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Assessing Canada's Supply Management System

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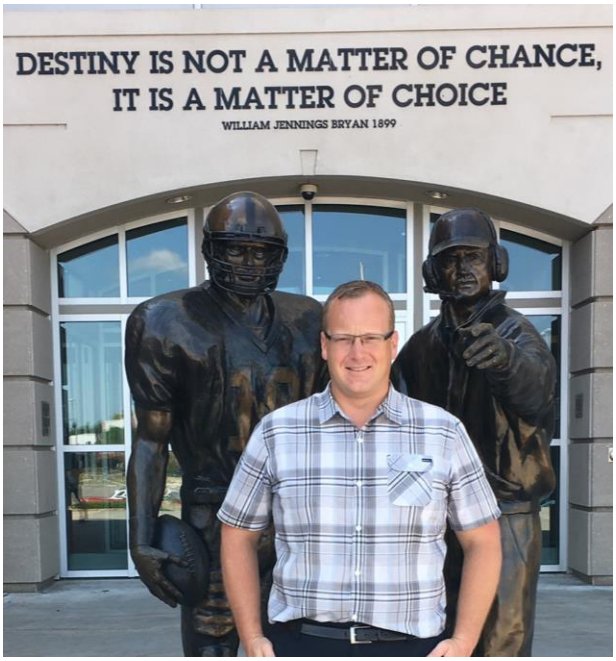
SCHOLAR PROFILE



Father, husband, farmer, banker, Nuffield Scholar, not necessarily in that order at any given point in the day. I am a first-generation turkey farmer who is passionate about my family, agriculture and continuous learning and my goal is to give back to those around me: to my children, colleagues, and the farm community. My wife Kathryn and I are raising our four daughters in Norwich, Ontario where I was born and raised. These are the foundations where I find my motivation.

Academically, I was formally educated at the University of Guelph and received my Bachelor of Science in Agriculture, and at Kansas State University where I graduated with a Master's degree in Agribusiness. Professionally, I have worked in farm finance and management, of which the past 13 years have been invested with the National Bank of Canada, where I am the Associate Vice President of Agriculture for Ontario.

Representing Nuffield Canada as a 2016 Scholar afforded me the time, network, and confidence to step outside my traditional life and to research the area of orderly marketing in regard to dairy and poultry products and its significance to our family business in Southern Ontario. It was fascinating to me (as both a turkey farmer and a banker) to travel, meet with people, discuss, and reflect on other marketing regimes and to discover leading ideas around the globe and look for opportunities to influence our domestic livestock sectors. This has most certainly been a once-in-a-lifetime experience for which I am deeply thankful.

ACKNOWLEDGMENTS

First and foremost, I owe a great deal of gratitude and appreciation for Kathryn Doan, my wife, mother of our four daughters, and business partner who enabled me to complete this once-in-a-lifetime experience. To Carmyn, Sophia, Charlotte and now Adele: you may not fully understand the craziness of your father's dreams some days, but I am forever grateful for the opportunity to feed my mind and I hope this curiosity of life will be shared with you over time.

I'd also like to thank my colleagues and supporters at the farm and the office who provided the stability and assured me that everything was in good hands. In particular, I would like to recognize Dave Jackson who carefully managed the farm in my absence. Thanks also to the National Bank of Canada, who demonstrated their part in being a committed agricultural partner by giving me the time and support to pursue this unconventional method of professional development.

It is important to acknowledge Dan Cornwall, who introduced me to Nuffield and encouraged me to consider the benefits it would offer in life and business.

To Nuffield Canada, who afforded me the trust to represent this organization on my quest and also to the international Nuffield organizations and scholars who hosted me, and more importantly, who organized the Global Focus Program.

Along my journey, I encountered numerous current and past scholars, friends of agriculture and strangers who provided guidance and personal insight into their own businesses. I will forever appreciate that they invested their time to speak, offered a bed for a night or a meal and most importantly, nourished my mind to think, analyze and ponder the potential of global agriculture. Those I was privileged enough to interview are acknowledged following the References section of this paper.

SPONSORSHIP

I am grateful to the financial and non-financial support of many individuals, companies and organizations.

Nuffield Canada was the principle sponsor of my travels and scholarship opportunity. To their many alumni, donors, sponsors and contributors, I appreciate the overall support by allowing me to inquire and better understand the realities of global agriculture, hopefully ensuring our Canadian sector is improved as a result of these studies. Furthermore, it was Nuffield's vast global network of past and present scholars that makes this a unique program.

Individual sponsorships from those closest in our inner network included those from Wallenstein Feed & Supply Ltd., Cuddy Farms, and Turkey Farmers of Ontario, who are all working to constantly improve the turkey value chain here in Ontario.

Professionally, I am grateful to the National Bank of Canada, who supported me financially and gave me the time to pursue my studies. They not only believe in supporting employees, but also business owners, and their reputation as the Bank of Entrepreneurs is well-deserved.

EXECUTIVE SUMMARY

Canada's supply management system often faces public pressure. To maintain support for this uniquely Canadian system, it is important that the entire value chain understands the risks, considerations, value and stability that supply management provides dairy and poultry producers, processors, and consumers alike.

RESEARCH PRINCIPLES

This research was guided by a set of four principles which guided my focus:

- In the value chain, consumers must be the primary consideration by which the market is evaluated.
- Within this social form of market organization (supply management), farmers, processors, and others in the value chain have an obligation to be efficient.
- Farming balances the interests of multi-million-dollar investments in agriculture and food production, domestic food security, and the need to satisfy rural communities, all while caught in the social, political, and economic crosshairs of policy development. Market history and cultural influences strongly impact production systems around the globe. There is no other sector which combines the social responsibility of feeding people with such large-scale economic potential.
- It is critical to find a balance between the need for political support (for the supply management system), with the need to depoliticize agriculture by defining a clear national agricultural policy, a National Food Strategy.

These principles were shaped by my work and research experiences, which confirmed that agriculture is changing, especially when it comes to meeting the needs of consumers. Canada should be a global leader of livestock standards of care, food safety, and customer confidence, such that Canadian supply managed farms can extract a premium price. Farmers must continually operate and invest in their farms as businesses and focus on measurable financial indicators and rationale-driven decisions, rather than having expectations of infinite market

protection. Processors, who hold the key to competitive markets, must also abide by the same level of investment. The supply management system provides stability over time, and given Canada's smaller consumer market, aids in the long-term investment needed for agricultural competitiveness.

I also recognize the difficulty inherent in the last principle. Depoliticizing agriculture is a challenge, given the perception that government help is 'required', and yet the development of a National Food Strategy will help to guide and set long-term direction in the future of commodities. Change is inevitable. Denying all change is a step in the wrong direction. Populations and economies are evolving globally and so are the needs of Canadian consumers.

RESEARCH QUESTION

Does supply management continue to serve as a relevant form of market organization, based on the parameters of efficiency, innovation, and consumer demand?

KEY FINDINGS

My research, which integrated high-level data with on-the-ground interviews with people working in food production in 14 different countries, led me to five key findings:

1. Every country has unique non-financial signals, such as history and context, which shape their respective agricultural policies. Farming and food production have cultural, social, and economic implications, and most countries maintain certain support mechanisms for rural and agricultural resiliency.
2. In developed countries, agriculture is less about food security and more (increasingly, in the global marketplace) about food provenance: a critical value in consumers' expectations. Consumers want to purchase domestically produced food.
3. Supply management is a 'Made in Canada' solution and has the unique potential to include every member of the value chain at the table. Although it is 'okay to be different', supply management remains a vulnerable marketing system which is pressured by external trade forces, as well as the internal pressure that comes from comparisons to a cheap US food policy.

4. Consideration is needed in two specific areas. First, the ongoing development of a Food Policy for Canada (Government of Canada, 2019) should depoliticize the supply management sector while demonstrating its continued economic value. Second, the need to shift away from quota value as a leading metric of economic importance on farms, since it only serves to further disconnect farmers from the development of rational decisions. Instead, farmers could focus on cost of production and investment on the farm through rationalized economic metrics such as returns on investment, which align with traditional business metrics.

5. All value chain members have an obligation to continually adapt, improve and meet consumer needs. Each sector, while necessarily looking out for their own best interest and sector goals, should balance this with a collective focus. This also includes banks and lending institutions, who must demonstrate courage and responsibility as they remain mindful of the political support that is required.

DISCLAIMER

This report has been prepared in good faith but is not intended to be a scientific study or an academic paper. It is a collection of my current thoughts and findings on discussions, research and visits undertaken during my Nuffield Farming Scholarship.

It illustrates my thought process and my quest for improvements to my knowledge base. It is not a manual with step-by-step instructions to implement procedures.

Neither The Nuffield Farming Scholarships Trust, nor my sponsor, nor any other sponsoring body guarantees or warrants the accuracy, reliability, completeness or currency of the information in this publication or its usefulness in achieving any purpose.

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INTRODUCTION

1.1 Purpose and Impact of this Study

The assessment and impact of understanding different marketing systems is often oriented toward the farmers' perspective. I would argue, however, that the most important aspect of the value chain is the consumer. In other words, producers must remain focused on meeting consumer needs by focusing on the quality, variety, and price-based attributes that consumers demand. The goal of this report is to ensure that farmers and those they directly interact with, such as suppliers, processors and government officials, understand how food production remains a balance between economic, social, and cultural values.

Figure 1: The author's home farm in Norwich, Ontario, Canada

Given that Canadian dairy and poultry farmers producing food under supply management have operated for decades under the provisions of market protection, pricing management and supply control, they have benefitted over time from market stability. However, providing farmers with a global perspective of what other farmers must do to exist, compete, and thrive is important because the global trade of agricultural products is continually evolving. With increased imports of foreign food products entering Canada every year, international

competition in supply managed markets may not be imminent. In the long term however, it may be something dairy and poultry farmers will confront with increased regularity.

The long-term future of supply management is uncertain, but the Canadian consumption of dairy, eggs, turkey, and chicken is certain, and remains stable. As such, this report seeks to evaluate whether Canada's supply management system is efficient and innovative. This includes comparing production systems and value chain organization to determine whether consumer needs are being met.

However, the purpose of this report is not solely to promote the merits of supply management nor to simply identify why the system has worked for five decades (at least in the eyes of Canadian farmers). Additionally, I seek to be transparent in acknowledging the fragility of the system and identify challenges within it, as well as recommend considerations which all members in in the value chain might consider as the system evolves in the future.

Given that over 20,000 Canadian farms depend on supply management as a form of market organization, it is critical that this system is thoroughly assessed. This study seeks to provide a comparative perspective in order to determine whether it is efficient and innovative enough to be able to meet consumer demand.

1.2 Study Method and Approach

Nuffield Scholarships allow individuals like me to travel, network, interview, discuss and engage with individuals and business managers about their strategies and perspectives on operating a successful business. The research was conducted by interviewing a host of people from farmers, retailers and members in the value chain, including processors, marketers and advisors who are passionate about their farming systems and market strategies.

The research was conducted between March 2016 and April 2017 with planned travel through 14 different countries. This report highlights research conducted in countries that share

production similarities in dairy and poultry production, including the United Kingdom, Ireland, Holland, Australia, New Zealand, and the USA. It also includes a broader perspective on how food is consumed through countries in Asia, including Singapore and India as well as the Middle East (Qatar and Turkey). Additional farm visits throughout France, Germany and Belgium helped provide additional understanding of the global diversity of farming practices and distribution models. These international farms and systems were compared to our farming systems here in Canada.

Figure 2: Cattle at James Stewart's dairy farm in Bunnythorpe, New Zealand, April 2017

The research was observationally based. Interviewing and questioning occurred by engaging with people to encourage them to openly share their experiences, ideally creating an understanding of the historical, cultural context, and financial realities of their individual businesses. This informal method of research focused on the real-life, firsthand experiences of people and business owners.

Using this method allowed me to extract a set of best practices from real-life examples, which can be adapted to Canadian supply managed industries.

Canadian media promotes the merits of foreign countries (especially Australia and New Zealand) who 'do better' in milk and poultry production and often makes comparisons with the European deregulation of quota systems in 2015. This suggestion, that we should consider that model of free trade and full deregulation of food production in Canada, is in part why I traveled to these countries in particular: to further understand these regional differences in production.

WE MAY HAVE OUR OWN UNIQUE CULTURE, ECONOMIC SYSTEM, GEOGRAPHICAL LOCATION, AND HISTORICAL TRADE RELATIONS, BUT WE SHARE A COMMON GOAL OF MEETING CONSUMER NEEDS.

Assessing non-financial signals such as history and culture and its importance on food production became an important element in understanding market systems. Culture influences how decisions are made from the farm, through the value chain, to processors and retailers. Culture belongs to consumers and as consumers remain the principal focus of all value chains (organized or not), culture influences agricultural policies. Ireland, the United Kingdom and New Zealand are leading dairy-producing countries, yet they are vastly different in how their industries have evolved over time.

Supply-managed farmers are notorious for referring to the benefits of quota systems, for farmers, but there needs to be a more obvious benefit to consumers if the system is to remain relevant and worthy of continued government support. ‘Efficiency’ and ‘innovation’ may be overused and misunderstood terms, but they are nevertheless critical characteristics of the value chain and help differentiate the production methods and market organization across regions. This report considers how these concepts represent important similarities to other marketing systems, thus allowing the uniquely Canadian system to remain relevant, even beyond farmed products, in a broader context. This includes product marketing, technology adoption, and decision-making at all levels of the value chain.

The opportunity of this mind-opening, life-influencing journey led to me realize, somewhat cynically, that the world is a complex mixture of social, cultural, and economic systems in which each country is seeking to optimize its own individual interests and goals. Fortunately, this cynicism does not reflect on the program or my experience. Rather, I found in the process of my travel, networking, and search for an answer, that there is no single 'answer' when it comes to the value of supply management, especially in an increasingly global marketplace. Rather, they are a collection of perspectives that all weave unique stories of food production around the globe.

2.0 STUDY FINDINGS

2.1 Introduction

What is farming culture and how does it impact agricultural policy? I would suggest that it is similar in many ways to other farming nations, and includes a connection to the land, a desire to produce quality food in tandem with care and respect for the environment, encompassed by a strong desire to live a rural lifestyle. However, this one-sided definition falls short in that it only includes those who are directly involved, invested, and committed to food production whereas broader context includes the broader population of consumers. This disconnect between farm policy and consumer needs was fully examined at the Contemporary Scholars Conference held in Cavan, Ireland in March 2016.

An entire Nuffield report could be written solely about the challenges, relationships and stark differences of farming and marketing within the European Union (EU). The notably different cultures, histories and business organizations of Ireland, the United Kingdom (prior to January 2020) and Holland all operated within the same EU trade body.

Prior to 2020, dairy and poultry production in Ireland, the United Kingdom (UK), and Holland was all sold on the free market. Like most countries, the vast amount of food is sold into the

domestic markets. Historically, poultry production has been on a contractual basis with farmers, free from organized markets and reliant on large corporate food companies' willingness to pay and assume the risk. However, dairy production has a nearly 30-year history of a form of orderly marketing whereby production was managed through a quota regime. This changed in 2015 when the markets were fully deregulated (Zeng et al., 2017).

The deregulation of quotas has had varying impacts on these respective markets, with a country such as Ireland adapting to the change, coupled with the benefit of their climactic advantage. In comparison, deregulation caused stress in the UK markets, where the traditional cost of production is higher. The Dutch model witnessed increased milk production, but also experienced limited growth under the imposition of a phosphorus (manure) quota to manage the environmental challenges posed by livestock intensification.

The following sections will look comparatively at several different farming systems in different counties, both inside and outside the EU: Ireland's dairy system, the UK's dairy and poultry systems, Holland's egg production system, and New Zealand's (NZ) system of dairy production. I will summarize these findings with a comparative analysis (Section 2.6) of their respective efficiencies and innovations, with respect to consumer demand.

2.2 The Irish Dairy System

Historical Context

The current Irish dairy system is an example of how uncertainty and challenge can create positive change. This change is in reference to the great economic crisis of 2007-2008, when the Irish technology and real estate sectors negatively impacted the economy, coupled with an opening of the dairy markets through quota deregulation during the same time period.

With the support of government, dairy cooperatives, and the industry in general, Ireland was able to respond positively and proactively as the country prepared itself for a significant

transition: the deregulation of the dairy sector across the European Union in 2015. Change for any sector is never easy, however the Irish dairy sector succeeded in this effort, as Michael Hanley, CEO of Lakeland Dairies, told me in an interview in 2016 (Michael Hanley, personal communication, March 2016). He spoke about the importance of collaboration in the cooperative movement that witnessed both farm and processing investment made in Ireland. Rationalizing the term 'turnover is vanity and profit is sanity', Mr. Hanley exemplified the focused approach to developing a profitable dairy sector, capable of global competition.

Ireland has a very temperate climate, similar to New Zealand, with mild winters, and strong rainfall during the summer, allowing for a more enhanced grazing type of dairy system. Ireland currently has about 18,000 dairy farmers with an average farm size of 80 cows, about 1.4 million cows in total. This is an increase of nearly 300,000 cows over the past four years since deregulation (AHDB, 2022).

Within the European Union, Ireland competes directly with many of its neighbours, including access into the British market, and global markets such as China and other countries in Asia. The elimination of milk quotas, as announced in 2008 and implemented in 2015, has seen a rise in the number of farms with more than 100 cows, and a notable decrease in the number of farms with less than 50 cows. Furthermore, in 2015, milk production increased by 14% from 2014, and there was a noted improvement in milk quality under the open market system (Zeng et al., 2017).

Ireland exports approximately 85% of its dairy production, representing a total of greater than 3 billion Euros in 2013. This export market is comprised largely of cheese, infant formula, milk, cream, and dairy ingredients. As such, this small country ranks as the tenth largest exporter of dairy products in the world (Enterprise Ireland, n.d.).

It is difficult to confirm the degree of support given to farming by the Irish population, but what is clear is that the Irish are enthusiastic about their 'green-branded' food. Irish food companies

all seem to be part of the lean, green, Irish marketing machine which emphasizes food safety as part of the branding of domestically produced goods. Most impressively, the Food Academy at SuperValu (a major supermarket chain) allows small, local Irish food products to earn space on its shelves. In March 2016, it was a unique experience for me to visit stores in Cavan, Ireland to learn firsthand how local dairy and meat products were on store shelves of a large retailer in Ireland, again, promoting the value of Irish-produced food.

Figure 3: 'Food Academy' brand, locally-produced food sold at national retailers, County Cavan, Ireland, March 2016

Farming and Production Systems

My assessment of the Irish farming culture is threefold. First, it is a long tradition of land ownership and agriculture. Second, the Irish consumer's understanding and desire for locally grown food. Third, the support of a government that knows full well the importance of agriculture and agribusiness that kept the economy afloat during the past recession. Irish agriculture is enjoying a renaissance of sorts in that farm-to-fork is alive and real, as Irish dairy goodness is exported to the European market.

Situated in the Atlantic Ocean, this small island-based economy of less than five million people, with the UK and the EU at its doorstep, embraces its strengths while leveraging its strong farming culture. Ireland is a country in which the connection of food and farming have aligned, but the Irish farming culture comes with its own unique set of opportunities and challenges.

Systematic and strong agricultural education and vocational training was evident on my visit to Ballyhaise Agri College in County Cavan, in March 2016. I was hosted by the principal of the school, Mr. John Kelly, who suggested that although an older generation of farmers may not make sophisticated changes in their farming businesses (compounded by the fact that land is rarely traded), farmers are not forced to adapt. Instead, education from the agriculture governing body, Teagasc, is looking to train younger farmers and enhance their knowledge to directly facilitate change and ultimately encourage progressive business growth by making the best use of land to produce food (namely dairy products) for export, to gain a better return on investment for this Irish land.

Despite the complexity of the EU farm support system, Ireland's government has developed a property tax savings scheme for farmers willing to rent their land whereby the income from the rented land is tax-free. This allows the land to be used more intensively, allowing farmers to increase productivity and support the long tradition of family land holdings, especially since scaling up is necessary to compete within the EU since market deregulation in 2015.

As such, if the benefits of deregulation are measured by productivity and output, deregulation resulted in a measurable benefit for Irish farmers, particularly around herd size, production volume and milk quality (Zeng et al., 2017). Moreover, Ireland was able to leverage its moderate climate, cooperative farming model and existing domestic challenges such that despite the financial crises of the late 2000s, it became a leading exporter in dairy production.

Agriculture has been a major engine of the Irish economy for the past ten years and has supported the economy as it faltered through a deep recession. To combat downward economic trends stemming from the 2008 global recession, Irish agribusinesses developed market opportunities to export food, especially dairy products. John Moloney, Chairperson of FoodWise 2025, a 10-yearIrish food strategy developed in 2015 that includes 350 recommendations (Government of Ireland, 2020). Authored by 35 stakeholders, the strategy was adopted by the Government of Ireland to support further growth of the Irish agricultural industry. It focuses on certain sectors, with the goal for the dairy sector to double its output over the coming ten years. Although a great concept and framework advanced by politicians is noble, one might question whether an entirely dairy-centric strategy is appropriate. The unique aspect I would like to highlight here is the collaborative approach of industry, government, and industry stakeholders to identify and provide a framework for a 'Made in Ireland' competitive advantage in food production.

In contrast to dairy production stands Ireland's poultry farming, which has never been regulated. I will very briefly discuss it here. The limited number of poultry processors and limited grain production for feed, creates a very different environment. In fact, I made it a personal mission to seek out turkey production in Ireland, only to find that the sole turkey processing plant in Ireland was shuttered in 2016 due to uncertain and unstable markets. This minimized my ability to understand any regulated sector outside of the dairy industry.

2.3 The United Kingdom Dairy and Poultry Sector

Historical Context

As in other parts of Europe, the UK dairy sector fully deregulated in 2015. Although the British sector underwent various forms of market openings for 10 years prior to 2015, these liberalizations of the markets have proven challenging for UK dairy businesses. From 2009-2019, the total number of dairy farms has decreased from nearly 12,000 to approximately 8,600 (AHDB, 2022).

Despite the nearly 30% decrease in the number of British dairy farms, the total volume of dairy produced in the UK continues to grow with approximately 5.5 billion litres of milk produced annually, an increase from 5 billion litres in 2009. The significant growth occurred in 2015, the same year as market deregulation. My March 2016 travels included visits to the dairy farms of George Holmes in South Devon, who milks on multiple sites, as well as to Robert Gray in central Scotland where he milks Jerseys, and to Alistair Laird in southern Scotland. The themes for all three were growth, cost management, and focus on processor relationships. Undoubtedly, processors were putting farmers under pressure by setting volume and pricing pressures, which was in a way symptomatic of a sector in transition.

Figure 4: A mob of calves, seasonal calving on the dairy farm of George Holmes, Dorchester, UK, March 2016

Without being explicit and in keeping with farm-visitor confidentiality, it was shocking to hear of the deteriorating relationship between farm and processor. This time was particularly volatile for the global dairy market. To this point, a large UK retailer was insisting on seeing the financial profitability reports of the farmer, as one point of negotiating a price. Unheard of in Canada, this was creating elements of mistrust, penalizing those farmers who could produce milk more efficiently.

Furthermore, the average price of retail milk in stores has decreased from 0.68 pounds per litre down to 0.58 pounds per litre. Interestingly, an argument can made demonstrating that market liberalization has lowered the price of milk, likely due to global competitiveness, yet all farmers know that the costs of all aspects of farming continues to increase year after year, thus reduced on-farm margins are a struggle for many dairy farms in the UK (Statista, 2022).

Farming and Production Systems

With the vast majority of all the countries that I had the privilege to visit, I found that consumers do prefer to consume domestically produced goods marketed with regional brands and the UK was no different, as observed on two visits in March and April 2016. This includes the Red Tractor Assurance brand providing British standards for domestic consumers. The British farming model is steeped in tradition, with varying infrastructure scattered throughout the country, with little regional concentration. Over time, the deregulation of markets has posed challenges for producers in the north who do not have access to markets. It has been even more challenging for farmers who have not reacted to the requirements of change with further market liberalization.

Fragmentation is the one word I would use to describe the dairy sector in the UK. I use this word to describe the drastic geography in which milk is produced, from the south of England to the north of Scotland, to the size, technology and milk price paid to farmers. It is variable and inconsistent, as proven through the visits with Holmeses, Grays, and Lairds.

In April 2017, I was hosted at the Royal Agricultural College in Cirencester, England by the late John Alliston, the former Dean of the Agriculture College. It was a return to a place where I spent a school year a decade and half earlier, and my visit served as a quick reminder of the history and heritage associated with British agriculture. Unlike anywhere I travelled, agricultural policy was entwined with environmental stewardship, perhaps to a point where the social value prioritizes the economic value.

IT WAS EMPHASIZED HOW IMPORTANT IT IS TO FIND A BALANCE BETWEEN THE LAND, ITS INHERENT NATURAL QUALITIES, GENERATING PROFITS FROM THE LAND, AND MAINTAINING IT FOR THE SOCIETAL AND ENVIRONMENTAL BENEFITS OF THE COUNTRYSIDE.

Outside of dairy production in the UK, the poultry sector is heavily reliant on vertical integration as the main form of market organization. Although this report seeks to examine the realities of supply managed commodities in Canada, understanding how production occurs in Europe is essential. Never regulated, the UK poultry sector, both broiler chicken and turkeys, relies on meat processors to offer contracts to farmers to grow out and finish the poultry products. The placement of said birds is dependent on the slaughter capacity of the plants. Farmers do not take ownership of the birds or feed, instead they are only responsible for maintaining housing and wellbeing of the livestock under their care.

UK poultry production is typically a vertically integrated system with large corporations offering contracts to farmers to grow both chicken and poultry. These large businesses include Cargill and Faccenda Foods Limited, who both specialize in selling fresh and processed poultry meat in the UK, produced on farms under contract.

The UK poultry business is approximately 75% self-sufficient in terms of broiler meat production, and therefore nearly 25% of poultry consumed is imported into the country. These imports are coming largely from within the EU and in particular the Netherlands. That said,

imports from other countries such as Brazil and Thailand create a real threat for low-cost proteins entering the market based on price alone.

Since 2000, broiler numbers have dramatically increased from 760 million head to over 1 billion in 2017. The turkey market remains much smaller with headage at 27 million in 2000, which declined significantly to 14 million in 2017 (AHDB, 2018).

2.4 Egg Production in Holland

Historical Context

The poultry sector in Holland has not been an example of market regulation. However, like all livestock farms in Holland, limitations to the amount of manure that can be produced is a leading factor in farm size, output, and potential growth of farming businesses. An important factor in all Dutch farming is the emphasis on efficiency, production, and output, given the limited land base in that country. The Dutch dairy sector did previously have a quota system in place, similar to other European countries, however the deregulation that impacted the EU had similar impacts on Holland. The Dutch have notoriously focused on maximizing their returns from limited resources.

Figure 5: Roy Tomesen's unique egg vending machines, Doetinchem, Netherlands, April 2016

In regard to poultry production, my focus here was on both turkey and egg production, although given that (as in Ireland) the only turkey processing facility was shuttered in Holland and all live birds were marketed to a German buyer, the findings were somewhat slim. This also reflects the extremely low amount of turkey meat in people's diets.

Egg production in Holland is a challenging and highly competitive business. With Dutch egg producers still leading the export market in Europe, its farm numbers dropped from 2290 to 1170, between 2000-2014. Based on one report from Zootecnica International (Windhorst, 2016) Holland is deemed to have over 300% self-sufficiency, and thus its core focus is on exporting egg products.

Farming and Production Systems

The strong export market for Dutch eggs means that eggs are predominately sold into the German market. The European Union set a policy that would see a sharp reduction of cage produced eggs. These include enriched cages, which are considered the gold standard in Canada.

The German demand and early adoption of the cage conversions meant that the Dutch supplied a large portion of the German market with their eggs, often being white, enriched caged eggs. Because Dutch consumers remain very focused on efforts around animal welfare and sustainability, all eggs consumed in Holland are free run, brown eggs. There are no eggs produced in battery cages in Holland.

Figure 6: Roy Tomeson's farm sign, Doetinchem, Netherlands, April 2016

My host in west Holland near Doetinchim was Roy Tomesen. Roy had a large egg layer operation with two streams of production to meet the challenges of consumer demand. One operation was free run brown eggs for the Dutch market. A few kilometers away was the other operation with enriched cages producing white eggs for the German market. Holland is a great example of consumer pressure influencing demand at the same time as farmers were adapting to meet this change in an effort to remain viable and hopefully retain a profit margin.

2.5 Dairy Production in New Zealand

Historical Context

New Zealand is known around the world for its dairy production, use of intensive grazing and production of milk with virtually no subsidy. This system was largely organized by the evolution of the dairy cooperatives. In the early 1980's, New Zealand radically changed its production

systems from an organized marketing regime of coordinated supply, to one which participated in the open market. Many farmers of the day commented on the challenges faced by farmers who were having to compete with price volatility, largely driven by the world pricing of milk, which in the short term had farmers reacting to significantly lower prices in milk.

This shift of orderly marketing to the free marketing of milk has dramatically shifted how farmers manage their farm businesses, focus on financial returns, emphasize efficiency, and ultimately compete on a global scale. The transition of the New Zealand system has witnessed increases in farm size, the conversion of arable and grazing land into dairy paddocks, and the consolidation of milk cooperatives. There is one publicly traded but farmer-owned cooperative, Fonterra, which essentially has a monopoly over the domestic and export marketing of milk in New Zealand.

Figure 7: Map of Fonterra Operations, New Zealand, April 2017

Farming and Production Systems

Since the deregulation of milk quotas in New Zealand, its industry has continued to evolve. Based on statistics provided by Dairy NZ, the country's dairy recording and information management company, the total number of dairy herds has decreased from approximately 15,700 in 1986 to approximately 11,590 in 2018. During this same time period, milk output has increased from 6,700 million litres to 20,724 million litres, with average farm sizes increasing from 147 to 431 cows (Dairy NZ, 2018).

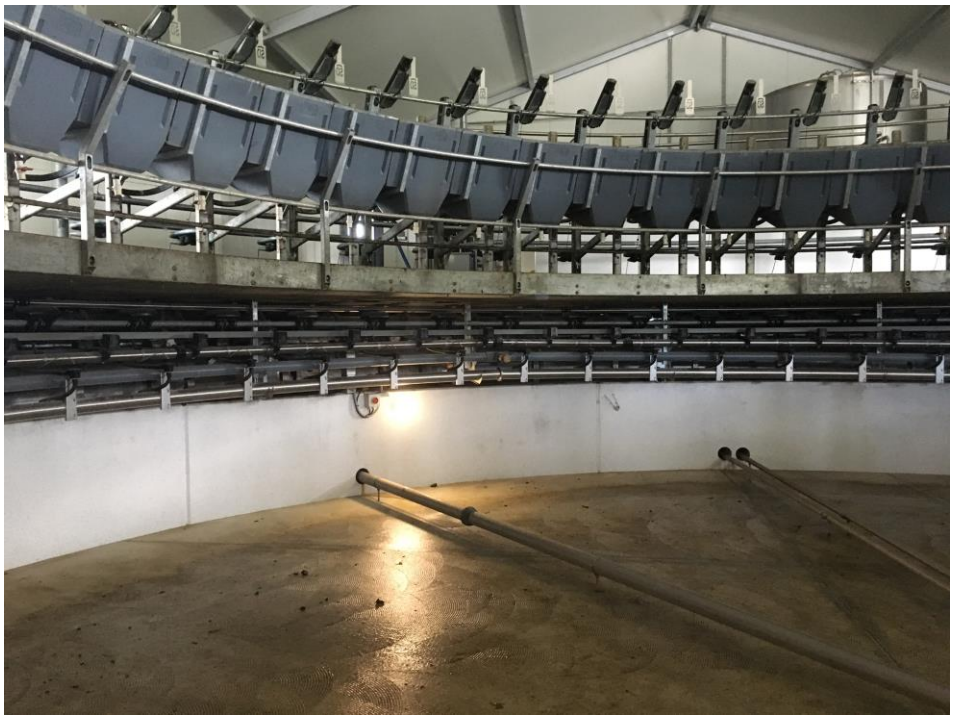

Figure 8: Facilities at James Stewart's dairy farm in Bunnythorpe, New Zealand, April 2017

Like all countries around the globe, land utilization is key to food production. New Zealand has gone from using about 1 million hectares of land for dairy production to approximately 1.75 million hectares of land, with land values for dairy trading in a range or $31,000/ha to approximately $38,000/ha, which represents the largest asset cost to dairy farming. As such, the ownership structure of NZ's dairy farms is approximately 60% owner operators, 12%

contract milkers, with 27% being reported as share milkers. The past decade has seen a decrease of share milkers by approximately 9% with a gain of owner operators.

Milk pricing payouts are ultimately a key driver to any successful business. The payouts in 2013-14 peaked at $8.82/kg of milk solid, bottomed in 2016-2017 at $4.44/kg of milk solids on the back of the global dairy crisis and have since returned to approximately $6.68 last year where estimated break-even costs have historically been around $6.50/kg for milk solids (Dairy NZ, 2018).

New Zealand's dairy production systems are exclusively outdoor, pasture-based systems with the largest asset for expansion being the land itself, which is used for grass production. Culturally, New Zealanders are focused on the economic returns on a per hectare basis, as they view this as their limiting factor in production.

In other words, farmers who historically produced sheep or beef underwent 'dairy conversions' where they converted their land for dairy grazing and constructed the necessary milking parlours and handling facilities. Using a return method based on acreage, farmers were more inclined to potentially convert their farms to higher value crops such as horticulture if they felt they could increase their returns. Therefore, many of the dairy farmers that operate today are first or second generation dairy farmers, compared to other nations where this tends to be a longer-term, multi-generational family business.

Benefitting from the temperate and sub-tropical New Zealand climate, dairy production is based on a systems approach to seasonal calving, feeding through the pasture growth and drying off in the winter season when feed is less plentiful. Certainly, the challenge of this dairy system is that with the product being exported, the volatility of milk production means the infrastructure required to dry, process and export dairy products is essential, due to the limited domestic population of approximately 5 million people.

2.6. Efficiency and Innovation: A Comparative Analysis

In this section, I compare efficiency and innovation in dairy and poultry production, across four countries: Ireland, the UK, Holland, and New Zealand.

Ireland

The Irish dairy sector addressed change, developed markets, and evolved in the face of deregulation by virtue of the overall cooperation of the sector, industry, and country. The elements of efficiency do not relate to farm size or productivity, as they are generally limited by small acreage holdings that limit growth, however farmers I interviewed did share a common focus on cost management. The farming model focuses on low output production, based on grass as the main feed source with an emphasis on a positive returns. As such, efficiency is about using one's own natural advantage and climate, to produce milk cost-effectively.

A longer-term competitive advantage related to change management is the promotion of 'study groups' where farmers discuss and share best practices. I attended one of these study groups hosted by Trevor Dunwoody, who did a walk and talk session where he shared that participants in these groups take home an additional 2.5 Euro cents per litre of milk sold. They focus on learning from one another, sharing ideas, supporting each other, and benchmarking their performance.

I credit the Irish for their innovation. Since innovation is about taking a process or problem and thinking differently about it, the dairy sector addressed this challenge head on with their national food strategy, Foodwise 2025. By aligning the entire value chain, anchored by farmers and dairy cooperatives, and supported by industry and government, they were able to invest, adapt and enter new export markets to allow their dairy sector to compete on the global stage. Lakeland Dairy Cooperative is a good example of a long-term processing investment that will benefit processing for domestic and export use of dairy products. The pace of change from the announcement of deregulation in 2008 until its implementation in 2015 was a relatively short span of 7 years.

Consumer demand in the Irish dairy sector has always been relatively strong with their 'green' branded dairy products. However, an enviable focus of their sector is the large amount of infant baby formula exported around the globe, including to Canada. By developing a value chain focused on quality assurance, they branded a high value product with global demand.

The United Kingdom

The United Kingdom is a country with a large population which generally prefers to support British farmers as their primary source for farm products. The UK now competes in a global marketplace and known costs of production are often higher than in neighboring countries such as Ireland and Holland, where milk can be produced for less money. British agriculture has strong consumer demand as its leading factor in potential long-term viability. However, from a Canadian perspective, I think we can learn from this lesson too: as countries face external trade challenges, focusing on the domestic market can provide a degree of stability.

Factors of efficiency and innovation are not words that I would generally associate in broad terms with the farming sector. Rather, they are terms that individual farmers will seek to use to grow in size and scale, and to reduce costs so they can compete longer term on a global scale. Therefore, a further consolidation of farms will continue to occur in the UK as an example of a country reacting to deregulation, as opposed to its more proactive trading competitors.

My observational conclusions of farm consolidation were founded by meeting with and interviewing multiple farmers who felt the need to acquire second, third and even fourth sites of production. These additional farms usually become available for sale or rent given the pressure on low margins and the need for scale. Furthermore, when meeting with one of these consolidators, Wallace Hendry from Scotland, he shared concern over the challenges of variability of milk pricing schemes, but also spoke about farmers who had contracts dropped. This variability in milk pricing led to the creation of 'milk brokers' who seek to fill market demand when pricing peaked. However, with rapid volatility, these brokers have been quick to

cancel contracts. Because of this, an overall emphasis on farmer/milk processor relationship is inherently invaluable.

Outside of the traditional supply managed production of dairy, poultry meat production in the UK occurs in a vertically integrated system. Based on the strong domestic demand for meat, supported by profitable processors and largely driven by meeting consumer needs, vertically integrated meat production is an acceptable and practical way of producing food. It is the role of the relationship between the consumer, retailer, and processor to meet consumer needs.

INCREASINGLY, CONSUMERS ARE ASKING DOWN THE VALUE CHAIN FOR ETHICAL AND SUSTAINABLE WAYS OF POULTRY PRODUCTION, WHICH HAS RESULTED IN CHANGES SUCH AS THE INCLUSION OF WINDOWS FOR LIGHT IN BARNS, WHICH FARMERS ARE ABIDING BY.

Growing livestock in a facility as part of a vertically integrated system does not necessarily enhance efficiency, but rather provides a more guaranteed income based on production size. The greatest risk for producers is the likelihood of processors maintaining or cancelling one's contract to produce food. This is the single greatest concern and the greatest risk of vertically integrated systems, especially with fewer and fewer processors. In the case of chicken, additional sheds are required and in the case of turkey, fewer barns are needed. In fact, some sheds are even being converted over to chicken production.

Holland

Free market organization in egg production in Holland has led to a market-driven, export-oriented, low-value form of production. With a focus on efficiency, innovation, and consumer demand, it appears as though the Dutch are leading on all three fronts, with the exception (potentially) of profitability in egg production.

Efficiency and innovation go together in Dutch egg production, as farmers have long moved away from any sort of battery cage system that we have seen here in Canada, even to the point of having systems of enriched cages frowned upon. It is difficult to know if the farmers themselves are innovating or if consumer demand is driving the change. With most production in Holland transitioning to free range systems where the birds are allowed to roam the barn, managers must be astute to ensure that production and profitability standards are met.

The enhancement of genetic potential is being fully maximized on Dutch egg farms, where the productive potential is aiming for up to 500 days. Comparatively, Canadian egg producers turn birds over after 365 days, because our system dictates that change. I met with Antoon Van Den Berg, CEO of Hendrix Genetics, on a visit to their corporate offices in April 2016. It was clear from this visit that their primary objectives were to maximize production and adhere to the sustainability demands of consumers.

One can argue that farmers have been quick to respond to consumer demands by changing production systems from caged to non-caged systems. However, as quick as farmers are to change, some producers in Canada would argue that these requirements are not needed because enriched cage systems produce high quality, high animal welfare eggs. Whether Dutch egg farmers have driven or reacted to consumer demands is unclear, however with no eggs produced in cage systems, there is a clear preference for free-range eggs in the Netherlands.

Dutch egg producers have embraced a clear branding strategy that identifies eggs based on the level of sustainability: eggs are graded as 1, 2 or 3 star eggs. A 1-star egg is produced in an aviary style barn system with conventional feed and no access to outdoors. A 2-star egg allows birds access to the outdoors, and a 3-star egg increases the feed to an organic mixture with access to its most natural environment. In contrast to Canada, bird raised in an aviary style barn, which is gold standard in Canada does not even warrant a star rating in Holland.

My visit to the Roundeel™ Egg Farm in Barneveld, Netherlands was an interesting and informative experience. The farm uses a proprietary system to meet the consumer demand for animal welfare in egg production, called the Rondeel™ house, a circular building with 'day' and 'night' quarters which houses 30,000 hens. The design was conceptualized and funded by the Dutch government. Rondeel™ house eggs are endorsed by a Dutch animal welfare organization, and sold in distinctive round, natural fibre packaging which clearly identifies it to the consumer as a special product. As well, there is a emphasis on promotion, communication, and visibility to the public, including a visitors aisle which allows visitors to the house to see the birds. This unique concept shows the capacity of farmers to continually evolve to meet consumer needs.

Figure 9:Natural fibre packaging of Rondeel Farm eggs, Netherlands, April 2016

Figure 10: Unique packaging marketing Rondeel eggs as a special product, Netherlands, April 2016

New Zealand

Comparing dairy production in such a northerly climate as Canada to our southern peers in New Zealand is nearly impossible due to the stark differences of production agriculture. Very few Canadian dairy cattle can be grazed. However, I draw the following conclusions on efficiency:

New Zealanders are by and large focused on economic return, examining key metrics such as return per hectare, and focusing on reducing costs in systems which essentially still have a price setting mechanism, such as Fonterra, the dairy cooperative. New Zealanders can produce milk at a lower cost per litre because of their outdoor pasture-based systems approach. In comparison to the Canadian dairy market where we fill predominately domestic markets for our 35 million population, we are looking for year-round, not seasonal production. As such, deregulation has likely created a cheaper way to produce milk.

Interestingly, despite the reduced cost of production, New Zealand consumers pay as much or more for their milk than any developed nation I visited. This is admirable and indicates that the relationship between processors and retailers has kept the price of milk relatable to consumer demand, instead of retailers minimizing the margin. Furthermore, the distrust between consumers and farmers is ever increasing because of the perception of environmental degradation, poor land stewardship, and prioritization of economic returns. This poses a great challenge for New Zealand agriculture as a whole and demonstrates how some profits from time to time need to be reinvested into the land for long term sustainability.

Innovation can be difficult to measure. On farm, farmers were using milking equipment comparable with the rest of the globe, but my perception of innovation comes in the form of two factors. 1) Business ownership: there is a strong need for capital and a need to attract new entrants into the dairy sector. As well, the variety of farm management practices between owner-operators and share-milkers demonstrates the flexibility to attract new talent compared to the Canadian system, which is inherently reliant on the high cost of capital to enter, and thus we find the predominance of family businesses. 2) Impressive construction of processing infrastructure: this is in part due to the high fluctuation of seasonal production, but also the need to efficiently process milk for export into Asia as a key element of differentiation.

3.0 DISCUSSION: The Canadian Supply Management System

In this section, I discuss how the global assessment of differentiated markets, including dairy and poultry production around the globe, can be compared to Canada's supply management sector. I valuate Canada's use of production quotas for farmers and examine how this global production can be compared to Canada's smallest supply management sector, turkey markets. I expand on my comparative analysis (in the previous section) by further explaining the concept of obligation and efficiency as they relate to members of the supply management chain.

3.1 Perceptions and Implications

The price of food is influenced by a combination of global prices and domestic factors, however, nowhere else in the world does this function quite the same as it does in Canada's supply management regime, where that price is largely based on the domestic cost of production.
In an effort to understand both the perceptions and the implications (on Canadian farmers) of I interviewed farmers from many other countries about their perceptions of our system, and compared this to Canadian farmers' perceptions.

I found that international farmers brought up two common themes: first, they knew nothing of Canada's supply management scheme (particularly outside of dairy), and secondly, those that were familiar with it, thought of it as a heavily protected, farmer-friendly system. In contrast, Canadian farmers themselves have a perception that their own system is highly sought after and held in high regard. The reality was that internationally, people knew very little about it.

THE NUFFIELD EXPERIENCE HELPED CHANGE THAT BY ENGAGING GLOBALLY-MINDED PEOPLE AND OPENING UP AN AVENUE FOR UNDERSTANDING THAT COULD NOT OTHERWISE HAVE HAPPENED. IT ALSO REALLY OPENED MY EYES AS A CANADIAN FARMER WHO VALUES UNDERSTANDING BOTH SIDES OF THE CONVERSATION..

Among Canadian farmers, supply management is perceived as farmer-focused and a narrow-minded approach to meeting local markets wherein every person or business within the value chain receives a portion of the income. Its aim is to keep the power of price negotiation balanced among all players, including farmers, processors, and food production amounts, so as not to either over-supply or short the market. It is a Canadian solution, implemented to minimize uncertainty in the market.

Conceptually, the supply management principle is fascinating to international farmers and agribusiness people alike. The idea of wealth distribution, continual market access and group negotiation of prices paid for milk, turkey, eggs, and chicken sparked farmers' interest, especially in the price paid for milk and turkey to Canadian farmers. Conversations grew even more engaging when topics of farm size, which typically were modest operations in comparison to the farms I was visiting on my Nuffield journey. Furthermore, when I explained Canada's relationship to the US and its economic and geographic disparity in relation to its approach to agriculture, and the US Farm Bill, this provided context for the sheer size of the US population and the resulting vulnerability of Canadian farmers. In the next section, I will explain the Canadian quota system, its unique challenges, and its complex connection with the Canadian supply management system.

3.2 The Canadian Quota System in Supply Management

The increases offered by market growth and how these relate to quota increases, is a challenging but important concept to comprehend, since this is how farmers gain access to the market, and that is key to meeting market demands. Filling markets is the cornerstone of supply management. Farmers who sell surplus quota are injecting significant capital back into their farms to further reduce their debt, to invest, or to spend on other worthy items. The challenge with this, unparalleled anywhere else in the world, is the aggressive rise in the value of assets, particularly on the increased asset value on Canadian farmers' balance sheets.

In the case of poultry, farmers who choose not to expand or fill increases in market access, which translates to quota increases, are making rational decisions to benefit from the opportunity to convert quota into cash. However, the intention of quota is to benefit farmers who are taking the risk and doing the work. Based on the market price, the value of being 'in the market' is significant. The farmer who needs to sell has a far greater gain, compared to the risk the purchaser must take, given that poultry quotas have a return exceeding 20 years. In other words, there is no incentive to further create efficiencies, increase densities, or ship birds on multiple days to maximize the use of facilities. Rather, the quota metric is increased, which triggers new money to enter the market, which either leaves the industry or is further leveraged against for the purpose of expanding. To quantify this, average farmers benefit by tens of thousands of dollars per year with market growth and quota allocation increases. Nowhere else in the world does increased demand add money to a farmer's balance sheet.

The challenge of increasing balance sheets and rising quota values is a barrier to entry for new producers. As a young producer who benefits from the stability of the market, collective price negotiation, and participation in a sustainable sector, these factors need to be compared to the significant level of debt associated with entering the markets. Assessing return on investment and determining whether this makes long-term financial sense is a struggle for any new entrant into poultry production here in Canada.

If our domestic market grows, progressively minded producers will keep getting paid a similar amount of money and will choose to increase their farm size based on similar metrics to a foreign farmer. Furthermore, they may choose to purchase quota at a hefty cost, albeit one deemed reasonable with time, given the stability of the system. However, the farmer who chooses not to grow will have the benefit of cashing out of the market, ultimately for being a 'shareholder' in the sector.

Quota is also a key numerical value used to rationalize the support of the supply-managed sector. There are over $8 billion dollars of dairy quota in Ontario alone (Agriculture and Agri-

Food Canada, 2021) and of that, $5.4 billion is pledged to financial institutions as collateral security and can be perceived as lobbying leverage to the government. However, as market demand grows, so do the values of these quotas and the amplification of their values may be in an effort to enhance support for them. With 20% growth in the dairy sector from 2015 to 2019, the argument for support has been affected by an over $1.4 billion increase, based on increased quota allocations. This raises the question, who benefits from increased quota allocation?

Furthermore, it is known that farms will continue to consolidate (as they do in other sectors) but larger farms are able to grow faster than smaller farms. Both larger and smaller farmers' behaviour demonstrates that with a larger balance sheet, farmers can leverage these assets even further. Rather than simply looking at simple returns on increased milk or poultry production, the anticipation of growth is fuelling an unprecedented level of investment in the farm community. The mentality today among farmers is that if a unit of quota is purchased, within perhaps two or three years, it will have a value of 110%. This, therefore, creates challenges of speculation and the anticipation of market growth.

What is needed is a balanced approach when it comes to the management of quota policies, even amid seemingly competing interests. Farmers who are growing will look to drive quota values lower in an effort to acquire more of the market, while farmers who are exiting will be concerned about the market preservation of their quota values. Policy makers and board members of supply-managed sectors are also challenged, since one of the key components of their role is to fill the market with 100% consistency.

THEREIN LIES THE PROBLEM: THE GOAL OF THE BOARD IS TO FILL THE MARKET, BUT THE METRIC USED TO DESCRIBE THE SECTOR IS QUOTA. THIS IS A PROBLEMATIC NOTION WHEN IT COMES TO RATIONALIZING BUSINESS DECISIONS.

Farmers were engaged and open as I shared about the value chain organization, management, and profit distribution as being the true assets of being part of a sustainable value chain. However, the conversation changed immediately when I explained how the system is regulated through the use of (and cost of) owning quota to access the market, to the extent that not a single farmer I met was willing to say "I want your system". For most, the real challenge to the 'notion' of the Canadian supply management system was around sustainability and was twofold: political power is needed to maintain the system, and issues related to financial return go under-measured in Canada.

3.3 The Value Chain in Supply Management

Influences on, and relationships in the value chain are critical to farmers in Canada. For example, working with a hatchery and genetics company (indirectly) ideally allows for high quality, low mortality, and productive poults. Having accessibility to this genetic material, in addition to the corresponding knowledge and resources, is highly valuable to improving productivity and cutting costs on the farm. This is despite the cost of production and the set prices that are fixed for poult purchases, which help create the stability of supply management. The negotiating ability of farmers coupled with the support of input suppliers (including the feed sector) brings potential value to decision-making and influences the type of management that occurs on farms. The last three elements of the value chain (processors, retailers, and consumers) are by far the most complex relationships to understand, since these are the direct access points to the market. As a supply-managed farmer, one may ask, why go beyond caring about simply growing and delivering the required turkeys on the scheduled date for the prices which have been collectively negotiated by the board on their behalf?

The rationale for me, as both a turkey farmer and a banker, can be understood using the following six arguments:

1. Supply management depends on political support, thus it will only remain relevant as long as consumers are receiving a perceived value.
2. Per capita consumption of turkey continues to stagnate, which, compounded by population growth, creates a sense of market stagnation.
3. The high cost of associated quotas indicates further market opportunities which have not yet materialized. This creates uncertainty when one attempts to rationalize long-term returns on investment.
4. There continues to be a long-term lack of processing investment for product innovation, package sizing and product presentation, in that nearly half of Canada's turkeys are sold as whole birds at festive times of the year.
5. Consumers are heavily influenced by market and social pressures. Farmers (as consumers) see the challenges of product availability, placement, and lack of presence on store shelves and restaurant menus.
6. Animal agriculture and the meat protein market are vulnerable to the need for food quality but this is compounded by the need for high animal welfare through the value chain, in addition to the perceptions that anti-meat lobbyists promote.

For an outside, non-board sitting turkey farmer, perhaps the recommended course of action is simply to collect the price paid and allocation assigned for their turkey production. But as an entrepreneur, something may also feel amiss, beyond the challenge to grow the market. If the market continues to decline, the need and justification for supply management simply will not remain. As such, full cooperation between members of the value chain is required to regain the market presence of turkey in the effort to develop a long-term, sustainable market.

Below, I define the eight members of this value chain and describe each of their characteristics, the roles they play, their respective risks and benefits as value chain members, and their unique opportunities, challenges, dependencies on and stability within the value chain.

Value Chain Members

Genetic Suppliers

These are international firms with focused growth outside of Canada, they develop partnerships with hatcheries to supply high quality eggs and poults to markets with growth opportunities. This segment has varied risks and competitive forces due to their exposure to more volatile global economies and to diverse production facilities. However, the future of this segment is global and is thus influenced by worldwide turkey demand.

Hatcheries

These are strong and long-standing stable markets, with short-term challenges related to filling domestic needs. This is a particularly slow growing market in addition to the increased productivity, which is also seeing farmers growing fewer birds. However, international opportunity exists for egg exports into markets which value the high health standards of Canadian production, backstopped by the stability of the Canadian market.

Farmers

Within the Canadian system, turkey quota holders are bound by the production quota they hold. In markets of stagnant growth, production quotas allow for predictable returns, yet they do not necessarily allow for growth if growth does not exist. Depending on the timing of market entry, high debt levels may also be associated with the quota. However, stability is the rationale for market demand and price. Market growth limitations have historically impacted the ability of farmers to increase market share unless they are acquiring quota from retiring farmers, as part of the farm consolidation which is happening across sectors.

Feed Suppliers

These businesses have a diversified client list and turkey farmers represent only a subset of their client base. Arguably, mills are highly competitive and will compete aggressively for poultry business. However, their elements of stability are based around the certainty of supply management as a whole, not just in the turkey sector. The reason for this member being a

separate segment from other industry affiliates, are the large sums of money paid into this particular sector by Canadian farmers.

Industry Support and Affiliates

Similar to feed mills, this includes bankers, veterinarians, loading crews, input suppliers, equipment suppliers, repair professionals, etc. These are all highly dependent on and have benefitted from the stability of supply management and, arguably, maintain turkey as a small part of their overall business.

Processors

The large processors in Ontario (Sofina Foods Inc., Maple Leaf Foods and Exceldor Foods, Ltd.) are diversified meat companies and turkey is not their sole focus. Utilizing extensive production knowledge, these firms operate in highly competitive markets where plant efficiency, combined with known market needs, co-exist. This group of processors essentially 'sets the market needs' for the farmers and as such, there is significant dependence on their ability to capture the market through product volume, innovation, and price. These are the 'influencers' of the value chain who must carry perishable goods to the market. Too often, farmers have the perception that processors meet the market, but this is not entirely the case.

Retailers, wholesalers, and food service providers

Pinched for price and looking to maximize every square inch of shelf space, retailers are looking to meet consumer needs at the same time that turkey meat is only being offered in one very small segment of the store. Those that buy and resell into the market, including wholesalers and food service providers, sell product into an array of end uses including hospitals, schools and restaurants.

Consumers

As stated previously, everything comes back to meeting the needs of the consumers, with the pivotal and perennial question being "What do consumers really want?" Does this information matter to other members of the value chain? Certainly. Perhaps it is not only about the latest spice on the turkey breast, but about value in production, balanced by a fair or reasonable price, which really matters.

To summarize, vertically integrated farming systems rely on the relationship with the processor and some industry affiliates to operate their farm. Certainly, the end users (consumers) drive demand, which translates into the need for barn square footage. In comparison, a supply managed system, my belief is that Canadian farmers have a vested interest in the relationships between all eight members of the value chain. This is in part because domestic market growth impacts the amount of turkey grown on-farm factors into quota allocation, and hence there is a financial factor to the shared ownership to all consumers. In short, all farmers benefit or lose with the fluctuation in the demand of turkey.

3.4 Supply Management vs. Vertical Integration: Returns on Investment

Virtually all poultry production around the globe occurs in a vertically integrated manner, except in Canada. Vertically integrated poultry production is a management system. Here, the farmer, often referred to as the grower, provides a barn and management to grow the chicken or turkey for the large food processor. Most of the risk is assumed by the processor, who owns the genetics, the livestock, and the feed, while providing advice, medicines, and logistics. The farmers provide the overhead facilities for a rate of return paid based on the footprint of the barns.

To further illustrate, the following are three samples of return on investment which compare the Canadian supply management system with vertically-integrated poultry and dairy farming in three countries, (New Zealand, the UK, and Australia). This information is based on my working knowledge of the dairy sector from a professional standards aspect.

Dairy Farming: New Zealand vs. Canada

Here is a sample break even analysis/per milk solid, from a farm in New Zealand (Sharon Morrel, personal communication, April 2017).

Farm working expenses: $3.80

Interest & Rent: $1.40

Tax: $0.10

Drawings: $0.60

Total Cash Costs: $5.90

Livestock Sales: $0.50

Break Even: $5.40 per milk solid for the 2016/17 production year

Historical Break Even: 2015/16: $5.25, 2014/15: $5.77, 2013/14: $6.35

Average Price Paid: 2016/17: $6.52, 2015/16: $4.30, 2014/15: $4.65, 2013/14: $8.50

Estimated Cost of Dairy Unit (NZ average of 420 cows or 100 hectares of land), total investment of $5,000,000 in real estate plus $800,000 in livestock, total of $5.8MM.
4 year average income of $5.99/milk solid and cost of $5.69 generates a profit of $1.30/milk solid.

Based on strong production of 400kg milk solids/cow on 420 cows, total funds available for reinvestment are $192,000 after living cost. This adds up to a return on investment of 3.3% return on the $5.8MM farm investment.

In comparison, the Canadian model would look like:
90 kgs quota on 200 acres of land, plus livestock, total value of approximately $7,000,000
Total Income approximately $567,000 (3.9% BF, $0.78/liter) plus livestock sales of $40,000.
Costs estimated at 40% of gross income and $60,000 in living costs.
Funds available for reinvestment of $218,000

This generates a return on investment of 3.1%. Both the New Zealand and Canadian models are dependent on high cost of entry, namely land in New Zealand, and quota and land in Canada. They share similar rates of return at approximately 3%.

Poultry Farming: The UK vs. Canada

In the UK, vertical chicken grow-out farmers are paid on a per square metre scheme, approximately £1.10/square metre per week for chickens and £0.90/square metre per week for turkey grow-out facilities. Typical chicken barns will operate on a 7-week cycle with one thin out, and the barn will be restocked after a 1 week empty/clean period.

Figure 11: Salford Lodge, turkey farm in the UK, April 2016

Estimated break even costs for the chicken grower is £0.90, which includes utilities, labour and barn overhead costs. Comparatively, a barn unit of 20,000 square feet is 1858 square meters, generating a gross income of £106,000/year. This is a significant income, considering the facilities will be fully repaid in under 10 years. This is based on data gained from a farm visit to Salford Lodge Poultry farm in the UK in April 2016.

Similarly, for the 20,000 square foot chicken barn with a construction cost of $600,000 plus quota values of $2,500,000, the total return will be approximately $140,000 per year, but this investment cost in Canadian dollars is 4.5% without any land factored, before any cost of living is allocated, based on Canadian standards within the Canadian industry.

Therefore, the value chain in Canada results in stability, access to the market and to facilities, which will hopefully see value for many years into the future. By owning quota, access to the

market is essentially guaranteed and less dependent on the proximity to processing facilities or vertically integrated relationships. In the UK, poultry farmers are paid a fair return on their barns which will see them fully repaid in under 10 years. However, the uncertainty of contract maintenance is critical to the viability of the business units. As long as centralized production remains, the cash flow potential from being part of the value chain is profitable, for those who prefer this type of work.

Turkey Production: Australia vs. Canada

These farms are paid approximately $50/square meter per year with overhead costs of labour, utilities, litter and cleanout to be covered by the grower. As such, an estimated barn of 30,000 square feet or 2635 square meters will generate up to $130,000 per year. With barn costs of $700,000, the repayment of barns is based on a pay back of under 10 years.

Figure 12: Bernadette Mortensen's Mangrove Mountain Chicken Farm, Australia, April 2017

The vulnerability to the Australian poultry sector relates to the mass consolidation of processing areas, with some geographic areas being vacated, to more intensive regions with proximity to feed and processing, as cost centres to be managed. This is based on conversations with the Steggles company of Australia, in April 2017.

As stated previously, turkey production in Canada is supply managed, which allows for the arrangement to organize and attempt to develop an effective market, whereby stability and predictability are key elements to planning by which all members of the value chain will ultimately benefit from. Based on a similar size and cost of a barn of 30,000 square feet, Canadian farmers will own approximately 350,000 kgs of quota for a value of $3.5M or a total investment of $4.2M Canadian. The estimated return based on allocations and normalized production, of $0.60/kg after feed, poult, and overhead costs with an allocation of 85%, provides approximately $180,000 of income or return over investment of 4%.

3.5 Challenges to the Canadian Supply Management System

I identified three main challenges to the Canadian supply management system. The first challenge relates to the question of its efficiency, which includes not only metrics such as those described above (in terms of returns on investment) but the perceptions of the entire value chain, particularly consumers. I address two specific examples of the perceived inefficiencies of supply-managed turkey production, and then look at the larger roles of food pricing and cost to consumers. The second challenge concerns the influence of the US turkey sector and the issues with comparing the Canadian and US markets in turkey production. I also contrast Canadian turkey production with Germany, in terms of companies which have taken a leadership position in promoting turkey to consumers. Third, I look at consumer perceptions of turkey and the limitations and challenges I encountered, in the Canadian market and internationally, when it comes to how turkey is perceived.

Perceived Inefficiencies

‘Efficiency’ is defined as "achieving maximum productivity with minimum wasted effort or expense" (Oxford Dictionary, 2021). Efficiency is about more than farmers. It is also about the entire value chain, from input suppliers to processors, and all the way to retailers. All must continually improve, if possible. Items of consideration at all or some of these levels are labour management, technological enhancement, and genetic improvement. Farmers should be

expected to improve their operations, with a long-term goal of (ideally) increasing profit. Over time as well, these cost savings will eventually be passed onto consumers and result in a more cost-effective product, as long as processors and suppliers comply as well, and as long as all value chain members share the same goals.

EFFICIENCY WITHIN THE VALUE CHAIN IS MORE SPECIFIC THAN THE GENERAL DEFINITION INFERS. THIS REPORT DOES NOT SEEK TO IDENTIFY THE MOST EFFICIENT VALUE CHAIN IN DAIRY AND POULTRY PRODUCTION: SUPPLY-MANAGED GOODS ARE CERTAINLY NOT THE LEAST EXPENSIVE IN TERMS OF COST. RATHER, THIS REPORT ASKS "TO WHAT POINT WILL THE SYSTEM BEAR THE COST, WHILE BALANCING CONSUMERS' WILLINGNESS TO PAY THE PRICE OF GOODS SOLD?"

Costs within supply management include diverse producers located across broad geographic areas that are often smaller in size and scale. For example, an average size dairy farm in New Zealand has about 420 cows (Sharon Morrell of Dairy NZ, personal communication, April 2017) In Canada, by contrast, that number is less than 100. Farm size in New Zealand is driven by the need to compete with milk priced on a global scale where prices are influenced by global demand, whereas in Canada it is a matter of domestic production. Quantitatively, Canadian milk is not the most efficiently produced milk or, in other words, it is not produced at the lowest cost. The question, rather, is at what point does supply management as a system harbour inefficiencies which are ultimately passed on to the consumer, to their detriment?

Efficiency is also typically understood in the context of domestic or local markets. For example, farmers in the UK may compete amongst themselves to fill local markets with some level of competition for products which could easily be imported from, for example, Ireland. In this environment, each country must comply with their respective human resource, environmental standards, and the reality (particularly in the cases of milk and fresh meat) of perishability and farm-to-shelf time, which is critical. It's important to remember that consumers often have the desire to purchase domestically grown food, when given the option.

Another aspect of efficiency observed in the poultry sector involves barn stocking density and turnover. In nearly all intensive broiler and turkey production systems, as witnessed in the UK, Holland and Australia, farmers continually have their barns full of livestock and birds are thinned over time to allow for maximum throughput in the facilities. This is in stark comparison to the Canadian model, in which two examples of perceived inefficiency can be seen. First, birds are grown in cycles which allow for barns to sit empty for weeks on end, a cost which is ultimately passed onto the consumer. This adds a measure of inefficiency to the system and begs the question: "Should these types of inefficiencies be tolerated when there is a potential to lower the total cost of goods?"

A second example of perceived inefficiency in the Canadian model involves the culling of laying hens with genetic potential (a globally competitive market). Hens in Canada are culled after 1 year of lay, despite their genetic potential of a further 2-3 months of near-peak production (Hendrix Genetics in Holland, personal communication, April 2016). Fortunately for Canadian pullet growers and hatcheries, they benefit from increased turnover, yet gains in genetic potential are being overlooked because of the rigidity of this system.

These arguments about perceived inefficiencies are potentially less relevant if one assumes that retailers, not processors or farmers, set the price. Referring to the question of who carries an obligation to increase efficiency when gains could occur in the value chain, also raises the question: "To what point will consumers pay a fair price that accurately reflects the cost of production?" Although abstract and conceptual, obligations exist throughout the value chain. But what remains unclear is, which farmers are held as important or deemed replaceable in the system? Additionally, the more complex system (supply management), has an increased cost, and yet it remains a core principle of supply management to perform as efficiently as possible, in order to provide reasonably priced goods for consumers.

Food prices vary around the world and are based on a number of factors, which include market access, retail competition, seasonality, and product diversity. There are also input costs that vary regionally such as taxation, energy, labour, and transportation, etc.

FARMERS NATURALLY TAKE GREAT OFFENSE TO THE NOTION THAT WHAT HAPPENS ON THE FARM IS DIRECTLY CORRELATED WITH THE PRICE OF FOOD ON RETAIL STORE SHELVES. IN REALITY, THE TRUTH IS FAR MORE COMPLICATED.

On an even larger economic scale, there are also varying levels of national expenditure on food and feeding the population. One basic comparable measure includes the percentage of average annual household income that is spent on food. The United States, for example, has a 'cheap food' policy' and as little as 6.4% of an average American's annual household income is spent on food. In comparison, the UK spends 8.2%, Canada spends 9.1% and Australia spends 9.8% of its household income on food each year (World Economic Forum, 2016).

It has been argued that free trade agreements focus on the 'pure economics' of food but in general, we understand that there is a great deal of cultural significance attached to food, that extends far beyond nutrition and convenience. The overall experience of food also influences factors in food pricing. In my own experience as a farmer and Nuffield Scholar who has been able to step foot into retail stores in 14 different countries over the past two years, I have felt a sense of mystery and surprise in reaction to the various prices and availability of food. In comparing retail prices in the fresh milk and turkey sections, prices varied widely across the board. In the 'land of dairy' (New Zealand), milk was over $2/litre and for retailer-branded milk in Australia, it was $1/litre. Both countries have the ability to produce competitively priced milk, yet the New Zealand organized market seeks to pass along the value to domestic consumers whereas in Australia, milk is used as an entry point to attract consumers. Overall, it is not easy to compare food pricing across national and international borders since every market will bear different price points.

The US Market

All too often, the Canadian turkey sector is compared to the US turkey sector, where consumption of turkey meat is twice that of Canada. As Gary Cooper, a leading turkey integrator and proud turkey promoter of Cooper Farms in Ohio, states, "Turkey owns the lunch market" and "turkey needs to take back the holiday market" (personal communication). Visiting the US revealed how Jennie-O and Butterball reign supreme in brand recognition. These two large, vertically integrated companies basically own the market and drive the marketing lead and product placement in retail stores.

Market nuances in the US are very different when compared to the rest of the world, where processed meat is part of the deli selection. In other countries, pork and further processing of turkey into products such as "turkey ham", in my opinion, simply would not sell here in Canada. The importance of the US government's role and the ability position turkey as a healthy protein, lends support to initiatives such as the healthy lunch program and this also aids in the overall consumption of turkey.

I credit the US marketing of turkey right to the White House. As has been done since 1947 during the Truman administration, a turkey will be "pardoned" on the front lawn of the White House at Thanksgiving, demonstrating the long importance of turkey as a "national symbol of good cheer" ("Pardoning the Thanksgiving Turkey", n.d.), and also the values of celebration, reflection, history, and family around this important holiday. In the US, production is concentrated in certain areas. Clusters of production in Minnesota, North Dakota, the southern state of North Carolina, emphasize the regional production, related jobs and products that are created within the value chain.

The US National Turkey Federation's role to promote the industry continues its struggle to increase domestic consumption. Its 20/20 Project was a marketing initiative which encouraged the consumption of 20 lbs. of turkey per person per year from the current rate of 17 lbs. This was led by its spokesperson and advocate, Gary Cooper. As part of its mandate, the National

Turkey Federation partners with most of the leading processors and farm groups to promote, lobby and encourage turkey consumption across the country to maintain its share of competition in grocery stores.

The key message that Canadian turkey promoters should take away from this example is effectiveness of the National Turkey Federation's national approach to addressing the challenge of increasing consumer demand for turkey. It is unique to have a national approach to food marketing in a vertically integrated sector that sees value in a lift in consumption, no matter the supplier or brand.

Fortunately, the Canadian model is equipped to address these national challenges because of its national board structure. Considering the relatively lower rate of turkey consumption in this country, it is even more critical to address wider marketing gaps in the Canadian turkey sector. I would argue that we lack clear ownership of the market. If one asks, "Who owns the Canadian market?", the answer might well be "No one". By this I mean there hasn't been national cooperation to lift the Canadian segment. Could this be due to a lack of market or returns, or perhaps a shortfall of resources? The answer is not entirely clear but what is clear are the examples of other leading companies that have invested and shaped local turkey markets around the globe.

Globally, international firm Heidemark, a German turkey integrator, owns its markets, which refers to their focus on the product, meeting the market, and concentrating on efficient and cost-effective production of turkey. Despite the evident market opportunity when this research project began, my thinking was that it was the flavour of turkey that would drive opportunity in the sector. Rather, it became clear that it was a refined focus on its value, the cost of goods sold, packaging which was portioned appropriately, and most importantly, the necessary role of a strategic retail partner. Heidemark's retail partner is Aldi. In other words, Heidemark's marketing priorities are around price, packaging, and positioning in the store.

Arguably, this type of partnership does not exist in Canada. We do not promote the value of turkey meat. Rather, turkey is simply seen as a 'third meat' to complement poultry and pork as part of the mix of goods to be sold to retailers. If the Canadian market does not see further partnerships or alliances, turkey will remain exactly as it is now: a niche complementary product.

Consumer Perceptions of Turkey

Is turkey on the menu? Chances are no, unless you are in the US and perhaps Canada, or a handful of European countries. On my voyage through 14 countries, it almost became a joke: the never-ending search for turkey as part of an everyday diet. This reinforced that in most countries, turkey is a niche protein.

For myself as a turkey farmer, it hurts the ego to think of turkey, not as a mainstream meat consumed every day with growing global popularity, but as a protein that needs to be continually focused on and positioned to remain on the consumer's menu. This really hit home in Australia when at a Woolworths store, I found the turkey between the fresh pet food and the kangaroo meat! That said, having the opportunity to meet with international turkey enthusiasts who share similar values was encouraging. This reaffirmed that turkey is indeed healthy, lean, tasty, diverse and an alternative white meat to chicken. Those are valuable characteristics.

Figure 13: Turkey for sale at Woolworth's Grocery Store between the kangaroo and fresh pet food, my realization of turkey as a niche protein, Sydney, Australia, April 2017

Like any product, turkey must fight for its share of the consumer's wallet and taste palate. Unlike chicken, beef or salmon, turkey lacks an 'identity' 363 days out of the year because it is generally known exclusively as a 'holiday meat'. When searching for turkey on retail shelves, it was too often tucked away, or hidden with other white meat selections, often in the deli section. Fortunately, this particular challenge of perception is one which I believe can be met through stronger promotion and marketing of turkey. In the next section, I will describe how these and other challenges can become opportunities.

3.6 Opportunities in the Supply Management System

For every challenge to the system of supply-managed turkey production, there are opportunities. In the section below, I describe two significant opportunities which can help create a more sustainable and stable future for turkey production in Canada. The first is an opportunity for value chain members to realize their obligation to cooperate with each other, a change in perspective which is uniquely suited to sustaining the strength of the value chain in a supply management system. The second opportunity is related to the most important member of the value chain: the consumer. Here, I describe several creative turkey promotion approaches which focus on turkey's unique attributes, which make it an attractive menu option for an increasingly diverse and growing country.

Obligation: An Opportunity for Cooperation in the Value Chain

Obligation, as defined by the Oxford Dictionary is "an act or course of action to which a person is morally or legally bound; a duty or commitment" (2021). In supply management, farmers and processors alike have an obligation (or a responsibility, as I see it) to their role and to their commitments and relationships with other members in the value chain. Furthermore, all members of the value chain have an obligation to uphold consumer values.

For example, large vertically integrated firms have relationships with growers and this represents a commitment. However, as noted by recent changes in many vertically integrated

firms, including growers of chicken in Australia, (Bernadette Mortenson, personal communication) , growers had their contracts dropped when the processing plants made changes to suppliers. As a result, there is limited obligation, even within a 'relationship'. If a large corporation makes an unfavourable decision as to where they will source their raw materials, such as the chicken for their processing facilities, where is the obligation to the farmer?

The notion of farming under an orderly market system in which cooperation should occur at all levels of the value chain is counterintuitive to capitalist business practices, where profit is the primary goal, with one member of the chain generally wielding the power. However, as with most aspects of business, peoples' personal goals drive their opportunity-seeking, in an effort to increase profit, build equity and increase the size and profitability of their businesses, including farms. But with assurance of supply by farmers under supply management, is there an obligation to improve cost efficiencies, given quota ownership provides market access, not financial performance?

In considering the idea of obligation, it is relevant to refer to the New Zealand dairy sector. Dairy farmers in New Zealand are shareholders of Fonterra, the predominant milk buyer and exporter. The company seeks to enhance its shareholder value, which (because of the cooperative model), is an obligation that is positively viewed by farmers, since they stand to benefit in the long-term from profits (on -farm and in the processing and marketing sides of the business).

As with any system, farmers must compete financially to produce goods at a competitive cost in order to remain in business for the long term. At the same time, processors must also remain profitable. In a free market system, as touted by nations other than Canada, the consumer should theoretically be receiving the most cost-competitively priced product.

Furthermore, vertically integrated firms (predominantly in the poultry sector) organize themselves in geographically central areas in close proximity to the hatchery itself, to feed suppliers, processing facilities, and often to large consumer markets. These firms are looking to optimize their business model in which barns are filled to capacity, with time to allow for processing, which is often the largest cost centre to be optimized. This allows for a low-cost product. It does, however, also begs the question of profit distribution, a founding argument in favour of Canada's supply-managed system in which it is not only about the processor's profit maximization, but about a shared approach to profit. This geographic centralization was witnessed in the UK poultry sector, Australia's poultry sector, as well as the US turkey sector.

Through this lens of 'obligation', who should pay for investment in supply management? Farmers are certainly investing in the future of their farms, perhaps even to their own detriment. By this I mean that farmers often need to take a long view of their profitability and investment goals, often looking ahead several years, if not a generation. In contrast, our corporate partners, the processors, are driven by short term profits and tend to invest more cautiously. We don't have to look far at the poultry processing side of supply management to see numerous tired, outdated facilities, many of which do not adhere to current animal welfare practices. Unfortunately, continued lack of investment results in stagnation within the industry, and now we are faced with a situation in which major investment is required to avoid industry-wide decline. More questions arise: is it too little too late? Which must occur or be prioritized, profit-taking or investment?

In the face of deregulation (notably in UK and Australian dairy production), both systems evolved over time and in many different corners of the country, such as in Northern Scotland, or Queensland in Australia. In both these scenarios, the farmer/processor relationship demonstrated that these regions were not optimal for long-term dairy production, largely due to higher costs of production and longer distribution requirements to market. In contrast, and specifically with regards to the idea of obligation, Canada's supply management principles give an almost exclusive right to produce dairy and poultry in almost every corner of the province

when it does, in fact, add cost to the overall value chain. This is one way in which the concept of obligation or having a 'duty to do our best' may impede costs to the overall end product.

Changing Consumer Perceptions

Throughout my research within the Nuffield program, one concept that remained constant, involving the role of the consumer, aligned with my personal belief that no matter the form of market organization, as long as consumers demand a certain product, supply and demand will meet the market. To restate a point made throughout this report, the consumer is the most important component of the value chain, at least with respect to understanding the principles of supply and demand. Without consumer demand, supply will (at best) affect product availability and price will (at worst) become irrelevant.

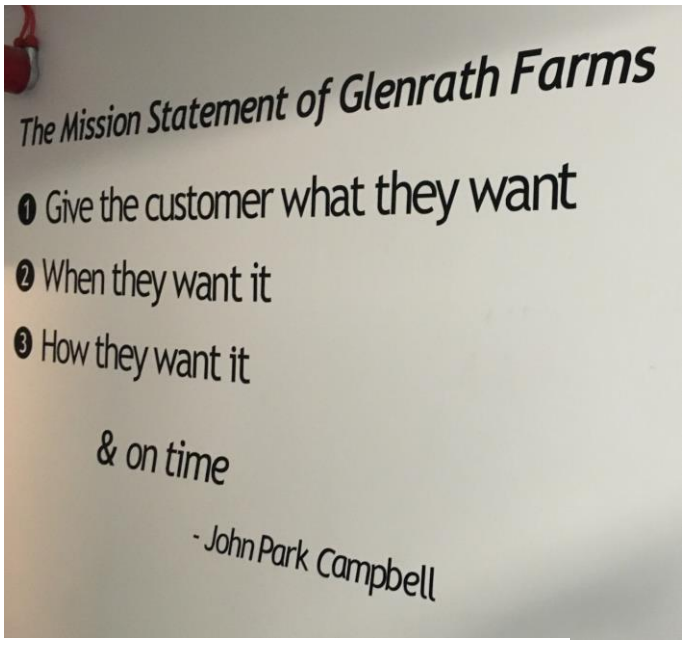

Figure 14: Mission statement from John Campbell's Glenrath Farms, Peeblesshire Scotland, March 2016

The looming question is therefore "How can we drive an increased consumption of turkey?" To start, it is not only farmers who must drive this shift. Although farmers are key members of the value chain, they can only produce what is already in demand, and demand is dependent on consumers who make, or do not make, the decision to purchase turkey.

Figure 15: Kelly Bronze Turkey, marketing materials from Paul Kelly, one of the most passionate turkey farmer and marketer I've ever met, UK, March 2016

Turkey's identity as a holiday meat is both a blessing and a curse: the resounding exception to the hunt for turkey on the menu comes on Thanksgiving, Christmas, and the festive season. The double bind here is that the very holiday that is a key driver of the turkey market also functions as an inhibitor to diversified growth outside these holidays.

Overall, when compared with chicken, the consumption of turkey can flatten even when the consumption of chicken continues to soar. Turkey is still promoted as 'not chicken' and compared to this fellow fowl product as a competitor in sliced, diced and further processed

products. In Canada, as a premium priced protein, it competes with a broader range of proteins ranging from beef to seafood.

To position a product to sell, we need to focus on promoting its attributes as well as its price. Specifically, these attributes include turkey's value as a lean protein, an alternative white meat to chicken and a substitute for ground beef. Turkey, as well as other poultry, has potential environmental benefits. Given the lean conversions that high genetic capacity birds have in their conversion of feed to protein (especially when compared to larger livestock animals), turkey can be positioned as a 'super food', full of protein and essential nutrients. Despite these exciting marketing possibilities, the turkey market can linger, and at times even stagnate, across developed nations.

In meeting with global turkey genetics firms, I discovered that their focus is on maintaining mature markets and focusing on growth opportunities. Thus, their presence in Asian and African markets is helping to fuel their business models of developing and providing breeding stock into these areas, as this is where diets are being influenced and white meat is growing in demand.

A key concept I learned from this situation was to consider channel marketing as the next step to grow markets. Like Fonterra did for New Zealand dairy production, the emphasis in channel marketing involves thinking differently about marketing. Instead of using traditional marketing techniques, marketing is geared to producing and distributing the product for consumer availability. This includes looking carefully at changing consumer demographics in order to discover emerging opportunities to promote turkey.

Marketing Turkey to New Canadians

In Canada, we must also recognize the market potential of new Canadians in the turkey market. In terms of more ethnically diverse populations of Canadians, particularly those who consume halal, non-pork (according to Islamic dietary laws), and non-beef (according to Hindu dietary

restrictions) products, turkey meat is not widely consumed. As shifting Canadian immigration policies welcome many thousands of new Canadians, there is a missed opportunity every time they do not have turkey in their shopping carts. Whereas Canadian culture aims to accept everyone for who they are, including the histories, food traditions, religions and cultures they bring, the US strongly encourages immigrants to adapt to the 'American way of life' and the 'American diet'.

Therein lies the challenge for those in the Canadian turkey value chain who are seeking to broaden, not just increase, turkey consumption across diverse and new populations in Canada. Those involved in the value chain need to take a step back and examine these cultural and religious aspects of food. Given that pork and beef are often not on the menu for many new Canadians (and long-established Canadians who follow religious and cultural laws and norms related to meat eating), turkey could be promoted as an option, especially if there is a willingness on the part of processors to engage with (for example) the Halal Monitoring Authority, the accreditation body which certifies meat as halal in Canada. If Canadian processors fail to recognize these demographic shifts, further fragmentation of the market will occur. As long as there is a willingness to learn, alongside the will to inform and promote turkey's values, the marketing of turkey has a bright and inclusive future: the meat that brings Canadians together.

4.0 CONCLUSION

My rationale for completing the Nuffield Scholarship was to better understand how dairy and poultry products are marketed around the globe and to develop a better understanding of how our Canadian supply management system is still relevant. Focusing on key elements such as efficiency, innovation and consumer demand allowed me to develop a framework by which I could develop a set of recommendations and considerations that the Canadian dairy and poultry sectors might consider. These are practices I would personally consider implementing on my farm.

With global travel taking me through 14 different countries, focusing on key areas of the European Union including Ireland, Britain, Holland, as well as New Zealand, these important cases helped me to better understand the complexities of marketing food in those domestic and global markets. For the most part, all the people in the countries I visited wanted food produced from their own country, if possible, at reasonable prices. Consumers drive their expectations with their dollars and their expectations are shifting. As an industry, we must be fully prepared to meet these changes and ideally, anticipate what future trends may occur. Outside of price, consumers care about animal welfare, environmental sustainability, and food provenance. This report examines how relationships and commitments are organized between farmers and processors, in how their goods are sold.

The Irish model of milk marketing, post-deregulation in 2015, is a story of cooperation that shows firsthand how market changes that many perceive as negative can actually have a long-term positive impact on the sector. To achieve this success, Ireland focused on their strengths: the geographic competitiveness and outdoor grazing systems supported by infrastructure to process and export milk. It also supported the industry and governmental promotion of the 'green' brand to sell Irish dairy products around the globe, especially given the relatively small Irish population, which limited domestic consumption. These changes were proactive in anticipation of deregulation as a way to grow their markets and improve on-farm profitability. As a small country with a relatively similar climate across the nation, having a focus on one core industry, dairy, was relevant to all areas of the country. Thus, by having a national food strategy, all areas and most sectors could see the unified benefit of such market orientations because the value chain worked together.

'Efficiency' and 'Dutch' are two words that belong in the same sentence. The Dutch egg and poultry sectors represent how the free marketing of eggs can drive productivity at the same time as it responds to consumer demand. Although a low profit margin business, I would by no means advocate for this system based on the low returns alone, compared to our margins in

Canada. However, this system does demonstrate the efficiency of production and allows the genetic potential of birds to be met. As well, it provides assurance that much more labour intensive systems that require rigorous management can be profitable on a large scale.

Consumers all around the world demand different products of varying standards and the Dutch expectation for eggs is no exception. With their labeling standards of 1, 2 and 3 star eggs, the 'least sustainable' are free run eggs. Without market organization, when the egg packer orders a change, farmers are forced to change for fear of losing their production contract. Vertically integrated poultry farmers faced similar pressures of abiding by the processors' standards as well. In the UK, I heard how there was a need to install windows in the barns. I heard similar stories of square footage requirements to maintain certain contracts with buyers.

One of the most talked about nations when it comes to market organization is New Zealand. Here, it is not individual farmers charting new territory in exporting dairy products around the globe, it is the highly organized marketing cooperative, Fonterra. Again, here is a strong example of how a market has self-organized to essentially develop a framework for product pricing to support the long-term viability of the business. I admire New Zealand dairy farmers for their focus on economic return. However, the challenges faced by the agriculture sector due to perceptions of 'misuse of land' where conversion of land that is perhaps not best suited for food production, is a serious concern. This highlights the need for balance in ensuring profit is reasonable, while non-economic factors such as environment and society, are maintained and improved.

Again, consumers want fairly-priced food, produced with care and concern for the environment and land. They increasingly want to know where their food comes from. As such, many different systems, direct market, vertical integration or even supply management, can all work to meet these needs. In all systems with market organization, such as supply management, we have an obligation to continually improve, to be as efficient as our peers, and to challenge ourselves to be leaders in food production.

5.0 RECOMMENDATIONS FOR CANADIAN DAIRY AND POULTRY FARMERS:

In this last section, I clearly outline a set of recommendations which emerged from the knowledge gained through my Nuffield experience: study findings, interviews with farmers and my own firsthand knowledge as a turkey farmer and a banker.

First, speaking to supply-managed farmers, one may ask: why go beyond caring about simply growing and delivering the required product (example live turkeys) on the scheduled date for the prices which have been collectively negotiated by the board on their behalf? My recommendation is that farmers should care about the processor/retailer/consumer part of the value chain because they are embedded in a complex set of challenges which cannot be met if its members remain in isolation. These challenges, which I list below, represent an opportunity for members of the value chain to share an obligation to cooperate:

a. Supply management depends on political support, and thus it will only remain relevant as long as consumers (who are also voters) are receiving a perceived value.
b. Per capita consumption of turkey continues to stagnate, which, compounded by population growth, could lead to market stagnation, which is an avoidable challenge.
c. The high cost of associated quotas indicates further market opportunities which have not materialized. This creates uncertainty when one attempts to rationalize long-term returns on investment.
d. Whether there is enough long-term processing investment for product innovation, package sizing, and product presentation to meet consumer demand, remains an unanswered question.
e. Consumers are heavily influenced by market and social pressures. Farmers (who are also consumers) can see for themselves the challenges of product availability, placement, and lack of presence on menus.

f. Animal agriculture and the meat protein market is vulnerable to the need for food quality but is compounded by the need for high animal welfare through the value chain, in addition to the perceptions that anti-meat lobbyists promote.

For these reasons and more, farmers must understand that their relationships with other members of the value chain are critical. For example, farmers who work with a hatchery and genetics company (indirectly) ideally can allow for high quality, low mortality, and productive poults. Having access to this genetic material, in addition to the corresponding knowledge and resources, is therefore highly valuable to improving productivity and cutting costs on the farm. This is despite the cost of production and the set prices that are fixed for poult purchases, which stabilize the supply management system. The negotiating ability of farmers, coupled with the support of input suppliers, including the feed sector, can also add potential value to decision-making, and influence trends in farm management.

Perhaps the recommended course of action is simply to collect the price paid and allocation assigned for their turkey production. That is up to each farmer to decide for themselves. But for me, as an entrepreneur, something feels amiss, beyond the challenge to grow the market. If the market continues to decline, the need and justification for supply management simply will not remain. As such, full cooperation between members of the value chain is required to regain the market presence of turkey in the effort to develop a long-term, sustainable market.

Figure 16: Turkeys at the author's home farm in Norwich, Ontario, Canada

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Bernadette Mortenson, Farmer, Mangrove Mountain, NSW, Australia (April 2017)

Bill Hawkins, Outcomes, Delivered Management Consulting, Toronto, Ontario (April 2019)

George Holmes, Dairy Farmer, Dorchester, Dorset, UK (March 2016)

Greenfield Foods, Ireland's largest egg farm, Smithborough, Ireland (March 2016)

Hinrik Nap, Account Manager with Rabobank, Zwolle, Overijssel, Netherlands (April 2016)

John Alliston, former Dean of the Royal Agricultural College, Cirencester, England (April 2017)

John Campbell, Scotland's largest egg farmer, Glenrath Farms Ltd., Peeblesshire (April 2016)

John Kelly, College Principle of Ballyhaise Agri College, County Cavan, Ireland (March 2016)

Malcolm Hughes, Turkey Farmer, Salford Lodge, Stratford-on-Avon, England, UK (April 2016)

Michael Hanley, CEO of Lakeland Dairies (retired), County Cavan, Ireland (March 2016)

Robert Gray, Dairy Farmer, Callander, Scotland (March 2016)

Roy Tomesen, Egg Farmer, Doetinchem, Holland (April 2016)

Sharon Morrell, Consulting Officer with Dairy NZ, Rotarua, New Zealand, (April 2017)

The Steggles Company, Newcastle, NSW, Australia (April 2017)

Van Beek Group, Doetinchem, Holland (April 2016)

Wallace Hendry, Farm Consolidator, Scotland (March 2016)

APPENDICES

These three more narrative-style case studies of Holland, the UK, and New Zealand are a more comprehensive reflection on each of these countries, their farming production, cultures and economies.

Case Study 1: Holland

Picture this: 17 million people, 4 million cattle (of which 1.6 million are dairy cows), 102 million chickens, 12 million pigs, 1 million sheep, 0.4 million goats and we cannot forget about the half a million turkeys, all on a total of 5.25 million acres of land. In all, The Netherlands is situated on an area that is the same size as Southwestern Ontario. 'Intensity' is the one word that best describes the area, farm economy and the people who are committed to food production in The Netherlands.

The Dutch model of farming is almost exclusively based on being the lowest cost producer, geared toward export. However, the European Union and Dutch government's environmental restrictions are increasing the cost of production of pork and poultry products, in an already competitive marketplace. Phosphate quotas have been established to cap the number of animal units on farms, and this extreme focus on productivity has driven some of the highest production per units in pork and poultry, through focused technical skills (more pigs per sow or eggs per hen). However, if further growth is required, it must come through the acquisition of another pork or poultry unit. At times, the monetization and transfer of phosphate units does occur, and farmers know the value of the business is linked to these units. The nutrient quotas associated with them are far less than any Canadian quota values, but they are simply not available. The cost base for the production of poultry, layers and pork has also become increasingly challenging due to the Dutch government's restrictions on manure.
A typically intensive pork and poultry farm may be situated on 5 to 10 acres of land, and occasionally, even less. All the manure must be removed (often to great distances) or used in digesters (often at great cost). Given that nearly 80% of pig manure is liquid, it is estimated to

cost as much as €22/tonne to ship waste manure off the farm. One turkey producer I met is spending €11/tonne on waste removal, and that is dry manure. Although some farmers are paid for their manure, they have invested heavily in separating systems or drying systems adding to the overall cost of production.

For now, the dairy sector's evolution of balanced expansion through land for feed has served them well. With nutrient quotas based on stocking densities of about 1 cow plus replacement per acre, overall, the dairy sector is slightly better positioned to deal with manure challenges. With dairy being most impacted by the deregulation of milk quotas in 2015, the environmental regulations have effectively replaced production output from Holland, thus imposing an informal method of production management. Having said that, during a meeting with Hinrik Nap, an account manager with Rabobank (personal communication, April 2016), it was noted that farmers took advantage of the opportunity to significantly invest in new facilities with increased technology and capacity in the years leading up to 2015 deregulation.

Outside of dairy production, visits with local turkey farmers demonstrated that niche meat production (such as turkey) has been occurring on a smaller scale than in past years, with all live processing occurring out of country. Similar metrics for on-farm financial management were taken in regard to profitability, however with fluctuations in milk price and combined with environmental regulation, farmers are prudent on future investment.

The Dutch remain true to form, focused on production efficiency by generating the most from limited resources. It is the restraint of resources which propels Dutch farmers to think critically, gain highly technical production knowledge, and seek to gain their competitive advantage within the European market, particularly when land resources are severely limited. Which is the best or right way to produce eggs, in cages or in free run systems? This question poses a major problem when we attempt to have conversations about bird health, safety and what farmers define as 'sustainable'. This conversation about the wellbeing of the bird is somewhat misleading, as it is entirely driven by the bottom line. It is in the best economic interest of

retailers to sell cage-free eggs, and in the best economic interest of farmers to protect their own profitability and investments. Even the science can seem contradictory: there are reports from North America that support the benefits of enriched cage systems (Canadian Agri-Food Research Council, 2003; Canadian Council on Animal Care, 1993; USDA, 2005), while Europe has produced research suggesting birds are happier without confinement (Keeling & Svedberg, 1999; European Commission, 1999). Research exists to support each system, and both have merits.

A simple egg is a perfectly packaged, concentrated, and affordable form of high-quality protein. In my Nuffield travels, I had the opportunity to meet two of the UK's largest egg farmers. First, I spent a day with Scotland's largest egg farmer, John Campbell, who has about $2.5 million laying hens, 40% of which were free run and the balance in cages. I also met one of Ireland's largest egg farmers who farmed nearly 1 million hens, most of which were in caged systems. In both cases, their reference to 'caged' birds is what Canadians would call an 'enriched cage'. In other words, the idea that Canadian egg farmers have operated with traditional battery cages for this long, seemed almost impossible to these gentlemen. In speaking with Mr. Campbell, it was the opportunity to market free-run (not caged) eggs where his business growth occurred.

This idea of caged vs enriched vs free run made me think: do consumers really care, or do they simply want a low priced and high-quality food? Unsure of an answer, we do know that both consumers and retailers are asking more questions about on-farm animal welfare practices, and would like to know more about how these birds are raised. No matter what the system, one differentiator is the management between farms, which is perhaps more important than the system itself. As for consumers, some are looking for details, but many just want to have a stronger connection to their food but are not always interested in the full extent of the details.

These dynamics were best described to me by Roy Tomesen, a Dutch egg farmer who converted his barns nearly 10 years ago from cages to aviary systems. He said, "in cages, farmers manage the birds, in the aviary, the birds manage the farmers" (Roy Tomeson, personal

communication, April 2016) In other words, the management of each system is very different, and differs in terms of how hands on it is, and it is dependent on environmental factors and bird behavior, but each can be done with very high levels of care and compassion for the birds.

Amazingly, Roy was managing his large farm with only 1.5 hired labourers, in addition to himself. This made me question: are farmers resistant to change or is our system rigid to change? As poultry farmers, have we bought into a system where we don't necessarily think about our end consumer, only about what happens on our farm. When our product leaves the barn, is it 'no longer my issue'? Perhaps we should have a stronger expectation of trusted relationships from farm-to-fork. Retailers are making decisions based on global trends. We should not be surprised for some markets, particularly when you look at the Dutch model, where nearly 30 million laying hens are raised outside of cages. It can be done, and large retailers know it. In meeting with a large egg packer in Holland, they were very proud of their distribution model and spoke about opportunities abroad. This included North America, where they were able to provide cage-free liquid egg products, such as mayonnaise, shipped overseas to supply American markets.

A farm economy concern in the discussion of going cage-free is that of respecting the consumer relationship. If retailers, foodservice, and food manufacturing clients were willing to pay more money for this product, farmers would gladly entertain the transition. The fear around having this conversation is that consumers will want egg farmers to do the transition for the same price currently paid for products, when in fact the cost of production will have increased. Farmers that have recently invested in new technology, infrastructure, and barns should rightly be concerned because of the speed with which decisions are made and communicated regarding animal welfare standards. Looking outside North America, this does not come as any surprise.

Moreover, Canadian egg farmers are profitable, and all members of the value chain make a positive return, but the price of quota is no doubt the largest factor of investment. Looking

abroad, we see that a Dutch farmer with an aviary system is making €0.005 (yes ½ a Euro Cent) per egg. Based on 400 eggs/bird that is only €2/bird profit. That is a far cry from the $13 to $15/bird that Canadian farmers are getting.

Another argument that I have been challenged with by Canadian farmers is the notion of mortality on free-run facilities versus cage barns. My response to them is much less about the type of barn, and more about the overall system of marketing eggs. The reproductive capacity of laying hens is about 14 months or longer, yet in Canada they are replaced to match system requirements at one year. Therefore, over the long term, more birds than necessary are used for production, when in fact they should not be required. Again, when farmers and the supply managed system are having a terrific profit margin and are willing to pay for that extra laying hen over time, further improvements in egg productivity are being developed and this issue will not go away, particularly if goals of 500 days in lay are met in the future.

To this point, consumers can easily become confused or perhaps misled. As farmers, particularly in supply management in Canada, we have the trust of consumers who are paying good prices for eggs, and we have negotiating ability with distributors and retailers. However, the industry needs to consider what consumers are asking for. I don't agree with the idea that one system, cage vs cage-free, is particularly better than the other. I'd rather highlight that the management systems and skills required are very different between the two production models.

Ultimately, farmers have a goal of being paid fairly for their work and investments. Should we consider discussing the opportunity for differential pricing for those that want to adapt? It is proven that commercial wide scale aviary production is possible, but again, what do consumers want? Or more accurately, what price will the market allow? In the end, Canada is positioned to utilize multiple forms of production and apply the strongest of management, but we must embrace some degree of change.

Case Study 2: The United Kingdom

The United Kingdom, like Canada, is diverse in geography and population and this is reflected in their agricultural sector. When considering past countries with regulated markets, the UK dairy sector comes to mind. It was thrust onto the world market in 2015 after milk quotas were fully deregulated within the European Union. This was compounded by record global milk production, and challenging market dynamics in China and Russia. Keep in mind that the quota system in the UK was nothing like that of the Canadian model. It was a heavily fragmented system with many processors directly contracting milk with farmers. Minimal monetary value was associated with quotas prior to deregulation.

Having the opportunity to investigate the UK dairy sector, I noted the diversity of production systems and geographical challenges with access to processing capacity. I met 'have' and 'have not' farmers in terms of milk contracts and consequently the price paid for their milk varied accordingly. The post-quota market in the UK is a living experiment on how the industry reacts to change in a global marketplace.

Production systems in the UK ranged from those mimicking the Irish grass-based systems to spring calving herds utilizing Kiwi cross cattle averaging 5500 litres per year, to farmers maximizing production with 3 times per day milking systems that resembled a North American model. Overall, farmers are adopting a systems approach to dairy production wherein the highest output per cow is not necessarily the ultimate goal.

Farmers were able to describe their perceived competitive advantage in terms of cost cutting measures, including areas where they hoped to improve. Unfortunately, a common theme ran through the group, that of 'luck'. Many were unable to differentiate why their farm was fortunate to have a supermarket contract or the good fortune of farm location to utilize well drained fertile soils with strong grass-growing capacity.

The cost of production models ranged significantly between farms, however a common theme emerged: every farmer knew their break even cost on a per litre basis. The cost ranged from £0.16, to an estimated average of £0.22 up to £0.26 per litre in the most intensive herd. It's worth mentioning that it was the intensive herd that had the 'luck' of winning a supermarket contract. Prices being paid were about £0.21 to £0.26, but these were mostly for specialty markets. If this were to include supermarkets, it was closer to £0.36/liter. It was estimated that only 10% of the milk was linked to the richer supermarket contracts.

Most farms had contracts in place, but the likes of Tesco (a UK supermarket chain) are demanding to see the financial statements of its farmers to make sure they are not 'too profitable'. The specialty jersey milk contract is at capacity and will not take any additional milk, let alone struggle with the bulges of seasonal production. Then, there are the international processors that buy milk in other countries, insisting that the UK gets the same European pricing, even though the COP is most likely higher than its European peers. Some farmers who were, at the time, without a contract, sold to milk brokers at prices resembling those in the world market. These farmers have immense and immediate pressure; they are perhaps receiving less than £0.15per liter. Keep in mind, some who are selling to milk brokers also benefitted from higher milk prices last year.

Despite these challenges, some farmers still had expansion in mind. As with many businesses, the conscientious managers will survive, and remember, Europe still has a single farm payments program that will be paid as usual. This could be in the range of £80.00 per acre, annually. An exception was one farmer, Robert Gray, who shared his view to opt out of the government subsidy on sheer principle. I suggested taking the money to reduce debt or invest to reduce costs. His response was interesting and similar to other comments I heard in the UK; subsidies determine how farmers invest in their businesses. His explanation was clear: these policies encouraged farmers to be environmental stewards, not farmers. As such, farm and agriculture infrastructure such as processing plants, supply companies and competitive value chains were

never efficiently developed. These farms are now competing with global milk prices in a region that is disadvantaged due to the side effects of subsidization.

I asked Robert what one metric he used as a guide for management purposes. He answered that the cost of production was a clear indicator of short-term, break-even performance, although long-term goals are based on return on invested capital. This is an interesting measure because it implies that farmers have a focus on profit and are willing to adapt and change as needed. It was suggested that on-farm, we should be aiming for a 5 - 10% return on capital, with firms invested in value-added seeking returns of up to 30%.

The processing side of the UK dairy sector is one area where there seems to be total confusion. Fragmented by local firms, varying sizes of cooperatives, and a host of multinational companies, gave me a sense of market chaos. In other words, as with the 'have' and 'have not' farmers, the same applies to UK firms processing milk and access to the necessary infrastructure and markets.

The future of UK dairy is uncertain as it navigates challenges, with vast disparity between farmers and no clear national strategy. The UK dairy farmer looks east to the lowest cost, export based, Irish dairy sector. Meanwhile, across the English Channel is the intensive and efficient Dutch model. In positive terms, the UK has a large population that supports British food and loves their milk and cheese-based products, but farmers are entirely reliant on their processor to meet the market and compete on the global stage. Remember, in the European Union, food knows no borders.

Case Study 3: New Zealand

Farming systems around the globe are steeped in historical context, bound by geographical characteristics, demographic demands, political influences, and climates which dictate farm types, size and location. Be it supply managed, vertically integrated, contract-based or direct market: all farms have exactly that, a market! It is just a matter of determining how that market is filled.

If one more New Zealand farmer tells me they 'punch above their weight', it will only further confirm the cultural challenge they have in positioning themselves on the global stage. It is true that New Zealand, with a population of about 4.6 million people, was essentially bankrupt 30 years ago when they did away with all agricultural support to all commodities, with the hardest hit being dairy, beef and sheep at the time. Over the next three decades, there was an increased focus on land use, determined by the best rate of return for rural business. Today, approximately 95% of agricultural output is exported with a population feeding capacity of around 40 million people, quite remarkable for a country of its size!

Today, New Zealand boasts one of the highest outputs per capita of milk production, with an average farm size of about 420 cows. Dairy conversions have a new meaning when seeing the country firsthand. Previous sheep, beef and timber land changed to centralized grazing zones for dairy cattle. New Zealand is in the free market but has the world-renowned dairy cooperative Fonterra, which distributes about 85% of the milk in New Zealand, and essentially sets the national price. Farmers have indeed organized themselves well to become part of the market. Fonterra shares equate to around $2400 per cow, based on $6/milk solid at 400MS/year.

Having identified global opportunities nearly two decades ago, the mass conversion of land has now created mistrust with urban counterparts who view dairy as negative. New Zealand's broader population does not necessarily support farming, but like every other developed

nation, the 'social license to farm' is by no means present, even though agriculture is a major economic driver on this small island nation. As such, government policy will essentially limit the number of livestock units to current values, and we can expect output to stabilize. It is shocking at times, to witness certain terrain having livestock grazing. Even more so when thinking back to the natural treed landscapes of a few generations ago. However, when economic rule drives change, other factors such as social or environmental concerns become secondary as markets typically put little value on externalities.

New Zealand dairy farmers faced a financial crisis with the downturn of the global dairy markets in 2015 and 2016, however even with the long-term outlook improving, farmers have not yet recouped lost revenues. In the face of financial ruin, farmers maintained positive working relationships with their banks. As such, loans were converted to interest only, Fonterra provided $0.50 per milk solid of loans to be paid back upon milk exceeding $6.00, and additional working capital beyond that was injected into farm units, many of which were below their cost of production. As one farmer pointed out, the high milk prices of a few years ago at $8.00 per litre created a false economy in the sector whereby cattle were fed high amounts of purchased feed which failed to fully leverage actual returns from the land, and in most cases, should have been the only source of feed. Ironically, farmers reflected in my interviews with them, that the concern over access, or lack thereof, to bank support was far worse with the global financial crisis in 2008, when compared to their working relationships with the downturn in the milk prices last year.

One significant number is rarely communicated overseas in regard to the other major factor which has cropped up the New Zealand dairy sector: land values. Despite low milk prices, land values have risen so dramatically over the past decade, that farmers and lenders remained secured. Perhaps they were not cash flow positive, but equity in the business remained. Land values range significantly, like they do here in Ontario, but land with good fertility, flatness, good rainfall, and with a decent milking platform was selling for $30,000 up to $60,000 per hectare. Based on a stocking density of about 3 cows/ha, that average 420 cow farm will need

140 ha plus room for young stock, thus costing upwards of between $7 and $8 million dollars (with the NZ Dollar and Canadian Dollar at par). That is a lot of money. As such, when doing the reverse math of cash flow, nearly 40% of equity is required with returns of not more than 3%. That seems remarkably similar to our often-ridiculed system of supply management with quotas. It is expected that as milk price rebounds over the coming year, additional farms under financial distress will come onto the market, but at a rate which will not negatively affect overall land values.

New Zealand is essentially a captive market: it is an island, limited by space, and this is compounded by looming environmental regulations. The price of milk is effectively set by one governing body, in this case a farmer-owned, market-oriented cooperative which is looking to be the single largest export driver in the country.

New Zealanders have a natural disposition to speak about new and emerging export markets and determining their competitive advantage in the global marketplace. Every New Zealander stresses that they produce 'without subsidy'. Kiwi dairy farmers deserve credit for the 'go getter mentality' of the younger generation. Like other land sensitive countries, the next generation of farmers are milking cows, or at least managing the dairies, and very often leasing or share milking on second and third sites to generate cash flow with long term goals of acquiring the 'home farm'. With farm sizes reaching into the thousands, they truly look at return per hectare and the cattle become 'sticks in the field', n other words, they are maximizing the cows as harvesters and converters of grass. The challenge lies ahead for asset transfer given the significant value of land and the creation of 'have' and 'have not' farmers, based on asset ownership.

One area of credit worth noting is the investment in processing. With billions of dollars being invested in milk processing facilities, the entire value chain is realizing the need for efficient facilities to develop globally competitive products. Much of this investment, for the solely owned Kiwi cooperative, is in other countries. This is in response to their expansion of their global footprint, given that domestic production will remain flat. Overall, with dividend

payments of about $0.10 per litre of milk sold at high milk price times a few years ago, to $0.40 more recently, the global corporation of Fonterra remains profitable.

To summarize the history and context by which New Zealand farmers, largely dairy, survive here follows my observations. With a true system approach, NZ farmers do a great job at producing price competitive milk, largely attributable to its climactic advantage of year-round grazing, and market organization through a single desk market, Fonterra. That said, return on investment is modest to low, given the high cost of land. A wide range of management practices and fully accounting for the cost of production remains a challenge and a concern among farm financial advisors. In the face of economic driven decisions, with governments paying zero dollars for environmental preservation, the natural landscape will reflect the economy, not social value. For example, too much livestock with its effluent, affects the environment, and now, urbanites who are insisting on regulation. However, in a free market, regulation tends to be relaxed. A glimmer of hope did arise, a couple of farmers said, "perhaps enough is enough", meaning the free market is all well and good, but (particularly in developing countries), perhaps they have a right to develop local economies too.

New Zealand must find a home for 95% of its milk - the higher value the market, the better. With grocery store prices at $2/litre, domestic consumers are not realizing any value in a large sector. As one farmer put it, if the Chinese will pay that price, why shouldn't our local consumers? The push for global markets is coming from New Zealand farmers, those who own shares in Fonterra, who have plants in Australia, Asia, and South America. So, it may not be about NZ butter in Canada, but rather, Fonterra-owned milk from Chile reaching the US, which in the long-term benefits NZ dairy farmers. New Zealand farmers and industry professionals were open, honest, and as inquisitive about Canada's supply management system as I was about theirs. We each have misconceptions about each other's market and overall, we mutually struggle with consumer relationships, succession planning, labour relations, and financial management, to name a few. Our main difference was simply around feeding the world versus feeding Canada.