A Bonnefield Research Paper

Investing in Canadian Agriculture

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Background

For grain and oilseed farmers, the past several years have been some of the most prosperous in decades. At the turn of the millennium, global population growth and rapid economic expansion in many emerging economies reached an inflection point that saw global consumption of agricultural goods exceed production in the majority of years. In addition to macroeconomic demand drivers, initiatives to develop alternatives to fossil fuels resulted in much greater proportions of major crops such as corn and sugar cane used for biofuel production. These factors produced a trend reversal in agricultural markets from decades of chronic excess supply and falling prices, to a situation where excess demand drove prices of agricultural commodities to record highs in nominal terms.

While the world's population continues to expand, the improvements in agricultural productivity experienced during the "Green Revolution" – a series of technological advancements in agriculture that resulted in dramatic improvements in agricultural yields around the world during the 1960s, '70s and '80s – have not sustained the same pace, approaching a figurative "glass ceiling" due to diminishing marginal returns in production. Many of the techniques pioneered during the Green Revolution have also contributed to declining productivity and land degradation in some regions from decades of intensive irrigation and production that strip farmland of vital nutrients, often with lasting effects. Prospects for increasing supply are limited by the fact that very little additional productive farmland exists to expand the agricultural land base. On aggregate the global supply of farmland continues to decline despite a growing population with ever increasing demands, such that farmland per capita is rapidly declining. The United Nations recently estimated that the world's agricultural production system will have to produce twice as much food, on roughly the same amount of land, by the year 2050[1].

Exacerbating the challenge of diminishing marginal returns and a finite supply of land, the world's agricultural land base also faces significant threats from urbanization, climate change, desertification, and water scarcity. These issues have been especially prevalent in the world's most heavily populated regions, namely India, China and other parts of South and South East Asia, which has led to far greater reliance on agricultural imports in these countries. The United States, by far the world's largest agricultural exporter, has also experienced significant production challenges, particularly from an unpredictable climate and difficulty accessing water. These supply challenges have contributed to a highly capricious production environment, and as a result higher prices and volatility in agricultural commodity markets have become the new normal. The higher price levels of agricultural commodities signal the need for investment in agricultural production to develop sustainable solutions to provide for a growing population.

Canadian agriculture has tremendous potential to contribute to meeting global demand for food. While still a major agricultural exporter, Canada's ranking declined steadily during the twentieth century as decades of disinvestment have left producers badly undercapitalized and at a distinct disadvantage to their international peers. Despite difficulties accessing capital, Canadian farmers have benefited from Canada's great natural wealth and a rich history in agriculture. Endowed with vast tracts of arable land, a favorable climate, abundant fresh water and other key agricultural inputs, well developed trade infrastructure, and a stable government, Canadian producers are well positioned to benefit from investment that optimizes the scale and efficiency of their operations.

Canadian agriculture requires capital to address two fundamental needs in the industry: adopting technology to achieve greater scale and efficiency in production, and to finance the succession of a generation of retiring farmers. To enable a new generation of family farmers to attain the scale and sophistication needed to compete effectively in global markets requires more options for farmers to access capital in the sector, beyond the burden of bank debt and sweat equity. For many young farmers access to capital has been the most significant barrier to entering the sector. As the baby boomers enter retirement, Canadian Agriculture also faces major succession challenges for retiring farmers looking to finance their retirement and liquidate or capitalize the wealth they have built in their businesses. For investors this represents an attractive opportunity to participate in the growth of one of Canada`s most fundamental industries as it enters a dynamic new period. This paper provides an overview of the major economic and environmental factors that make Canadian agriculture a compelling sector for investment.

Agriculture Macrotrends — Supply and Demand, Correlation and Inflation

Agriculture is more susceptible to supply and demand shocks than most other industries. The fact that humans need to consume more or less the same amount of food regardless of its price, means that the demand for agricultural commodities is highly inelastic. As The Economist magazine puts it "no matter how bad things get, people still need to eat[2]". An example of inelastic demand for agricultural commodities is found in the worldwide demand for wheat as projected in the following chart. Despite projected rises in the price of wheat, demand is expected to remain fairly constant.

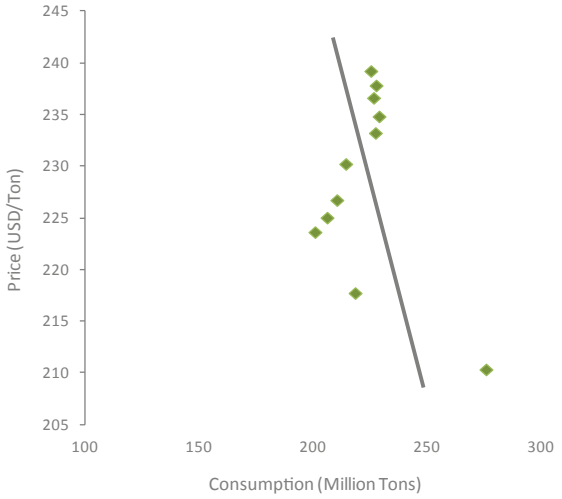

Figure 1: Projected Price and Demand for Wheat 2010-2019
Source: OECD-FAO Agricultural Outlook 2010

The supply of agricultural commodities is also highly inelastic, primarily because there is a limited supply of new arable land that can be brought into production. In addition, the lengthy time required to plan, plant, harvest and deliver agricultural produce makes it difficult for farmers to increase production quickly in response to increased demand.

The inelastic nature of agricultural markets means that agriculture is unusually susceptible to supply and demand shocks. And the world is facing long-term shocks to *both* the supply and demand for agricultural goods, which is fundamentally changing the outlook for agriculture worldwide. This fundamental nature of agricultural supply and demand, the intrinsic value of food, and the fact that supply is largely driven by biological growth, has also made agricultural prices largely non-correlated with financial instruments. This feature was particularly evident during the 2008 financial crisis, which saw agricultural commodities and farmland values recover rapidly while most financial assets struggled for years after.

Agriculture is also highly sensitive to inflation for many of the same reasons supply and demand are inelastic: The supply of agricultural goods cannot be rapidly adjusted and has intrinsic value due to highly inelastic global demand. As a result food inflation often leads other assets during inflationary periods as more dollars chase more or less the same amount of agricultural production. Higher values of agricultural products are typically capitalized into higher farmland values, and as such Canadian farmland has historically proved an effective inflation hedge. As the following chart illustrates, real returns to Canadian farmland have increased during inflationary periods.

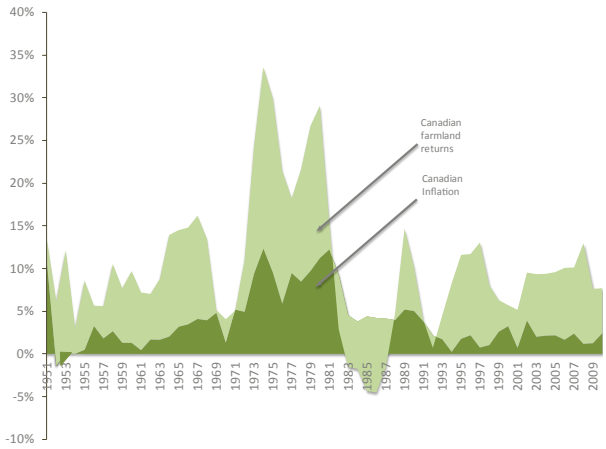

Figure 2: Canadian Farmland Returns and Inflation 1951-2010
Source: Statistics Canada

Drivers of Demand

Despite notable food shortages in parts of the world that experience periodic droughts and famine, the world's agricultural sector has generally been able to produce sufficient food supplies to meet the demands of a growing population. This has been a remarkable accomplishment, given the huge increase in the world's population since World War II, and is primarily the result of improved agricultural yields in

recent decades. However, the world's ability to continue to feed itself is now being called into question.

Despite the world's population approximately tripling between 1945 and 2011, the remarkable successes of the Green Revolution in increasing the supply of agricultural goods led to a secular decline in real food prices after the Second World War (See Figure 3). This trend began a reversal at the turn of the millennium, and has been especially pronounced since 2007 with major surges in the prices of agricultural commodities. Despite the recent rise in prices, agricultural commodities remain relatively cheap in a historical context once adjusted for inflation. This indicates recent record prices in nominal terms are not unprecedented in an inflation adjusted historical context, and may reflect the beginning of a secular bull market in agriculture.

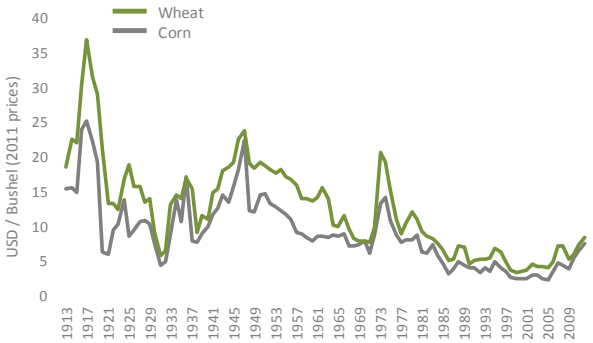

Figure 3: Real Prices of Corn and Wheat in USD 1913-2011
Source: USDA

Population Growth

The world now faces serious and systemic challenges in producing enough food to feed a population that continues to grow at a rapid rate. According to data from the UN's Food and Agricultural Organization ("FAO"), there are approximately seven billion people on Earth, a 15% increase just since 2000. The FAO projects that within 15 years, there will be another billion mouths to feed, continuing to rise to over nine billion by the year 2050[3]. One study using FAO data suggests that an additional 300 million acres, an area twice the size of France, will be needed to support growth in food production under a 'business as usual scenario' up to the year 2030[4]. The problem, of course, is that the prospect of bringing such large new tracts of land into agricultural production is virtually nil. As the following diagrams illustrate, the relationship between population growth and the growth of arable land in production remained relatively constant from at least 1700 until approximately 1950.

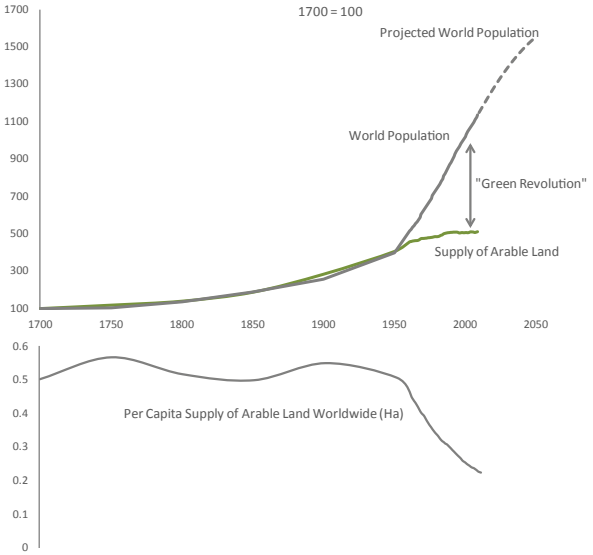

Figure 4: Indexed growth in arable land and population 1700-2050
Source: UNFAO, US Census Bureau, Netherlands Environmental Assessment Agency
First seen in Land Commodities "Global Agriculture & Farmland Investment Report 2009"

The long-established relationship between population growth and arable land growth began to break down in the 1950s. As population growth rates increased after 1950 and as untapped new farmland became ever scarcer, arable land per capita declined from its traditional 0.5 hectare (1.2 acre) per-person level to approximately 0.2 hectares (0.5 acres) today. On an individual country level, arable land per capita varies widely as the following FAO data show.

Canada	3.2
United States	1.2
European Union Region	0.5
Australia	4.2
China	0.2
World Average	0.5

Table 1: Per Capita Arable Land Estimates 2009 (Acres/person)
Source: UNFAO

As the world population continues to increase with few prospects of increasing the supply of productive arable land, the existing stock of land will have to become much more productive to provide for the world.

Emerging Economies

By far the greatest demand driver for agricultural goods has been the economic rise of large developing nations, including Brazil, Russia, India, and China ("BRIC"). In addition to rapidly expanding populations, these countries have seen the emergence of a massive middle class. China's influence in world markets has further heightened the challenges faced by the world's agricultural system. As its population has continued to increase in wealth, China has shifted from a largely self-sufficient agricultural producer to one of the largest net importers of agricultural products (see figure 5).

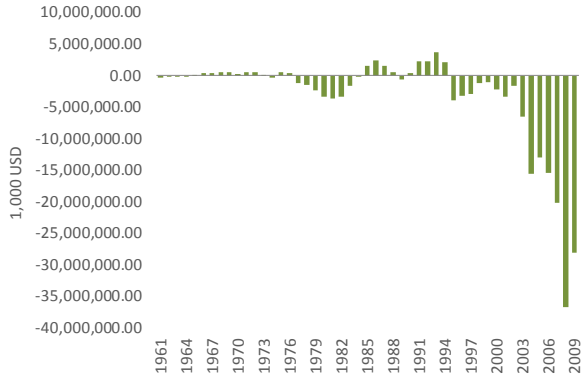

Figure 5: China's Nominal Net Exports between 1961-2009 in Thousands of USD
Source: UN FAO (FAOSTAT)

As individual incomes rise in developing countries, that additional income is often first spent on improving diet quality, often in the form of more meat and other proteins. As the following diagram shows, there is a strong correlation between rising incomes and increasing meat consumption.

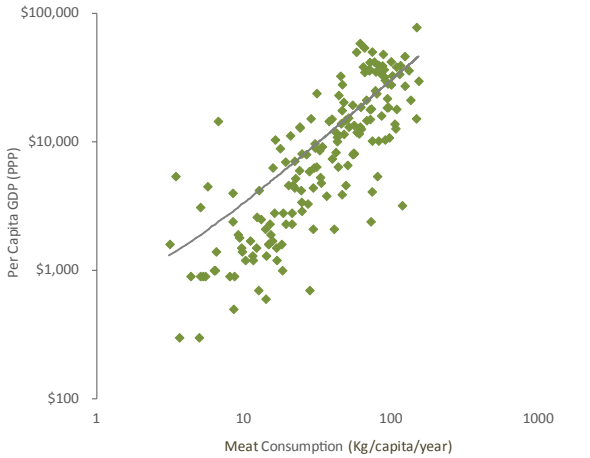

Figure 6: Correlation between GDP per Capita and Meat Consumption in 2008
Source: FAOSTAT, CIA Factbook

Demand for animal products exacerbates the agricultural supply issue because livestock production is highly resource intensive. Estimates suggest one calorie of US beef requires 10 calories of grain to produce[5], while up to 16,000 litres of water are required to produce one kilo of beef[6]. This has proved a severe burden on the food systems of the BRIC nations and countries that struggle with severe land degradation and inadequate access to water. The following chart illustrates the extent to which increase in global meat consumption has outpaced the rate of population growth over the past 50 years.

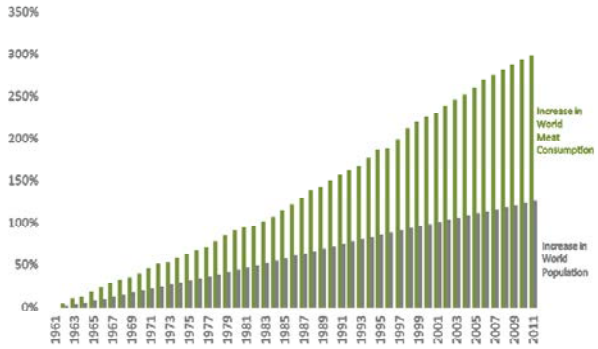

Figure 7: Relative increase in population and meat consumption between 1961 and 2011
Source: UNFAO. First seen in MacDonald Laurier Institute publication "Canadian Agriculture and Food- A Growing Hunger for Change" by Larry Martin and Kate Stiefelmeyer

China alone accounts for 10% of beef, 17% of chicken, 40% of eggs, and over 50% of global pork consumption[7]. On a per capita basis, China consumes approximately half the amount of meat consumed in the United States, implying there is plenty of additional demand for meat products from emerging economies as their levels of income rise[8].

Biofuels

The strain of producing more for an increasingly wealthy and rapidly growing population has been further compounded by the increasing use of agricultural products as a fuel substitute. Government mandates in many countries have vastly increased the scale of ethanol production in an effort to ease reliance on petroleum fuels. In the United States, the largest producer of corn and consumer of ethanol in the world, the Energy Policy Act of 2005 introduced the first ever Renewable Fuels Standard into United States federal law. This trend was furthered by The Energy Independence

Act of 2007, which set progressively aggressive targets for biofuel use as a component of the US energy framework, and aims to reach 36 billion gallons by 2022, up from nine billion gallons in 2008[9]. While these ambitious targets may not be reached due to rising grain prices, recent estimates suggest over 40% of the US's corn crop is already used in the production of ethanol, making ethanol the largest use of US corn, having exceeded the amount used for feed for the first time in 2010[10].

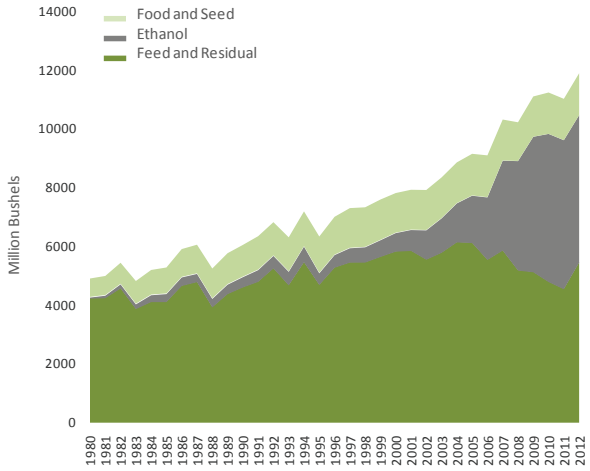

Figure 8: Final use of US Corn Crop 1980-2012
Source: USDA

The use of ethanol as a fuel substitute has also increased the correlation between corn and gasoline prices. Petroleum products are also a major input into crop production, which also contributes to greater correlation in the two commodities because the cost of petroleum is factored into crop prices. As the following chart illustrates, the relationship between the price of corn and the price of oil became closer after 2007 and the introduction of the Energy Independence Act in the United States.

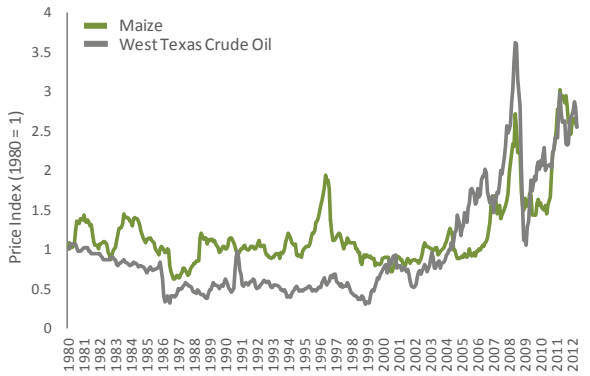

Figure 9: Relationship between the Price of Maize and Crude Oil 1980-2012
Source: IMF

The combination of rising population, increasing incomes, and emergence of biofuels has strained the world's agricultural production capacity to meet this demand. Scarcity of commodities and the substitution effect between fuel and food have increased the price level of many commodities in recent years. Prospects for increasing supply to meet demand in the coming decades face considerable challenges, and investor response to the price signals in agriculture will prove crucial if supply is to keep up with demand.

Challenges to Supply

Declining Productivity

The development of new technologies such as herbicides, pesticides, improved fertilizers, higher-yielding crop varietals and drought-resistant crops, all helped to improve agricultural yields from the 1960s onward. Similarly, improved farming techniques such as no-till planting, large-scale mechanical harvesting, large-scale irrigation and the adoption of better agronomic and crop sciences in farming production, also helped to improve agricultural yields. Though agricultural output continues to increase in absolute terms, production on a per capita basis has experienced decline for several decades (see figure 10).

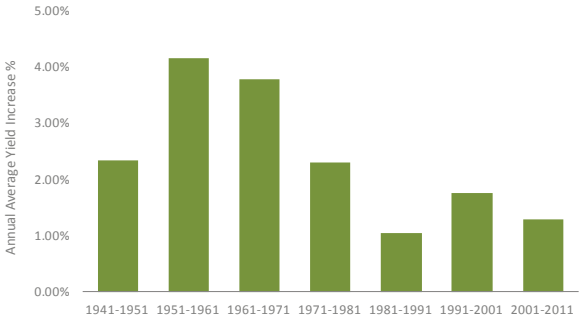

Figure 10: Average Growth Rate of US Corn Yield/Acre by Decade 1941-2011
Source: USDA

The large gains in yields experienced in the early years of the Green Revolution have given way to smaller improvements in recent years as each new technological advance produces smaller marginal enhancements to yields than the early "easy" improvements. The pace of population growth on the other hand has not diminished. The following chart of per

capita cereal production illustrates the problem of declining marginal improvements in agricultural yields.

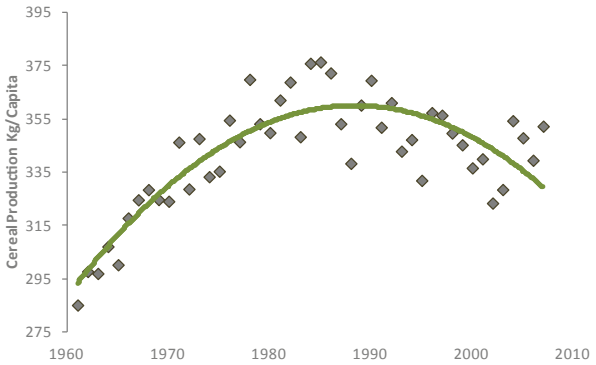

Figure 11: Global Cereal Production per Capita 1960-2010
Source: UN FAO (FAOSTAT)

An increasing population and declining marginal improvements in agricultural yields have combined in recent years to tip the balance of supply and demand in agricultural commodities. According to the United States Department of Agriculture, in eight of the 12 years between 2000 and 2012, world grain consumption exceeded world grain production such that agricultural commodity stockpiles are at some of their lowest levels in decades. World grain inventories have fallen 36% during this period in terms of days of consumption, and stockpiles remain at historically low levels[11]. Due to the highly inelastic nature of agricultural markets, sharp reductions in supplies often leads to higher and more volatile prices as markets price out excess demand, which could become common place in the decades to come should inventories remain at historically low levels.

The future outlook for agricultural supply and demand remains serious. Populations continue to grow and arable land remains in tight supply. The outlook is further clouded by factors such as the implications of climate change, water scarcity in key agricultural producing regions, growing incomes and changing appetites in the developing world, and increasing scarcity of energy and oil.

Climate Change

Climate is one of the key determinants of agricultural productivity. Climate impacts local weather patterns, the length of growing seasons, the frequency of severe weather

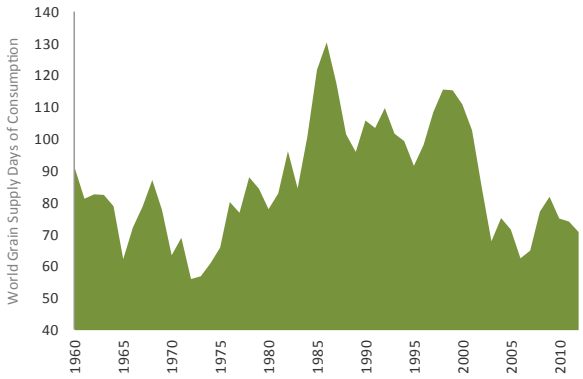

Figure 12: World Supply of Grain in Days of Consumption 1960-2012
Source: Earth Policy Institute, USDA

events, average rainfall, heat units, the availability of adequate irrigation water supplies, crop diseases and the life cycles of animal and insect pests; all factors that influence agricultural yields and the economic viability of farming operations.

According to a recent study by the World Bank titled "Global Economic Prospects: Commodities at a Crossroads, 2009", climate change and associated water scarcity could cause a decrease in agricultural yields by as much as 10% worldwide by 2030, assuming a rise in average global temperatures of just 0.4^{0}C[12]. By comparison, the Intergovernmental Panel on Climate Change ("IPCC") in its report titled "Climate Change 2007: Synthesis Report" (the "2007 IPCC Report") projected global average rise in temperature in the 1.8^{0}C to 4.0^{0}C range over the next century[13]. Global warming of this magnitude could have even more serious implications for global agriculture. According to the same IPCC report, yields on rain-dependent farmland in some African countries could decline by as much as 50% by 2020. Agricultural regions in the United States, Australia, New Zealand, Europe and Asia are also particularly vulnerable to climate change. The IPCC estimates that 40% of world crop yields are dependent upon irrigation and that crop yields could decline between 2% and 12% due to water scarcity in coming decades[14].

While average temperatures around the world are expected to increase and droughts to become more frequent over the coming decades, not all regions will suffer to the same extent. In contrast, some regions are expected to have slightly cooler average temperatures and some will receive greater amounts of rainfall. In 2007, The Center for Global Development and Peterson Institute for International Economics issued a study of

global warming and its impact on climate change on Canada and the United States. The study's authors' prediction was that on balance, agricultural regions in the US will suffer from drought, higher temperatures and severe weather events. Conversely, many farming regions in Canada may actually benefit from higher rainfall and a longer growing season[15].

A discussion of climate trends and global crop production published in Science Magazine in 2011 studied the impact of shifting climate patterns on crop production since 1980. Such discussion suggests change in rainfall and temperature patterns have reduced potential grain yields almost ubiquitously in major agricultural regions across the globe, with the notable exception of North America. Whereas most regions experienced adverse yield growth, grain-growing regions in the northern US and Canada experienced only marginal changes in temperature and precipitation. In fact, the study attributes some gain in North American wheat yields to slightly warmer, wetter conditions. The following chart summarizes the influences of climate change patterns on global wheat yields.

Recent weather trends further suggest that US farmland may experience greater challenges from climate change than Canadian farmland in the future. A 2008 survey of studies of climate change and water shortages in North America by author Chris Wood in "Dry Spring: the coming water crisis of North America" concluded that as a general rule, areas of North America that are already dry will become more so, including much of the continental US. Droughts and water shortages will become more persistent problems in the area between about latitude 30^{0} north and the mid 40^{0} north latitudes – the area that approximately corresponds with the United States' southern border with Mexico and its northern border with Canada. The same author concludes that the driest areas in this band could see up to a 30% reduction in available water while "Canada, already the most water-rich country per capita in the world, is going to get richer in the 21st century, perhaps as much as 40% richer [wetter] by mid-century[16]." This pattern was evident during the 2011 and 2012 growing seasons when much of the continental US experienced severe drought conditions while western Canada experienced wetter than normal conditions. Canadian farmers stand to benefit as the Canadian growing season will enjoy more growing days with relatively fewer frost days than in the past.

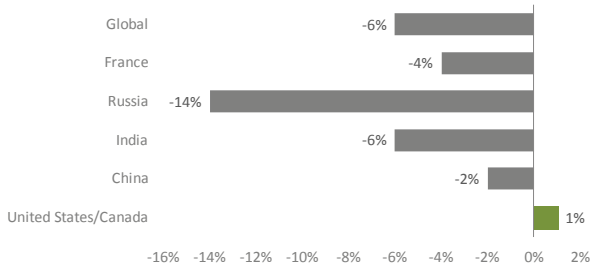

Figure 13: 2008 Estimated Changes in Yield Due to Climate Change 1980-2011
Source: Science Magazine

Water Scarcity

In addition to a positive climate outlook, Canada has ample access to water, holding 9% of the world's water supply[17], with less than half of one percent of the world population[18]. Thus, this access makes Canada's agricultural sector far less vulnerable to water shortages. According to the Pacific Water Institute, Canadian agriculture accounts for only 12% of annual water use, in contrast to 41% in the United States and an average of 70% globally. Not only does Canada possess a disproportionate share of the world's fresh water resources, its favourable climate and quality soils enable Canadian farms to have a much lower reliance on irrigation than most other major agricultural regions around the world. Only 2% of Canada's farmland is irrigated compared to 13% in the United States and 38% in China. (see figure 4)

The following map, maintained by the International Water Management Institute, shows those regions currently facing a physical water scarcity (greater than 75% of available water supplies drawn from rivers), those that are approaching physical scarcity and can expect scarcity in the future (greater than 60% of available water supplies withdrawn) and those areas with economic water scarcities (limited access to water on an economically viable basis). Many of the areas on the map with existing and expected water shortages are some of the most productive farming regions of the world. Canada, by contrast, is shown to be relatively well off in terms of access to adequate water supplies. As prime agricultural regions around the world, particularly in the United States and China,

face pressure from climate change and water shortages, Canadian farmland is expected to fare relatively well especially as compared to regions such as California and the United States. Southwest and in some areas may even benefit from a changing climate. Some Canadian farming regions will face their own climate-induced challenges, as the recent wet seasons in Saskatchewan and Manitoba suggests. On balance the value of Canadian farmland relative to farmland elsewhere in the world will likely benefit as climate change continues over the coming decades.

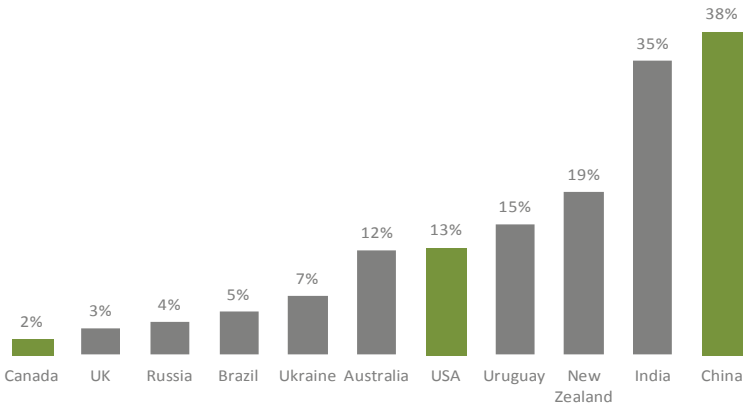

Figure 14: Percentage of Farmland under Irrigation
Source: CIA Factbook 2009

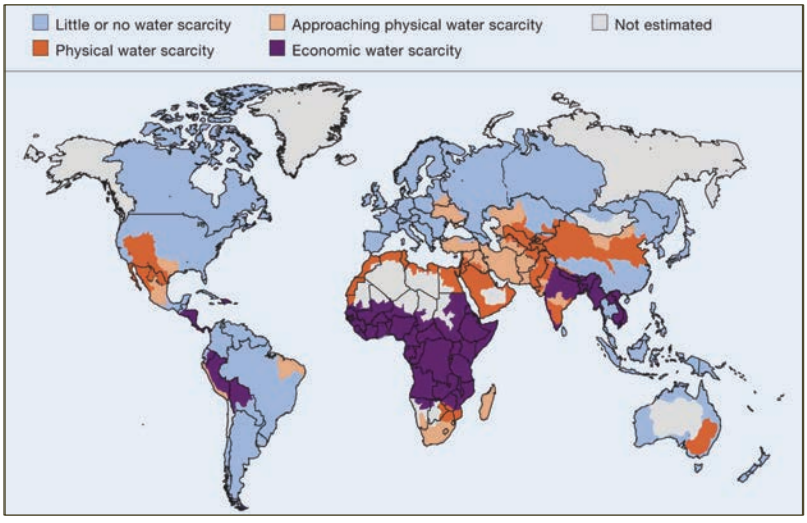

Figure 15: Global Water Scarcity
Source: UNFAO

Soil Degradation

Two of the biggest factors contributing to the decline in agricultural yields in many parts of the world are soil degradation and soil erosion. Degradation results in greater weed and pest problems, nutrient depletion and declining yields. According to a November 2011 UN FAO Food and Water SOLAW Report, as much as 25% of the world's soil is highly degraded[19], such degradation is highly varied between countries. For example, 59% of the soil in India is highly degraded while China and the U.S. have rates of 35% and 32% respectively. In contrast, the report indicates that only 2% of Canadian soil was found to be highly degraded. Compounding the degradation of agricultural lands is the physical loss of farmland due to erosion, pollution, desertification and urban growth. Major contributors to agricultural soil degradation are inappropriate irrigation and soil management practices. Over irrigating can lead to increased soil salinity and leaching of soil nutrients. Improper tillage and soil management can lead to the absolute loss of soil through erosion. In part, it is Canada's long, cold winters (which make intensive, soil-damaging, year-round farming impractical) as well as the prevalence of responsible farming practices that will continue to safeguard soil quality in Canada. The following map from the United Nations Land and Water Division indicates regions of the world, which suffer to greater and lesser extents from the above mentioned factors. The map indicates that many of the world's prime agricultural regions are facing a multitude of degradation issues. Canada by comparison has relatively stable soil conditions over much of its primary growing regions.

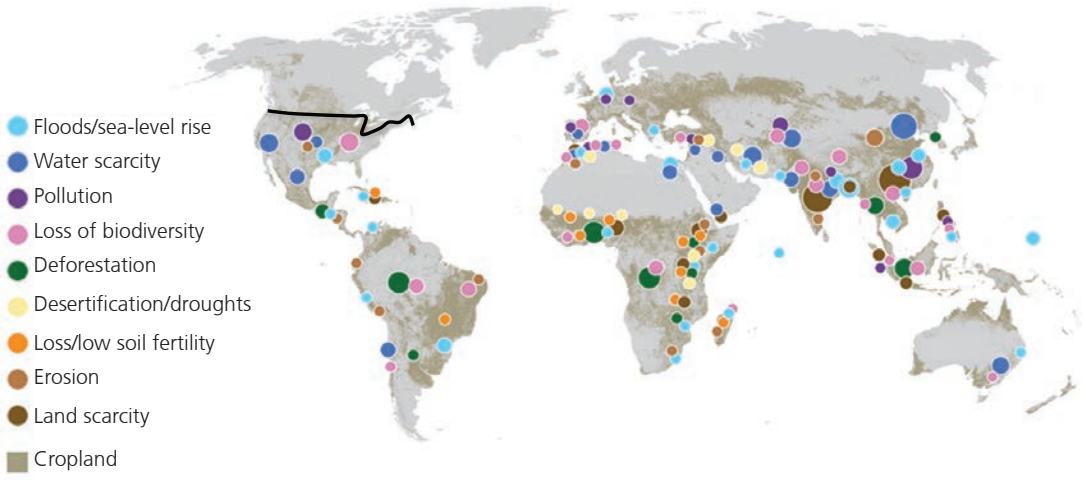

Figure 16: Farmland Risk Factors
Source: UNFAO

The Canadian Agricultural Landscape

Canada is endowed with a vast arable land base, but also a relatively small population. Canada's resource wealth in water, arable land, petroleum, potash, in addition to favorable climate trends, have allowed Canadian agriculture to fair relatively well despite limited investment in the industry compared to other major agricultural producers. Canada's proximity to the United States, the world leader in agricultural trade, and its well-established trade infrastructure that allows easy access to world markets, further improves Canada's advantage in terms of market access.

As incomes and population continue to rise in emerging economies, Canada's surplus of sustainable productive agricultural land will prove a valuable economic resource. Despite experiencing decline in recent decades Canada still remains a major exporter of agricultural products. Canada was the ninth largest agricultural exporter by value in 2009, falling from fifth position held as recently as 2001[20]. On a per capita basis, however, the value of Canadian agricultural exports remains some of the highest of any nation (see Figure 17).

Productivity and Farmland Value

Canada's climate and advanced agricultural economy helped Canadian farmers stay extremely productive, achieving excellent yields as compared to other major international agricultural producers. As the following chart illustrates Canadian farm productivity is competitive with most other major agricultural producing nations in a broad array of commodity crops.

Canadian agriculture has also been subject to significant regulation, which may contribute to reduced productivity in certain sub industries. For instance, until recently Western Canadian wheat and barley farmers sold their crop through a mandatory collective government agency known as the Canadian Wheat Board (CWB). Established in 1935 to aid the smaller scale farmers of the era in selling their grain, the CWB has operated as a monopsony, as the sole buyer of grain for all farmers in the major wheat and barley producing regions of Saskatchewan, Manitoba, and Alberta. Interestingly, wheat and barley are two crops where Canada has lagged its international competitors in terms of productivity. This has led some to believe that the monopsony system has reduced the incentive for producers of wheat and barley to increase yields substantially, unlike non-CWB crops such as oats and rapeseed/canola, where Canada enjoys a position as a world leader in productivity.

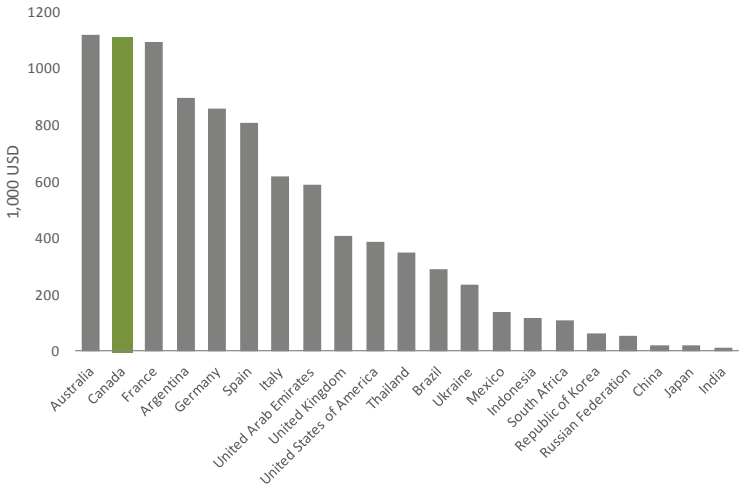

Figure 17: 2008 Agricultural Exports per Capita
Source: UN FAO (FAOSTAT)

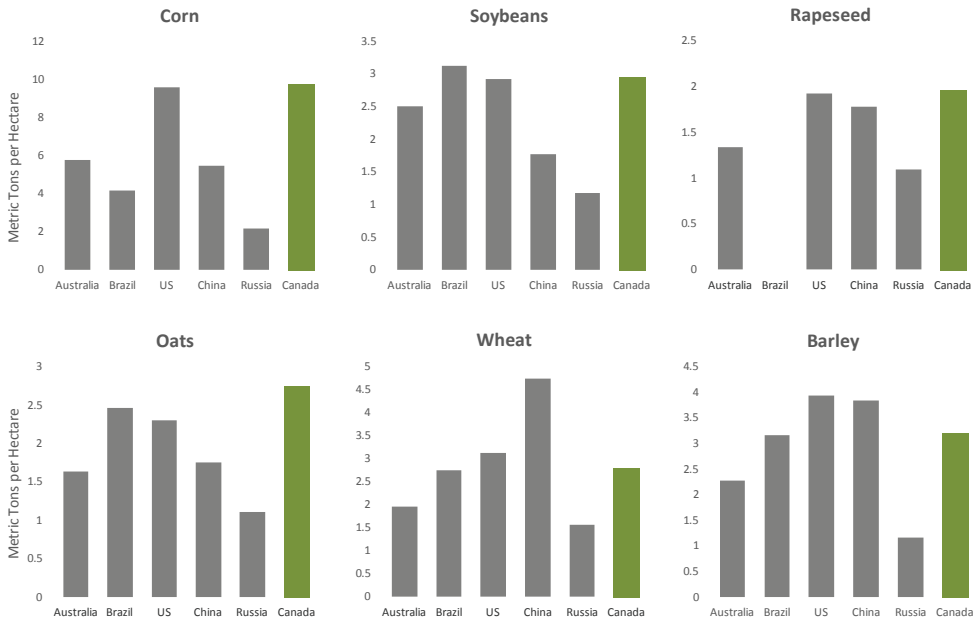

Figure 18: 2010/2011 Comparative Productive Capacity in Major Food Commodities
Source: USDA

The Canadian Federal government has recently enacted legislation to make the CWB optional for farmers, who as of August 2012 have the ability to market their own grain. Given the success Canadian farmers have had in producing and marketing non-wheat board crops, one can anticipate greater productivity from Canadian wheat and barley growers, who now have the proper incentive to increase productivity in these areas.

Despite the success and productivity of Canadian farmers, Canadian farmland still lags other major crop producing countries in terms of prices paid for land. The United States is perhaps the closest and most relevant market for comparing farmland value due to relatively similar infrastructure, political stability, and property protection; though there are significant differences in ownership rights, climate, and agricultural industry composition. At a high level however, it is clear land prices in Canada have significantly lagged those in the United States.

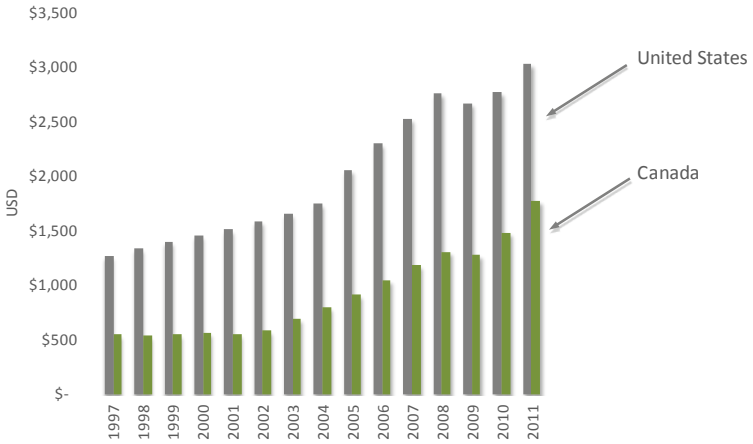

Figure 19: Relative Value of Canadian and US farmland in USD
Source: USDA, Statistics Canada, Farm Credit Canada, Bank of Canada)

Unlikely most US farmland, Canadian farmland in the Prairie Provinces has been subject to strict farmland ownership regulation that prevents any foreign interest in land. This has prevented external capital from accessing the agricultural sector, and has depressed land prices in these provinces significantly below comparable land immediately south of the US border. This has been especially true in Saskatchewan, where until recently restrictions were such that only Saskatchewan resident farmers could have an interest in land in the province. This requirement was relaxed in 2003 to allow Canadian citizens and permanent residents to invest in the provinces farmland. Recent statistics published by Canada's agricultural financing agency, Farm Credit Canada, reveal that Saskatchewan farmland values have increased significantly[21], though Saskatchewan Farmland remains attractive compared to other provinces and international farmland markets.

Structural Changes in Canadian Agriculture

Many nations have experienced major structural shifts in agriculture over the past two decades, and Canada is no exception. Greater farm consolidation and the aging baby boomer cohort continue to reshape the Canadian farming industry. Both trends require additional financing than currently available to ensure young farmers operate with a viable capital structure that is both sustainable and accretive for the farmer and suppliers of capital.

Farm consolidation has been a persistent trend over the past two decades as farmers look to amortize the cost of their highly capital intensive businesses over greater production quantities. This trend has been especially prevalent in the past decade as the baby boomer cohort has entered the retirement phase. As the following chart illustrates, average farm size in Canada has increased 30% in the 20 years between 1991 and 2011.

Increases in the efficient farming scale have been the primary driver of increasing farm size. As the capacity of modern machinery and equipment increases, accumulating enough land to amortize this capacity efficiently has been a major challenge for producers. In addition to financing greater plant, equipment, and input requirements, farmers must also finance greater land costs within a modern production model; this can entail thousands or even tens of thousands of acres for a single operation. For many operators this is simply beyond the capacity of their financial resources without additional capital. Over reliance on financial leverage can leave farmers in highly precarious positions, given the level of business risk inherent in the industry. For many farmers, direct equity participation can be problematic given the cumbersome regulatory environment investors must negotiate that precludes participation of many large sources of capital. For the Canadian agricultural sector to access badly needed capital, suppliers of capital must understand the opportunities in Canadian agriculture and the mechanisms available to them that can provide that exposure.

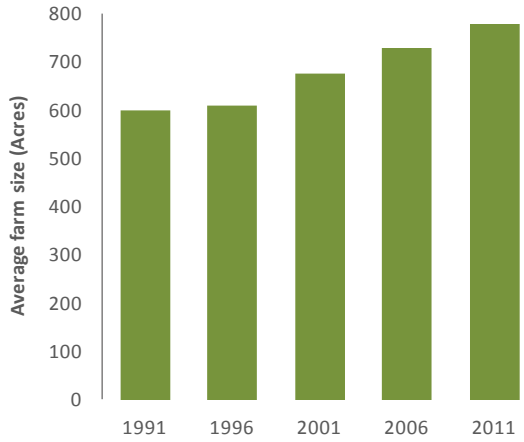

Figure 20: Average Canadian Farm Size 1991-2011
Source: Statistics Canada

The generational transfer between retiring baby boomers and young farmers has also driven the need for greater consolidation and capital. Retiring farmers need options to liquidate some of their business assets to fund their retirement, while younger farmers desperately need access to capital to enter the industry and reach an efficient production scale. Neither young farmers nor retiring farmers have access to adequate capital to address their needs given the scale of the financing gap in agriculture. The percentage of Canadian farmers over 55 years old increased substantially over the past 20 years, reaching 48% of farmers as of the 2011 Census of Agriculture (See Figure 21). The total value of farmland on the other hand, reached well over $250 billion in 2011[22], a large portion of which is controlled by the retiring farmer cohort. This represents a massive need for succession capital given the aggregate value of the assets held by this cohort. The scale of the ongoing demographic transition and the need for succession financing over the coming decade represents an excellent investment opportunity in a dynamic sector with excellent prospects in the years to come.

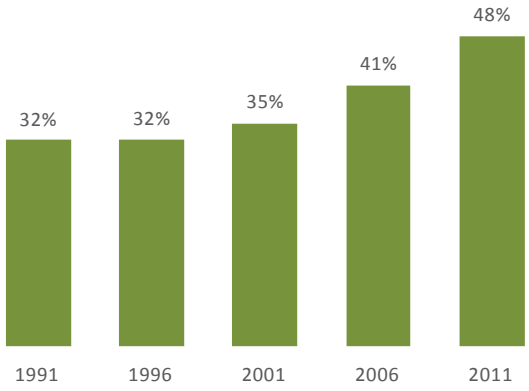

Figure 21: Proportion of Canadian Farmers over 55 years in age (1991-2011)
Source: Statistics Canada Census of Agriculture

Conclusion

Canadian agriculture has experienced a resurgence over the past several years, particularly in the grains and oilseed sector as prices of commodity crops have reached record levels in nominal terms. Numerous macroeconomic trends have led to major shortages in agricultural commodities, driven primarily by population growth, rising income in developing nations, and substitution of food for fuel, contributing to drastically increased demand for global agricultural products. These trends appear set to persist in the coming decades, and will continue to add pressure to an already highly precarious global supply and demand scenario.

While demand has continued to boom, global supply of agricultural goods have not kept pace. Declining growth of productivity in the decades following the Green Revolution has led to major supply shortages, while increasing supply through farming additional land appears to have very limited potential because most productive land has already been brought into production. Existing land also faces major threats from overproduction, soil degradation, urbanization, climate change, and water insecurity, exacerbating the already strained supply situation. The past decade has seen consumption of agricultural goods exceed production in a majority of years, and may indicate a secular shift in agricultural economics from abundance to scarcity in the years to come.

Canadian agriculture has numerous supply advantages that should place its agricultural sector in an enviable position in the coming decades. Canada's ample supply of stable arable land, plentiful water, access to agricultural inputs, stable government, and excellent trade infrastructure provide the Canadian agricultural sector with an unparalleled advantage. In addition Canada has experienced relatively benign effects from climate challenges that have placed extreme stresses on producers from other nations in recent years; a situation that many predict will persist in coming years.

While Canada's physical advantages have manifested dramatically in recent years, the nation's farmers still face challenges accessing vital capital to fully realize on this potential. Canadian farmers have still maintained excellent levels of productivity despite these challenges, but demographic forces present a looming financing gap in agriculture which poses a serious challenge to the industry. While the majority of Canadian farmers approach retirement, the next generation of farmers needs access to new sources of capital to allow them to transition into the industry smoothly by reaching a viable scale of production. The opportunity in agriculture and the fundamental need for capital in the sector represent a significant investment opportunity in an undercapitalized industry with extremely promising prospects for the coming decades.

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