing.

Although the word 'natural' has been used extensively in this document to describe beef raised without antibiotics, synthetic hormones, and ionophores, using 'natural' on a label is problematic according to CFIA regulations. As described in Section 4.1, CFIA defines 'natural' to mean that

the product in question was raised without any human intervention. The use of the word 'natural' on meat, poultry and fish products is not acceptable unless the products in question were raised without any human intervention. Raising animals without human intervention means that they were never given or administered substances including vaccinations, antibiotics, medications, veterinary drugs, hormones, direct fed microbials, and formulated feeds. While the 'natural' protocol being followed by many Value Chains does not allow most of these substances to be fed to their cattle, vaccinations, parasiticides and insecticides (e.g. fly control ear tags) are usually allowed.

To raise animals so that their products could be labelled as 'natural' would, for some producers, be very difficult as most animals receive some kind of vaccine, vitamins/minerals and parasite/insect control treatment at some time during their life. However, it is possible to make claims for the absence of substances not used in raising these animals. For example, if hormones and antibiotics are not used, claims can be made that the animals in question were "raised without the use of synthetic hormones or antibiotics".

Media articles that convey accurate and credible information regarding the health benefits of CLA and Omega-3 in forage finished beef are needed. When the public receives sufficient information that they begin to associate a functional food ingredient with the relevant health benefit, it can be sufficient to simply state that the compound is contained in the product. E.g. "contains soy" on a label is typically sufficient for consumers to relate to the appropriate health benefits, without any health claim needing to be included on the label.

In the US there are now approximately 21 health claims allowed, while in Canada only 5 are authorized. Thus, it is likely that the regulatory regime in the US will allow health claims for CLA prior to that being authorized in Canada. Under such circumstances it can be wise to generate sufficient public and trade media coverage of the US health claims that the Canadian public can associate CLA with the health benefit, without having to see the health claim on the label. Omega-3 has already reached this level of consumer awareness.

Once the marketing systems have been developed, and production volumes have increased, there may be long term potential to market natural forage finished beef into premium export markets, potentially including the EU. This opportunity is down the road, due to the need to develop the industry sector, and will require an investigation specific to that export opportunity at that time in the future.

### 13.1.6 Complex Future Product Positioning

The authors have identified that there appears to be two somewhat separate market segments that hold potential for the future. The existing market segment is referred to as the natural 'story' beef. The previous information in this report describes the characteristics of that market segment. That market segment, as noted above, is expected to continue to grow.

It is also expected that as more information on the health benefits are publicized, that the forage finished beef has the potential to be positioned in the market as a functional food [with or without the 'story' (local, natural, etc.)].

This is a very complex marketing message – to position a product in two different market segments. But, it also holds very significant potential. The authors expect sophisticated

marketers, including and perhaps especially farmers, to have considerable long term success in both market segments.

### 13.1.7 Product Quality Definitions and Market Niches

It is not clear what the final common definition of this product will be in the marketplace. All the forage fed/finished products are marketed as 'natural' products due to consumer demands. Not only are there a variety of terms currently used (forage finished, forage fed, grass fed, pasture raised, etc.), but there are also a variety of production protocols which create almost a continuum of products, with varying levels of health benefits, ranging from:

1. The 'purist' (100% forage and nothing but forage), through to
2. The slightly less 'pure' (all forage except for example flaxseed in specified small quantities to maintain high health benefits in the final product), through to
3. Very close to forage finished (with modest amounts of barley sprout pellets, etc. in the beef finisher ration) that assist in generating the sufficiently marbled beef product, through to
4. Higher than normal forage ration, but with significant grains or non-forages (e.g. Oregon Country Natural Beef with "80% less grain" and finished largely on potato waste and forage)

A challenge for this industry sub-sector will be to determine what documentation is required to confirm that the final consumer ready product contains sufficient CLA and Omega-3, etc. to meet the minimums needed to create the health benefits. Third party certifications are likely to be required to gain and retain consumer confidence. Developing satisfactory third party certification systems will be a challenge.

Another marketing challenge related to different consumer's definition of 'quality' exists within the marketplace. The market research shows that the majority of consumers in the target market segments want a product that has tenderness similar to grain finished beef (i.e. they want beef cuts with marbling similar to the grain finished, and the animal cannot be too old). The key is to have the animal develop sufficient marbling prior to slaughter. This is one of the keys to a high quality product for the consumers in this market niche.

Other consumers (likely in small numbers) in this market segment want, or are at least happy with, cuts from a less marbled animal (referred to by some as "more European").

Thus, even for the natural forage finished beef market segment, there a number of different market sub-segments/niches. No one product appears to be the 'right' single product for all these sub-segment niches, comprised of consumers who want slightly different products.

Based on all the information reviewed, there is no one single product definition, but rather a number of options, from which each producer, and each Value Chain will have to select the optimal one(s) which they can best serve with a competitive advantage.

### 13.1.8 Year Round or Seasonal Supply - Fresh or Frozen

The existing marketplace is accepting forage finished beef under a variety of supply arrangements. Many of the existing producers market only seasonally, especially in the more

northern regions. Others have arranged to supply continuously year round. In some cases this is done from a stock pile of frozen product and in other cases the farmers have arranged to supply fresh forage finished beef during the winter as well. E.g. Oregon Country Natural Beef and Thousand Hills Cattle Co. in Minnesota.

If a producer or Value Chain is not able to finish satisfactory quality animals during the winter, they will have to either market fresh product seasonally, or they will have to build up an inventory of frozen beef sufficient to supply their customers until slaughtering resumes. Some customers, including a few specialty retailers, will accept seasonal supply, but for the forage finished beef industry to grow, it will be necessary to supply year round. Most of the retail outlets will want a year round supply, and most will not list the product if it cannot be guaranteed available year round. Frozen may be acceptable to a number of the retail outlets, if the quality control is satisfactory.

However, the frozen inventory will have to be sufficient to last until slaughter resumes, without shortage of supply. For some distributors, retailers or restaurants, being unable to supply for a period of time would be acceptable, but for many/most others, such an inability to supply will mean permanently losing that customer!

A number of different market segments exist, based on the fresh versus frozen, and year round versus seasonal supply characteristics. Each producer and each Value Chain will have to identify the requirements of the customers (both direct customers such as retailers and the consumers they serve) in the target market and design their production and slaughtering system to accommodate the needs of that target market. If the production and slaughtering system cannot meet these needs, then a different target market must be selected, or the product will not sell, and a financial disaster will occur.

### 13.1.9 Market Size

A number of expert opinions and estimates on the size of the market for natural forage finished beef are reported in previous sections of this study, including:

- The current US market for ‘natural’ beef is US$250 million sales in both branded and unbranded products and the sales of ‘organic’ beef products is approximately US$350 million annually. The combined total is anticipated to increase to US$1 billion within 5 years. (Note ‘natural’ forage finished beef is currently only a small subset of the total ‘natural’ beef sales);
- There are approximately 1,200 beef producers who market 24,000 grass-fed beef cattle in the US. Nearly all of these grass-fed beef animals are also marketed as ‘natural’ beef as well. This historical number is approximately 80 head per million of population. Since this time there has been continued expansion and a number of new Value Chains have been established that have significantly increased the volumes. E.g. Thousand Hills Cattle Co. in Minnesota marketing via 20 retail stores, and with growth planned beyond that.
- In Manitoba, there are approximately 200 forage finished beef cattle marketed each year. This is a current level of 200 head of forage finished beef per million of population.

It is concluded that the volumes will grow rapidly, but that natural forage finished beef products will remain a niche market, with relatively small market share, for at least some significant period into the future.

It is challenging to estimate the potential size of the future forage finished beef market. As reported in Section 5.3, research conducted in the US indicates that over 20% of surveyed American consumers' preferred Argentine grass-fed beef in blind-taste tests compared to corn-fed American beef[111]. Increasing percentages of consumers want 'story' food products that make them feel good when they buy that product. And, a rapidly growing segment of aging baby boomers want functional foods that will produce health benefits.

Thus, while the current volumes being marketed are very small, there is significant potential in the future. However, this potential will only be realized if a sophisticated marketing strategy is implemented (as note above) and marketing through retail outlets is expanded.

### 13.1.10 Organic Distribution Channels

Organic certification of natural forage finished beef production allows marketing via organic distribution channels. Few existing producers have done this. The research conducted indicates that the existing producers and marketers have identified two issues that make organic certification undesirable. They include:

- The biggest factor appears to be that existing natural forage finished beef producers' customers are not asking for organic beef. Their customers are looking for good-tasting, tender beef that has been raised without synthetic hormones and antibiotics. Also, marketing the natural forage finished beef as certified organic through organic distribution channels would detract from the key message that is to be communicated to consumers. That message is that this product is different than organic, it is forage finished story beef with functional food health benefits. To move the product in a channel where the typical consumer entering an organic food section is expecting organic, may complicate the message excessively. The interviews with producers where this question has been asked have shown that at least some existing marketers of natural forage finished beef are of this view.
- It takes a significant length of time (3 years) to become certified once all the organic criteria are being met. This applies to all hay and pasture land.
- It adds significantly to the management requirements and to the costs to ensure that all forage is produced as certified organic, or is purchased from certified organic suppliers, and
- As was reported in the Peace Country Premium Beef study, many consumers link the term organic with vegetables and are confused with the idea of organic meat. Another finding in that report was that consumers associated organic products as expensive.

In spite of the above factors, becoming certified organic and marketing via organic distribution channels may be a desired alternative for some producers.

---

[111] U.S. Consumer Preference and Willingness-to-pay for Domestic Corn-fed Beef Versus International Grass-fed Beef Measured through an Experimental Auction by Wendy J. Umberger, Dillon M. Feuz, Chris R. Calkins, and Karen Killinger-Mann. Agribusiness: Autumn 2002: 18, 4. pages 491-504.

### 13.1.11 Prices:

In Section 4.2 the Lozier, Rayburn and Shaw (2003) survey of 149 existing forage finished beef producer/marketers showed that 83% of the respondents in the study said that they obtain a premium price, with 25% reporting a premium of $0.75US per pound or more for their finished consumer-ready product.

In Section 5.1.3 the detailed Canadian market research report entitled Peace Country Premium Beef reported on the optimum price and platform for a 'natural' beef entry (not forage finished). It reported a price difference of $1.00 per pound (on a $1.99 price point for conventional ground beef) was felt to be a fair price by three out of four participants.

As reported in the earlier section, consumers typically pay 30% more for 'natural' meats and 15% - 200% more for 'organic' meats.

Section 5.5 provides information from a number of credible market research studies showing consumer expectations for price premiums they would pay for natural and/or forage finished beef products. The premiums shown are higher than the level reported in the Lozier, Rayburn and Shaw study of actual price premiums achieved by existing marketers.

Based on all of the information, the authors estimate that a price premium of $0.75 per pound can be obtained. However, achieving this premium will be very dependent upon communicating the story successfully to the consumer and the direct customer (e.g. retailer). If the marketing of the story, including the health benefits, is not well done, there may be no premium prices. It is the conclusion of the authors that the price premium is dependent on the success of the marketing efforts.

## 13.2 Summary/Conclusions – Slaughter and Processing

Slaughter plant capacity currently exists with abattoirs which are provincially inspected and also with Winkler Meats which is federally inspected.

Future additional federally inspected plants include Natural Valley Farms slaughter plant at Wolseley (opening mid 2006), as well as another (proposed) NVF plant at Neepawa , once the Wolseley plant has sufficient capacity. Ranchers Choice planned plant at Dauphin may also be an option.

Some existing beef producers have arrangements with Toledo Meats to provide some processing and distribution for them. This is a potential opportunity also.

Some marketers of beef have found that the added costs of cryovac packaging to be worthwhile to get longer shelf life on fresh beef products and assist with inventory management. This packaging also creates a better appearance (i.e. increased perception of value) for the consumer.

Significant challenges exist for small volume producer/marketers and Value Chains due to the lack of economies of scale with both the freight costs and the slaughter/processing costs. It has been estimated by some forage finished beef producers that the slaughter and processing costs

for small volumes are up to 3 times as high per pound as for the large volume commodity beef. Consistent weekly volumes, scheduled well in advance, under a long term arrangement can minimize these costs, to the extent possible.

Another challenge is the willingness/ability of abattoirs to meet the needs of the natural forage finished beef producers. One beef producer/marketer reported that the meat from his forage finished carcasses was processed into ground beef together with carcasses of commodity beef from other producers, resulting in the processed meats being unsaleable as a natural forage finished beef product.

Each Value Chain will have to decide which slaughter and processing plants are most suited for its target market segments and most compatible with the other Value Chain participants.

## 13.3 Summary/Conclusions – Production

The information provided in this report demonstrates that a large number of beef farmers in the US and Canada are now producing forage finished (or very close to forage finished with very small amounts of barley sprout pellets, ground flax seed, etc. in the beef finisher ration) beef.

Some existing natural forage finished beef producers are using breed specific protocols (British or other smaller frame breeds) while others are not breed specific.

For the future market, which will be larger than the current small market niche of dedicated consumers it is necessary to produce a tender (i.e. marbling similar to grain finished beef) tasty product, that typically will be not too much older than the grain finished animals.

There are some farmers producing a more European style product from older animals (up to 3 years) that is perceived to have more taste, even though it may not be as tender. (E.g. the product served at Fusion Grill is perceived to be better because of its age).

Finishing slaughter animals in the winter is a challenge. The Manitoba Forage Council, as a part of this overall project, is compiling a producer manual. It is understood that it will show how Manitoba producers can finish beef cattle on a pure forage ration in the winter. The key is to have the animal develop sufficient marbling prior to slaughter. Thousand Hills Cattle Company in Minnesota is finishing animals year round.

A challenge when dealing with niche markets and small volumes lies with fluctuations of demand (i.e. orders). Some producers/marketers simply freeze their unsold beef and then market it as frozen product. However, some Value Chains have designed their production and marketing system to accommodate demand fluctuations. In the case of Oregon Country Natural Beef, each producer direct markets as much of the beef as he/she can. All unsold beef is bought by the abattoirs at the commodity beef price. Furthermore, each producer in this Value Chain commits to marketing a certain number of animals throughout the year, thereby ensuring sufficient supply to meet their expected market demand.

If a producer decides he/she will not finish slaughter quality animals in the winter, then they must find target markets that will either take a seasonal supply (very few, if any, large retail chains will accept seasonal supply, but some smaller specialty markets will) or must sell a frozen product. The slaughter, processing, and freezing volume at the end of the production season must be sufficient to build a sufficient inventory to meet all orders until the slaughter resumes in the

spring or early summer. The cost of freezing and storage must be factored into the analysis of this decision that is a trade-off of production costs versus frozen storage and inventory costs. Also, if there is fluctuation in the orders from the distributor or retailer, and therefore a risk of not being able to supply, this must also be a factor in the analysis by each producer.

As noted in section 4.3, the production of natural forage finished beef requires producers to design the entire system to serve the wants/needs of the customers in the specific market segment that is targeted. The production system must include the appropriate breeds, forage varieties, intensive grazing and hay management procedures, feeding procedures that result in tender marbled beef, and in fact include a change in how the production system is viewed. The greatest challenge for some beef producers will be to recognize how many changes to their existing traditional production practises are required if they are to produce satisfactory quality forage finished beef. The slaughter and processing plants must also be coordinated with this production system. All of this system must be designed to serve the requirement of the target market segment.

There is no one 'right' way to produce natural forage finished beef, and based on the variety of examples described and analyzed in this study, there are a number of successful approaches that can be used. But, **only those that are specifically designed to serve the needs of a specific target market segment will be successful**. Any other approach will lead to failure.

Further research to document the range of optimal production protocols for the typical natural forage finished beef animals, as well as demonstrations and extension information to producers will be needed to develop this industry sub-sector. The California State University, Chico Campus, is undertaking just such an endeavour, including the extension function that they perform with agricultural producers.

## 13.4 Summary/Conclusions – Value Chains

As previously described, there are many alternative structures for natural forage finished beef Value Chains that can be successful if they are designed to serve the needs of the customers in their target market segment/niche.

Given that this is a relatively new industry sub-sector, with a relatively new product in a rapidly developing market, Value Chains hold unique and significant potential to:

- Assist producers in gaining volume that achieves economies of scale to reduce per unit costs, making the natural forage finished beef production and marketing more competitive versus other beef products
- Assist producers in accessing the marketing expertise to move beyond direct marketing and successfully expand sales through distribution to retail outlets
- Assist leaders (such as existing producer marketers) to expand volumes and penetrate larger retail outlets requiring larger volumes, while also continuing to maximize sales through direct to consumer channels.

For these reasons the vast majority of Value Chains marketing natural forage finished beef have been initiated by producers.

Several of the successful forage finished beef Value Chains that have been identified in this document should be studied in more detail in order to better understand them. As with any chain, the weakest link in a forage finished beef Value Chain represents a potential vulnerability to the entire alliance.

## 13.5 Summary/Conclusions re Feasibility

As noted previously, price premiums for natural forage finished beef are available if the marketing strategy is well executed.

Expert opinions indicate that it is likely that higher production, slaughter, processing and marketing costs will occur with forage finished beef. This is due to variety of factors, including:

- Increased management attention to nutritional requirements when finishing the animals
- Changes in calving times to better match forage and market requirements when finishing animals
- Longer times to own the animal until it is ready for slaughter
- Longer periods to hang the carcass for improved tenderness
- Smaller volumes of product thereby increasing transportation, slaughter and processing costs per pound
- Greater marketing intensity to convey the more complex story including the health benefit messages to the direct customer (e.g. retailer) and the end consumer, and
- Other factors specific to individual producers.

As noted previously, most existing producer/marketers are obtaining premium prices. Most are marketing all of their animals, including the lower valued cuts that often are sold as ground beef, as variety packs or in other ways. While consistent sale of all of each animal is a challenge to achieve without a build up of inventory of some cuts, especially low value cuts, this is being achieved by thousands of existing producer/marketers, and by new larger Value Chains such as Thousand Hills Cattle Company in Minnesota, described in Section 6.2.

Based on the growing volumes, the increasing sophistication of the producers/marketers involved (e.g. Thousand Hills Cattle Company), and the growing market segments suited to the natural forage finished beef products, it is the authors' opinion that the production and marketing of natural forage finished beef is feasible in Manitoba, and in fact holds considerable potential for the future.

However, this is **only correct if the marketing strategy is successfully executed**, and the producer/Value Chain marketer is successful in communicating the story, including the health benefits, to the consumers in the target market segment. The production issues are challenging, but the marketing is far more critical, and will have more influence on determining the success of a Value Chain in this market segment.

# 14.0 Barriers and Challenges

A wide variety of barriers and challenges exist:

**Production Related**:

1. The greatest challenge for some beef producers will be to recognize how many changes to their existing traditional production practises are required if they are to produce satisfactory quality forage finished beef. A total system design is required that serves the specific market that is targeted. An example is genetics. It is known that British breeds are well suited to forage finishing for most market segments. However, not every animal from these breeds is suitable and a producer will have to develop criteria in order to assess an individual animal's suitability. Ultra-sound is used by some producers and Value Chains to determine an animal's suitability for forage finishing. In addition, producers will need to learn and adopt a number of new technologies including effective grazing management, high quality forage production, and record keeping.
2. Another challenge is for producers to be market driven. It is important in niche markets that the farmer produces only what the consumers in a specific target niche market segment want.
3. A significant challenge will be to assure the market that each forage finished animal will be finished properly prior to slaughter. Any animal which does not meet these quality expectations will discredit the overall market for this product. Producers need the resources (knowledge, beef genetics, quality forages, etc) to produce top quality beef for the forage finished market. A Value Chain which insists on producer commitment to a protocol best assures the market of a quality beef product.
4. The development of a production protocol will be one of the first challenges faced in a Value Chain. Participants in this Value Chain will have to determine how 'purist' to be in terms of forage finishing.
5. Industry may face political challenges in supporting this natural forage finished beef expansion due to the potential for an adverse reaction from the traditional beef industry, especially if the natural forage finished beef players promote negative messages regarding the traditional grain finished product. Experience in other industries shows that most businesses that take a negative approach in their promotion are unsuccessful.

**Processing and Marketing Related**:

6. Scepticism exists about grass or forage finished beef having sufficient tenderness and taste characteristics to ever be acceptable in the marketplace. For some consumers, and especially for some meat buyers at distributors, retailers and restaurants, this is a major challenge to overcome. The businesses and Value Chains that expand the market for natural forage finished beef products will have to show that their products are superior, for the consumers in the target niche market segments, to earn and keep the business from the new retailers.
7. A challenge in this market is the confusion over the diversity of beef products and the terminology used in the marketplace. There is already confusion about terms such as natural and organic beef products. Add forage finished, grass finished, grass-fed, and traditional beef to the mix and the result is even more confusing for the consumer in the marketplace to deal

with. Therefore, there is a need to develop a better terminology for the product, in the future, that focuses on the two key attributes that the consumer needs to understand: 1) the 'story' and 2) the health benefits.

8. A challenge for this industry sub-sector will be to determine what documentation is required to confirm that the final consumer-ready product contains sufficient CLA and Omega-3, etc. to meet the minimums needed to create the health benefits. Third party certifications are likely to be required to gain and retain consumer confidence that the CLA and Omega-3 levels are achieved in the product they buy. Value Chains will have to vigorously, without any exceptions, enforce the production protocols. Developing third party certification systems of the CLA and Omega-3 levels that maintain long term credibility with the consumer will be a challenge.
9. Since consumers of forage finished beef in Manitoba are currently buying directly from the producers, there is little need for third party certification that these animals were indeed forage finished. These consumers trust that this beef is truly forage finished. However, as volumes of forage finished beef increase and retailers are used as part of the chain, the relationship between consumer and producer becomes more distant. Thus, there will be a need for third party verification of the ration being forage. A number of Value Chains described in previous sections have set up third party verification for their grass finished beef.
10. Finishing slaughter animals in the winter is a challenge, but is necessary to meet the market demands of larger volume markets for year-round fresh beef.
11. Production supply is a significant challenge to this niche market. Once a year round supply is created, there will be a challenge to balance inventories of fresh and frozen product. While consumers prefer a fresh product, it has a short shelf life. If left unsold, it must be frozen.
12. Significant challenges exist for small volume producer/marketers and Value Chains due to the lack of economies of scale with both the freight costs and the slaughter/processing costs. Slaughter and processing costs are high because of low volume.
13. In some cases a challenge exists in accessing larger volume markets because of inadequate supply.
14. Another challenge is willingness/ability of abattoirs to meet the natural forage finished beef producer's needs for identity preservation of the natural forage finished products. If the abattoir is a Value Chain member, this should not be an issue, because when joining the Value Chain they will have committed to the goals of the Value Chain as a whole. And, the Value Chain will need to have strict enforcement of performance standards.
15. Labelling challenges will occur in order to comply with CFIA regulations, while still telling the 'story' and communicating messages about the health benefits. Currently, Peace Country Premium Beef is awaiting CFIA approval for their label.
16. An ongoing challenge in the healthy foods market is to overcome the consumers' confusion about what foods or nutritional components are currently thought to promote or improve human health. Consumers are bombarded in the media with the newest studies which either extol or negate previous studies on the virtues of particular foods. Although it is believed that forage finished beef offers consumers health benefits, this message may get 'lost' amongst all the other foods claiming health benefits. Therefore, the health benefits of forage finished beef

must be effectively communicated, but as only one of the components of the marketing message.

17. There is a challenge to define this product, forage finished beef, without casting a negative light on how beef animals are raised traditionally. Those involved in traditional beef production will react strongly to any such criticism and the forage finished beef market will then experience a backlash.
18. The marketing/communication challenge of developing a relationship between the producer and the consumer of forage finished beef is currently being met mostly by direct marketing. The consumer knows the farmer producing the meat and trust and respect is developed in this direct relationship. As volumes increase and retailers are used in the chain a challenge exists to achieve this same relationship between consumer and producer, especially for the 'story' beef products.
19. The ability for the Value Chain to sell the whole animal will be a challenge. While it may be relatively easy to sell the top quality cuts, profitability dictates that the entire animal must be sold. The Value Chain will have to develop marketing strategies to meet this goal, such as marketing the low value cuts as ground beef.
20. Finding Value Chain partners with the necessary expertise in production and marketing may be a challenge. Tallgrass Prairie Producers Co-op recommends that a trained, experienced professional should be hired to develop and manage the business[112].
21. Food service is a potential market segment for natural forage finished beef. However, this market segment is not tolerant of supply shortfalls. Therefore, maintaining a consistent year-round supply is critical to this market.
22. Another challenge to marketing forage finished beef, especially as halves and quarters, is the large capital outlay by the consumer. Many consumers cannot budget their money so that they can afford to buy hundreds of dollars of beef at one time, even though buying beef in bulk is cheaper per pound. Instead, these families simply buy a few packages of meat at a time at most. The marketing of variety packs of several cuts of beef helps to overcome this marketing challenge.
23. Many Canadian consumers are fixated on 'cheap' food; they make their food purchase choices based on price, choosing to spend their disposable income in other areas such as entertainment. Therefore, this consumer is not likely to be a target for marketing a premium food product. Consumers with an interest in organic/natural type foods and for those interested in functional foods with a health benefit (e.g. the ageing baby boomer category) are the appropriate market segments to target. Even in the consumers in these market segments will have to be assured of receiving enhanced value for this premium product.

[112] Romance versus Reality: Hard Lessons Learned in a Grass-fed beef Marketing Cooperative by Annie Wilson, June 2002. http://www.agmrc.org/agmrc/business/strategyandanalysis/romancevsreality.htm

# 15.0 Recommendations – Action Plan

Natural forage finished beef requires production, slaughter, processing and marketing systems that are different than the traditional. Thus, this is a new industry sector. It does not yet have fully established production systems that are well known to many producers. The slaughter and processing volumes are sufficiently small that significant diseconomies of scale still exist. The marketing strategies and distribution channels are yet to become fully developed. Thus, there is much industry development yet to occur, in addition to the development of Value Chains.

The following recommendations are designed to address the needed industry development, including scientific research, production knowledge and capacity, consumer education re health benefits for which there is scientific support, etc.

The recommendations also have a section focussed on the promotion and development of Value Chains for natural forage finished beef in Manitoba.

## 15.1 Industry Development

All research related to natural forage finished beef needs to be coordinated amongst all the appropriate researchers and organizations in Manitoba, and coordinated with the research being done elsewhere in Canada and the rest of the world[113]. As a result, a specific coordinated research plan, agreed to by the relevant Manitoba and Canadian organizations, will be needed. This will maximize the progress and efficiency of the research. It may be unrealistic to have the widely diverse sets of organizations (e.g. medical researchers conducting clinical trials and beef industry researchers conducting livestock feeding trials) all agree on a comprehensive plan, but the participation of even some of the organizations will generate favourable results. The exchange of scientific information may also allow a coordinated approach to monitoring the scientific progress, allowing Manitoba beef producers and marketers to more readily access this information so that they can the apply it to their farms, businesses and Value Chains.

A few of the organizations that could be involved in the coordination of the research focussed on this industry development include Manitoba Forage Council, Agriculture and Agri-Food Canada, MAFRI, Food Development Centre at Portage la Prairie, Richardson Centre for Functional Foods and Nutraceuticals, Canadian Centre for Agrifood Research in Health and Medicine, University of Manitoba (e.g. Dr. Carla Taylor), Manitoba Cattle Producers Inc., etc.

The diverse research and extension activities that are recommended as relevant to the specific needs identified in this study include the following:

1. How To Produce Beef with Health Benefits (i.e. high enough levels of CLA, Omega-3, and potentially other compounds with health benefits) - This will need to include research for both the 'purist' and the 'practical' definitions noted in this document (see the first part of Section 13.1.7 above for explanation 'purist' and 'practical'). This research will need to focus on:

[113] For example in Appendix 4 the article by Anibal Pordomingo, titled "The neutraceutical or health benefits of grass finished meat" from The Stockman Grass Farmer, Publication date: Monday, 19 December 2005, displays the wide range of research being undertaken in many areas of the world.

1.1. Identifying what compound, in addition to CLA and Omega-3 warrant being included in the research, and

1.2. Identifying what beef rations will generate the necessary level of CLA, Omega-3, and other compounds that will produce the human health benefits. I.e. this research will require identifying what minimum levels of the compounds must be present to create the health benefit, and what rations and production protocols are needed to generate those levels in the beef products. A significant set of research will need to focus on whether it is possible/practical for Manitoba producers to finish animals in winter and have sufficiently high levels of CLA and Omega-3's in this beef. This research should also include estimating the risks that might occur if the human clinical trials identify any significant negative results that impact on consumer perceptions of CLA.

2. How To Produce Satisfactory Tenderness & Taste - A very applied set of beef production research projects (including production economics) to confirm the specific production management protocols for the production of natural forage finished beef of the satisfactory quality (tenderness and taste were the key characteristics noted in this study), requiring a well marbled natural forage finished beef that is as tender as grain finished.

   Research conducted involving the Food Development Centre and consumer taste testing (consumer sensory) panels could help document what production protocols will maximize the consumer acceptance of the natural forage finished products and the results could be used with retailers and consumers to assist in penetrating the retail channels. This would also be a tool to use to overcome scepticism about forage finished beef regarding taste and tenderness attributes required by the consumer.

3. How To Winter Finish - A very applied set of research and demonstration projects (including production economics) to confirm the production protocols necessary for Manitoba beef producers to finish animals for slaughter that result in satisfactory quality (as defined in the two research projects above) natural forage finished beef (or a 'practical' definition that is very close to forage finished). One challenge with winter finishing is that the cattle will divert some feed energy into body heat and away from growth. With the lower energy content of the forages, other strategies will be needed to achieve a sufficient level of finish in these animals. One strategy that has been used at Brandon's AAFC research station is to feed cattle in the evening, so that the heat of digestion warms them during the coldest part of the night, in order to spare feed energy. This requires a change in management on the part of the producer.

4. Demonstration and extension activities to communicate the above research results to producers and natural forage finished beef marketers. The demonstration should include commercial style production protocols from calving through to the slaughter of market animals. It will be important that this project monitor costs, performance and financial results of the production system. This information should be made widely available to producers.

5. Extension activities, for producers, marketers and consumers that communicate the latest credible scientific information regarding the health benefits from the high levels of CLA, Omega-3 and potentially other compounds in forage finished beef. The California State University, Chico Campus, is undertaking just such an endeavour, combined with the extension function that they perform with agricultural producers. Their website and initiatives could serve as a useful role model for some of the recommended activities.

6. It is expected that Manitoba Forage Council and/or MAFRI could participate in some or perhaps all of the above activities, to a greater or lesser extent. There are also other roles where the Manitoba Forage Council and others could provide a valuable service to assist in having the volumes of forage finished beef grow in Manitoba. These include:
   - Information: Manitoba Forage Council and MAFRI can take an active role in promoting the production and marketing of forage finished beef. Production manuals showing the proven methods and options for successful production of high quality natural forage finished beef can be made available to all interested producers. This document (at least in part) can be put on a website and its location publicized.
   - Third Party Certification: At some point in the future, consumers will demand verification that the forage finished beef is truly produced as is claimed. An industry group such as Manitoba Forage Council and MCPA (Manitoba Cattle Producers' Association) or others would be a credible entity to assess, and verify (perhaps with random audits) each farm has complied with its specified beef production practices. This certification program could be operated as a profit centre or 'spun off' to another group once it is established. This would be analogous to the American Grassfed Association, as described at the end of section 4.3.
   - Ultrasound Testing: Many of the Value Chains in North America (including Tallgrass Beef Company, High Sierra Beef and Thousand Hills Cattle Company) use ultrasound to both test an animal's suitability for forage finishing, and to predict whether an animal is properly finished (sufficient marbling) and ready for slaughter. Knowledgeable opinions have varied on whether it is sufficiently accurate, but the Value Chains are using the latest versions of the technology. Further research is needed to confirm the effectiveness. While this is proving to be a useful tool in many Value Chains, it is not without cost. Estimates indicate the costs could be $40/hr. for use, with up to 50 head per hour being ultra-sounded, plus $22/hr. for travel, plus a set up fee of $50. However, this may be a role that Manitoba Forage Council may wish to adopt. Once established by the MFC, it could either be retained as a profit center, or it could be sold as a private sector business.

## 15.2 Value Chain Facilitation and Promotion

It is important to note that while the above recommendations will do much to develop the natural forage finished beef industry, they do not directly address the objective of developing Value Chains. The following recommendations are provided to facilitate and promote the formation of Value Chains in the natural forage finished beef industry. However, the following actions to develop Value Chains will only be fully successful if the industry development actions in the previous section are also addressed in a coordinated manner. The previous and following recommendations are a synergistic package.

The recommendations for the facilitation and promotion of natural forage finished beef Value Chains in Manitoba include:

- Manitoba Forage Council and MAFRI should make beef producers aware of the potential benefits of Value Chains for pursuing this market opportunity. Forums could be held at various locations in Manitoba to bring interested producers together to discuss potential opportunities and to meet potential Value Chain partners.
- Given that producers are now marketing direct, and wish to increase their volumes, it is recommended that many of the new natural forage finished beef Value Chains should be producer initiated. This will allow the producers to reap the greatest benefits from the Value Chain. As noted in section 9, whoever initiates the Value Chain:
    - Creates the Vision/Culture and Business Competitive Strategy
    - Selects the "partners"
    - Faces the greatest challenges, and
    - Tends to gain more market information, control and share of profits
- It is recommended that the Value Chain must develop its production protocols that are needed to serve the target market segments, and then choose producers who embrace these protocols. The protocols will dictate how the beef animals are raised, and therefore how they will be marketed.
- It is recommended that the Value Chain develop slaughter, processing and cooking protocols that maximize the consumer enjoyment of the product and that are compatible with all marketing requirements. For example, this may include non-traditional low-stress slaughter, longer periods of aging, slower cooking and a number of other protocols.
- While forage finished 'natural' beef is a relatively new product in Manitoba, it has been successfully marketed in North America. The consumers' desire for a 'natural' (raised without antibiotics, ionophores, and synthetic hormone) product with health benefits has been well documented in the literature. A successful Value Chain must know and adapt to what its direct customers (e.g. retailers) and the end consumers want and need. Mechanisms must be developed to gauge consumer sentiments and address their concerns. The Value Chain must be market driven in order to succeed. It is recommended that Manitoba Forage Council and MAFRI communicate these messages to producers.
- It is recommended that the Value Chain develop its own brand. Branding will be needed if the reputation of forage finished beef is to be maintained. A brand which has integrity with

consumers is one way to achieve this, and will maintain a premium product position as well. The brand should convey the imagery and the factual information it needs to differentiate its product. But the development of such a strong brand has a significant cost and requires large sales volumes to gain economies of scale in the brand development costs. It must not be based on being "forage" or any related beef diet that may become discredited due to unscrupulous marketers, but must be based on the brand image in consumer's minds creating value.

- It is recommended that mentors be made available to those initiating natural forage finished beef Value Chains. Some of the Value Chains described in previous sections were developed with the help of a mentor. Peace Country Premium Beef, Atlantic Tender Beef Classic, and High Sierra Beef were mentored by extension specialists from Alberta Agriculture, Food, and Rural Development; AgraPoint; and University of California Extension Division respectively. While the success of a Value Chain depends on the expertise, commitment, and energy of the members of a Value Chain, a mentor to guide them through the many challenges of its development would be advantageous.
- It is recommended that the initiators of a Value Chain attempt to find an arrangement with a slaughter and processing plant that would enter into an arrangement similar to the Oregon Country Natural Beef arrangement. This would greatly assist producers in building market volume. I.e. the slaughter plant agrees to buy whatever cuts remain, after the Value Chain direct markets all that it can. The Oregon Country Natural Beef model assures that the entire carcass is sold, not just the prime cuts, even when surplus animals are slaughtered relative to immediate market demand.
- A Value Chain must be built to augment the skills and knowledge of the initial members. It is recommended that if the Value Chain is producer initiated, then marketing expertise and processing/slaughter members be sought in the additional members.
- Existing scepticism about grass or forage finished beef by consumers and meat buyers may be partly overcome by expanding the number of white table cloth restaurants that serve natural forage finished beef. E.g. Fusion Grill. This is also a good promotion strategy to expand the profile with consumers in general.
- It is recommended that a Value Chain carefully study year-round finishing of forage finished beef as this is critical to accessing larger volume markets. Using the production information being developed by Manitoba Forage Council, and to be supplemented by the research recommended above, for winter finishing, a much larger niche market (such as with retailers and food service firms) is available to the Manitoba producers.
- It is recommended that criticism of existing traditional beef production systems and/or products be avoided because it is not beneficial for forage finished beef, and is harmful to beef producers generally. Forage finished beef can be marketed without being negative, as is done with high Omega-3 eggs, in which the packaging simply emphasizes that they have a high level of Omega-3 and that there are benefits from this. It does not say anything about eggs produced in a traditional production system.
- Several of the existing Value Chains have developed a traceback program for producers' individual animals. A traceback program is a tremendous asset for producers because of the feedback they gain from the information that can help them improve the quality of their beef.

One of the Value Chain partners could provide this service to the producers, as is done in the Highland Beef Value Chain.

- A future orientation towards a reduced dependence on petroleum products has merit. One small step in that direction can be the development of forage finished beef that does not require petroleum use in the production of grain. This concept is one of the motivating factors for some of High Sierra Beef's customers.

## 15.3 Value Chain Marketing

Several recommendations are provided to assist a Value Chain in developing its marketing strategy. These include:

- Note the relevant information in earlier sections including, in particular:
  - Section 4.2 insights from existing producers
  - Section 5, with information on markets and consumers
  - Section 6, with insights on existing natural forage finished supply chains and Value Chains, and
  - Section 9, with information on Value Chains.
- Study what other successful Value Chains have done, and how they have done it. Study the websites for existing marketers. Go visit somebody doing what you intend to do. I.e. take a "Study Tour". You will likely have to go to a distant location where they do not see you as a competitor to find someone that is willing to share their experiences with you.
- Spend time to learn about the consumer and retailers. After reading what you can find, including the references found in this document, and talking to people knowledgeable about your target market, go and talk to several retailers. Think about it from their perspective, not your own. For example, go talk to you local retail grocery store manager and ask questions like, "What is your biggest challenge with meat products?" Or, ask, "What would it take for you to stock a natural forage finished beef product line?" Pretend you are in that retailer's shoes, and think about how you would want to try to make a profit buying natural forage finished beef and selling to your customers. Ask about seasonality of sales volume. Ask about which cuts would sell in the most volumes and which cuts would not sell. The time spent on this is invaluable, when starting a Value Chain to market natural forage finished beef. Even if you decide to direct market initially, the knowledge gained will greatly assist in planning how to sell directly to consumers.
- For beef producers, recognize that the more you learn about markets, consumers and retailers, the more successful the Value Chain will be, and the more likely you will be able to gain a major role in the formation of the Value Chain. Note that many of the examples in this document show Value Chains that were started by producers.
- Draw on the experience of a professional working in the beef retailing sector to support the planning for a new Value Chain.
- The two most important attributes of forage finished beef are its 'story' and the health benefits. In the Peace Country Premium Meat study[114], Concept Y (factual diet information) was the most appealing idea to consumers but Concept X commanded the best price (bucolic imagery, less information on diet). This suggests that a 'combination' concept should be considered for the natural forage finished beef packaging and promotional materials. While

[114] Peace Country Beef – Assessing the optimum price and platform for a 'natural' beef entry by Actionable Market Research Limited. This report was prepared for the Alberta government and Paul D. MacInnes and Associates. Sept. 20, 2004

bucolic imagery tells the story, consistent taste and tenderness must be considered the most important product attributes of this niche market. Store ads, flyers, packaging, and point of sale promotions should be the primary methods of disseminating this information to consumers. The study also identified the need for information in order to market 'natural' beef effectively. Specifically, the study reports that the consumers need to know:

- Where the beef is from;
- That its claims are authentic; and
- It undergoes government safety inspection.

- When asked to provide imagery suggestions for natural beef in the Peace Country Premium Beef study, participants described bucolic settings where animals were roaming peacefully and unrestricted. This imagery of cattle grazing in a pasture under a shining sun helps tell the 'story.' The Peace Country Premium Meat study concluded that in the typical consumers mind 'natural' beef products stood for:
  - Naturally raised;
  - Times gone by;
  - Healthfulness;
  - The real taste of beef.
- The above study also tested tag line preferences in regards to 'natural' beef. They concluded that '*Beef raised the way it was meant to be*' was the most popular tag line of those evaluated in their study.
- The other important attribute of forage finished beef is the nutritional benefits that can be gained. However, these benefits must be communicated to consumers by way of labelling, and promotion. Labels must be approved by CFIA, and this can require some time for approval. It is important that the Value Chain seeks the advice of CFIA throughout the process and prior to label submission for approval.
- When a Value Chain is becoming established, target markets should be selected, partly based on volumes that they require. For example, most Value Chains will wish to start with specialty retail outlets that have volume requirements that can be achieved relatively quickly by the Value Chain. These outlets would typically be specialty meat outlets that have customers interested in 'story' beef and beef with heath benefits. Examples may include Millers Meats, Public Meats and other specialty meat outlets.
- Several Value Chains have developed alternative marketing strategies, including buyers' clubs. This represents another approach to direct marketing. Buyers' clubs increase the geographic area that can be covered with acceptable transportation/delivery costs, and reduces the logistics costs because the orders are consolidated prior to being placed. When developing a marketing strategy, these marketing channels should not be overlooked.
- There are two streams of the 'natural' beef market – grain and forage finished beef. Consumers are responsive to beef that has been raised with no antibiotics, synthetic hormones, and animal by-products. Beef raised without ionophores is often part of the 'natural' beef protocols, although ionophores are generally 'off the radar' of most consumers.

For the consumer wishing to buy 'natural' beef, he/she has two choices – grain or forage finished. The production systems raising these animals are vastly different, but the consumer is unaware of this. However, humane treatment of animals is a 'hot button' issue for many consumers. However, a forage finished beef Value Chain should use this attribute with extreme caution. The opposite of humane is inhumane, and to cast traditional beef production as inhumane is ethically wrong as well as damaging to the development of forage finished beef. The way to differentiate forage finished beef production methods, without negative messages regarding traditional beef products, is to convey the message that these animals are raised on pasture. This message can be conveyed on the label showing cattle grazing, and in all the promotional material of the Value Chain. Humane treatment can also be written in the production protocols for the Value Chain.

- It is not recommended for the natural forage finished beef producers to move into further processing by vertical integration, but they could explore having a further processor join into a Value Chain and develop their own products. Food Development Centre in Portage la Prairie could play a role in developing new processed products from forage finished beef. Some examples of processed beef already in the market place include:
  - A recent offering in the US convenience food market is *Farmland Ground and Browned Fully Cooked Seasoned Beef*™. It is available in three flavours (original, Mexican, and Italian) and is marketed in a 12-ounce package, equivalent to one pound of uncooked ground beef. The resealable package allows consumers to use as much or little of the beef as they choose, while retaining the original flavour and freshness. Suggested retail price is $3.49.
  - Value added processing targeting the ethnic food market.
  - Thousand Hills Cattle Co. markets a line of BBQ sauces, made with organic ingredients
  - Cheeseburger Fries® (under the Circle A Ranch brand) were introduced in Wal-Mart stores across the US in 2004. This cheese/ground beef appetizer product is available in two varieties – cheddar, and jalapeno with pepper jack cheese. Cheeseburger Fries® were developed by R & D Ranch, a check-off funded food development group.
  - Hormel® ALWAYS TENDER® Beef website[115] claims that blind consumer preference studies revealed HORMEL® ALWAYS TENDER® Beef outperformed even Certified Angus Beef in overall consumer preference. Hormel uses a patented tenderizing process for all its beef products. They market the following beef products:
    - Flavoured beef (Peppercorn Shoulder Filet, Tequila Lime Shoulder Filet, and Teriyaki Shoulder Filet);
    - Specialty cuts such as Cube Steaks, Stir Fry, Kabob Meat, and Stew Meat;
    - Tenderloin, rib, round and chuck roast (pot roast).
  - There are parts of the carcass that are often thought to be more difficult to market. However, the following are some marketing ideas for the carcass trim[116]:

[115] http://www.alwaystender.com/default.asp?req=products/product/386

[116] How to Direct Market your Beef, Ervin's Natural Beef. 2003 Niche Marketing proceedings. http://www.csuchico.edu/agr/grassfedbeef/niche-mkt/2003-proceedings/case-studies/Ervins.pdf

  - Tongue, livers, kidneys can be mixed with fat, hamburger and vitamins for premium dog food;
  - Hides and tendons can be turned into dog chews;
  - Bones can be used for dogs, zoos, or wildlife rehabilitation centres;
  - Marrow bones can be sold to high-end restaurants, health foods, and hospitals;
  - Ground and dried liver and glands are used as supplements in health food stores;
  - Trim can be dried and turned into dog chews;
  - Summer sausage;
  - Beef bacon;
  - Jerky;
  - Cold cuts;
  - Hot dogs

- Tying the health benefits of forage finished beef to a well-known group or becoming certified as Heart Smart by the Canadian Heart and Stroke Foundation could be part of the Value Chain's marketing strategy. The Maverick Ranch[117] website has an American Heart Association heart-check logo and is certified as being heart-smart. It also has the US Olympic logo stating that Maverick Ranch is an official supplier of the US Olympic training centres. The Maverick Ranch does not produce forage finished beef but it does market 'natural' beef and they seem to have a flair for promotion.

[117] http://www.maverickranch.com/

# 16. Related Sources of Information

A relevant market research report, that is too long to include in the appendices and is not available on a website, has been put onto a CD. This report is:

- Peace Country Premium Beef market research study – Assessing the optimum price and platform for a 'natural' beef entry by Actionable Market Research Limited. This report was prepared for the Alberta government and Paul D. MacInnes and Associates. Sept. 20, 2004.

# Appendices

# Appendix 1 – Contact List

- TK Ranch Natural Meats, Alberta; Colleen Biggs; Phone (888) 857-2624;
- Natural Valley Farms Inc., Wolseley, SK; Cathy Martin; Phone (306) 698-2513
- Dr. Av Singh, Organic and Rural Infrastructure Specialist, AgraPoint International, Nova Scotia, Phone: (902) 657-1199
- California State University, Chico College of Agriculture, California; Roger Ingram; Phone (530) 889-7385
- Tall Grass Meats, 92-3rd St., Beausejour, MB (204) 268-1596;
- Tall Grass Enterprises, (204) 988-2173
- Calvin Vaags, Dugald, MB; Phone (204) 853-7378
- Manitobabeef.com; Randy Tkachyk, Sundown, MB; Phone (204) 425-3631
- Prairie Grass Fed Meats, Arborg, MB; Bragi Simundsson; Phone: (204) 376-2369
- Manitoba Forage Council; Fraser Stewart; Phone (204) 482-5547;
- Prairie Grass Fed Meats, Fraserwood, MB; Glen Nichol,; Phone (204) 643-5594
- Dr. Shannon Scott. AAFC (Brandon) 204-578-3605
- Dr. Grant Lastiwka, AAFC Lacombe, AB; (403) 782-8028
- Muriel Creek Cattle Co., Ardmore, AB; Tina Sawchuk; Phone (780) 812-2561.
- Glenlochar Grass-Finished Beef, Don Armitage; Miniota, MB; Phone (204) 567-3770
- Kerr Farms Limited, , Chatham ON; Robert Kerr; Phone (519) 352-5567
- AgraPoint, Kentville, Nova Scotia; Sean Firth; Phone (902) 678-7722
- Ian Clark, Alberta; Phone (403) 748-2624
- Freeman Iwasiuk, AAFRD; Phone (780) 523-6504
- Canadian Food Industry Agency (CFIA), Winnipeg, MB: Serge Deleau; Phone (204) 983-2200
- Highland Beef, Vegreville, AB; Phone (780) 768-2466
- Winkler Meats, Winkler, MB; Don Phillips

# Appendix 2 – Carcass Quality

**Palatability and Color of Red Meat**
**From Forage- and Concentrate-Fed Livestock**

Miranda R. Bolte
University of Wyoming, Laramie 82071

Available at the following website:

http://uwadmnweb.uwyo.edu/RenewableResources/range/Powell/palatability_of_meat.htm

# Genetics for a low input system

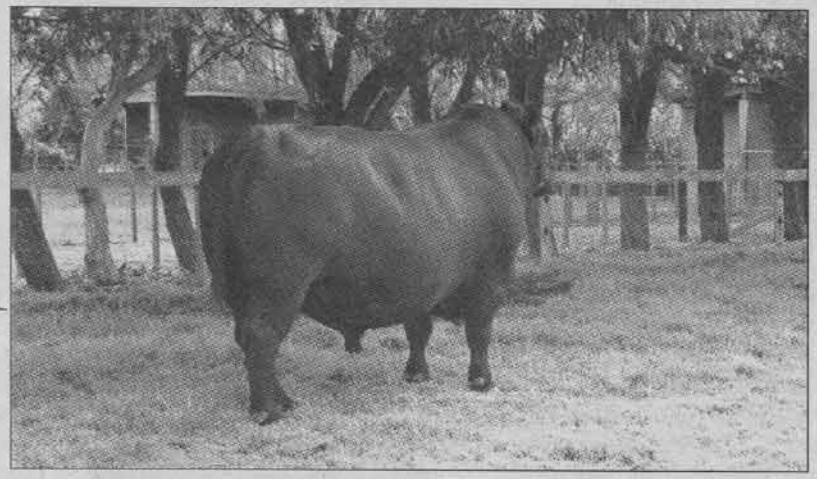
BULLS & BREEDING

BY GEORGINA CAMPBELL

A group of New Zealand Angus breeders are intent on bringing the past into the future of the cattle production. The 3 herds Pinebank, Glanworth and Shalom are located in the Wairarapa Valley on New Zealand's North Island and now own approximately 700 cows. In the late 1960s, they formed the Waigroup, a co-operative dedicated to producing cattle similar to the old Scottish bred Angus

The Waigroup is now exporting semen to the Sustainable Genetics, LLC, in Georgia.

"Sustainable Genetics is a marketing agent dedicated to enhancing profitability in the production segment of the beef industry," says CEO Bill Hodge. "We believe that a bovine animal was put on this earth to function as a grazing animal. Unfortunately the industrial agricultural model has created a "fossil fuel" dependent machine and totally ignored nature's original purpose for the "solar powered" creature."



Pinebank 41/97 bull at 8 years of age. Frame score 5, 2,700 lb., all grass; never a pound of barley in him.

Hodge says that there are now 2 types of cattle, "corn cattle" and "grass cattle". He feels the cattle now produced by the Waigroup are the first step in the right direction. These animals have been selected for 40 years on a total grazing scenario.

"That's the uniqueness they bring to the table," says Hodge. In addition, the Waigroup cattle run at high stocking densities with sheep in very steep country. The cattle are actually a secondary enterprise behind sheep, which allows for relentless culling within the herds. All females calve at 2 years of age and every year after that or they're culled. Hodge says the Waigroup is the only seed stock operation that he's aware of that offers a 4-year guarantee for feet on the bulls they sell.

The current Pinebank herd is owned by Willie Falloon, however it was started by his father Gavin who still serves as a technical advisor to Waigroup. Pinebank had raised Angus cattle for many years but when Gavin returned to New Zealand after World War II, he was never completely satisfied with the type of Angus cattle Pinebank was breeding. He made several unsuccessful trips to Great Britain looking for the type of bull he thought would work in his environment.

Finally in the late 1950s, Gavin discovered in New Zealand a double-bred grandson of the Scotch import, Mulben Embassy, on which to build his Pinebank herd.

He added the bull to his breeding program. The resulting heifer calves were bred back to their sire. The offspring of those first heifers were bred back to their sires. That laid the foundation for the Pinebank herd and the Waigroup program.

Falloon then hired Chinese geneticist Dr. T S Ch'ang

Continued on page 19

Cattleman's Corner - Breinerd - March 27, 2006 P. 17

## GENETICS FOR A LOW INPUT SYSTEM

Continued from page 17

to design a basic breeding program. They worked on it for a number of years and came up with a program that had a 125 year life.

Hodge assumes that Falloon and Ch'ang predicted that, at the 125-year point, the bulls would be totally homozygous. They would be a pure line and 100% predictable. They would be almost a breed within a breed. It's nearly at that point now. There are few purely old line Angus bred cattle left in the world. These Waigroup cattle would qualify for that category.

Hodge finds it interesting Falloon and Ch'ang had no specific phenotype or genotype in mind when they started the program. The environment dictated the type of animal they have. These animals are very much adapted to their environment.

One particular bull, that we call our "headliner" is the 41/97 bull. It has a 100" heart girth. I would think it is safe to say the average bull selected for a high input environment probably has 85" heart girth.

"We don't know just how well the calves resulting from this semen are adapting but I would venture to say they wouldn't be any worse than what you already have," adds Hodge. "The fact that they are quite adaptable to grazing means these cattle are higher capacity, higher volume cattle than most of the main stream Angus cattle. Capacity relates to spring of rib and capacity of the rumen to take in large quantities of forage. They don't require anything beyond the forage."

Hodge defines forage as any roughage suitable for a ruminant animal ranging from any type of grass to legumes, any stored feed such as hay, the by-products; really anything derived from plant material.

"That was what they were designed to eat in the first place but, somehow, we forgot that," he says. The Waigroup is now shipping semen, via Sustainable Genetics, to Alta Genetics where the semen is stored before being shipped to buyers.

Dr. Christoph Weder, who ranches and operates a consulting business at the Spirit View Ranch, near Spirit River, Alta., and Brady Wobesar, of Lloydminster, Alta., are the only 2 distributors in Canada. They maintain a minimum inventory but the majority of the semen is held at Alta Genetics.

Hodge feels the packing industry influenced the North American cattle industry when it decided the cattle were too small, too inefficient, didn't grow fast enough and didn't get big enough.

"We felt we needed to correct all that," he adds. "We allowed the packer to say that we needed a bigger animal and a bigger carcass. Of course we never know when to stop. We always take things to the extreme. The packing industry has become more consolidated and of course they control how the beef industry goes."

"Producer owned packing plants are the only way to take some control over their business," Hodge adds. "Those plants need to have a market developed for their product. Then producers can name their price instead of being a price taker."

***Georgina Campbell is a field editor for GRAINEWS at Lamont, Alta. Contact Georgina at 780-895-7399 or by e-mail at flwriter@telusplanet.net***

# Appendix 3 – Consumer/Market Information

## 1. Consumer Acceptability of *Natural* Beef

US Sustainable Agricultural Research and Education Program, by Annette E. Levi, Associate Professor of Agricultural Business, College of Agriculture, California State University, Chico.

Available at the following website:

http://www.csuchico.edu/agr/grassfedbeef/niche-mkt/2003-proceedings/market-trends/ConsumerAcceptability.doc

## 2. Optimizing Palatability of Retail Beef and Determining the Value of Beef Tenderness, Two Field Studies

by M.K. Patterson, Centre for Quality National Cattlemen's Beef Association, Englewood, Colorado Available at the following website:

http://www.csuchico.edu/agr/grassfedbeef/niche-mkt/2003-proceedings/planning/Patterson2.pdf

## 3. Beef Consumers spark 'Revolutionary' Change for Producers

By Dr. Tom Troxel and Dr. Keith Lusby. University of Arkansas Division of Agriculture. Communication Services. Available at the following website:

http://www.uark.edu/depts/agripub/Publications/Agnews/agnews05-33.html

# Appendix 4 – Scientific Support

## CLA functional role needs more studies

Source: Food Navigator.com Europe

September 21, 2005 Available at the following website:

http://www.foodnavigator.com/news/listmonths.asp

## How CLA fights inflammatory disease

Source: Food Navigator.com Europe

October 19, 2005 Available at the following website:

http://www.foodnavigator.com/news/listmonths.asp

# CLA-rich meat, milk to compete with functional foods

Source: Meat Process.com

26/01/2005 - Meat and dairy products with higher levels of the healthy fat conjugated linoleic acid (CLA) could be available in just three years, say scientists at the Rowett Research Institute in Scotland.

The researchers have received more than £200,000 (€287,626) in funding from the Scottish government to advance research into the role of microorganisms present in the cow's rumen involved in the production of different fats.

Red meat contains relatively large amounts of saturated fat, which nutritionists recommend should not be consumed in large amounts. But it also contains Omega-3 fatty acids and CLA.

"The saturated fats are made in the cow's stomach, which in essence is a huge fermentation vat as big as a barrel of beer. Our research has shown that it's possible to control the microorganisms in the cow's stomach to make healthier fatty acids," said Dr John Wallace, who is leading the study at the Rowett Institute.

Researchers in Wales and France have already shown that healthy fat levels in meat can be increased by feeding herds linseed or fish oil.

"But those present in the diet are not necessarily transferred directly into the meat and milk produced by these animals," Dr Wallace told NutraIngredients.com.

"We will be focusing on one bacterial species known to be responsible for the breakdown of CLA formed in the rumen. We know that if we inhibit activity of that species, we can improve CLA flow," he added.

The Rowett team are hoping that new knowledge of the workings of rumen microorganisms will allow them to show farmers how to produce meat and milk products with a healthier lipid profile.

The products could rival foods with added CLA, emerging slowly onto the European market. CLA is offered by a small number of ingredient manufacturers but Dr Wallace claims that these do not always have the same isomer structure as that found in naturally occurring CLA.

"We feel it is better to produce this fat naturally," he said.

Ingredient firms Cognis and Loders Croklaan have however demonstrated in clinical trials that their products can help reduce body fat. CLA has also been linked to immune-boosting activity.

# The neutraceutical or health benefits of grass finished meat

**by Anibal Pordomingo**

**Source: The Stockman Grass Farmer,** Publication date: Monday, 19 December 2005

Reprinted from The Stockman Grass Farmer Magazine, the grass farming publication of North America. For a free sample issue: call 1-800-748-9808 or 1-601-853-1861, fax 601-853-8087 or visit our website www.stockmangrassfarmer.com and fill out the sample request form, or write us at SGF Sample, PO Box 2300, Ridgeland, MS 39158-2300.

## Traditional consumer interests

Meat color has been traditionally the first purchase decision by consumers. The color of adipose tissue largely reflects the concentration of beta-carotene and lutein. The color of muscle reflects the concentrations and oxidation stage of muscle protein myogobin. After cutting, myoglobin rapidly oxidizes (iron rich) giving rise to a bright red color. As time passes, myoglobin is converted to metmyoglobin and the color changes to slightly brown. The rate of bright red color loss is related to the presence of antioxidants.

Tenderness, juiciness and flavor are important characteristics of the eating experience, and all are influenced by the animals diet. Total intramuscular fat is related to tenderness and juiciness. Low melting points of fat are associated with unsaturated fatty acid content of meat. Excess heat can easily reduce fat content and burn pasture-fed beef. In forage-fed beef, fat content is likely less, compared to grain fed beef, and the fat melting point is lower.

Cooking promotes changes and oxidation processes that yield aromas and characteristic flavors (Wood et al., 2003). Metallic and grassy flavours are frequently attributed to lean pasture-fed beef . Many fat-soluble compounds of plants get stored in fat globules of the meat and aging or cooking exalt the expression of such substances. However, for most pasture finishing programs based improved legumes and grasses (annuals and annuals) and fast-steady gains (processing at young ages), the flavor issue should not be so relevant .(Some broad-leaf annuals could be of concern). Research has pointed that concentration of flavor could also be a result of inadequate handling of the meat (chilling/thawing, maturation length) (Poulson et al., 2004). The length of maturation period is critical for pasture-fed beef because fat of pasture finished cattle tends to be less saturated and more unstable than fat from grain-fed cattle. Moreover, being leaner beef, grass-fed beef is less protected by fat cover than pen raised beef.

## Recent Consumer Interests: Neutraceutics

Consumers are increasingly aware of relationships between diet and health, particularly in relation to cancer and arteriosclerosis. Hence, the traditional concept of quality based on food safety, color, flavor and tenderness evolves demanding also functional attributes. Among these,

health benefits, primarily for disease prevention, obesity control and well being concentrate the public's attention. Fats are blamed for many health problems and at the same time, groups of lipids including omega 3, unsaturated fatty acids and CLA are regarded as beneficial (involved in cancer development retardation and cancer prevention, modulation of blood flow and pressure, antioxidants, intake modulation/down regulation, milk fat depression, anti-inflammatory roles, etc) and desired in foods. Detected in pasture raised cattle, these attributes have given milk and beef businesses a considerable opportunity for creating product differentiation.

Green plants are the primary source of omega 3 fatty acids in the food chain, many of which are essential acids for superior animals including man. Research reported over the last 10 years has pointed that forage-fed milk and beef are mayor suppliers of omega 3 fatty acids, conjugated unsaturated fatty acids (CLA family) namely C18:2 cis9 , trans 11, C18:1 trans-11 (trans vaccenic acid) and antioxidants (vitamin E and pro-vitamins). Information about diet, animal handling, processing and handling is abundant on milk and milk derivatives (yoghurt and cheese) and less abundant on beef. From what is known so far, manipulation of diets for pen-fed beef cattle has shown effective in cases for increasing specific beneficial fatty acids including CLA. But, not yet to the level and consistency attainable with pasture finishing. More so, supplementing pastured grazed steers with certain oils (e.g. linseed, sunflower oil) can enhance further the CLA accretion in muscle tissues.

Compared with the pen-fed steers, Poulson et al. (2004) reported 3.3 times greater CLA (C18:2 cis-9, trans 11) content in the pasture finished ones (12 and 40 mg/ 100 g of meat). In the same study, the essential 20-carbon fatty acids were greater and vitamin E showed a 300% increase in the meat of pasture finished steers. These animals retained redness longer than grain-fed ones. Yellowness is another characteristic frequently determined in beef. Pasture finished beef has more yellow fat than grain-fed beef due to presence of carotenes and pro-vitamins, which can act also as antioxidants. The pasture used in the study included Kentucky bluegrass, tall fescue, orchard grass and white clover.

Realini et al. (2004) reported similar results comparing pasture finished and grain-fed beef in Uruguay. Pasture was a perennial ryegrass, white clover, birdsfoof trefoil and endophyte-free tall fescue mix (mostly ryegrass). Pen-fed diet was based on 50% corn silage, 28% wheat hulls, 18% ground corn and 4% of a urea-based mineral and vitamin supplement (with monensin). Pen feeding took 100 days and pasture grazing 130 days for animals to be ready for slaughter according to market preference (back fat cover and weight). In the same study, pasture grazed steers almost doubled total CLA (0.53 vs 0.25%) in the muscle lipid composition, and a omega 6/omega 3 of ratio half the size (1.44 versus 3.0 to 1). Total intramuscular lipid extracted was also lower in pastured cattle (1.68 versus 3.0 to 1). No tenderness differences were detected. In addition, alpha-tocopherol (vitamin E) was greater in the pastured treatments.

A study carried out in central Argentina by Martínez Ferrer et al. (2004) reported similar intramuscular fat but different fatty acid profile in meat of steers pen fed corn grain or corn silage diets, versus finished on alfalfa pasture with and without energy supplementation. The authors compared 5 growing- finishing strategies: 1) corn grain based diet, 2) corn silage based diet, 3) alfalfa pasture + low supplement, 4) alfalfa pasture + high supplement, and 5) alfalfa pasture only. Steers were placed on treatments right after weaning (166 kg BW) and slaughter at similar back fat thickness ( 10 mm) and weight (460 kg of BW). Treatment 3 was offered an amount of supplement equivalent to 0.75% of BW (on dry matter basis) and treatment 4 received an amount equivalent to 1.5% of BW. Supplement was 70% ground corn + 30% ground cereal

rye grain. All steers on pasture had excess availability in rotation grazing. Results are shown on Table 1. Steers on high-grain diet had more intramuscular fat and less omega 3 lipids than the others. Pen-fed steers (treatments 1 and 2) had less CLA content and greater omega 6/omega 3 ratios than pastured steers. Pastured steers had 4 times the amount of omega 3 fatty acids present in pen-fed steers. Non-supplemented forage-fed steers had the highest level of omega 3 fatty acids and a 1:1 omega 6/ omega 3 fatty acid ratio. Pen-fed steers had ratios greater than 6.5:1. Starch-rich supplementation increased the ratio to 2:1. Lastly, non-supplemented pastured steers did not differ in CLA levels as a proportion of intramuscular fat from supplemented ones, but had the largest content as proportion of muscle.

In other studies carried in central Argentina, Latimori et al. (2004) and Martínez Ferrer et al. (2004) found similar trends. Steers finished on 100% alfalfa pasture had the highest CLA content in intramuscular fat and the lowest omega 6/omega 3 ratios. Supplementation with cracked corn grain exerted a small depression on CLA content compared with 100%-pasture steers and doubled the omega6/omega3 ratio. In both studies, grain-fed beef had the lowest CLA content and by far the largest omega 6/omega 3 ratio. Working with heifers in eastern Argentina, Depetris et al. (2005) reported a linear decrease in CLA content with increasing supplementation. Furthermore, supplementation treatments always yielded lower CLA content, compared with the non supplemented one.

Although far from being conclusive, supplementation with starch-rich feeds seems to have a lower effect on the intramuscular fatty acid profile than pen-feeding on grains or stored feeds. Supplementation on pasture seems to mostly affect CLA content and level of omega 3 fatty acids.

Feeding hay is sometimes suggested to maintain gains under low availability of forage, even pen-feeding on complete rations is often used to stock calves during fall and winter. Implications of back grounding on stored feeds on the final composition of intramuscular fat has not been fully researched. In one study of our recent work (Volpi Lagreca et al., 2005a), Angus heifers were fed 10, 40 or 70 % alfalfa hay diets during 104 days in a back-grounding program. Treatments resulted different intramuscular fat content and composition of intramuscular lipids. The greater the amount of hay in the diet, the lower the intramuscular fat in the muscle (lower rate of gain – performance data not shown). But, omega 3 fatty acids increased with the amount of hay and the omega 6 to omega 3 ratio (omega 6/omega 3) decreased significantly from 4.6:1 to 1.89:1. The diet with the largest amount of hay resulted in more polyunsaturated fatty acid content also. The CLA fraction, however, was not greatly increased with the increase in hay.

We must keep in mind that CLA content is highly depending on intact precursor content, fermentation rate and rate of passage in the rumen (high levels mostly associated with green growing plants). Pre-wilted and ensiled grass or legumes have lower contents of most unsaturated fatty acids than fresh forage, specially linoleic and linoleic acids (Elgersma et al., 2004). Poulson et al. (2004) reported 0.46 g of CLA/100 g of total fatty acids in muscle of steers fed alfalfa hay as the sole diet during 195-day back-grounding period, and 1.31 g /100 g of total fatty acids after a 130-day period on fresh pasture.

A great deal of the intramuscular and cover fat is laid towards the end of the growing finishing period, and research has pointed that a 120 day period on pasture could revert and define the final meat lipid profile. In a companion study of the one just quoted (Volpi Lagreca et al., 2005b), it was shown that a period of 132 days on pasture would “wash” the effects of different

back-grounding and may yield meats of similar characteristics in fatty acid composition of intramuscular fat. We can notice on Table 4 the similarities among treatments in polyunsaturated fatty acid content, omega 3 and omega fractions and the ratio omega 6/omega 3. Moreover, the magnitude of the ratio omega 6/omega 3, lower than 2:1 talks of a healthy product. Vitamin E content was also similar (data not shown) and 220% greater that the content present in meat samples of the pen-fed phase study (Volpi Lagreca et al., 2005a). But, we must also discuss the CLA level. Content of CLA was similar among treatments and low (about half) for the concentration expected in pasture-fed beef.

Although worldwide research is still limited on the matter, it seems that recuperating or increasing CLA levels to values above 0.8 or 1.0% naturally would be difficult if animals have been previously exposed to grain based diets (with no access to green pasture). Similar to our results, the study of Poulson et al. (2004) cited above, found an increase in CLA content from 0.27 to 0.80 g/100 of fatty acids in muscle, going from a totally mixed corn silage and rolled barley based ration to 100% pasture, but steers that had been pen-fed just alfalfa hay before the 130-day finishing period reached 1.31 g/100 g of total fatty acids in muscle. Beyond the CLA issue, grazing on good-quality pastures for about120 days would allow for homogenizing back grounding differences in main meat quality attributes.

The quality and fatty acid precursor content in the fresh forage highly determines meat fat attributes. Forage fatty acid composition varies with species, pasture mix and plant maturity. Fresh and vegetative forages tend to have more linoleic and linolenic acids, and promote ruminal bio-hydrogenation of unsaturated fatty acids into CLA and trans-vaccenic acid at a greater extent than dry, processed or mature forages (Dhiman et al., 1999). Legumes in the forage mix are big contributors. Depetris et al. (2005) found the meat from heifers finished on alfalfa to have the greatest CLA content (0.70% of IMF) compared to grass pasture (0.53%).

Research on health attributes of beef is being carried out at many places in the world at present and there is a great number of questions to be addressed. But, what we know so far gives as the opportunity for defining forage chains that enhance natural deposition of desired fatty acids in lean, tender and tasty beef. In future notes we will discuss research on forages variability and choices regarding desired fatty acids and use management for maximizing fatty acid enrichment of red meat. Later on we will bring the issue of animal breeds and biotypes for the same purpose.

# CHARTS

**Table 1. Effect of feeding strategy on intramuscular fat (IMF) content and fatty acid comosition of pen and pasture feed steers.**

| | Pen-fed diets | | Alfalfa pasture + suppl 0.75% BW | Alfalfa pasture + suppl 1.5 % BW | 100% alfalfa pasture |
|---|---|---|---|---|---|
| | Grain based | Corn silage | | | |
| Content every 100g of muscle | | | | | |
| IMF,g | 3.16 b | 2.23 a | 1.85 a | 1.91 a | 2.47 a |
| FAME,g | 3.07 b | 1.74 a | 1.55 a | 1.40 a | 2.20 a |
| CLA,mg | 8.70 a | 6.60 a | 11.50b | 12.00 b | 15.70 c |
| Proportion of Intramuscular fat | | | | | |
| SFA,% | 41.00 a | 43.20 ab | 43.90 ab | 44.50 ab | 46.10 c |
| MUFA,% | 47.30 b | 47.20 b | 43.50 a | 41.60 a | 40.30 a |
| PUFA,% | 10.40 a | 9.60 ab | 12.50 a | 13.90 a | 13.60 a |
| Omega 6,% | 8.90 b | 8.03 b | 7.80 b | 8.70 b | 5.57 a |
| Omega 3,% | 1.17 a | 1.24 ab | 4.15 b | 4.50 b | 5.33 c |
| CLA,% | 0.28 a | 0.30 a | 0.62 b | 0.63 b | 0.64 b |
| PUFA/SFA | 0.25 | 0.22 | 0.29 | 0.31 | 0.30 |
| Omega 6/Omega 3 | 7.60 c | 6.50 c | 1.90 b | 1.90 b | 1.04 a |

IMF=Intramuscular fat; FAME=Metilated fatty acids; CLA=Conjugated linoleic acit c9-t11; SFA=Sterified fatty acids; MUFA=Mono-unsaturated fatty acids; PUFA = Poly unsaturated fatty acids; a,b,c Treatment means followed by a different letter differ ($p<0.05$).

**Table 2. Effects of finishing steers on 100% pasture, on pasture plus energy supplement or on pen-fed high-energy complete ration on omega6/omega3 ratio y CLA content of intramuscular fat at two locations in central temperate Argentina**

| | Pasture 100% | Pasture + low suppl. | Pasture + high suppl. | Grain based pen-fed diet |
|---|---|---|---|---|
| Omega6/Omega3 | $1.0^{a}$ | $2.1^{b}$ | $2.2^{b}$ | $8.0^{c}$ |
| CLA | $0.77^{c}$ | $0.70^{b}$ | $0.66^{b}$ | $0.44^{a}$ |
| ERS Manfredi, Martinez Ferrer et al., 2004 | | | | |
| Omega6/Omega3 | $2.3^{a}$ | $3.9^{b}$ | $4.9^{c}$ | $21.6^{d}$ |
| CLA | $0.71^{c}$ | $0.62^{b}$ | $0.56^{b}$ | $0.29^{a}$ |
| ERS Marcos Juareaz, Latimori et al., 2003 | | | | |

$^{a,b,c}$ Treatment means with different superscript in rows differ $P<0.05$

Table 3. Effect of alfalfa hay content of pen-fed diets on performance, fat deposition and fatty acid profile of beef heifers

| Alfalfa hay in diet, % | 10 | 40 | 70 | SE |
|---|---|---|---|---|
| Back fat thickness, mm | 11.0[c] | 9.2[b] | 7.4[a] | 0.341 |
| Intramuscular fat, % | 3.67[a] | 2.59[b] | 2.66[b] | 0.333 |
| Saturated fatty acids, % (1) | 41.36 | 42.95 | 42.96 | 0.571 |
| Mono unsaturated fatty acids, % | 38.70[c] | 36.16[a] | 36.20[a] | 0.443 |
| Poly unsaturated fatty acids, % | 8.69[a] | 8.84[a] | 11.22[b] | 0.689 |
| Omega 6 fatty acids, % | 6.96 | 6.79 | 6.77 | 0.476 |
| Omega 3 fatty acids, % | 1.74[a] | 2.04[a] | 4.45[b] | 0.271 |
| CLA, % | 0.30[a] | 0.41[b] | 0.39[b] | 0.026 |
| 18:3 Omega 3 | 0.84[a] | 1.00[a] | 2.62[b] | 0.311 |
| 18:2 Omega 6 | 4.63 | 4.31 | 4.31 | 0.381 |
| PUFA/SFA | 0.21[a] | 0.21[a] | 0.28[b] | 0.032 |
| 18:2/18:3 | 8.16[d] | 5.27[c] | 2.90[b] | 0.730 |
| Omega 6/Omega 3 | 4.62[c] | 3.48[b] | 1.89[a] | 0.273 |

(1) Proportions of total intramuscular fatty acids.
[a, b, c] Treatment means with different superscript in rows differ P< 0.05
SE = Standard error for treatment means

Table 4. Effect of alfalfa hay content in pen-fed back-grounding diets during 104 days on performance, intramuscular fat content and fatty acid profile of pasture finished beef

| Alfalfa hay, % | 40 | 70 | 100 | SE |
|---|---|---|---|---|
| Back fat thickness, mm | 9.3[c] | 7.4[b] | 6.8[a] | 0.28 |
| Intramuscular fat, % | 3.02[b] | 3.19[b] | 2.31[a] | 0.274 |
| SFA, %(1) | 41.82 | 41.94 | 42.50 | 0.464 |
| MUFA, % | 36.03 | 36.39 | 34.73 | 0.665 |
| PUFA, % | 9.31 | 8.64 | 8.63 | 0.512 |
| Omega 6 fatty acids, % | 6.13 | 5.59 | 5.61 | 0.345 |
| Omega 3 fatty acids, % | 3.18 | 3.05 | 3.03 | 0.206 |
| CLA, % | 0.47 | 0.49 | 0.48 | 0.031 |
| 18:3 Omega 3 | 1.35 | 1.38 | 1.59 | 0.101 |
| 18:2 Omega 6 | 3.81 | 3.48 | 3.51 | 0.209 |
| PUFA/SFA | 0.22 | 0.21 | 0.20 | 0.136 |
| 18:2/18:3 | 2.80[b] | 2.56[ab] | 2.31[a] | 0.129 |
| Omega 6/Omega 3 | 1.98 | 1.84 | 1.86 | 0.086 |

Pasture = cereal oats pasture during 90 days followed by 42 days of alfalfa pasture.
SFA = Saturated fatty acids; MUFA = Mono-unsaturated fatty acids; PUFA = Poly-unsaturated fatty acids
(1) Proportions of total intramuscular fatty acids.
[a, b, c] Treatment means with different superscript in rows differ P< 0.05
SE = Standard error for treatment means

## Literature cited

Depetris. G., Santini, F., Pavan, E., Villarreal, E., Grigioni, G., Irurueta, M. y Carduza, F. 2005. Efecto del tipo de pastura y tiempo de suplementación previo a la faena sobre el comportamiento

productivo y sobre los atributos de calidad de la carne. Rev. Arg. Prod. Anim. 25(1):38 (Abstr.)

Dhiman, T.R., Anand, G.R., Bauman, L.D. y Pariza, .M.W. 1999. Conjugated linoleic acid content of meta from cows fed different diets. J. Dairy Sci. 82:2146-2156.

Elgersma A. Ellen, G., van der Horst, H., Muuse, B.G., Boer, H. y Tamming, S. 2004. Comparison of fatty acid composition of fresh an ensied perennial ryegrass (Lolium perenne L.) affected by cultivar and regrowth removal. Animal Feed Sci. and Tech. 108:191-205.

Latimori, N.J., Kloster, A.M., Amigone, M.A., García, P.T., Carduza,F.J. and Pensel, N.A. 2003. Efecto de la dieta y del biotipo sobre indicadores de calidad de carne bovina. Rev. Arg. Prod. Anim. 26(1):352. (Abstr.)

Martinez Ferrer, J., Ustarroz, E., Ferrayoli, C. G., Brunetti, M. A., Simondi, J., De León, M. y Alomar, D. 2004. Concentración de ácido linoleico conjugado (CLAc9, t11) y perfil de ácidos grasos en la carne de novillos sometidos a diferentes regímenes de alimentación. Rev. Arg. Prod. Anim. 24(1): 55 (Abstr.)

Poulson, C.S., Dhiman, T.R., Ure, A.L. Cornforth, D.y Olson, K.C. 2004. Conjugated linoleic acid content of beef from cattle fed diets containing high grain, CLA, or raised on forages. Livestock Prod. Sci. 91:117-128.

Realini, C.E., Dickett, S.K., Brito, G.W., Dalla Rizza, M., De Mattos, D. 2004. Effect of pasture vs. concentrate feeding with or without antioxidants on carcass characteristics, fatty acid composition, and quality of Uruguayan beef. Meat Science 66:567-577.

Volpi Lagreca, G., Pordomingo, A.J., Miranda, A., García, P. T., Grigioni, G. y Kugler, N. 2005. Efecto del nivel de fibra de dietas de recría de vaquillonas a corral y terminadas en pastoreo sobre el ritmo de engorde y parámetros de calidad de la carne. Rev. Arg. Prod. Anim. 25(1):68 (Abstr.).

Volpi Lagreca, G., Pordomingo, A.J., Miranda, A., García, P.T., Grigioni, G. 2005. Efecto del nivel de fibra de dietas de corral sobre el ritmo de engorde y parámetros de calidad de carne de vaquillonas. Rev. Arg. Prod. Anim. 25(1) (Abstr.)

Wood, J.D. Richardson, R.I., Nute, G.R., Fisher, A.V., Campo, M.M. Kasapidou, E. Sheard, P.R. y Enser, M. 2003. Effects of fatty acids on meat quality: A review. Meat Science. 66:21-32.

# Appendix 5 – Abattoirs in Manitoba

## Federally inspected slaughter plants in Manitoba

| Name of Abattoir | Contact Information | Type of Operation | Products/Services |
|---|---|---|---|
| Winkler Meats Ltd. | Mr. Harry Dyck (204) 233-2344 | Custom slaughtering. | Variety of sausages, deli meats, fresh pork cuts. Custom slaughtering and processing of hogs, beef, ostrich, fallow deer, wild boar, etc. |

## Provincially inspected abattoirs in Manitoba

| Name of Abattoir | Contact Information | Type of Operation | Products/Services |
|---|---|---|---|
| Valley Meat Packers, Minitonas, MB | Mr. Herman Meuller (204) 525-4201 | Abattoir/Processor Specializing in the slaughter of cattle, pigs, bison, sheep/lambs, goats, elk, wild boar and horses. | Beef quarters & cuts, bison cuts lamb carcasses & cuts, smoked meats, fresh sausages, deli meats, frozen chicken parts, frozen turkey parts, pork sides & cuts, sheep cuts, goat carcasses &cuts, wild boar sides & cuts, smoked sausages, frozen whole chicken, frozen whole turkey. Custom slaughter of cattle, pigs, wild boar, sheep, goats, & horses. Custom sausage making. |
| Dauphin Meat Processors, Dauphin MB | Ms. Heather Humberstone (204) 638-6016 | Abattoir/Processor Specializing in the slaughter and processing of domestic animals such as cattle, pigs, bison, sheep/lambs, goats. | Beef quarters & cuts, lamb carcasses , pork sides & cuts, fresh sausages smoked sausages, fresh chicken , frozen whole chicken, fresh chicken parts frozen whole turkey. Custom curing and smoking. Makes own hams. |
| Prairie Abattoir, Portage la Prairie MB | Mr. Lee Perreault and Mr. Murray Simpson (204) 857-7120 | Abattoir/Processor Specializing in the slaughter of pigs and cattle. | Beef quarters & cuts; pork sides & cuts; fresh sausages. |
| Country Meat & Sausage, Blumenort, MB | Mr. Robert Jowett (204) 326-3252 | Abattoir/Processor Specializing in the slaughter of pigs and cattle. | Beef quarters & cuts, fresh sausages smoked meats, pork sides & cuts, smoked sausages, deli meats |
| BJ Packers, Beausejour, MB | Mr. Pat Haywood (204) 268-3056 | Abattoir Specializing in the slaughter of cattle, pigs and wild boar | Beef quarters & cuts, pork sides & cuts. |
| Swan Lake Abattoir | Mr. Gerry Delaquis or Mr. Donald Delaquis (204) 836-2467 | Abattoir/Processor Specializing in the slaughter of cattle and pigs. | Beef quarters & cuts, fresh sausages, frozen chicken parts, pork sides & cuts, deli meats, frozen whole turkey |
| Carman Meats, Carman, MB | Mr. Jim Holmes (204) 745-2763 | Abattoir/Processor Specializing in the slaughter of cattle, pigs, wild boar, sheep/lambs, goats. | Beef quarters & cuts, fresh sausages, frozen whole chicken, frozen whole, turkey, pork sides & cuts, smoked sausages, frozen chicken parts. Cut/wrap and process wild game. |
| Interlake Packers Ltd., St. Laurent, | Mr. Ed Schon | Abattoir/Processor Specializing in the slaughter and | Beef quarters & cuts, pork sides & cuts, fresh sausages, smoked sausages, smoked meats, |

| | | | |
|---|---|---|---|
| MB | (204) 646-2172 | processing of domestic animals such as cattle, pigs and wild boar. | deli meats, frozen chicken parts frozen whole chicken, frozen whole turkey |
| St. Claude Abattoir, St. Claude, MB | Mr. N. Picton (204) 379-2157 | Abattoir/Processor Specializing in the slaughter of cattle, pigs, bison, sheep/lambs, goats, rabbit and wild boar. | Beef quarters & cuts, fresh sausages smoked meats, pork sides & cuts, smoked sausages |
| Jenkinson's Meat Market & Locker Plant, Treherne, MB | Mr. John Jenkinson (204) 723-2306 | Abattoir/Processor Specializing in the slaughter and processing of domestic animals such as cattle, pigs, bison, sheep/lambs, goats, wild boar and deer. | Beef quarters & cuts, pork sides & cuts, fresh sausages, smoked meats, smoked sausages, deli meats, frozen chicken parts, frozen whole chicken, frozen whole turkey, bison cuts, lamb carcasses & cuts, ground turkey, ground chicken, chicken deli meats, turkey deli meats |
| Souris Valley Processors (1998), Melita, MB | Ms. Monica Skelton and Mr. Larry Danyluk, (204) 522-8210 | Abattoir/Processor Specializing in the slaughter of domestic animals such as: cattle, pigs, bison, sheep/lambs, goats, horses, wild boar and emu. | Beef quarters & cuts, fresh sausages, frozen chicken parts, pork sides & cuts, frozen whole chicken, smoked meats, frozen whole turkey, smoked sausages , deli meats. Cut/wrap and process wild game |
| Oak River Quick Freeze (1994) Ltd., Oak River, MB | Mr. Derek Shamray, (204) 566-2385 | Abattoir/Processor Specializing in the slaughter and processing of domestic animals such as: cattle, pigs, bison, sheep/lambs, goats, wild boar, deer, horses, ostrich and emu. | Beef quarters & cuts, bison cuts, lamb carcasses & cuts, wild boar sides & cuts, fresh sausages, smoked meats, fresh chicken , fresh chicken parts, fresh whole turkey, fresh turkey parts, pork sides & cuts, sheep cuts , goat carcasses &cuts, smoked sausages, deli meats, frozen whole chicken, frozen chicken parts, frozen whole turkey, frozen turkey parts. Cut/wrap and process wild game. |
| Plains Processors Ltd., Carman, MB | Mr. Stan Werle (204) 745-3068 | Abattoir/Processor Specializing in the slaughter of cattle, pigs, bison, elk and wild boar. | Beef quarters & cuts, bison quarters & cuts, elk quarters & cuts, pork sides & cuts, wild boar sides & cuts. |
| Benito Meats, Benito, MB | Mr. David Page or Ms. Wendy Page, (204) 539-2218 | Abattoir/Processor Specializing in the slaughter and processing of domestic animals such as cattle, pigs, bison, sheep/lambs, goats, horse, wild boar. | Beef quarters & cuts, bison cuts , lamb carcasses & cuts, wild boar sides & cuts, fresh sausages, smoked meats, fresh chicken, fresh chicken parts, fresh whole turkey, frozen turkey parts, turkey deli meats, pork sides & cuts, sheep cuts, goat carcasses & cuts (on order), smoked sausages, deli meats , frozen whole chicken, frozen chicken parts , frozen whole turkey, fresh turkey parts chicken deli meats. Cut/wrap and processing of game animals. |
| Madill's Meat Processing, Minnedosa, MB | Mr. Ray Madill (204) 865-2282 | Abattoir/Processor Specializing in the slaughter and processing of domestic animals such as cattle, pigs, bison, sheep/lambs, goats, rabbits, wild boar and emu. | Beef quarters & cuts, wild boar sides & cuts, lamb carcasses & cuts, link sausage,, pork sides & cuts, sheep cuts , goat carcasses & cuts. Cut, wrap and process wild game. |
| Renard's Meat Services, Virden, MB | Mr. Brian Renard or Ms. Lynne Renard (204) 748-1889 | Abattoir/Processor Specializing in the slaughter of cattle, pigs, bison, sheep/lambs, goats, rabbit, wild boar and horses. | Beef quarters & cuts, fresh sausages smoked meats, pork sides & cuts, smoked sausages, frozen chicken parts. Process, cut and wrap wild game. |
| Berscheid Meats, The Pas, MB | Mr. James Berscheid, (204) 623-3930 | Abattoir/Processor Specializing in the slaughter of cattle, pigs, sheep/lambs, goats, bison, wild boar, elk, deer and emu. | Beef quarters & cuts, fresh sausages, smoked meats, frozen whole chicken, frozen whole turkey, pork sides & cuts, smoked sausages, deli meats, frozen chicken parts |
| Killarney Meats Ltd., Killarney, | Mr. Brian Bernard (204) | Abattoir/Processor Specializing in the slaugher of domestic animals such as: cattle, | Beef quarters & cuts, fresh sausages, smoked meats, pork sides & cuts, smoked sausages. |

| | | | |
|---|---|---|---|
| MB | 523-4308 | pigs, bison, sheep/lambs, goats and wild boar. | Process, cut and wrap wild game. |
| Family Choice Meats, Schanzenfeld MB | (204) 325-8789 | Abattoir/Processor<br>Specializing in the slaughter of cattle and pigs. | Beef quarters & cuts, fresh sausages, pork sides & cuts, smoked sausages. |
| Prairie Rose Meat Ltd., Souris, MB | Mr. Marc Bellon (204) 483-2765 | Abattoir/Processors<br>Specializing in the slaughter of cattle, pigs, bison, sheep/lambs, goats, rabbits, horses, deer and wild boar | Beef quarters & cuts, bison cuts, lamb carcasses & cuts, rabbit carcasses, fresh sausages, smoked meats, frozen chicken parts, pork sides & cuts, sheep cuts<br>goat carcasses &cuts, wild boar sides & cuts, smoked sausages, deli meats |
| Jarvis Meats Ltd., Gladstone, MB | Mr. Garth Jarvis or Ms. Marjorie Jarvis (204) 385-2506 | Abattoir/Processor<br>Specializing in the slaughter of cattle, pigs, bison, sheep/lambs, goats, wild boar, horses, deer, ostrich and emu. | Beef quarters & cuts, pork sides & cuts, fresh sausages, smoked meats, smoked sausages, deli meats, frozen whole chicken, frozen chicken parts, frozen whole turkey, frozen turkey parts, turkey deli meats, chicken deli meats. Wild game processing. |
| Sandy Lake Locker Plant, Sandy Lake, MB | Mr. Leven Koltusky (204) 585-2671 | Abattoir/Processor<br>Specializing in the slaughter of domestic animals such as: cattle, pigs, wild boar, sheep/lambs and goats. | Beef quarters & cuts, fresh sausage, smoked meats, pork sides & cuts<br>smoked sausages, fresh whole chicken (summer only), fresh chicken parts (summer only). Process, cut and wrap wild game. |
| Trail Meats (1994), Neepawa, MB | Mr. Fred De Bruin (204) 476-3366 | Abattoir/Processing<br>Specializing in the slaughter of cattle, pigs, bison, deer and horse. | Beef quarters & cuts, bison cuts, pork sides & cuts, fresh sausages. |