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### **SouthGrow Regional Initiative**

### **Targeted Investment Attraction Plan And Leads**

**Prepared for:** SouthGrow Regional Initiative

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## **INTRODUCTION**

This document summarizes the research and analysis to evaluate opportunities and trends for the SouthGrow Region. It presents the results of the project and the work to complete the investment attraction strategy and to develop leads for the SouthGrow Region.

Research to date has consisted of a combination of secondary research and primary research including interviews with:

- Business Representatives In Southern Alberta
- Subject Matter Experts From Industry Associations
- Subject Matter Experts From Agriculture And Rural Development (ARD), Enterprise And Advanced Education (EAE), and other provincial ministries
- Subject Matter Experts In Livestock
- Lethbridge College
- SouthGrow Project Team
- Farm Credit Canada
- Adfarm
- Representatives from selected industries
- Internal subject matter experts In MNP

The information presented in this report is high level, and indicative rather than exhaustive. Its intent is to prompt discussion and help focus SouthGrow's efforts on key sectors and business opportunities.

This report also contains previously presented information, including the initial opportunity analyses and assessment performed for Phase 2 and Phase 3. This report is currently in draft state and can be easily modified to address any gaps or omissions that may arise.

## **OBJECTIVE**

The objective of this report is to:

- Identify the desired sectors for SouthGrow to pursue
- Develop strategies to support the growth of these sectors and attract businesses to SouthGrow
- Identify leads for companies who may invest in SouthGrow in the short to medium term (e.g. .in the next 3+ years)

The information presented in this document differs slightly from the original intent of the project. As per the Planning Session held in September, MNP inferred that there was a greater interest in exploring a "base hit" approach vs a "home run" approach to industry development. In other words, rather than solely focus on attracting large scale businesses, this report will focus on overall sector development. As a result, the report includes a mix of recommendations and leads for the SouthGrow to pursue.

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## CROSS-REFERENCE TO REQUIREMENTS

This report contains sections that address the key requirements stipulated by the SouthGrow Regional Initiative. The following table outlines where the report addresses key information sought by SouthGrow. The list is indicative rather than exhaustive, and does not address all the information found in this document.

Required Information	Reference in Report
Identify, define and clearly articulate SouthGrow's value proposition and detail the key factors that differentiate SouthGrow from other regions, showing genuine value to target companies.	<p>This information can be found in sections:</p> <ul style="list-style-type: none"> <li>• Phase 2: SouthGrow Analysis and Feasibility on page 5</li> <li>• Key Competencies for the SouthGrow Regional Initiative on page 39.</li> </ul>
Develop a regional profile showing the region's value proposition, assets and advantages.	<p>This information can be found in sections:</p> <ul style="list-style-type: none"> <li>• Phase 2: SouthGrow Analysis and Feasibility on page 5</li> <li>• Phase 2: Comparative Analysis (Benchmark) on page 13</li> <li>• Key Competencies for the SouthGrow Regional Initiative on page 39</li> </ul> <p>Furthermore, this information was summarized into a separate two page regional profile.</p>
Identify opportunity profiles or business cases (minimum five) showing the feasibility of these opportunities for the SouthGrow region based on the above three points.	<p>This information can be found in Phase 2: Trends and Opportunities Analyses section on page 17. The full opportunity analyses were provided in the materials used for the September 3, 2013 planning session.</p>
Industry sector profiles that encompass the opportunities showing competitive advantage and benchmarking analysis.	<p>This information can be found in Phase 3: Industry Analyses on page 21.</p>
Develop investment attraction profiles that can be used to market the opportunities nationally and internationally, matching the drivers for a decision to invest with what SouthGrow has to offer.	<p>Investment attraction profiles were developed as separate documents, using information in the following sections:</p> <ul style="list-style-type: none"> <li>• SouthGrow Strengths on page 5</li> <li>• Phase 3: Industry Analyses on page 21</li> <li>• Key Competencies for the SouthGrow Regional Initiative on page 39</li> </ul>
Recommended national and international business leads in agriculture, value-added agriculture, and manufacturing sectors with accompanying analysis and selection criteria	<p>This information can be found in the following sections:</p> <ul style="list-style-type: none"> <li>• Sector Specific Strategies on page 41</li> <li>• Leads for SouthGrow on page 46</li> <li>• Appendix 2 - List of Potential Leads on page 59</li> </ul>
Profiles for key leads, including contact information and rationale, and targeted company research	<p>This information can be found in section Lead Profiles on page 51</p>

## PHASE 2: SOUTHGROW ANALYSIS AND FEASIBILITY

**What scale and type of business can SouthGrow reasonably attract?**

The analysis undertaken focussed on the potential of the SouthGrow Region (SouthGrow) to attract agriculture, value-added agriculture, and manufacturing businesses to the region, with the further intent of growing sustainable sectors and local growth.

This section examines potential strengths which can be used to support the identification of industry/region specific value propositions. Furthermore, it assesses major weaknesses which may limit the scope of investment SouthGrow can attract without additional infrastructure or market accessibility.

The section concludes with a high level analysis of industries in the area, to identify potential gaps which could support the trends and opportunities identified later in this document.

### SOUTHGROW STRENGTHS

**Do any of these strengths constitute a competitive advantage against:**

- Lethbridge?
- Other regions in Alberta?
- Other regions in Canada?

From the interviews and research conducted during the summer, the SouthGrow Region possesses a number of traits, which can attract businesses.

**Water Availability/Irrigation Accessibility:** Analysis conducted by the University of Lethbridge calculate that SouthGrow uses roughly 50% of its water and irrigation capacity, and thus exists significant opportunity for agriculture and value-added agriculture (as well as water intensive manufacturing) industries

**Strong Growing Environment:** SouthGrow's growing season is conducive to producing a wide variety of crops and livestock, with an estimated 140 crop days and among the highest amount of sun within Canada.

**Access to Research and Development:** There are multiple centers providing for strong research and development in the SouthGrow region. These centers include the University of Lethbridge, Lethbridge College, Agriculture and Agri-Food Canada Research center, and Alberta Agriculture and Rural Development.

**Progressive and Hard Working Farmers:** The agriculture industry in Southern Alberta is recognized for its entrepreneurial and progressive farmers who are willing to experiment with new specialty crops and new equipment.

**Competitive Tax Environment:** Regions within SouthGrow have some of the lowest tax rates within Alberta, which is already known for very low tax rates within Canada.

**Brand Potential for Crops:** SouthGrow regions are recognized for high quality crops. For example, Taber corn is recognized as extremely high quality corn. Likewise, there is similar potential in other communities, such as Claresholm with its garlic, or Blood Tribe with the high quality hay it has developed.

**Strong Basis of Industrial Parks:** There are a number of industrial parks throughout SouthGrow, as well as others in development that can support new businesses and industries.

**Rail and Road Transportation:** SouthGrow is served by strong rail and road infrastructure, with an inland terminal in the Lethbridge area. Significant trade occurs between Montana and SouthGrow region. There is also the potential for broader trade with Asian markets, as already exhibited by local companies (e.g. Sakai Spice, Viterra)

**Presence and Availability of Alternative Energy:** The region has invested in renewable energy sources including wind, biofuels, methane conversion (through bio-digesters), and solar. With reduction in infrastructure costs, renewable energy opportunities could significantly increase.

**Quality of Life:** SouthGrow is a safe environment with modern amenities and high standard of living (at relatively low cost), thus offering a strong quality of life for whoever moves here. As a result, the growth rate in Southern Alberta has exceeded the provincial average of 10.8% for the period between 2006 and 2011.<sup>1</sup>

### Recognizing the Value of Lethbridge

A significant strength for the SouthGrow Region is the presence of Lethbridge. Lethbridge provides access to more urban environment, a larger labour pool, as well as significant infrastructure including research environments, transportation infrastructure, and other amenities. This strength is treated separately from the others because Lethbridge also competes with SouthGrow, but it is worth mentioning that the SouthGrow Region would not be able to generate as much interest without the presence or connection of Lethbridge. Furthermore, the recognized weaknesses of Lethbridge, including higher tax rates, municipal red tape, and energy rates can be used to SouthGrow's advantage, thus SouthGrow can leverage any interest in Lethbridge and position itself as a viable alternative to the City.

## SOUTHGROW CHALLENGES

**Do these challenges limit the scope or hinder the attraction of large scale facilities?**

The listed strengths can attract businesses, but they are also hindered by major challenges that impact SouthGrow:

**Availability of Labour:** An Alberta wide issue, the availability of labour is a major issue raised by existing businesses in the area, and one that will pose a challenge to attract a new facility to the area. Alberta has the second lowest unemployment rate in the country at 5% (only Saskatchewan is lower).<sup>2</sup> Furthermore, the energy industry is able to offer significantly better compensation than agriculture, value-added agriculture, and related manufacturing industries. As well, many locals simply do not wish to work in agriculture or agricultural processing jobs.

These issues have been raised by many local processors such as McCain, who have commented on the difficulty of finding consistent and sustainable labour. Labour can be attracted externally with relatively low-skilled labour, such as migrant workers (as in Brooks). Alberta provides support for such workers; however, the lack of existing labour base would inhibit large organizations from building facilities within the region

For facilities that require more skilled labour (e.g. fertilizer) the challenge would be even greater. Not only would the pay increase, but it may be difficult to attract individuals from larger urban areas to SouthGrow. Interview subjects have noted that the transition from larger population centres has been easier for young families, but singles found the apparent culture shock difficult to adjust to.

**Market Accessibility:** The SouthGrow Region is within range of major cities such as Calgary and Edmonton. Including Montana and Saskatchewan, this would provide an estimated population range of 5.5 million people. This value is relatively small compared to other major regions. Southern Ontario would have well over 10 million people and B.C. would also have access to roughly 10 million people (including Washington State). Furthermore, there are a number of similar regions to SouthGrow who compete for the same

<sup>1</sup> <https://osi.alberta.ca/osi-content/Pages/OfficialStatistic.aspx?ipid=840>

<sup>2</sup> <http://www.calgaryherald.com/business/Alberta+unemployment+rate+rises/8620612/story.html>

market populations. The mountain range also poses a challenge for reaching B.C. customers, and major American population centres are relatively far away.

As a result, the major limitation for developing large scale facilities is the proximity to market. For organizations that produce time sensitive products, there would be limited opportunities beyond the local market. For other organizations, the current mindset, especially for value-added products, is to build close to the market, rather than close to the food source, since it is typically easier to ship bulk products.

**Competition:** There are a large number of communities of similar scale and size to SouthGrow who are actively vying for new processors, manufacturing facilities, and other medium to large scale businesses. They each can offer different value propositions to offset SouthGrow's strengths. For example:

- In the United States, there are many areas that can also offer water and market access. These areas would also limit SouthGrow's ability to attract larger international players.
- In Canada, communities in South Western Ontario would have access to both a larger market and labour pool than SouthGrow. These communities also have active interest in developing agriculture and value-added agriculture opportunities.
- In Alberta, many communities are vying for the same market opportunities as SouthGrow. They may lack SouthGrow's water, but they have other potential offerings including proximity to larger urban centres, more direct shipping routes to urban centres, and direct access to energy resources (such as natural gas).

As a result, there is significant competition for the interest of medium to large companies. Because of this competition, medium to large companies have the ability to set the terms of their entry, and obtain more promising incentives to benefit their operations.

**Infrastructure Limitations:** The region has some limitations regarding its infrastructure. Shipping is predominantly bulk shipping with a significant portion going through the United States. The local airport, a regional airport, limits the scale of air travel to the region, thus decreasing its accessibility. As a result, there are limitations for the accessibility and shipping of certain products and resources. One of the identified needs for the region was a local container yard and supporting infrastructure capable of operating on global market standards.

**Regulatory Water Limitations:** Key stakeholders are not aware of the availability and accessibility of water in the SouthGrow Region. Furthermore while water is available, there are hurdles to acquire licenses and address regulatory issues (including transboundary issues). These issues prevent companies and stakeholders from recognizing SouthGrow as a viable region for their operations.

Based on these limitations, SouthGrow will need to ensure that it is clear on its value proposition for the targeted companies. There are many regions vying for big organizations, and to compete against the regions SouthGrow needs to be able to clearly communicate its value. The value will differ depending on the industry and the other regions that SouthGrow competes against. For example, the value that SouthGrow can offer when compared to other regions of Alberta is different than other regions in Canada.

## POTENTIAL GAPS

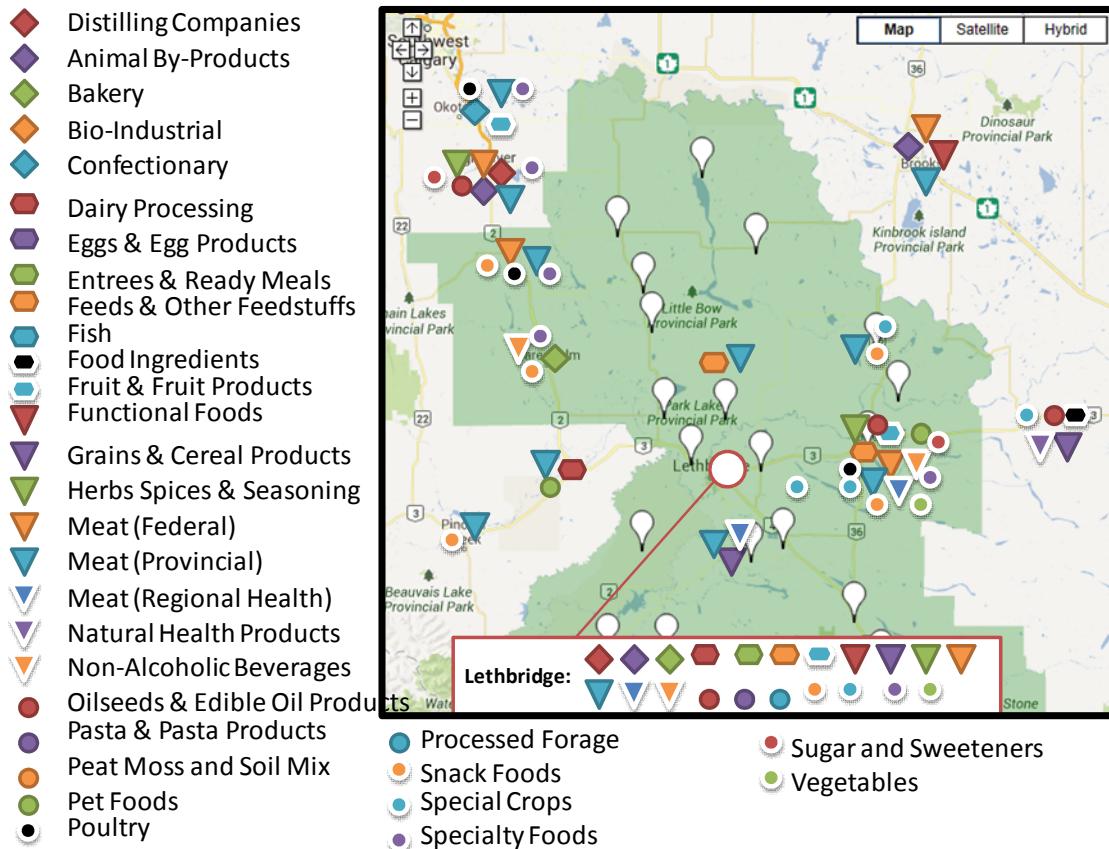
### What opportunities do gaps in industry present for SouthGrow?

In this section, potential gaps in industry were examined to identify potential areas where opportunities may be uncovered. This examination was not exhaustive, but provided a basis for further analysis.

Based on Alberta's Agricultural Processing Industry Directory, the following types of processors are located in and around SouthGrow.

**Note:** This figure does not show how many facilities there are in a specific area (Lethbridge has multiple dairy processors for example), but that the type of facilities are present in the region. Also, a single company can represent multiple types of facilities. For example, Lucerne counts as Non-Alcoholic Beverages and Specialty Foods, among other categories.

**Types of Agricultural Processors in and Around SouthGrow**



Based on the processor listing, there appears to be gaps in both confectionary processors and bio-industrial processors who could utilize local crops to make value-added products. Furthermore, Entrees & Ready Meals is only represented by a single facility in Lethbridge (Let's Pasta). ALMA and other organizations have been looking for more entrees and value added beef products in Alberta, and given the proximity to both High River and Brooks, as well as the location of a number of crops, the SouthGrow Region could be potential for processors specializing in entrees and meals.

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

A number of processors in the area focus heavily on potato products. Considering sugar beets and pulses are grown as readily in the area, there could be opportunities for more processing for these other crops.

Furthermore, there may be processors in nearby areas who may wish to relocate. SouthGrow may be able to offer a more stable environment than external regions.

Secondary processing such as entrees or meals would benefit significantly from increased research capability in the region. The Government of Alberta has established significant food processing development in testing capabilities, with functional test kitchens, which are in use near Edmonton. As noted during the conducted interviews, Southern Alberta lacks sizable test kitchens, which could be used to drive development of secondary processing opportunities. This infrastructure may be required to help promote the SouthGrow Region.

The manufacturing industry (not including agriculture related manufacturing) is relatively small compared to agriculture in SouthGrow and Lethbridge. In a survey of over 60 Southern Alberta businesses conducted this summer, 22 were classified as manufacturing, with a significant number acting as branch offices or retailers for larger manufacturers. A strategy for the region has been to reach out to large organizations and attract smaller divisions or branch offices to serve Southern Alberta. Over half of the surveyed manufacturers were branch or division offices

Some of the more notable sectors attracted include:

- Plastics manufacturers
- Metal manufacturers
- Aerospace (Pratt & Whitney engine assembly)

In addition, a number of local manufacturers supported construction and agriculture industries, with HVAC systems, and farm equipment, among other products.

Traditional energy has largely avoided the region, with manufacturing support stronger in communities further north. Previous attempts at natural gas exploration have not yet resulted in any opportunities in the region, and with low anticipated prices for gas, will remain relatively unattractive on its own. As for renewable energy, related manufacturers are not yet strongly established in the region. With the region's focus on new renewable energy developments, perhaps there is greater opportunity to related manufacturing and support.

## PROVINCIAL AND NATIONAL SUPPORT

### How can SouthGrow best use Alberta and Canada's incentives to promote its value?

Alberta and Canada have a wide array of programs designed to promote economic development. For SouthGrow to best promote the region, it should consider leveraging some or many of these programs to attract companies. The following table contains a sample listing of potential programs and incentives to consider:

Program/Incentive	Description	How SouthGrow Can Benefit
Growing Forward 2	The Government of Canada is investing \$3 billion to support agricultural programs and services. In Alberta, this includes support for processing automation, market development, business opportunity evaluation, and management skills development.	SouthGrow could use these funds to conduct follow up studies to communicate the potential opportunities and benefits for promoting innovative agriculture processing opportunities, such as aquaponics or biomaterials. Such studies could further position and strengthen SouthGrow as a location for sustainable industry development in key

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

		sectors.
Rural Alberta Development Fund	The Rural Alberta Development Fund is a not-for-profit organization that works with rural communities, regional alliances and organizations to kick-start projects that would contribute to the betterment of rural Alberta.	All funds have currently been allocated and will be disbursed by March 31, 2014. However, if this program were to continue it would provide SouthGrow the opportunity to apply and potentially gain funds for the development of projects in rural SouthGrow.
Alberta Crop Industry Development Fund	Targeted to work with Alberta's agricultural crop based manufacturers and growers to grow their own businesses. Aimed to increase manufacturing using Alberta grown crops. Will provide up to 25% of eligible project cash costs up to a maximum of \$100,000 per project.	This gives growers within SouthGrow the support to develop new food and industrial products made from crops within the region, which would lead to an increase in processing demand for Alberta crops. The manufacturing of ingredients and products aligns well with the identified opportunities listed in later sections.
Alberta Livestock and Meat Agency	Offers programs under Growing Forward but also a Research and Development Program aimed to grant assistance to entities innovating Alberta's livestock and meat industry. Also an Industry and Market Development Program supporting business, market and capacity development in the livestock and meat industry.	SouthGrow could use these funds to conduct research and business development in the livestock area.
Ag Research Fund	AVAC invests in early-stage value-added agribusiness companies and agriculture research; information and communications technology companies; life sciences and industrial technology companies; and early stage venture funds.	This resource aligns with the goal to enhance value-added agribusiness in the SouthGrow region.
Alberta Farm Loan Program	Designed to provide financing needed to start, develop and grow farming operations. Available to Canadian citizens or landed immigrants. Up to \$5 million for an individual of any group of connected individuals or companies.	An attractive incentive for start-up or growth of farming operations for members within SouthGrow or for immigrants planning to live in the SouthGrow region.
Alberta Agricultural Research Institute	The primary agency in Alberta for funding, coordinating and promoting strategic agricultural initiatives in research, development and technology transfer for the agriculture and agri-food sector. Focuses on life sciences, environmental and value-added technologies and continued emphasis on improving primary production technologies.	SouthGrow may use this agency to gain funding for research and development in relevant categories, as well as the potential for on-going research and development funding which is also offered.
Alberta Metal Fab Innovation Program	Provides innovation and improvement opportunities for Alberta companies and stakeholders, allowing them to gain access to both production and business enhancement expertise.	This program may be utilized by SouthGrow in the event of pursuing metal manufacturing opportunities as discussed in later sections.

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

In addition to the programs listed, there are many economic development and research support programs including grants, international partnership support, tax credits, and more which should be considered to support the development and communication of SouthGrow's value proposition.

## PREVIOUS SUCCESSES AND FAILURES

### What learnings can be taken away from previous investment attraction attempts?

During the conducted analysis, multiple past successes were identified (for Southern Alberta in general), as well as instances where investment attraction did not produce long-term benefit. Successes include the attraction of large companies like Lucerne, McCain, and Maple Leaf Foods to the region. In these instances, the value proposition was clear to the organizations and has resulted in long-term benefits for the region. These companies have noted issues with labour availability, but they are committed to the area.

In addition, to these successes there were some notable instances where the company did not survive in the region or the impact of the company significantly changed the region:

- **Small Scale Livestock Processing:** As noted during the analysis, small to medium scale livestock processing lacks the efficiency and scale to be successful; however, there were attempts to approach niche markets. One such example was the development of a kosher livestock processing facility, in which rabbis were imported to bless the meat. Despite the relatively strong business case for the operation, it was not able to generate enough revenue, and subsequently closed.

**Potential Take-Aways:** An apparently attractive niche opportunity may not generate the intended results in industries that thrive on significant scale. The market value has to be significant to support longevity.

- **Brooks and Immigration:** The development of Brooks' large scale meat processing facilities transformed the community by bringing in over 2,000 migrant workers to the area. For better or worse, the community changed. For the immigrants, they faced cultural challenges, language issues, displacement and isolation. For the existing community, there were also significant challenges as the environment was transformed. Substance abuse in youth climbed, hard liquor drinking increased, and as well crime increased. The community is now recognized as a multicultural community, but quality of life has been affected.

**Potential Take-Aways:** It would be worthwhile to consider the potential social impact that a medium-to-large organization can have on specific regions. If SouthGrow takes pride in the current community environment, is it prepared for the inevitable change that would be required to attract the labour required for certain facilities?

## DISCUSSION AND POTENTIAL ALTERNATIVE APPROACHES TO CONSIDER

**What is the most effective way approach to attract investment in the region?**

**What approaches should be pursued?**

This project's target is to attract a large scale or multiple large scale businesses to the region. However, the challenges raised, especially market size and labour availability would significantly hinder the ability to attract large organizations. Furthermore, there needs to be a strong value proposition that can help differentiate SouthGrow from other regions. Many of the strengths identified can help promote the region, but they may not be sources of competitive advantage, at least for a large organization that is being attracted by multiple regions throughout North America and the world.

As a result, the Project Team may wish to consider some alternative or complementary approaches to foster the development of rural business. This could include:

- **Attracting City of Lethbridge based businesses (inter-regional promotion):** Identify potential agriculture and value-added agriculture opportunities for the City, and see if they're interested in SouthGrow as an alternative. Some potential opportunities could include biomaterials processors already looking to the Lethbridge area.
- **Attracting mid-scale businesses, with the intent of fostering sector growth (base hits vs home runs):** The SouthGrow Region could focus on more mid-scale development to foster overall industry growth, which would be easier to attract than a large facility. Similarly, other regions have focussed on attracting large business development through the creation of small facilities/centres in the region.
- **Focussing on incentives to promote expansion and growth of existing facilities:** It is easier to expand existing facilities than to attract new ones, and communities within SouthGrow may wish to pursue incentives (such as preferred tax rates for long-term investment) to encourage existing producers to expand their operations. In addition, other regions have been considering promoting joint investments of producers in seed and other support industry development, to ensure that they control their own value-chain. The communities may wish to pursue such approaches, or tie into existing ones such as Buy Alberta campaign.

The likely approach would be a combination of different strategies and would depend on the selected opportunities SouthGrow wishes to pursue.

## PHASE 2: COMPARATIVE ANALYSIS (BENCHMARK)

Analysis was conducted against other communities to identify best practices, potential competitive advantages for SouthGrow, and directions which could influence SouthGrow's development. This analysis considered two major factors:

- Potential advantages and opportunities for SouthGrow within Alberta
- Competitive offerings for other national and international regions

The section concludes with a listing of initiatives underway in comparison communities.

### ALBERTA COMMUNITIES

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#### How can SouthGrow compete against other regions in Alberta?

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A table comparing various factors between SouthGrow, City of Lethbridge, Palliser Region, and Red Deer is included in Appendix 3.

This table compares SouthGrow strengths and weaknesses against other regions in Alberta. These regions are treated separately because they will share common strengths and weaknesses (e.g. labour availability) that may not be present in areas outside of the province. Furthermore, by examining the local communities, there is potential for competitive opportunities for the SouthGrow Region.

Of strategic interest are the potential advantages that could be realized against neighbouring regions. A number of companies have raised frustrations regarding the City of Lethbridge. Specifically, they do not like the higher tax rate, perceived restrictions to energy costs, and inefficiency and delays for permits and other documentation. From our analysis, this is likely a vocal minority, but it raises the potential for attracting companies outside of the City, especially for those that align with SouthGrow's interest.

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#### Discussion Item: Should SouthGrow consider the a value Proposition, in which it promotes the same environment, amenities and access to Lethbridge, but cheaper?

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Based on the developed table, the SouthGrow region has significant areas of attractiveness in comparison to other regions within Alberta, specifically:

- The abundance of water as a resource;
- A longer growing season with mild temperatures;
- Lower taxes than the city of Lethbridge; and
- Strong research and innovation potential with the presence of the University of Lethbridge and Lethbridge College.

This gives the SouthGrow region an advantage when trying to attract investors, especially those who are already located in and around Alberta. However, the issue of labour is a significant issue that will need to be addressed in order to support future growth and investment within the SouthGrow Region.

It is also important to consider opportunities and trends being focused on by other regions in Alberta as these are also likely relevant to SouthGrow. As seen in the above table this may include value added products such as meats, pet foods, pulse processing, and greenhouses.

For SouthGrow communities west of Oldman river, there is an additional opportunity should businesses need to ship north to Calgary and Edmonton. There are examples of companies that have relocated from Lethbridge to such locations, and saved significant amounts on shipping cost and time.

## NATIONAL/INTERNATIONAL COMMUNITIES

**Other regions can offer similar strengths while addressing SouthGrow's challenges. How can SouthGrow position itself to succeed?**

Similar to the previous section, a table comparing national and international regions with SouthGrow is included in Appendix 4.

This table compares SouthGrow against national and international locations to identify competitive opportunities and potential best practices. The communities were selected for the following reasons:

- **Guelph:** Ontario community with access to a much wider market than SouthGrow. It has been actively seeking agriculture and value-added agriculture opportunities and is a significant competitor to SouthGrow on a national scale.
- **Washington State:** Southern Washington State grows a significant variety of crops and has a wide market access. It does not lack water availability, and is a strong region to compare general international agriculture opportunities.
- **Ireland:** Ireland was selected because outside of Dublin, the communities are fairly decentralized and have strong agricultural leanings. This was a recommended location to review as a means to examine both best practices and causes of economic fall-out from 2008.

The comparison of national and international communities to the SouthGrow region is, at times, difficult due to differences in climate as well as physical and social environments. . As seen in the above table, there are worldwide trends in the areas of organic farming, agri-energy and biochemicals and biomaterials

Focussing on the North American environments, there are significant environmental similarities. These regions have access to research; they have water and a strong growing environment. Furthermore, they have larger markets available to them than SouthGrow, and their unemployment rates are higher, thus indicating a greater potential for labour availability. Furthermore, the proximity to major cities (Toronto or Seattle) also suggest a greater potential for attracting new, skilled labour should the need arise.

These regions offer similar strengths to SouthGrow, while addressing some of its challenges. Therefore, SouthGrow faces additional challenges in demonstrating its value proposition at a national or international scale, when equally viable alternatives **may** exist. As a result, SouthGrow needs to consider Southern Alberta's attractiveness. Already, the SouthGrow Region can provide strong value against other Alberta regions, therefore, identifying and understanding the value proposition for Lethbridge could be an effective means of identifying SouthGrow's value proposition.

These value propositions could take into account unique or regional agriculture strengths including:

- **Crop Variety:** The quantity of fibrous plants, oilseeds, sugar beets, and other crops could serve as a strong reason to attract a large organization. Similarly, Brooks and High River were able to attract meat processing due to the presence of livestock. This becomes a more challenging issue with secondary processing and other sectors, which currently prefer to place their plants closer to market populations, but the opportunities exist for other sectors that benefit from close proximity to certain crop types.
- **Regional Accessibility:** Specifically accessing the plains and prairie regions may be a requirement for certain industries or a means to grow certain mid-size facilities to tie into emerging trends (e.g. greenhouses). If the business specifically has these needs, then SouthGrow could be well positioned against other environments.

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

In addition, communities in the SouthGrow Region may want to create special incentives or infrastructure to encourage key sectors. This could include tax incentives, value-chain support, and or research support. As well, SouthGrow may pursue additional twinning relationships with international communities to attract investment. For example, Chinese investment in the region may be promoted through stronger connections with key Chinese municipalities.

SouthGrow should also take note of programs and initiatives set out in other regions, to potentially recommend similar programs for its communities. Programs and initiatives of the regions researched above are outlined in the following section.

## NOTABLE INCENTIVE PROGRAMS AND INITIATIVES

This section outlines some of the initiatives and incentives undertaken in other communities

Region	Initiative/Program	Description
Guelph	<b>Grow Guelph</b>	Allows local companies to exhibit collaboratively under the "Grow Guelph" umbrella with a focus on providing members with Marketing and Connections.
Guelph	<b>Business Support Infrastructure</b>	Government agencies such as Ontario Ministry of Agriculture and Food and Rural Affairs, regional offices of Agriculture and Agri-Food Canada, Health Canada, Ministry of Environment and the Canadian Food Inspection Agency as well as over 100 agricultural and industry associations, 30 research centres and laboratories, 70 companies working in the field of agriculture, food and life sciences
Guelph	<b>Ag-Technology Commercialization Support</b>	<i>Ontario Agri-Food Technologies:</i> Supporting collaboration among public and private research groups, securing funding to support research and development of new technologies and to find financing for companies to produce their products <i>Guelph Partnership for Innovation:</i> Brings together the local Agri-Food and Innovation Sector to facilitate information sharing and cluster development. <i>BioEnterprise:</i> Helps to build Ag-Bio based businesses <i>Ontario BioAuto Council:</i> Links chemicals, plastics, manufacturing, auto parts and automotive assemblers with agriculture and forestry. Aim to make Ontario a global leader in the use of renewable biobased materials
Guelph	<b>Partnership of U of G and OMAFRA</b>	Over \$350 million to be invested between 2008 and 2013 in the University's agri-food and rural research, laboratory services and veterinary clinical education programs, as well as a Highly Qualified Persons (HQP) Program to attract graduate level students and prepare them to take leadership roles in the agri-innovation sector. Also a Knowledge Translation and Transfer Program to facilitate the transfer of knowledge to a broad range of audiences to get research off the shelf and into the marketplace.
Washington	<b>Strategic Plan</b>	Focuses on making agriculture a priority, eliminating regulatory barriers, protecting resources, strengthening support services, harnessing emerging opportunities (organic, sustainable and local).
Washington	<b>Speciality Crop Block Grant Program</b>	Funds for projects that enhance the competitiveness of Washington Specialty Crops and USDA grant opportunities
Washington	<b>Tax Credits</b>	<i>Rural County B&amp;O Credit for New Employees:</i> Credit for each new employment position filled/maintained by qualified businesses located in a rural county <i>High Technology B&amp;O Tax Credit:</i> For businesses conducting research and development activities in advanced computing,

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

		<p>advanced materials, biotechnology, electronic device technology, environmental technology  <i>Small Business B&amp;O Tax Credit</i>  <i>Multiple Activities Tax Credit:</i> When a business performs more than one taxable activity for the same product (for example manufacturing and wholesaling)</p>
Washington	<b>Value-Added Agriculture Producer Grant (VAPG)</b>	To encourage independent producers of agricultural commodities to further refine these products, also an information resource center to collect, disseminate, coordinate and provide information on value-added processing to independent producers and processors. Maximum amount to be awarded is \$500,000
Washington	<b>International Marketing Program</b>	Works with agricultural companies to help them export their products. Provides promotional supports, market information and access, market assistance programs, matching buyers with sellers, works with companies to find financing.
Ireland	<b>TEAGASC</b>	The Agriculture and Food Development Authority is the national body providing integrated research, advisory and training service to the agriculture and food industry in rural communities
Ireland	<b>BETTER Farm Crops Program</b>	Assists Irish tillage farmers with cutting edge technology to improve profitability and develop links between research and farmers
Ireland	<b>Options Program</b>	Aims to help farmers take a look at their current situation, explore their needs, assess options for generating additional income and create and implement a plan of action.

## DISCUSSION REGARDING INCENTIVES

Should SouthGrow consider incentives to support its value proposition?

Within Alberta, the SouthGrow region boasts an attractive position with its slightly warmer climate, abundance of water, strong research institutions, and lower taxes than other areas. However, increased investment and growth within the region may be required to be supported by labour, which is a challenge of the SouthGrow region in comparison to other regions within Alberta.

When looking at national and international markets, it can be seen that certain trends are emerging on worldwide basis. These include organics, alternative energy and biochemicals and biomaterials. When comparing these markets, the abundance of water in the SouthGrow region is a unique and attractive proposition; however, there are many communities that can offer similar strengths while addressing SouthGrow's challenges.

Other regions are offering attractive incentives, initiatives and programs as seen in the table above. In addition a search for municipal incentives results in a long list of communities delivering special grants, after-the-fact rebates, infrastructure incentives, and utility programs (among other incentives) to entice specialized development and business investment. These are often deciding factors for companies looking for locations to operate out of, and so it is important that SouthGrow not only focus on its ability to promote its abundance of water, but must also compete in areas like:

- Supporting infrastructure;
- Strategic planning for the communities;
- Marketing;
- Grants and credits; and
- Partnerships with government and research institutions.

SouthGrow may need to consider the strategic approach it needs to position itself for success with certain industries. This approach may be to focus on building clusters rather than attracting single one-off facilities.

## PHASE 2: TRENDS AND OPPORTUNITIES ANALYSES

<b>Which trends best tie into SouthGrow's own strategic direction and interests?</b>	Major national and international trends were identified through the conducted primary and secondary research, and subsequently analyzed. The trends form the basis for multiple opportunities, which the SouthGrow Regional Initiative could pursue. This section presents some significant trends, followed by an outline of related opportunities and profiles of major opportunities, which SouthGrow could pursue.
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**Note:** This list is indicative rather than exhaustive. Its intent is to provide a basis for potential opportunity development and analysis. In addition to this list, MNP will provide an internally developed overview of major food trends.

### TRENDS

Major trends which influence potential opportunities for the SouthGrow Region include, but are not limited to:

Trend	Description	Potential Impact	Related Opportunities
<b>Buy Local</b>	There is evidence of a growing interest in Albertan's purchasing local food products. For example, the market value of Alberta's 130 approved farmers markets have tripled since 2004, with close to 75 percent of Alberta households purchasing food from these markets and spending an average of \$671/year (more than twice the 2004 value of \$317/household). <sup>3</sup> At the same time, slightly older research suggests that only 40% of consumers would prefer local food. <sup>4</sup> Given the evidence, the trend shows that Albertan's are taking a greater interest in locally sourced food, yet only 30% of produce sold in supermarkets such as Safeway are local. <sup>5</sup>	<ul style="list-style-type: none"> <li>Increased interest in knowing the "story" of food</li> <li>Increased interest in Alberta sourced food products, including non-traditional foods</li> <li>Related opportunities limited to immediate region</li> </ul>	<ul style="list-style-type: none"> <li>Greenhouse (year round produce)</li> <li>Alternative food products</li> <li>Entrée and Ready Made Processing</li> <li>Fish farming</li> </ul>
<b>Branding</b>	Related to the buy-local movement is an interest in branding or understanding the value add of products, there is increased interest in branding products, including providing information and history about its care and treatment. Many provinces have undertaken branding initiatives to promote their local foods. <sup>6</sup> Such information and branding can help differentiate local livestock and produce from other regions and provide a value-add benefit.	<ul style="list-style-type: none"> <li>Increase price for food</li> <li>Increased market range for key foodstuff</li> </ul>	<ul style="list-style-type: none"> <li>Entrée and Ready Made Processing</li> <li>Logistics</li> </ul>
<b>Ethnic and Alternative Foods</b>	Currently 5.3 million Canadians are of a visible minority. These numbers are expected to increase with 1/3 of Canadians being a visible minority by 2013. With a large percentage of these people of South Asian (e.g. India, Pakistan) and East Asian	<ul style="list-style-type: none"> <li>Increased variety of food opportunities</li> <li>Potential international</li> </ul>	<ul style="list-style-type: none"> <li>Alternative Food Products</li> <li>Greenhouse</li> <li>Meat processing</li> </ul>

<sup>3</sup>Agriculture and Rural Development "Alberta Farmers' Markets More Popular Than Ever"

[http://www1.agric.gov.ab.ca/\\$department/newslett.nsf/all/agnw20915](http://www1.agric.gov.ab.ca/$department/newslett.nsf/all/agnw20915)

<sup>4</sup>Gooch, Martin "Local Food – The Untold Story"

<http://www.georgemorris.org/publications/file.aspx?id=d83b5723-1334-4254-ac7a-f0a10aac6467>

<sup>5</sup>Faulder, Liane "Buy-local food movement flourishing as consumers support Alberta producers"

<http://www.edmontonjournal.com/life/Faulder+local+food+movement+flourishing+consumers+support+Alberta+producers/8637156/story.html>

<sup>6</sup>Ference Weicker & Company " Branding BC Agriculture and Food Production"

[http://www.iafbc.ca/publications\\_and\\_resources/documents/Branding\\_Study.pdf](http://www.iafbc.ca/publications_and_resources/documents/Branding_Study.pdf)

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

	<p>decent, there is a changing interest in alternative foods. Other populations are also exploring alternative cuisines (including Asian, Latin, and South American) and thus there is a growing demand for alternative foods, such as:</p> <ul style="list-style-type: none"> <li>• <b>Pulses:</b> Alternative grain legumes which would be more common for Asian cuisine.</li> <li>• <b>Quinoa:</b> Demand for the plant has been growing, although larger agribusinesses have not invested much time and effort, yet.<sup>7</sup></li> <li>• <b>Alternative meats:</b> We're eating more rabbit than we're currently producing, and as such there is an interest in more abattoirs for rabbit.<sup>8</sup></li> </ul>	<p>market for products</p> <ul style="list-style-type: none"> <li>• Likely stronger potential for small-to-mid size organizations</li> <li>• Potential fluctuations in price as market adjusts</li> </ul>	
<b>Agri-Tourism</b>	Tourism, Parks, and Recreation have been working with ARD to promote agri-tourism in Alberta. Other provinces have engaged in agritourist experiences through the development of agritours and events. Winery tours has been a strong component, as well as maple syrup (which builds off folklore and history) to promote tourism. <sup>9</sup>	<ul style="list-style-type: none"> <li>• Increase diversity of producers' revenue</li> <li>• Limited by air accessibility</li> <li>• </li> </ul>	<ul style="list-style-type: none"> <li>• Alternative food products</li> <li>• Tourism Industry? (Conservation?)</li> </ul>
<b>Aquaponics</b>	Local researchers are investing significant time and effort to explore technology development to commercially produce fish and produce. Currently, there are no sizable commercial operations and technologies currently focus on tilapia. Lethbridge College tests have shown that a wide variety of produce can be grown through this method, including root crops.	<ul style="list-style-type: none"> <li>• Potential long-term growth</li> </ul>	<ul style="list-style-type: none"> <li>• Greenhouses</li> <li>• Fish farming</li> </ul>
<b>Bio-Fuels and Alternative Energy</b>	Renewable energy, which has been identified as a major area of interest for the SouthGrow Region, can include the development of biofuels from plants and microalgae. The development of biofuels has been controversial, and economic commercial operations (such as Kyoto Fuels) have been slow to get off the ground. The Government of Alberta also recently reduced its bio-energy initiatives program. However, there is still a 2% biodiesel mandate for Alberta fuels. In biofuels, the greatest potential lies in bio-based materials that can have multiple uses (e.g. solvents) or in higher value fuels, such as jet fuel.	<ul style="list-style-type: none"> <li>• Potential opportunity to support or augment operations</li> </ul>	<ul style="list-style-type: none"> <li>• Greenhouses</li> <li>• Renewable Energy</li> </ul>
<b>Bio-Based Products</b>	<p>Similar to biofuels, there is an emerging interest in bio-based materials and chemicals. Significant research is being done and multiple companies are already expressing interest in the Lethbridge area regarding such developments as:</p> <ul style="list-style-type: none"> <li>• Uses for flax, hemp, and canola fibre (e.g. textiles, building materials, erosion control)</li> <li>• Biobased chemicals including succinic acid (and subsequently 1,4 propanediol), glycol, methanol/ethanol, butanol and multiple specialty compounds</li> </ul>	<ul style="list-style-type: none"> <li>• Alternative uses for local crops</li> <li>• More value-added materials developed rather than simply fuels</li> </ul>	<ul style="list-style-type: none"> <li>• Bio-industrial development</li> <li>• Flax, Hemp, Camelina, and Canola production</li> </ul>

<sup>7</sup> DePillis, Lydia, "Why quinoa hasn't taken over the world"

[http://www.lehighvalleylive.com/food/index.ssf/2013/08/why\\_quinoa\\_hasnt\\_taken\\_over\\_th.html](http://www.lehighvalleylive.com/food/index.ssf/2013/08/why_quinoa_hasnt_taken_over_th.html)

<sup>8</sup> Gerson, Jen "Producers of rabbit meat seek more abattoirs to expand industry; Canadian consumption increasing" <http://206.75.155.11/Agcan/m.bbsummaries.asp?articleId=/agcan/clips/130816/f00295TP.htm>

<sup>9</sup> "Rural Tourism – An Overview" (October 2010)

[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/csi13476/\\$FILE/Rural-Tourism.pdf](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/csi13476/$FILE/Rural-Tourism.pdf)

## OPPORTUNITIES

Which opportunities (listed and unlisted) appear most attractive?

Multiple opportunities were identified and evaluated as a result of the analysis and research conducted during the summer. A list of the major investigated opportunities can be found in Appendix 5.

Based on the identified opportunities, MNP conducted additional analysis on five which seemed particularly attractive to the SouthGrow Region, and presented these additional findings in opportunity profiles.

**Note:** Copies of these original opportunity profiles can be provided. They have been removed in this report, in favour of the industry profiles found in Phase 3: Industry Analyses.

The five opportunities were chosen to provide a broad mix of short term successes, long-term growth opportunities, as well as areas to explore for SouthGrow's future strategic positioning. The five recommended were:

- **Greenhouses:** The environment is well suited for greenhouses, and with the emergence of buy local trends, this appears to be an attractive opportunity. Furthermore, SouthGrow's ability as a Regional Initiative means that it can help support negotiations and contract development with larger retailers.
- **Biomaterials/Biochemicals:** The growing interest in bio-based materials is well suited for the SouthGrow Region which has a higher variety of crops, including flax and hemp. Furthermore, biorefining is seen as a more potentially lucrative opportunity than fuel generation.
- **Secondary Processing/Entrée or Food Processing/Pet Food/Animal Feed:** There has been an interest in developing secondary processors including food processors. These would likely be smaller facilities, but it could take advantage of buy local interest, as well as branded commodities such as Alberta beef, Taber corn, or Claresholm garlic. Some of the potential products could include:
  - Confectionary products or sugar products (a significant opportunity if country of origin legislation is ever passed)
  - Pet food
  - Baby food
  - Ready made meals
- **Fish Farming and Aquaponics:** Connecting with research in the area, this opportunity would be long-term, but may be one where SouthGrow would like to position itself as an industry leader.
- **Metal Manufacturing:** Projected industry growth within Alberta combined with SouthGrow's abundance of water which is supported also by the Alberta Metal Fab Innovation Program. This sector appeared to be a stronger manufacturing based opportunity, which could support energy and agricultural sectors.

In addition to the opportunities profiled, the following potential opportunity was discussed:

- **Natural/Organic Feed:** There is a rising interest in natural, high-value, or organic feed for livestock, including cattle. With SouthGrow's crop mix, it could position itself as a leader in this area.

## PHASE 2: CONCLUSION

**SouthGrow  
should focus on  
base hits over  
home runs**

The information presented above was discussed on September 3, 2013 during the Planning meeting. The Project Team discussed preferred approaches to business attraction in the region. While the team is open to multiple possibilities and options, there was a consensus that a “base hit” approach in which smaller opportunities are pursued with the intent of growing key sectors within the region would be preferable than focussing on major “home runs” of major companies. Among the reasons for this:

- SouthGrow’s labour availability can more easily support medium sized facilities rather than larger facilities
- There are more smaller businesses to pursue and therefore more opportunities to demonstrate short term benefit
- The SouthGrow Regional Initiative can provide more value facilitating and representing groups of smaller businesses (as opposed to larger multinationals like ConAgra) to ultimately grow a sector or industry.
- A larger number of smaller businesses (as opposed to one large facility) reduce the overall risk to the communities should one organization fail or move.

As a result, the focus of the investment attraction strategy supports the development of industries and sectors for the region. With this intent, the leads included in Phase 4 consist of a range of organizations from medium to large enterprises.

**SouthGrow  
Regional  
Initiative’s value  
proposition  
includes the  
ability to  
facilitate the  
introduction  
(and overcome  
regulatory  
hurdles) for new  
businesses**

All recommended opportunities were accepted; however, the animal feed processing opportunity was refined to focus on opportunities in support of feedlots (e.g. feeds and bio-energy). The final approved list is described in the intro to Phase 3: Industry Analyses

In addition, the Project Team discussed value propositions for the SouthGrow Region. Among these propositions, the SouthGrow Regional Initiative can facilitate sector development through such activities as:

- Facilitating the acquisition of water permits for new businesses
- Negotiating arrangements with major retailers for groups of new business entrants (e.g. negotiating greenhouse produce arrangements with Safeway)
- Coordinating additional research and studies to promote the attractiveness of SouthGrow for the key sectors
- Collaborating with municipal, Government of Alberta, and Government of Canada programs and services to promote local sector development
- Advocating for member community infrastructure and incentives to attract specific companies and industries

For each sector evaluated, in the following sections, consideration is given to steps SouthGrow Regional Initiative can take to promote the region and improve its attractiveness to external organizations.

## PHASE 3: INDUSTRY ANALYSES

The industry analyses included in this section present a high level overview of the targeted sectors. In each description, key points are presented:

- The global condition and trends of the selected industry
- The state of the industry within Alberta and the SouthGrow Region
- The SouthGrow Region's value with respect to the industry
- Potential activities the SouthGrow Regional Initiative can undertake to improve the Region's value and attractiveness to investment.

At the conclusion of each analysis, the industry's attractiveness is given a letter rating. This rating is assessed holistically based on the potential scale of the opportunity, the potential benefits for the region, and SouthGrow's ability to attract and grow the sector.

The industries analyzed were agreed upon during the September 3, 2013 planning meeting. They include:

- Feedlot Opportunities (with a specific focus on energy, natural/therapeutic feeds, and natural beef)
- Greenhouses
- Biochemical/Biomaterials (which also include canola processing, sugar processing opportunities)
- Metal Manufacturing
- Fish Farming/Aquaponics

Grains processing was also evaluated; however, subject matter experts recommended that that SouthGrow not actively pursue this sector. They argued that grains processing, especially pasta, was too much of a commodity, requiring economies of scale to be commercially viable. With SouthGrow's market access limitations, the size of the companies may be too small for SouthGrow to focus on, and further, the overall sector may not be large enough to focus on attracting multiple pasta companies as compared to the other industries identified.

## FEEDLOT OPPORTUNITIES

### Global Industry Overview<sup>10</sup>

#### Demand is tied to food consumption trends

Demand for meat, poultry, and dairy products are driven by domestic food consumption trends. The profitability of individual farms depends on efficient operations. Large companies have advantages in vertically integrated operations and economies of scale. Small operations can compete effectively by supplying local markets, specializing in heritage breeds, or raising humanely treated or hormone-free animals.

#### Advances in technology have improved genetics and breeding, and this trend is projected to continue

Major inputs common to most livestock and poultry farms include feed, fencing, vaccines, animal branding and identification tools, and transport vehicles. Although larger producers have automated many processes, such as for milking cows or feeding animals, most farms still depend heavily on low-paid manual labour.

Issues to consider within this industry are volatile market and feed prices, and consumer consolidation.

The recent EU trade agreement has significantly raised quotas for beef (50,000 tonnes/year) and pork (80,000 tonnes/year). Furthermore, Europe's opposition to GMO products poses a potential opportunity for alternative feeds and more natural beef and pork.

Important industry trends and opportunities to consider are:

- **Increased Concentration, Specialization:** Large commercial animal feeding operations have become so efficient at raising animals that smaller operators can't compete based solely on price.
- **More Vertical Integration -** With ongoing livestock industry consolidation, market access is a serious problem for smaller producers. Close alliances with meatpacking and feedlot segments enable larger farms to negotiate better prices and contracts.
- **Immigrants Lower Labour Costs** - Foreign labour, mostly from Mexico, make up an increasing share of hired farm labour. Farmers can hire seasonal agricultural workers under temporary worker programs.
- **Energy-From Waste Systems** - Manure management is moving beyond traditional fertilizer use to systems that can convert animal waste into biofuel.

### Trends in Alberta and SouthGrow

#### The methane gas produced from digesters can be used as fuel for heating or to run gas engines to produce heat and electricity

Southern Alberta has some of the largest confined animal feedlot operations in Canada. These facilities produce large quantities of organic residuals such as manure, straw and livestock processing waste. In Alberta, anaerobic digestion facilities typically use livestock waste and manure as the main feedstock for biogas production (60 – 70% methane).

The Southern Alberta Energy-From-Waste Alliance (SAEWA) is a coalition of waste management jurisdictions committed to researching and recovering for implementation technological applications for recovering energy-from-waste materials. Since July of 2010, SAEWA has explored opportunities to develop an Energy-From-Waste (EFW) facility in Southern Alberta.

The marketability and value of compost is strongly influenced by the quality of the output compost, which is dependent on the nature of the input feedstock and the processing technology applied. The table below illustrates inventory of livestock and municipal feedstock materials and their biogas energy potential in Alberta<sup>11</sup>.

<sup>10</sup> <http://mnp.1stresearch.com/industry.aspx?chapter=0&pid=375>

<sup>11</sup> [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex11397](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex11397)

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

Feed Material	Total Solids %	Volatile solids % of total solids	Biogas yield M <sup>3</sup> /tonne	Annual biomass production in tonnes	Annual energy potential in PJ	Methane Content %
Beef cattle manure	8-12	80-85	19-46	22,955,019	8.7-21.1	53
Hog manure: grower to finisher	9-11	80-85	28-46	1,848,415	1.0-1.7	58
Dairy manure	12	80-85	25-32	3,217,714	1.6-2.1	54
Poultry manure	25-27	70-80	69-96	284,342	0.4-0.5	60
Animal fat	89-90	90-93	801-837	87,000	1.4-1.5	N/A
Animal carcass (homogenized bovine)	34-39	90-93	348-413	264,023	1.8-2.2	N/A
Municipal wastewater sludge	30-20	90	17-140	539,835	0.2-1.5	65
Total straw and other roughages	70	90	105-158	2,654,585	5.6-8.4	60-70
Thin stillage (ethanol by-product)	7	-	58	105,000	-	50-60
Total manure (including municipal sludge) and straw and other roughages	-	-	-	31,850,933	21-39	50-70
Alberta's Existing Energy Consumption <sup>12</sup>	*Increasing at 72 PJ/year				2450	

**Biogas energy production can result in an additional revenue stream for producers while increasing rural employment opportunities**

Large amounts of cattle manure are available for biogas production; however, using these large amounts of available manure has posed many challenges especially with regard to diluting, pumping and mixing. Cattle manure usually contains sand and feed spills such as straw and hay, which can pose operational challenges. In addition, solid cattle feedlot manure requires diluting before processing in an anaerobic digester.

Co-digestion opportunities exist whereby different streams of agricultural wastes are processed in an anaerobic digestion facility. In Europe, for example, these facilities are designed to produce biogas in the range of 40 to 150 m<sup>3</sup>/ton of materials fed. Adopting co-digestion techniques to produce biogas may also provide flexibility for farmers to rotate crops appropriately and grow energy crops to generate additional revenue. The availability of large quantities of livestock solid manure as well as liquid manure along with thin stillage provides an opportunity for the developing biogas industry in Alberta.

With the announcement of the Comprehensive Economic Trade Agreement (CETA) between Canada and the EU, tariffs will be eliminated and foreign investment will be encouraged. Once eliminated, 98 percent of EU and Canadian tariffs will be eliminated immediately. For Canadian beef producers, this means they will be able to sell an additional 50,000 tonnes of

<sup>12</sup> [http://www.ai-ees.ca/media/6950/bio-mass\\_energy\\_possibilities\\_for\\_alberta\\_to\\_2100.pdf](http://www.ai-ees.ca/media/6950/bio-mass_energy_possibilities_for_alberta_to_2100.pdf)

beef to European markets. This translates to over \$600 million which signifies a substantial opportunity for the Canadian beef industry. With the EU currently having a long standing ban in place on hormone treated beef, Canada's internationally recognized quality and safety standards for beef will generate increased consumer demand in European markets.

## Value Proposition of SouthGrow Region

**Feedlots produce a lot of waste which is an existing economic and environmental cost and could be turned into a new revenue stream**

These industry opportunities would attract investment in the SouthGrow Region for multiple reasons including:

- **Quantity of Waste Produced by Existing Feedlot Operations:** Anaerobic digester technology can stabilize most agricultural, domestic and industrial organic waste and produce renewable energy by burning the biogas produced during this process. Such technology would turn an economic and environmental cost into a new revenue stream for existing feedlots.
- **Producers Interest in Finding New Revenue Streams:** Feedlot operators have expressed interest in improving their margins and generating new revenue streams, and would be interested in pursuing opportunities for Feedlots
- **Support from Other Government Organizations:** Agriculture and Rural Development (ARD) and other organizations have programs available to support the adoption of new technologies, especially ones that improve Alberta's environmental performance and social license.
- **SouthGrow Regional Initiative Can Help Coordinate Local Producers:** The SouthGrow Regional Initiative can help coordinate local producers. This work could include negotiating waste collection and energy retail agreements. Furthermore, it could also include cross-industry development with greenhouses or other sectors that could benefit from feedlot bio-energy.

## Opportunities to Increase Competitiveness

To increase the likelihood of success for these industry opportunities, SouthGrow Regional Initiative can undertake a number of initiatives including, but not limited to:

Activity	Reasoning	How to Fund / Implement
Undertaking a study of specific feed requirements, designs, and opportunities, with a special focus on the European Union markets, to increase opportunities for Southern Alberta beef	There's a recognition that the EU-Trade Agreement represents a major opportunity for beef and hogs; however, there could be a better understanding of exactly what potential exists and how new feeds and other developments could positively impact the industry	Growing Forward 2

## Overall Rating of Potential

**A-**

With the new EU trade agreement in place, the market for Canadian beef and pork has been increased substantially. Furthermore, the increased interest in non-GMO products as well as the interest in improving Alberta's social license creates opportunities to explore such opportunities as bio-energy and alternative feeds.

However, the pace of SAEWA's activities suggests that developing a larger scale facility would require significant investment of time. Furthermore, SouthGrow would not want to duplicate or overlap SAEWA's efforts, especially when other opportunities are emerging.

It should also be noted that this is an established sector, in which big players are consolidating. Industry growth will likely focus on expanding existing feedlots rather than attracting new entrants. As a result, the opportunity is strong, but would require a solid investment of time and effort, which is already being undertaken by other Southern Alberta organizations.

## GREENHOUSES

### Global Industry Overview<sup>13</sup>

Companies in this industry typically produce vegetables, melon crops, seeds and bedding plants. Vegetables may include lettuce, carrots, tomatoes, cucumbers, peppers and potatoes.

**Large companies require access to labour and markets**

Global industry growth is currently rated at medium. Demand is driven by population growth, consumer interest in healthy eating, and government programs promoting fresh produce. Profitability of individual companies depends on maximizing crop yield and minimizing loss from disease or insects. Large companies have advantages in diversified crop production and access to labour; small companies can compete effectively by specializing in organic, heirloom or specialty crops.

Common inputs include seed, plants and vines; chemicals to control weeds, disease and insects; fertilizer to condition soil; and machinery and supplies. Operator and hired farm labour is also an important input, as tender plants and fruits are typically hand-harvested. The industry is highly seasonal, so an influx of labour may be needed at specific times.

**Increased demand for fresh produce is supporting greenhouses, as well as the adoption of technology and increasing crop diversity**

Some issues to consider within this industry are volatile yields and prices, and dependence on seasonal labour.

Important industry trends and opportunities to consider are:

- **Fresh vegetables diversify:** Sales of fresh vegetables labelled “other” have increased in the past 20 years. This is driven by a more ethnically diverse population, and higher demand for specialty and organic produce.
- **Fresh takes over processed:** Demand for processed vegetables has declined as consumers eat more fresh produce. Recent gains in fresh consumption include asparagus, broccoli, and carrots.
- **Direct marketing:** Farms are exploring marketing directly to consumers as a way to increase grower-packer spread. This includes on-farm markets, farmers markets, and community supported agriculture programs.
- **Switch to machine harvesting:** Some farms are investing in modified farm machinery to lower the dependence on seasonal labour. Better machinery allows for less hand-harvesting, which can lower operational costs.
- **Technology:** Installing state of the art technology to increase per unit production, reduce energy consumption, and improve overall operational efficiency.<sup>14</sup>

### Trends in Alberta and SouthGrow

**Supply for local markets are currently meeting demand for traditional greenhouse vegetables**

A 2012 industry study estimated the Alberta greenhouse industry as the 4<sup>th</sup> largest in Canada at 315 acres (5% of Canadian greenhouses are in Alberta), with a gross revenue estimated at \$150 million per annum. This industry currently employs over 1,500 full time and 3,000 part time people.

The Medicine Hat region contains the largest percentage of greenhouses in Alberta (23%) followed by Central Alberta (20%). Southern Alberta (including Lethbridge) accounts for only 4% of total Alberta greenhouses. A comparison of industry area against population shows that Southern Alberta (.15 sq metre per person) is equivalent to Edmonton and Calgary (0.11 and .12 sq metre per person, respectively). However, Medicine Hat dwarfs all three at 4.39 sq metres per person.

<sup>13</sup> <http://mnp.1stresearch.com/industry.aspx?chapter=0&pid=375>

<sup>14</sup> [http://www.fcc-fac.ca/en/learningcentre/knowledge/doc/Greenhouse\\_study\\_e.pdf](http://www.fcc-fac.ca/en/learningcentre/knowledge/doc/Greenhouse_study_e.pdf)

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

Vegetables account for 43% of Alberta's greenhouse area (135 acres) with bedding plants at 44% (139 acres) and tree seedlings at 13% (41 acres). Vegetables are predominantly grown in the Medicine Hat region, as shown:

Vegetable	Greenhouse Area	Gross Margin per m <sup>2</sup>	Regions
Cucumbers	76 acres	\$11.12	Medicine Hat (80%), Central/Red Deer
Tomatoes	37 acres	\$20.39	Medicine Hat, Central/Red Deer
Peppers	16 acres	\$3.82	Medicine Hat, Central/Red Deer

### Potential opportunities for increasing retailer's percentage of local produce by exploring alternative crops

Only 6 acres of greenhouse area is devoted to lettuce and other crops.

Alberta vegetable greenhouses typically operate over a 10 month period throughout the year, and use natural gas to provide additional heat.

Annually Alberta imports \$300,000 of traditional greenhouse vegetables with an additional \$6.8 million imported of other vegetables and plants. As such, the local supply of traditional greenhouse vegetables is currently being met by existing greenhouse producers.

While major grocery retailers have implemented Buy Alberta initiatives, local fruits and vegetables only counts for 1/3 of the produce offered in retailers such as Safeway.

Many greenhouses are exploring specialty crops including alternative tomato breeds (e.g. Cocktail tomatoes, plum tomatoes), as well as short peppers, beans, strawberries, melons, herbs, Asian vegetables, edamame, and zucchini.

## Value Proposition of SouthGrow Region

### With exception of hail, SouthGrow's environment is ideal for greenhouses

SouthGrow can attract investment of industry because:

- **Strong Environmental Conditions:** SouthGrow has high number days of sunshine and relatively high heat units to promote crop production. It also has the availability of water to support crop growth and dry air to promote effective heat transfer and maintain temperature consistency. As a result, it has many strong characteristics that greenhouse producers like. The hail presents an issue for greenhouses; however, modern plastics are resilient enough to withstand Southern Alberta hailstorms.
- **Methane/Energy Opportunities with Feedlots:** If cheap bio-energy can be utilized by greenhouses, the industry would be significantly more attracted to the region. Such energy opportunities could offset growing costs, especially for lower margin crops such as peppers or other alternative crops.
- **Capacity of SouthGrow Regional Initiative to Represent Greenhouses:** The SouthGrow Regional Initiative can act on behalf of local producers to negotiate and set up infrastructure for greenhouses. One example would be to negotiate agreements with retailers for local producers.

## Opportunities to Increase Competitiveness

To increase the likelihood of success to attract this industry, SouthGrow Regional Initiative can undertake a number of initiatives including, but not limited to:

Activity	Reasoning	How to Fund / Implement
Negotiate with major retailers (e.g. Safeway) for guarantee for supply for local greenhouse clusters, and to help an emerging industry of greenhouses	Setting up a retailer would reduce risks for any new entrants into the SouthGrow Region and increase likelihood of success.	TBD – Need to identify a negotiator or representative
Undertake a study of different specialty crops to identify specific opportunities for the local market	Traditional greenhouse crops are not a strong opportunity for the region; however, if a study or economic analysis can demonstrate the potential for other crops in the region, the attractiveness of SouthGrow increases.	Growing Forward 2
Seek partnership opportunities with complementing industries (such as feedlots)	Greenhouses appear to be more attractive when connected with other revenue streams such as energy or fish. Seeking other organizations who could benefit from greenhouse producers would help increase the sector's attractiveness	TBD – Need to identify a representative

## Overall Rating of Potential

**B**

With the exception of hail, the SouthGrow Region is an ideal environment for greenhouse operation. It has relatively high heat units, high number of days of light, dry air to promote effective heat exchange, and access to water. The major limitation is the market access. Currently, Alberta's greenhouse market already meets the demand for traditional greenhouse crops, especially cucumbers and tomatoes. As such there is no real opportunity for traditional greenhouses.

However, alternative or specialty crops may present a potential for greenhouses in the region. Major retailers are only able to stock about 30% of its produce from local growers. Therefore, there is a potential for new crops to be explored. These crops could range from vegetables and fruit such as melons and lettuce, or could even be alternative medicines (pending legislation changes). In addition, should greenhouses be able to connect with other sources of revenue, such as fish (see fish farms/aquaponics) or bio-energy (see feedlots) then the opportunity becomes much stronger.

As a result, greenhouses are most attractive when connected to other industries.

## BIOCHEMICALS/BIOMATERIALS

### Global Industry Overview

The biochemical/biomaterial industry can be seen as a fairly new and developing sector of the larger industrial chemical manufacturing industry, which generates \$2 trillion in annual revenue.

**Significant opportunity to find bio-based chemicals and materials from hemp, corn, canola, sugar beets and other Alberta crops**

Inputs include crops like flax and hemp to produce textiles, building materials, and chemicals such as bio-based succinic acid (an ingredient for polyurethanes, sealants, adhesives etc.), 1,4 butanediol (an alpha olefin used for polymers and solvents among other things) as well as other specialty chemicals. The chemical processing of these materials would likely require more trained and skilled labour than in some of the previously mentioned industries (e.g. greenhouses).

Important industry issues, trends and opportunities to consider are:

- **The green movement:** The increase of environmentally conscious consumers as well as the call for lower carbon emissions has helped the bioindustrial movement globally, highlighting a significant economic opportunity in this industry.<sup>15</sup>
- **The ability to offer new and innovative products:** Companies have the ability to offer a differentiated and potentially better product with the use of bio-inputs.<sup>16</sup>
- **Challenges need to be addressed in future development:** The management of raw materials, performance of bio-based materials, and cost for production will need to be addressed to allow this industry to succeed. Economy of scale will be one of the main challenges due to the current lack of experience in the industry and balancing supply and demand. To ensure technologies are economically viable it will be important to develop:
  1. Logistics for biomass feedstocks;
  2. New manufacturing routes by replacing existing methods with high yields;
  3. New microbial strains/enzymes; and
  4. Efficient downstream processing methods for recovery of bio-based products.<sup>17</sup>

### Trends in Alberta and SouthGrow

Not unlike the global market, Alberta's bio-industrial capacity is relatively small as of 2013. In the Agricultural Processing Industry Directory there are only 5 companies in Alberta that develop "bioindustrial" products, and none of these would qualify as chemical or material developers.

The Government of Alberta is taking a greater interest in developing opportunities for both bio-based materials and bio-based chemicals. Currently, a report is being developed to identify top chemicals used or imported within Alberta (report should be released by December 2013), with the ultimate intent of determining whether bio-based alternatives could be fabricated within the province. From this report, the top 10 chemicals used in Alberta are:

Chemicals	Formula	Commonly Used By/For
Alpha Olefins	C <sub>x</sub> H <sub>2x</sub>	Personal care products, packaging, and lubricants. An example is 1,4 butanediol.
Carboxymethyl Cellulose	CH <sub>2</sub> CO <sub>2</sub> H	Used as a thickener and stabilizer in personal care products, paints, and paper products.

<sup>15</sup> [http://bio.albertainnovates.ca/media/56034/aib\\_recommendationsreport\\_web\\_may2013.pdf](http://bio.albertainnovates.ca/media/56034/aib_recommendationsreport_web_may2013.pdf)

<sup>16</sup> <http://www.icis.com/Articles/2010/06/21/9368973/biochemical-market-forecasts-suggest-strong-growth.html>

<sup>17</sup> <http://www.progressbiomaterials.com/content/2/1/8#sec2>

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

Glycerol Carbonate	GC	Used as a solvent for plastics and resins. It is also a bio-lubricant due to its adhesion to metallic surfaces.
Guar Gum	N/A	Based from the guar bean (grown in India and Australia). Has been used for fracking to facilitate drilling and prevent fluid loss.
Isopropanol	C <sub>3</sub> H <sub>8</sub> O	A colourless flammable alcohol used as a solvent and for pharmaceutical applications. It may also be used as a chemical intermediate.
Hexane	C <sub>6</sub> H <sub>14</sub>	Commonly used in glue formulations as well as to extract cooking oils from seeds and for cleansers and degreasers. These are typically obtained through crude oil refinement.
Surfactants	N/A	Compounds that lower surface tension. There are multiple organic and no-organic surfactants used in personal care products, paints, inks, adhesives, herbicides, and in oil and gas (used to mobilize oil wells).
Lubricants	N/A	Multiple uses in multiple industries ranging from personal care to manufacturing and oil and gas.
Oilfield Chemicals	N/A	Used throughout the sector.
Industrial Solvents	N/A	Used throughout the sector.

While governments seek to develop this industry, progress has been fairly slow. Many potential developments are currently pre-commercialization with a large number of projects in pilot stage. Experts estimate that the industry is roughly 3 to 5 years away from gaining any significant commercial traction. However, that has not prevented a number of local producers and other organizations to seek developments in the area. For example, local sugar beet growers contacted S2G BioChem to assess opportunities for glycol conversion from beet sugar.

There are also multiple projects to develop materials from lignocellulosic resources including canola, straw, and wood. These developments could include textile, plastics, insulation, and other materials. Other developments could include using flax to control erosion (e.g. Synermulch Erosion Control, based in Calgary)

**Bio-material opportunities are already being pursued in M.D. of Taber**

Already, there are plans to build a hemp processing facility (estimated \$30 million, employing 75 people) in the Taber region to process hemp into materials for construction and automotive industries. In an interview with Mike Duckett of Stemia Group, they had been considering developing projects in Canada for about five to six years. They selected Alberta from other locations in Canada (Manitoba and Ontario) because of the support from the Government of Alberta (primarily Alberta Innovates Technology Futures and Agriculture and Rural Development), the amount of hemp grown in the region and the proximity to U.S. markets. Furthermore, the company selected Southern Alberta for the following reasons:

- The majority of the desired feedstock (hemp and flax) is grown in the region
- The location is cheaper partially because of its distance from major energy producing regions
- The location is close to U.S. markets.

There are more potential opportunities for bio-based materials from locally grown products; however, many of the technologies are not yet commercially ready. Even so, there are many companies exploring different bio-materials and biochemical opportunities, which could result in additional developments in the future.

## Value Proposition of SouthGrow Region

<p><b>Local crop production can support a variety of biomaterial and biochemical opportunities</b></p>	<p>SouthGrow can attract investment of industry because:</p> <ul style="list-style-type: none"> <li>• <b>Presence of Local Producers:</b> The development of industrial chemical and materials, which can be used for finished goods, is normally done close to source of supply. The SouthGrow Region has many producers of raw materials including hemp, beet sugar, and flax, corn, and other crops which can be used as feedstock for bio-chemical and biomaterial production</li> <li>• <b>Local Government Support:</b> Both Alberta Innovates Technology Futures and Agriculture and Rural Development have groups focussing on biomaterials and biochemicals. These groups have been instrumental in attracting existing facilities to Southern Alberta and provide significant support for other developments.</li> <li>• <b>Local Research and Development Capability:</b> The presence of research and academic facilities provides significant research and development support for businesses who want to explore commercialization of pilot and new technologies.</li> <li>• <b>Proximity to U.S Markets:</b> SouthGrow's proximity to U.S. markets is an advantage to ship industrial materials and chemicals.</li> </ul>
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## Opportunities to Increase Competitiveness

To increase the likelihood of success to attract this industry, SouthGrow Regional Initiative can undertake a number of initiatives including, but not limited to:

Activity	Reasoning	How to Fund / Implement
SouthGrow Regional Initiative could conduct an analysis for the development of specific bio-based chemicals to attract investors	As noted during the interviews, demand for bio-based alternatives can be limited because the bio-based alternatives don't yet exist commercially. Conducting an analysis of potential biochemicals and biomaterials that could be developed from local crops could provide incentive for other organizations	Growing Forward 2

## Overall Rating of Potential

**B+**

There are significant opportunities with biomaterials and biochemicals. Interest is increasing in bio-based alternatives, which could significantly benefit Southern Alberta. The industry is currently in its early stages, and many of the potential opportunities do not have commercially available technology yet. As a result, there are limitations for immediate opportunities.

However, SouthGrow could focus on positioning the region for long-term growth in the industry, which could yield more sustainable, high-tech industries.

## FISH FARMING/AQUAPONICS

### Global Industry Overview<sup>18</sup>

Companies in the aquaculture industry raise shellfish, other aquatic animals, or aquatic plants. The global market total is around \$100 billion, the largest aquaculture producers based in Asia. However, there are no major companies that dominate the industry. Major products include catfish, mollusks, trout, freshwater shrimp, salmon, ornamental tropical fish and baitfish. Some farms also allow fee-fishing, where people may catch and pay for pond-caught fish.

The global industry currently has a medium growth rating. Demand is driven by domestic trends in fish consumption, and the industry is linked to energy and commodity prices. The success of individual companies depends on efficient operations and protecting fish stock from death and disease. Large farms may have advantages in vertical integration of operations, while small farms can compete by specializing in unique and high-end products or through offering onsite fee-fishing. Smaller operations may also supplement aquaculture revenue with other livestock or crop operations.

The major inputs needed to drive a successful aquaculture operation include water, soybean and fishmeal, chemicals to balance PH, oxygen and carbon dioxide, medications, and electricity to heat the ponds. In terms of human resources, aquaculture workers require skills in feed management, breeding, and disease control; and have wages that are moderately lower than the national average for all industries.

There are various issues and challenges that are dealt with in the industry worldwide, including: competition from imports, prices of soybean and fish meal, losses due to disease, pollution concerns, bad taste, and the threat of power outages.

Important industry trends and opportunities to consider are:

- **Recycling fish waste:** Fish farms in South America and commercial processors in Alaska are turning fish waste into biodiesel. Biodiesel from fish waste can help power fish operations and vehicles.
- **Polyculture:** Raising two or more animal/plant species in the same aquaculture system. For example, fish placed in rice bogs can add beneficial fertilizers while lowering the risk of crop damage. It is considered to be a sustainable and holistic approach to fish farming.
- **Closed systems for organic shrimp:** The development of cleaner methods of raising shrimp. Closed system farms recycle water and waste; reducing pollution and risk of disease.
- **Recreational fee fishing:** Opening ponds to fee-fishing can be a way to diversify cash flow.

### Trends in Alberta and SouthGrow

Over 80% of Albertans are in favour of aquaculture and Albertans are among the most supportive of fish farming within Canada. A national survey of fish consumption showed that Canadians consume on average:

- Finned fish 3.7 times/month (estimated 129 million fish)
  - 75% of respondents ate salmon at least once in a three month period
  - 45% of respondents ate trout at least once in a three month period
- Shellfish 1.9 times/month (estimated 66 million shellfish)

<sup>18</sup> <http://mnp.1stresearch.com/industry.aspx?pid=353&chapter=0>

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

As of 2005, the performance of the Alberta aquaculture industry was estimated at \$10 million (\$6 million from table fish, \$4 million from fingerlings at u-fishing and private ponds).

Within Alberta, closed containment could present an opportunity to produce sustainable fish (in Vancouver, sustainable salmon sells for \$4/lb), but without the additional shipping costs

Local researchers have invested time to explore technology to commercially produce fish and produce. Both the University of Lethbridge and Lethbridge College are actively researching improvements to fish farming, and the development of commercial aquaponics technologies. For example, NSERC awarded Lethbridge College an Innovation Enhancement Grant (\$200,000) to pursue advancements to this technology. As part of this research, Lethbridge College has found that a variety of produce can be grown through this method, including root crops, capitalizing on the global polyculture trend.

Despite this interest, there are currently no commercial operations and technologies in the region, although Small scale developments have been undertaken, Interviews with subject matter experts believe that the best opportunity for the region would be to focus on steelhead trout, which most people do not distinguish from salmon. As a freshwater fish, steelhead has been farmed for over 30 years and the technology is known.

There have been attempts at Atlantic salmon or Coho farming in closed containment productions; however, commercial systems have not yet been proven. Furthermore, any salt water or heated fish (e.g. shrimp) would be more complex and challenging for an organization to farm.

Subject Matter Experts believe that either small/niche farms or large scale farms are commercially viable. They recommend:

- Building a small facility capable of producing 250 to 500 metric tonnes of fish (steelhead, tilapia, or barramundi) to sell directly to restaurants.
- Expanding the facility to a minimum 5,000 metric tonnes (e.g. \$30 million facility).

Experts recommend that any organization investing in the region should have a strong connection with egg suppliers or be vertically integrated with egg suppliers. These companies should be a starting point to assess potential companies interested in the region.

## Value Proposition of SouthGrow Region

**Water and research capability makes SouthGrow the ideal location for closed containment farms in Alberta**

SouthGrow can attract investment of industry because:

- **Availability of Water:** Water is the key resource required to run a closed containment operation and would be a major advantage for SouthGrow.
- **Interest of Local Researchers:** Academic and research institutions have focussed on fish farms and aquaponics as a major opportunity for the region and have received notable government support for this research. These facilities can provide additional research support for companies looking to develop commercial facilities in the region.
- **Access to Market:** SouthGrow is within a reasonable distance from major Alberta markets and can function as the main supplier for the entire province.

## Opportunities to Increase Competitiveness

To increase the likelihood of success to attract this industry, SouthGrow Regional Initiative can undertake a number of initiatives including, but not limited to:

Activity	Reasoning	How to Fund / Implement
SouthGrow Regional Initiative could facilitate the attraction of fish farming and aquaculture opportunities by helping navigate: <ul style="list-style-type: none"><li>o Water license requirements</li><li>o Research availability</li></ul>	Accessing water will be the main criteria to permit commercial fish farms/aquaponics operations. Since there are limitations to water permits, businesses will need support from SouthGrow to obtain the required water to build commercial operations.	TBD – Need to identify a representative

## Overall Rating of Potential

A

There is an opportunity for locally grown fish in Alberta. With the existing technology and the water availability in SouthGrow Region, this industry could be well supported and ultimately support larger facilities capable of producing 5,000 metric tonnes or more of fish per year. This industry represents an attractive opportunity for SouthGrow and would be interested in establishing facilities in the Region.

For the subsequent phase, multiple potential companies can be identified through connections to egg-suppliers, as well as major global fish farm builders.

## METAL MANUFACTURING

### Global Industry Overview<sup>19</sup>

Companies in the fabricated metal product manufacturing industry transform purchased metals into intermediate or end-use products through forging, bending, forming, welding, machining, and assembly. Globally, it is an industry that generates almost \$2 trillion in annual revenue. The leading sources of revenue within the industry are fabricated structural and architectural metal products (20%), machine shops, boilers, tanks, and containers as well as coating, engraving, and heat treating (each around 10%).

The industry currently has a medium growth rating (expected to grow at an annual compounded rate of 4% between 2013 and 2017), with demand largely driven by the needs of other industrial companies, and is therefore linked to economic growth. The success of individual companies is largely driven by technical expertise and efficient manufacturing. Large companies thrive through economies of scale in purchasing raw materials, while small companies may be specialized in nature, allowing them to compete effectively.

Companies typically have a high amount of receivables, and large inventories of raw materials and semi-finished product, therefore these companies often have large capital investments in plants and equipment. Many production jobs in metal manufacturing are semiskilled.

Important industry trends and opportunities to consider are:

- **Greater specialization:** Many products are engineer-intensive, and companies can often add significant value for customers by concentrating on niche products.
- **Fluctuating demand cycles and raw material costs:** Demand for metal products is affected by varying demand in customer industries, for example production of industrial equipment can fluctuate 10 to 20% per year. Similarly, the cost of iron and steel can change more than 30% during the year.
- **Increased customer outsourcing:** Equipment manufacturers are increasingly outsourcing the production of parts they formerly made themselves, to fabricators.
- **Customers moving overseas:** Metal products customers such as auto companies and appliance manufacturers are moving production overseas (out of North America) to take advantage of lower labour costs as well as to position themselves in the international market. These customers will now also typically buy from local metal manufacturers.
- **New manufacturing materials and production methods:** New metal alloys with desirable physical properties allow manufacturers to upgrade products/introduce new ones. In addition, new fabrication and metal casting technology as well as rapid prototyping methods have been introduced.

### Trends in Alberta and SouthGrow

The metal manufacturing business already provides \$14.5 billion per year of existing activity within Alberta. Currently, 2,000 companies are operating in the metal fabrication and machinery manufacturing sector, employing over 35,000 Albertans, and providing 50% of all fabricated metal products and 75% of all machinery used domestically.<sup>20</sup>

Because of Alberta's strong demand from the energy sector, it is one of Canada's major metal manufacturing centres, behind only Ontario. There is continued opportunity within

<sup>19</sup> <http://mnp.1stresearch.com/industry.aspx?pid=45&chapter=0>

<sup>20</sup> [http://www.albertacanada.com/files/albertacanada/AIS\\_AB\\_Oil\\_Sands\\_Supply\\_Chain\\_Report\\_FINAL\\_Jul\\_18-11.pdf](http://www.albertacanada.com/files/albertacanada/AIS_AB_Oil_Sands_Supply_Chain_Report_FINAL_Jul_18-11.pdf)

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

Alberta as there are billions of dollars being spent in the conventional oil and gas and oil sands sectors each year.

Alberta's metal fabrication and machinery manufacturing sector is seen as highly competent by surveyed oil sands project owners and EPC firms. They indicated that Alberta firms excel in the following areas:<sup>21</sup>

- **Technical Expertise and Capability:** Buyers clearly indicate that Alberta metal fabrication and manufacturers have substantial technical knowledge and expertise.
- **Quality:** Alberta products and services in this sector are highly regarded by most respondents.
- **MRO:** Alberta firms provide excellent maintenance, repair, and operations services.
- **Health, Safety, and Environmental (HSE) Performance:** Alberta firms adhere to higher standards than most suppliers from other jurisdictions.
- **Planning Services:** Providing engineering and design expertise during project planning and construction were seen as value-added services.
- **Industry Expertise, Knowledge, and Relationships:** Given their proximity to the oil sands and with history working with the province's oil and gas industry, Alberta firms have unparalleled knowledge of the products and services required for Alberta's cold-weather climate, regulatory requirements and HSE standards. There is also great value in local relationships and partnerships.

Alberta's robust oil sands industry provides excellent opportunities for the province's metal manufacturing companies to supply services and products. The industry is capital intensive and is characterized by long-term investments, lengthy production cycles and highly specialized technology. When looking for metal manufacturers, oil sands project owners rate cost, quality, supplier history and safety as the most important factors as seen in the graph below:

Demand in Alberta will require nearly \$200 billion of new construction and maintenance spending over the next 25 years, much for fabricated metal products. This correlates with the projected growth in the world wide industry.

With its continued growth and proven success within Alberta, the metal fabrication industry is an opportunity throughout Alberta, which will include the SouthGrow Region. However, the drivers for this industry are mainly in oil and gas producing regions. The SouthGrow Region does have potential to produce natural gas, but at the current prices, such an industry is not yet economically viable. As such, the SouthGrow Region will likely not be a key region for the growth of this industry.

At the same time, SouthGrow provides an attractive incentive for companies given the abundance of water in the region and the importance of water to the manufacturing process. Currently many manufacturers are clustered around Calgary and Edmonton. There is room in the south and in addition to excess water; lower taxes, and access to main highways linking northern and southern Alberta, SouthGrow is a viable location.

SouthGrow would be best served by focussing on the main drivers for metal manufacturing industry. In the case of the SouthGrow Region this would include agricultural opportunities as well as renewable energy initiatives (such as bioenergy through feedlots). The equipment and material requirements required through development of these industries would increase the need for local metal manufacturers. In this case, SouthGrow could then make use of existing programs to support new entrants to the market including the Alberta Metal Fab

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<sup>21</sup>

[http://www.albertacanada.com/files/albertacanada/AIS\\_AB\\_Oil\\_Sands\\_Supply\\_Chain\\_Report\\_FINAL\\_Jul\\_18-11.pdf](http://www.albertacanada.com/files/albertacanada/AIS_AB_Oil_Sands_Supply_Chain_Report_FINAL_Jul_18-11.pdf)

Innovation Program, which is designed to help manufacturing companies and stakeholders within Alberta to gain access to production and business enhancement expertise.<sup>22</sup>

**Overall Rating of Potential**

**B-**

There is potential for metal manufacturing within Alberta, which is tied very strongly to the energy industry. Southern Alberta's existing manufacturing industry; on the other hand, is more closely linked to its agriculture production. As such, it would be difficult to attract new entrants to the SouthGrow Region when there are many viable alternatives closer to Alberta's energy sector.

Yet, SouthGrow does have the potential to draw in new companies looking to capitalize on the growth and need for increased manufacturing operations in the coming years, as well as global trends such as specialized products, or new manufacturing materials and production methods.

However, SouthGrow would likely be better served by promoting growth in sectors which drive metal manufacturing. Growth in sectors (such as those listed earlier) would likely drive increased need for metal manufacturing services as they are connected on the supply chain.

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<sup>22</sup> <http://www.albertacanada.com/business/industries/mm-opportunities.aspx>

## INDUSTRY ANALYSIS CONCLUSION AND RECOMMENDATIONS

Business opportunities can be found in all of the industries identified; however, based on the analyses conducted, the following proposed ranking was developed:

Rank	Industry/Sector	Recommended Approach
1	Fish Farms/ Aquaponics	<p>There are immediate commercial opportunities which can be realized in this industry. In phase 4, MNP will focus on identify specific business leads, especially through egg-suppliers and fish farm builders.</p> <p>In addition, fish farm waste can be used as fertilizer. This is more commonly considered for agriculture, but could also be used for golf courses and other commercial outdoor spaces.</p>
2	Feedlot Opportunities	<p>There are a number of opportunities related to feedlots. MNP believes bioenergy and alternative feeds represent some of the most significant opportunities, especially with the expanded markets offered by the new EU Trade agreement.</p> <p>In this industry sector, MNP will search for business leads, but additional analysis is also recommended to assess the economic impact of alternative feeds for the European markets.</p> <p><b>Note:</b> There is also a potential related opportunity for the segregation of packaging for non-hormonal beef for European markets. Additional analysis would be required to explore the potential viability of this opportunity.</p>
3	Biomechanical/ Biomaterials	<p>The fabrication of bio-based materials and chemicals is a significant long-term opportunity; however, many technologies are still in early stages of development. By working with ARD and Alberta Innovates, SouthGrow could help attract more businesses to its area (such as has been done with Stemia Group).</p> <p>Additional analysis could be performed to help identify bio-based pathways for local crops, with the intent of identifying more opportunities. This could be done in coordination with ARD and Alberta Innovates and through Growing Forward 2.</p>
4	Greenhouses	<p>There are limited opportunities for greenhouses for traditional products (e.g. tomatoes and peppers); however, there may be opportunities for greenhouses tied with other industries such as fish farms (aquaponics) or feedlots (bioenergy). In phase 4, MNP will identify leads focussing on alternative crops and organizations tied in with other revenue streams.</p> <p>In addition, MNP recommends economic analysis of potential crop alternatives which could be commercially grown in SouthGrow.</p>
5	Metal Manufacturing	<p>There are opportunities for metal manufacturing in Alberta. Many of these new entrants will be smaller in nature and will likely go to other regions which are closer to the main drivers of metal manufacturing, the energy sector. Southern Alberta's metal manufacturing is more closely tied to agriculture. As such, it may be more prudent to focus on growing the other sectors, and letting the successes in those industries drive the growth of metal manufacturing, especially given the effort and resources which will be required by SouthGrow to promote the other sectors.</p>

## PHASE 4: INVESTMENT ATTRACTION STRATEGIES

In this section, MNP presents a proposed strategy for the SouthGrow Regional Initiative to develop the top four sectors evaluated in the Phase 3 analysis. The strategy highlights a general approach for SouthGrow to pursue and attract businesses to for each sector, and provides short, medium, and long-term suggestions to implement this strategy. In support of these suggestions, a list of leads has been developed.

**Note:** In this draft, the leads are included in list form. MNP and Adfarm will developed more complete profiles for the most attractive leads following the presentation to the SouthGrow Project Team.

### KEY COMPETENCIES FOR THE SOUTHGROW REGIONAL INITIATIVE

**Few businesses are looking for areas that are a challenge to enter, and with other competing municipalities out there, SouthGrow needs to be ready to demonstrate how it can support businesses in their communities**

There are numerous municipal groups and economic development organizations working to attract significant businesses to their communities. As noted in previous sections, a key value proposition for SouthGrow is the ability of the Regional Initiative to facilitate the introduction of companies to its communities. However, to do so, the SouthGrow Regional Initiative must be able to provide the services that the sectors need. These services or competencies are crucial for SouthGrow to facilitate the introduction of new businesses.

Depending on the sector, the SouthGrow Regional Initiative will need to address different needs. The following list outlines the potential competencies:

- **Economic Development Representative:** As the SouthGrow Regional Initiative engages external industry and businesses to promote the region, it will need an individual who can act as the main representative. This individual would be someone who can respond to industry interest, guide prospective businesses to relevant support services in the region, and address any questions that may be posed. Furthermore, this individual could continue economic development planning in support of the region.

**Applicable Sectors:** All

- **Facilitation Support for Water:** As acknowledged by the SouthGrow Project Team, there is water available; however, new licenses are not being approved. As a result, any incoming business would need to work with companies who own the existing licenses to acquire water. As such, this would require a local individual who can work with local companies as well as navigate government regulations to provide support to incoming companies. Water intensive industries will need help getting access to water, and SouthGrow would be a strong organization to help facilitate this process.

**Applicable Sectors:** Fish Farms/Aquaponics, greenhouses, biochemicals

- **Working with Provincial and Federal Government Organizations:** There are multiple organizations actively engaged in attracting businesses to Alberta. In many cases, they are focussing on larger urban environments or more traditional markets. For example, Agricultural and Rural Development's Biochemicals group will consider Lethbridge opportunities primarily when considering Southern Alberta. As these organizations attract new businesses, it would benefit SouthGrow to be more proactive with these organizations to work with them to recognize the region as an attractive place for business.

**Applicable Sectors:** Biochemicals, feedlots

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

- **Ability to Host Trade Missions:** To experience the value of the region, businesses and other organizations will want to visit the region. The SouthGrow Regional Initiative should be able to host and tour potential investors through the communities to highlight the opportunities in the region and help demonstrate the potential for these businesses.

**Applicable Sectors:** Fish farms/Aquaponics, greenhouses, biochemicals

- **Ability to Negotiate Retail Agreements:** To build sectors, SouthGrow should work to reduce risks for new entrants. For many agribusinesses and investors there are major risks regarding finding potential buyers for their products. As a result, SouthGrow could facilitate the development of sectors by engaging major retailers to set up purchase agreements. This could include setting up deals for such products as produce and fish.

**Applicable Sectors:** Fish farms/Aquaponics, greenhouses

- **Ability to Offer Due Diligence for Qualified Investors:** To further reduce risk, SouthGrow can coordinate commercial feasibility analysis for potential opportunities, SouthGrow would wish to attract. This feasibility could be funded in part through federal and provincial grant programs, in which SouthGrow would facilitate the development and coordination of the application.

**Applicable Sectors:** All

In short, the SouthGrow Regional Initiative needs to have the capacity to reach out to potential opportunities, demonstrate the value of the region, and guide these opportunities through the process and various certification and permitting processes to enter the market. Without this capacity, it will be very difficult to successfully implement a strategy to grow specific sectors in the region.

To acquire this individual, South Grow could consider:

- Hire or repurpose an individual within the organization
- Work with other government organizations (e.g. Government of Alberta, Western Economic Diversification, other Economic Development agencies) to seek individuals who can dedicate a portion of their time to support SouthGrow
- Use university students from University of Lethbridge/Lethbridge College to support SouthGrow, as a practicum course
- Contract individuals to support specific competencies

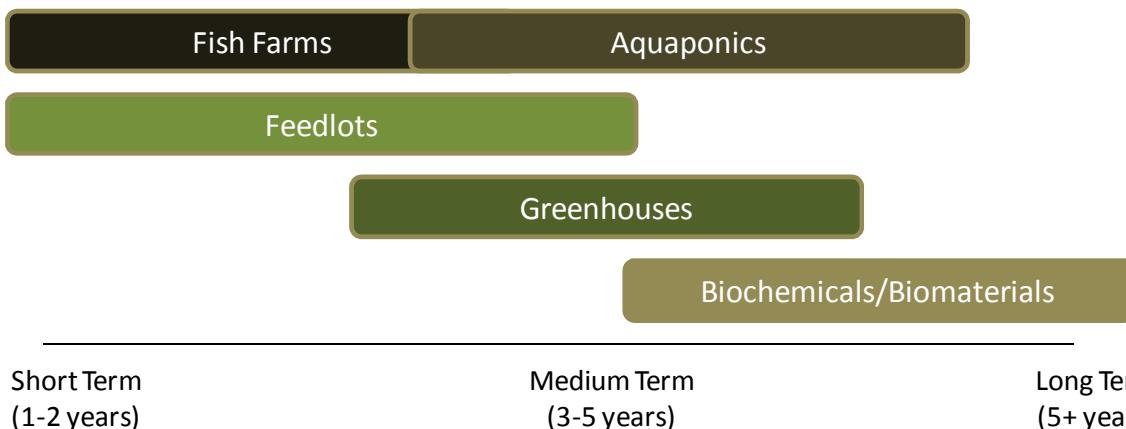
### For Discussion:

- What functions and roles do you believe the SouthGrow Regional Initiative requires in order to attract businesses?
- Many of these competencies would require the acquisition or contracting of resources. Who would SouthGrow want to act in these roles?

## SECTOR SPECIFIC STRATEGIES

The top four sectors represent significant growth opportunities within short, medium, and long term for SouthGrow, as shown below:

### Anticipated Elevated Growth Opportunities



As such the strategies to attract these sectors will vary depending on the immediacy of the opportunity. For medium to longer term opportunities, the focus will be on developing the infrastructure, and working with other industry associations to position SouthGrow as an attractive location for investment. For short to medium term opportunities, the focus will be on proactively pursuing opportunities, such as those listed by MNP and Adfarm.

In previous sections, MNP also described the opportunity for SouthGrow to explore additional analyses through government funding including Growing Forward 2. To be able to submit an application, an organization needs to be:

- Structured as a board, corporation, partnership, alliance, etc.
- Have an agriculture focus

As a result, SouthGrow has the correct structure, but would require more than 50% of its members to have an ag-industry focus to proceed. Therefore, SouthGrow would either need to partner with another agri-organization or business, or could theoretically consider setting up an agriculture sub-group to submit for Growing Forward 2.

For individual sectors, proposed investment attraction approaches are outlined in Appendix 1. These approaches formed the basis for discussions held on December 16<sup>th</sup>, 2013, and the subsequent Action Plan.

## ACTION PLAN

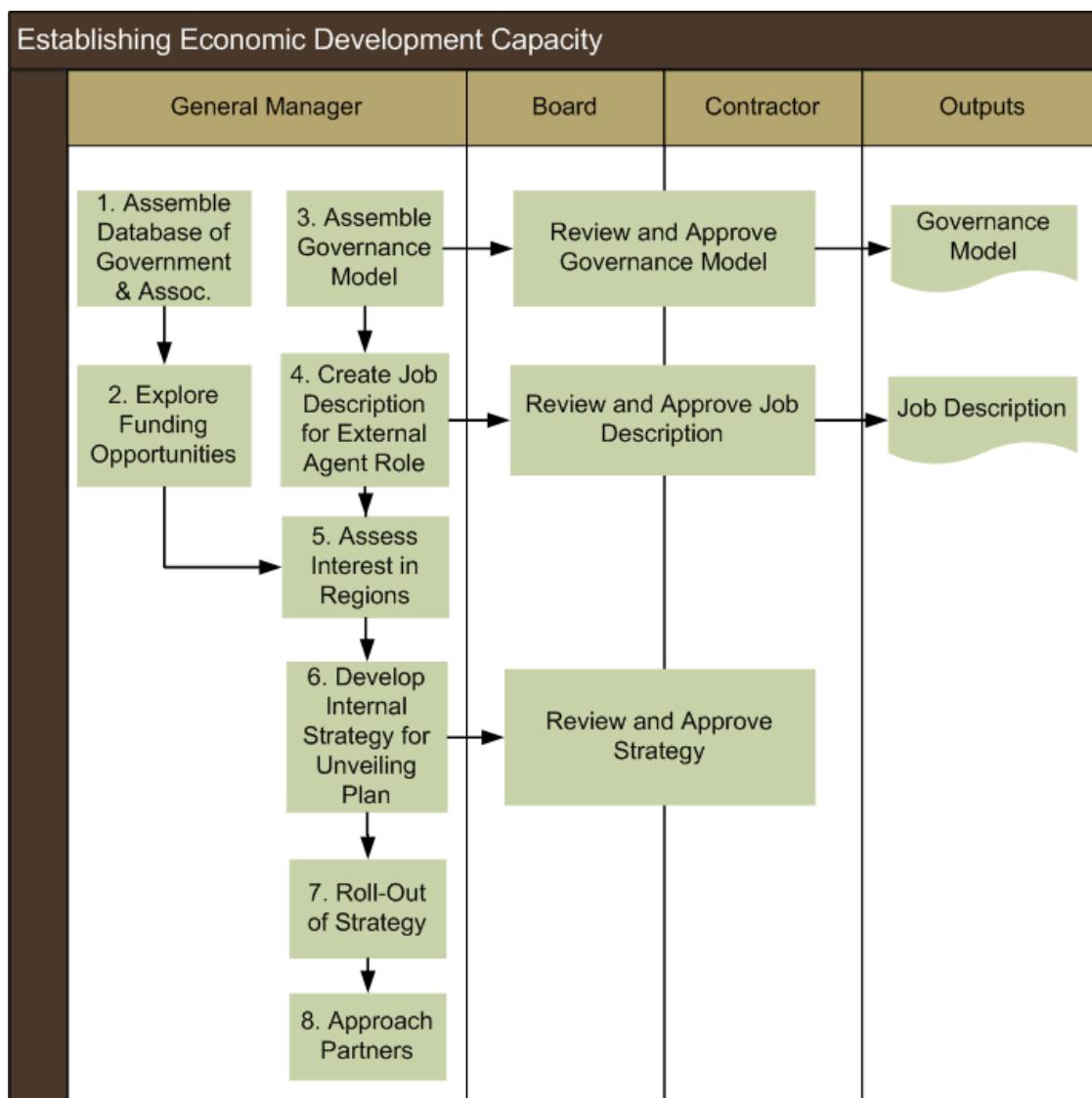
A discussion was held with the SouthGrow Project Team on December 16<sup>th</sup>, in which a high level action plan was developed to enable the attraction of businesses and investment to the SouthGrow Region. In this plan, the team acknowledged the need to first develop the SouthGrow Regional Initiative's internal capacity to provide support for external investors and engage in economic development activities before it could reach out to external investors and businesses.

Once the internal capacity was developed, SouthGrow Regional Initiative would begin a multi-pronged approach to attract businesses within the four sectors identified in the previous sections.

### 1. Establishing Economic Development Capacity

This first step for the SouthGrow Regional Initiative is to develop its own capacity to support external businesses. Only when this capacity was developed could the Regional Initiative be able to actively implement the proposed attraction strategies.

The following steps set out by the SouthGrow Project Team. These steps included developing internal processes and responsibilities, creating a new agent position to address external businesses, and obtaining buy-in from SouthGrow member communities for the attraction strategies.



## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

1. **Assemble Database of Government and Associations:** SouthGrow will create a database of the government groups and associations engaged in the development of:
  - Agriculture and Ag-Manufacturing
  - The Targeted Sectors (Feedlots, Fish Farms, Biochemicals/Biomaterials, and Greenhouses)
  - General economic development within the region
  - National and international economic partnershipsThis database will also identify grants, loans, repayable contributions, and credits that can support SouthGrow and potential business opportunities.
2. **Explore Funding Opportunities:** SouthGrow will then evaluate the potential funding opportunities identified in the database to assess ways to provide support for its business development initiatives. This assessment of funding opportunities may be done in collaboration with provincial organizations such as those within Agriculture and Rural Development and Enterprise and Advanced Education.
3. **Assemble Governance Model:** In parallel with the database development, SouthGrow will establish its governance model, which would include:
  - Roles
  - Responsibilities
  - Processes
  - Risks
  - Liabilities
  - Confidentiality
4. **Create Job Description for External Agent:** SouthGrow will create a job description for a representative or agent who can assume responsibility for such as:
  - Promoting SouthGrow to outside businesses and investors
  - Preparing and implementing investment packages for SouthGrow
  - Collaborating and partnering with external associations and groups
  - Facilitating and negotiating agreements to support the accessibility and risk reduction for businesses and investors
5. **Assess Interest in Regions:** Following the assessment of funding opportunities and the creation of the external agent role, SouthGrow will explore the interest in the proposed economic development activities within its regions. This work will include identifying communities, which intend to support and pursue specific sectors.
6. **Develop Internal Strategy for Unveiling Plan:** SouthGrow will then develop a strategy to unveil and communicate the investment attraction plan and the resulting changes in governance and economic development processes to its members.
7. **Roll-Out Strategy:** SouthGrow will implement its strategy to communicate the plan and changes to its members.
8. **Approach Partners:** SouthGrow will then begin collaborating and partnering with partners identified in step 1, to promote the region for the targeted sectors.

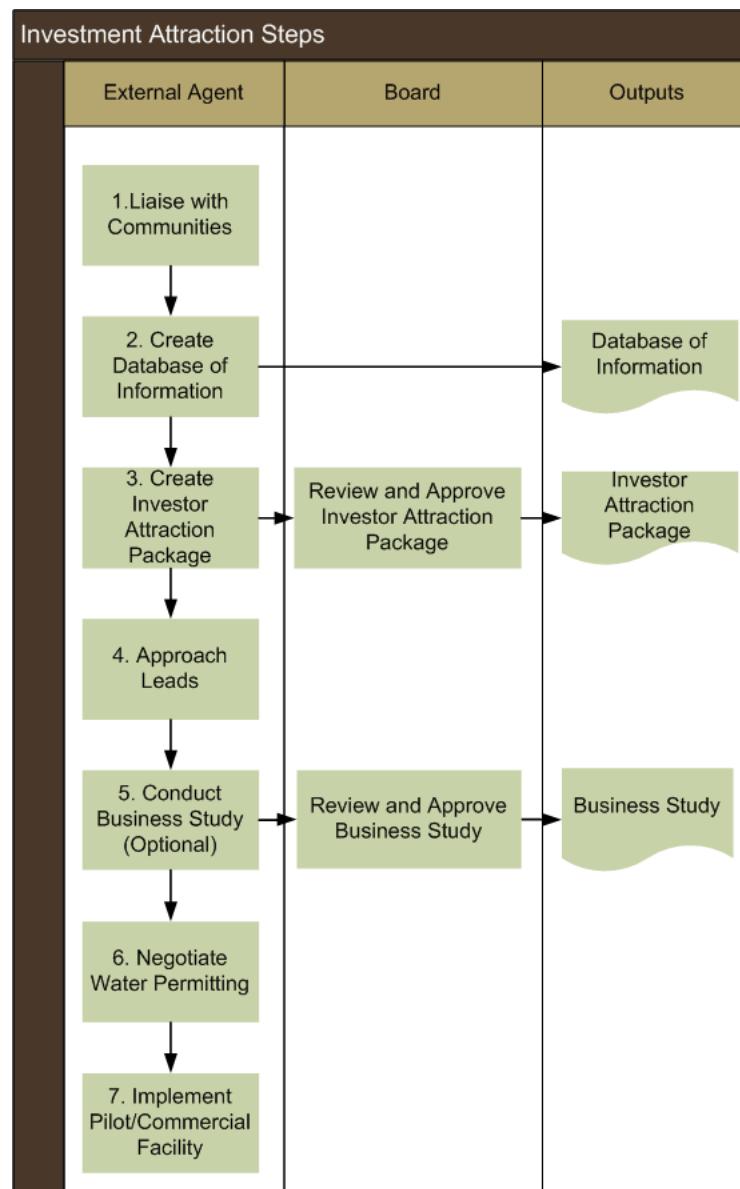
Once these steps have been completed (over an anticipated 3-4 month period), SouthGrow can begin exploring its sector specific investment attraction process as described in the following section.

## 2. Investment Attraction Steps

After SouthGrow has completed the enhancement of its economic development capacity (as described in the previous section), it can begin pursuing investment attraction activities in the targeted sectors. For each sector, SouthGrow can deliver a variety of services. These include, but are not limited to:

- Conducting trade missions
- Promoting the SouthGrow brand and communities
- Facilitating access to labour
- Partnering with associations and government groups
- Conducting additional studies to validate opportunities
- Negotiating with retailers
- Facilitating the acquisition of permits and other regulatory approvals
- Supporting pilot or pre-commercial projects

These specific activities are described in more detail in the Key Competencies section. The general approach for these steps will match the embedded figure; however, there will be individual differences for each sector, as identified in the investment attraction strategies in Appendix 1.



## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

1. **Liaise with Communities:** SouthGrow will liaise with individual communities who are interested in the specific sector to:
  - Identify specific contacts and local leads
  - Discuss approaches and incentives for the industry
  - Communicate SouthGrow's strategy for the sector

The objective of this step will be to confirm alignment of strategies within the communities and the identification of expectations and intentions for the investment attraction capacities. SouthGrow will also work with partner organizations to communicate these community expectations and intentions.

2. **Create Database of Information:** SouthGrow will conduct analysis to create a database of potential investors, regional contacts, and other data to support the attraction of businesses. SouthGrow may work with its partners and collaborators to develop or import this database of information.
3. **Create Investor Attraction Package:** SouthGrow will create an investment attraction package for the region, which will highlight processes, support, and relevant information for any investor interested in the region. Modified versions of these packages will be made for specific sectors (e.g. fish farms, feedlots, greenhouses, and biochemicals/biomaterials).
4. **Approach Leads:** SouthGrow will approach the leads that it (or partnered groups) to promote it's the region, its communities and the opportunities for specific sectors. In this step, SouthGrow may work alone or with its partnering organizations.
5. **Conduct Business Study (Optional):** In some cases, SouthGrow may need to conduct additional studies to reduce the risk for new entrants or further validate specific opportunities. If this is the case, SouthGrow will likely seek government funding (e.g. Growing Forward 2) and coordinate the study either directly or through a third party contractor.
6. **Negotiate Water Permitting (or Other Regulatory Approvals):** If the business study indicates viability for the investor, SouthGrow will provide additional support to help negotiate regulatory approvals. In the case of fish farms, these approvals would focus on acquiring water licenses, while other permits or approvals may be required in the other industries.
7. **Implement Pilot/Commercial Facility:** With the regulatory approvals required and the business case demonstrated, SouthGrow will provide support for the implementation of a pilot project (in cases such as biochemicals) or for commercial facilities (in cases such as greenhouses).

## LEADS FOR SOUTHGROW

This section contains a revised list of prominent and recommended leads for the SouthGrow Region. These leads are businesses that operate or intend to operate in one of the four key sectors. They have been evaluated against a set of key criteria to determine:

- The potential interest SouthGrow may have in them
- The interest they may have in SouthGrow

From this analysis, and from the available information, the top 10-15 companies have been included with a supporting rationale for their selection.

**Note:** These leads do not guarantee investment in the region or even interest in SouthGrow.

### Evaluation Criteria

The initial list of leads is enclosed in Appendix 1. This list and other leads were evaluated against the following criteria. For each criteria and each potential lead, a score of 1 (least valuable) to 5 (most valuable) was assigned. The companies that had an overall score of 24 or higher were recommended for the SouthGrow region:

- **SouthGrow criteria:**
  - **Size:** Is the company size micro (<5 employees), small (5-19 employees), medium (20-99 employees), large (100-499 employees), or very large (500+ employees).
  - **Sustainability:** Does the company operate in a sustainable fashion. Will it maintain operations in the region for a prolonged period. A score of 1 indicates little to no sustainability, while a score of 5 indicates a highly sustainable organization
  - **Social Benefit:** Would the company bring money to the region? This could be in the form of employment, investment in infrastructure, tax flow, and attraction of other businesses to grow the sector. A score of 1 indicates little to no social benefit (ie. the company would generate negligible revenue for the region). A score of 5 would indicate high social benefit (ie. The company would generate significant long-term revenue for the region).
- **Company criteria:**
  - **Market Access:** Does SouthGrow provide access to markets that the company would like to reach? Would there be any impediment to the company reaching its markets if it set up within the SouthGrow region. A score of 1 indicates little market access, while a score of 5 indicates strong market access.
  - **Costs and Infrastructure:** Does SouthGrow provide cost benefits and infrastructure to support the business operations? A score of 1 indicates high costs and/or little existing infrastructure, while a score of 5 indicates low costs and ample infrastructure availability.
  - **Interest in Expansion:** Based on the company's stated strategic plan or through primary research, is the company looking to expand its operations? A score of 1 indicates little evidence for growth. A score of 5 indicates significant interest.

Based on these criteria, the potential leads were evaluated as follows:

**TARGETED INVESTMENT ATTRACTION PLAN AND LEADS**

Company	National/ International	Sector	Size	Sustainability	Social Benefit	Market Access	Costs/ Infrastructure	Interest in Expansion	Pros/Cons	Total
Marine Harvest Canada (Canadian arm of Marine Harvest)	International	Fish Farms	5	5	5	3	3	3	<b>Pros:</b> International, Large-scale <b>Cons:</b> Not traditionally closed containment	24
Miracle Springs Inc.	National	Fish Farms	2	5	5	4	4	3	<b>Pros:</b> Trout fish farm <b>Cons:</b> Smaller organization	23
Blue Goose Foods	National	Fish Farms	3	5	4	4	3	5	<b>Pros:</b> Growing rapidly, trout farmer <b>Cons:</b> Not traditionally closed containment	24
Willowfield Enterprises	National	Fish Farms	3	5	4	4	4	2	<b>Pros:</b> Trout Farmers <b>Cons:</b> Wholesaler	22
Swift Aquaculture	National	Fish Farms	2	5	4	4	4	2	<b>Pro:</b> Closed containment, aquaponics, Collaborates with Lethbridge College <b>Cons:</b> Small-scale	21
SweetSpring Salmon/AquaSeed Corporation	International	Fish Farms	3	5	4	4	4	4	<b>Pro:</b> Closed containment, expanding <b>Cons:</b> Salmon are riskier	24
Langsand Laks	International	Fish Farms	3	5	5	4	4	3	<b>Pros:</b> Largest closed containment system <b>Cons:</b> Salmon are riskier	24
Cermaq/Mainstream	International	Fish Farms	5	5	5	3	3	3	<b>Pros:</b> One of the largest fish farm companies <b>Cons:</b> Little closed containment	24

**TARGETED INVESTMENT ATTRACTION PLAN AND LEADS**

Company	National/ International	Sector	Size	Sustainability	Social Benefit	Market Access	Costs/ Infrastructure	Interest in Expansion	Pros/Cons	Total
Agrimarine	National	Fish Farms	2	5	5	4	4	4	<b>Pros:</b> Closed containment <b>Cons:</b> Currently small company	24
Harmony Beef	National	Feedlots	4	3	3	5	4	3	<b>Pros:</b> Looking to increase European Union exposure <b>Cons:</b> Already significantly investing in Calgary region	22
Canadian Premium Meats Inc.	National	Feedlots	4	3	2	5	4	2	<b>Pros:</b> Looking to increase European Union exposure <b>Cons:</b> Invested in Lacombe region	20
Heritage Angus Beef	National	Feedlots	5	3	2	5	4	4	Already connected to Canadian Premium Meats Inc. in Alberta	23
Panda Energy	International	Feedlots	4	5	4	4	4	3	<b>Pros:</b> Have developed plants with feedlots <b>Cons:</b> Would require local feedlot or alternative investor to express interest	24
AkzoNobel	International	Biochemicals	5	4	4	4	4	3	<b>Pros:</b> One of the world's largest specialty chemical companies. Has green power program which could tie into feedlots <b>Cons:</b> Interest in SouthGrow Region unclear	24
Devry Greenhouses	National	Greenhouses	3	4	3	2	3	1	Already operating a satellite greenhouse in	16

**TARGETED INVESTMENT ATTRACTION PLAN AND LEADS**

Company	National/ International	Sector	Size	Sustainability	Social Benefit	Market Access	Costs/ Infrastructure	Interest in Expansion	Pros/Cons	Total
									Picture Butte.	
Barnston Island Herbs	National	Greenhouses	2	5	4	3	4	2	<b>Pros:</b> Grow alternative crops (e.g. herbs) <b>Cons:</b> Small operation, little interest in expansion	20
Devan Greenhouses Ltd.	National	Greenhouses	3	5	4	3	4	3	<b>Pros:</b> Large greenhouse <b>Cons:</b> Grows bedding plants and already sells to prairies	22
Millenium Pacific Greenhouses	National	Greenhouses	3	4	4	2	4	2	<b>Pros:</b> Large greenhouse <b>Cons:</b> Grows standard greenhouse crops; likely little market opportunity	19
Origin Organic Farms	National	Greenhouses	2	4	4	2	4	2	<b>Pros:</b> Established greenhouse <b>Cons:</b> Grows standard greenhouse crops	18
Desert Hills Ranch	National	Greenhouses	2	4	4	3	4	1	Focuses on the interior and has little interest in expansion	19
Great Northern Hydroponics	National	Greenhouses	3	5	4	2	4	2	<b>Pros:</b> Large greenhouse and example of co-generation opportunities <b>Cons:</b> Tomato grower with little market opportunity in Alberta	20
Freeman Herbs	National	Greenhouses	3	5	4	4	4	4	Pros One of largest herb growers in North America Cons: Unclear	24

**TARGETED INVESTMENT ATTRACTION PLAN AND LEADS**

Company	National/ International	Sector	Size	Sustainability	Social Benefit	Market Access	Costs/ Infrastructure	Interest in Expansion	Pros/Cons	Total
								interest in additional market		
Amyris	International	Biochemicals	3	5	5	3	1	2	Pros: Alternative energy/biofuels Cons: Current focus on cane sugar	19
BioAmber	International	Biochemicals	4	5	5	4	4	4	Pros: Developer of succinic acid and significant plans for rapid growth	26
Cereplast	International	Biochemicals	3	5	5	3	1	1	Filed for Chapter 11 Protection on February 17, 2014. No longer considered.	18
Myriant	International	Biochemicals	2	5	5	4	4	4	Pros: Develop bio-succinic acid. First commercial operations in Louisiana and Germany Cons: Just entering commercialization phase	24
NatureWorks (PTT Global Chemical)	International	Biochemicals	2	5	4	3	3	3	Pros: Corn based plastic developer Cons: Still in commercialization stage	20
Synthesis Energy Systems	International	Biochemicals	2	4	4	3	2	3	<b>Pros:</b> Biomass based fuel <b>Cons:</b> Not enough local feedstock.	18
Novamont	International	Biochemicals	3	5	5	4	4	3	Pros: Compostable plastics Cons:	24
Roquette	International	Biochemicals	5	5	4	3	4	3	<b>Pros:</b> Processes plant-based raw materials including potatoes & peas.	24

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

### Lead Profiles

Company Name	<b>Agrimarine</b>
Description:	Agrimarine is a national company that has developed innovative aquaculture technology for salmon farming.
Contact:	Suite 1218 – 1030 West Georgia Street Vancouver, BC Canada, V6E 2Y3 Phone: 604-568-4672 Fax: 604-568-4673 E-mail: <a href="mailto:rkw@agrimarine.com">rkw@agrimarine.com</a> (Rob Walker)
Rationale for Recommendation	<p>Agrimarine is a national producer of semi-contained salmon. The company's mission is to build a global portfolio of fish farms utilizing its clean rearing technology. Agrimarine uses solid-walled floating tanks to farm salmon in closed containment, in freshwater bodies or in marine environments. The company recently acquired West Coast Fishculture (Lois Lake) Ltd. in British Columbia and also owns and operates a salmon and trout farm in China.</p> <p>Agrimarine may be interested in an expansion into contained production in Canada (and not just China). As such it would be worthwhile to explore the possibility of piloting a closed containment system with Agrimarine in the SouthGrow region.</p>

Company Name	<b>Akzo Nobel</b>
Description:	Akzo Nobel is an international company specializing in decorative paints, performance coating and specialty chemical manufacturing.
Contact:	Corporate Head Office Strawinskylaan 2555 1077 ZZ Amsterdam The Netherlands Phone: +31 20 502 7555 Email: <a href="mailto:info@akzonobel.com">info@akzonobel.com</a>
Rationale for Recommendation	Akzo Nobel is an international company with head offices located in The Netherlands and operations established in Germany, the United States, China and Japan. The company produces a variety of paints, coatings and chemicals. The company is in the process of developing specialized processes to convert bio-based feedstock into energy or chemical building blocks for future development. As such there may be an opportunity to explore Akzo Nobel for either biochemicals or feedlot energy production or both. Furthermore, the size of the company would warrant interest for the SouthGrow Region.

Company Name	<b>AquaSeed Corp.</b>
Description:	Aquaseed is an American based operation that runs a contained Domsea Coho salmon farm operation in Rochester, Washington.
Contact:	2301 NE Blakeley Street # 102 Seattle, WA 98105 Phone: (206) 527-6696 Website: <a href="http://AquaSeed.com">AquaSeed.com</a>
Rationale for Recommendation	Aquaseed operates a contained Domsea Coho salmon fish farm and has 30 years of experience in the industry. The company has exclusive rights to a unique breed of salmon and uses a highly specialized

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

	<p>freshwater re-circulating land based tank system to grow their fish. The company has an organic philosophy and does not use antibiotics or growth hormones in their production process.</p> <p>Aquaseed has experience in contained production and as such, it is a worthwhile lead to explore the possibility of piloting a contained system in Canada. Based on the company's size they may be interested in the opportunity to partner with local investors, as they are a privately held American company. The company has also publicly stated an interest in installing facilities throughout North America. SouthGrow could be one target region for them.</p>
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Company Name	Bioamber
Description:	Bioamber is a national, Montreal based company that uses economically-viable, clean and sustainable feedstock to produce platform chemicals for a diverse range of applications.
Contact:	<p>Head Office: 1250 Rene-Levesque Blvd West, Suite 1410 Montreal, Quebec, H3B 4W8 Phone: 514-844-8000 Fax: 514-844-1414</p>
Rationale for Recommendation	<p>Bioamber is a national company that manufactures a variety of chemical platforms from bio-based materials. The company uses proprietary process, patented technology, and sustainable feedstocks to produce platform chemicals for a diverse range of chemical applications.</p> <p>Bioamber is especially interested in sourcing feedstocks from biomass such as plant wastes, or from organically grown and non-GM feedstocks. Of particular interest is the process to develop succinic acid. As noted in earlier sections, this chemical would fit well with the SouthGrow feedstock and Alberta markets.</p> <p>Furthermore, the company has the financial capacity, and it has the technical expertise to develop a new facility. As such, it may be worthwhile to explore the possibility of piloting a project in the SouthGrow Region with Bioamber.</p>

Company Name	Blue Goose Foods
Description:	Blue Goose Foods is a national organic poultry, fish, and beef operation. Supplies products to restaurants and retail. Rapidly growing company with investment from Dundee, Scotland.
Contact:	<p>#123, 1305 Welch Street North Vancouver, BC V7P 1B3 Phone: (604) 980 -9106 Fax: (604) 980 -9146 Email: <a href="mailto:dsinclair@bluegoosecattle.com">dsinclair@bluegoosecattle.com</a> Website: <a href="http://bluegoosecattle.com">bluegoosecattle.com</a></p>
Rationale for Recommendation	<p>Blue Goose Foods is a poultry, beef and fish producer with an organic philosophy toward animal production. All products are hormone and antibiotic free and use humane methods of animal slaughter. The company has a national presence with cattle farms in British Columbia, and poultry and fish farms in Southern Ontario. The organic meat market is a growing niche market and Blue Goose Foods has been growing rapidly. They have recently acquired an investor from Dundee, Scotland to support their growth. The company may be interested in the opportunity to expand into the SouthGrow region. This expansion could</p>

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

	<p>include:</p> <ul style="list-style-type: none"> <li>• Fish farm investment</li> <li>• Feedlot investment</li> </ul>
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<b>Company Name</b>	<b>Cermaq</b>
Description:	Cermaq is a large national aquaculture operation located on the west coast of Canada. Traditionally the company has been engaged in offshore production.
Contact:	203 – 919 Island Highway Campbell River, BC V9W 2C2 Phone: 250-286-0022 Fax: 250-286-0042 Email: <a href="mailto:contact@mainstreamcanada.com">contact@mainstreamcanada.com</a>
Rationale for Recommendation	Cermaq is a large national aquaculture company with operations on the west coast of Canada. The company has expanded from their Tofino production facility to a second location in Campbell River and has experience in working with first nations people in aquaculture partnerships. Cermaq is a large company and has the financial capacity and established infrastructure to support an expansion. While Cermaq does not have experience in contained production, they may have an interest in expanding into western Canada. The size of the company makes it worthwhile to at least contact regarding SouthGrow opportunities.

<b>Company Name</b>	<b>Freeman Herbs</b>
Description:	Freeman Herbs is a the largest herb company in Canada and top five in North America
Contact:	4838 Lincoln Ave. Beamsville, Ontario L0R 1B3 Phone: (905) 563-8890 Fax: (905) 563-5860 email: <a href="mailto:freeman@freemanherbs.com">freeman@freemanherbs.com</a>
Rationale for Recommendation	Freeman Herbs is a privately owned national herb producer with greenhouses located in Beamsville, Ontario. The company provides a wide variety of potted conventional herbs. Freeman Herbs has the technical knowledge to expand into the western Canadian market and may be interested in developing a partnership in the southGrow region. It is a large enough greenhouse, specializing in crops outside of the Palliser region's crops, and it would benefit from access to Western markets.

<b>Company Name</b>	<b>Langsand Laks</b>
Description:	Langsand Laks is an international salmon producer that owns the world's largest re-circulating aquaculture system.
Contact:	Langsand Laks AS Langsand 34-6960 Hvide Sande, Denmark CVR NR 335725 Phone: +4597311253 Fax: +45 973 13571
Rationale for Recommendation	Langsand laks operates a production facility in Denmark and exports product through wholesalers in northern Europe. The company has

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

	developed world's largest contained re-circulating aquaculture system. They began production in 2011 with their first harvest in January 2014. Through their initial harvest, the company has proven the effectiveness of their contained re-circulating technology. Langsand Laks is a growth oriented company and may be interested in expanding into Canada as other Nordic countries have done.
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Company Name	Marine Harvest
Description:	Marine Harvest is an international salmon producer. Traditionally the company has been engaged in off-shore production.
Contact:	#124 - 1334 Island Highway Campbell River British Columbia, Canada V9W 8C9 Phone: 250.850.3276 (FARM) Fax: 250.850.3275 Sales: 250.850.3474 (FISH)
Rationale for Recommendation	<p>Marine Harvest is a salmon producer focused on off-shore fish farming using pens. The company is one of the world's largest fish farming organizations with business units established in Norway, Scotland, Chile, Canada and Europe. The Canadian operations are based on the west coast of Canada and primarily produce Atlantic and Pacific salmon. Marine Harvest is a growth oriented company, and would not be adverse to opening new farms in Canada.</p> <p>It would be worthwhile to explore the possibility of piloting a closed containment system in the SouthGrow region. The company has the financial capacity, as well as the technical knowledge to implement a new facility, and it would benefit from the market opportunities in Alberta.</p>

Company Name	Miracle Springs Inc.
Description:	Miracle Spring Inc. is a national producer of rainbow trout. The company export product across Canadian provinces and supplies fish to restaurant and retail market as well as providing fish for research and stocking purposes.
Contact:	Box 500 380 - 233 W 1st Street North Vancouver, B.C. V7M 1B3, Canada Phone: 604-987-1230 Fax: 604-987-1238 e-mail: info@miraclespringsinc.com Website: miraclespringsinc.com/
Rationale for Recommendation	<p>Miracle Springs is a local North Vancouver company with 35 years of contained fish farming experience. The company has a focus on natural production methods. Miracle Springs wholesales fish through Albion, a distributor in Vancouver, BC. The company remains a privately held.</p> <p>With Miracle Springs experience in contained trout fishing in Canada the company has the technical knowledge to implement a new facility and may be interested in opening a new farm in the SouthGrow region. Based on the company's size they may be interested in the opportunity to partner with local investors.</p>

Company Name	Myriant
Description:	Myriant is an international company based in the United States. The

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

	company produces bio-based chemicals.
Contact:	3 Batterymarch Park, 3 <sup>rd</sup> Floor Quincy, MA 02169 Phone: 617-657-5200
Rationale for Recommendation	<p>Myriant is an international producer of bio-based chemicals including bio-succinic acid and other bio-based chemical intermediates. The company uses a variety of feedstocks to design and develop bio-chemicals. The company has proven success in sourcing, inputs, and producing effective, economically feasible bio-chemicals.</p> <p>Myriant currently has production facilities in Louisiana and in Germany. Myriant is interested in cultivating strategic partnerships internationally. The company has the financial capacity, and the established infrastructure within North America to support a feedstock partnership in the SouthGrow region.</p>

Company Name	Novamont
Description:	Novamont is an international company that uses renewable feedstocks for the production of bio-plastics.
Contact:	Via G. Fauser 8 28100 Novarra, Italy Phone: +39 0321 6996 11
Rationale for Recommendation	Novamont is an international bio-plastic producer based in Italy. The company's North American division produces a line of compostable bio-plastics made from plant material such as sunflowers and GMO-free cornstarch. Novamont has a unique approach to supplier partnerships, whereby they integrate and laboratories and production facilities into communities where product inputs are easily accessible. The company has the financial capacity, and the technical knowledge to develop a new facility within Canada. As such, a partnership with Novamont may be a worthwhile lead to explore.

Company Name	Panda Energy
Description:	Panda Energy is an international operator and manager of energy facilities.
Contact:	4100 Spring Valley Road, Suite 1001 Dallas, Texas 75244 Phone: (972)
Rationale for Recommendation	Panda Energy is an international Energy facility operator and manager company with head offices located in Dallas, Texas. The company has experience in co-digestion and utilizing manure and animal waste to power or support biofuel process operations. As such, the company would be a worthwhile contact in support of feedlot bio-energy initiatives. It would not necessarily invest directly into the region, but SouthGrow could connect local feedlots with Panda to support co-digestion initiatives in the region.

Company Name	Redpath Sugar
Description:	Sugar processor
Contact:	95 Queens Quay E, Toronto, ON, Canada Phone: 416-933-8341 Additional contact support available through MNP
Rationale for Recommendation	Roger's sugar has been the sole processor of sugar in Southern Alberta, and has significant control over sugar beet prices to the chagrin of local producers. A second entrant in the form of Redpath would be positive

## TARGETED INVESTMENT ATTRACTION PLAN AND LEADS

	for sugar beet producers, and an opportunity for Redpath to introduce new competition and gain greater traction in the Western Canadian market, which could be positive for both companies.
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Company Name	Roquette
Description:	Roquette is an international leader in producers of starch and starch derivatives. Factories are located in Europe, America and Asia and they exclusively process renewable raw materials
Contact:	Roquette America 2211 Innovation Drive Geneva, IL 60134 Phone: 630-463-9430
Rationale for Recommendation	Roquette is a producer of starch and starch derivatives that exclusively processes renewable raw materials. The company's primary inputs are corn, wheat, potatoes and peas. Operating divisions are established in Europe, America and Asia. Roquette currently operates two production facilities in the eastern United States, but does not have any western Canadian or American production facilities. Roquette may be interested in the opportunity to develop a production facility in the Southgrow region to process potatoes and peas.

## APPENDIX 1 – INVESTMENT ATTRACTION APPROACHES

Sector	Fish Farms/Aquaponics	Feedlots	Greenhouses	Biochemicals/Biomaterials
<b>General Strategic Approach</b>	Promote the development of commercialization of this sector by engaging in a role as a facilitator for external companies. This includes: <ul style="list-style-type: none"> <li>Actively promoting SouthGrow to leads</li> <li>Engaging local growers and water permit holders</li> <li>Partnering with local research community</li> <li>Facilitating the entry of fish farms and commercial aquaponics by supporting the negotiation of water terms and helping fish farms address government hurdles</li> </ul>	A primary opportunity for pursuing the feedlot option is to develop the market opportunity for the European Union. By clarifying and developing markets in this region, SouthGrow would provide incentive for feedlot investment (and supporting commercial operations) in the region.	Promote the development of commercialization of this sector by focussing on companies looking to expand, alternative produce development, developing retail opportunities for growers.  Initial efforts will likely focus on developing a sector of small to medium greenhouses, while focussing on laying the groundwork for larger facilities to enter the region.	As a long-term opportunity, SouthGrow would want to lay the groundwork for potential developments by promoting research and pilot opportunities in the region. This would include: <ul style="list-style-type: none"> <li>Partnering with government economic development and bio-based materials organizations</li> <li>Partnering with research institutions to support the development of alternative products</li> </ul>
<b>Short Term</b>	Short-term sector development will likely focus on small or niche fish farms who will sell directly to restaurants or markets: <ul style="list-style-type: none"> <li>Assess viability of key locations which maximize:               <ul style="list-style-type: none"> <li>Water availability</li> <li>Accessibility to major commercial centres</li> <li>Labour availability</li> </ul> </li> <li>Work with local permit holders to assess water availability for farm operations</li> <li>Arrange communication and interviews with fish farm developers</li> <li>Consider analysis for commercialization studies for aquaponics and alternative fish farm opportunities</li> </ul>	Short-term sector development will likely focus on partnering with other government organizations and industry initiatives to help define and clarify the market opportunity for feedlot investment. This could include: <ul style="list-style-type: none"> <li>Explore twinning opportunities with similar agriculture areas in Europe to promote EU free trade and technology transfer</li> <li>Facilitate the development of commercialization analyses into European market beef and hog preferences and how feedlots would need to address them. For this consider partnering with feedlot associations.</li> <li>Partner with bio-energy groups (e.g. SAEWA) to support site selection, feedstock acquisition, and development of bio-energy opportunities</li> </ul>	Short term sector development will likely focus on developing retail opportunities for the greenhouse sector. This includes: <ul style="list-style-type: none"> <li>Conducting a study or assessment to explore commercialization potential for alternative greenhouse products (legal and one-day legal)</li> <li>Negotiating retail opportunities with major retailers (e.g. commitments from organizations like Sobey's and Safeway to purchase SouthGrow greenhouse produce)</li> <li>Engaging immigrant communities in other regions (e.g. Indian community in Lower Mainland) who may seek to expand their greenhouses into Alberta</li> </ul>	Short term sector development will likely focus on promoting SouthGrow as an ideal region for the experimentation and commercialization of emerging technologies. This could include: <ul style="list-style-type: none"> <li>Engaging provincial and federal organizations including the Government of Alberta to communicate SouthGrow's position and actively promote opportunities</li> <li>Engaging local growers to identify waste products and other crops which could yield better returns as bio-chemicals</li> <li>Facilitating studies on the commercial feasibility of bio-based alternatives to most common chemicals imported in Alberta</li> </ul>
<b>Medium Term</b>	Medium-term sector development should build off the success of short-term activities and expand the scale of fish farms to include larger markets. Furthermore, it should also include alternative farm opportunities, such as aquaponics: <ul style="list-style-type: none"> <li>Partner with Lethbridge College and University of Lethbridge to support the research and development required to undertake a commercial aquaponics facility</li> <li>Assess short term successes and promote industry for other potential entrants</li> <li>Negotiate agreements with major retailers for new entrants</li> <li>Work with government to support the acquisition or modification of water permits</li> <li>Engage potential leads to explore full scale or near full scale commercial aquaponics facilities</li> </ul>	Short to medium-term sector development should build off the results of the analysis and market development to engage industry leads to promote feedlot opportunity development. This could include: <ul style="list-style-type: none"> <li>Engage potential industry leads (including the listed leads) to explore development opportunities.</li> <li>Also, consult local industry and leads for potential recommendations on other potential organizations</li> <li>Work with research institutions to promote research and development for different feeds and processed goods</li> </ul>	Medium-term sector development should build off the results of the short-term studies. If commercial opportunities emerge for alternative greenhouse products, then SouthGrow should: <ul style="list-style-type: none"> <li>Arrange tours and site visits for large scale greenhouses to develop commercial facilities</li> <li>Conduct international trade missions with Asia or other areas, to promote farmer immigration opportunities</li> <li>Work with governments to support the acquisition or modification of water permits</li> <li>Work with feedlots or alternative energy providers to provide discounted bio-energy for greenhouse production</li> <li>Work with Government of Alberta to promote Buy Alberta strategy for SouthGrow Region, to promote greater interest in local year round produce.</li> </ul>	Medium-term sector development would focus on attracting pilot facility development in the SouthGrow Region as well as encouraging more research and development in the area. This could include: <ul style="list-style-type: none"> <li>Identifying and negotiating with retailers to set up potential test markets for bio-based alternatives</li> <li>Working with research institutions to support research and development for external companies</li> <li>Arranging tours and site visits for developers of biochemical products</li> <li>Offering conditional tax incentives during pilot trial periods</li> <li>Engaging growers to consider biochemical supportive crops (e.g. soy), and engage biochemical companies who could use the products (e.g. Soy 2020)</li> </ul>
<b>Long Term</b>	In the long term, SouthGrow could consider promoting the diversification of the industry beyond standard fish products. This could include some of the emerging technologies such as micro-algae.	In the long term, SouthGrow could continue to support and promote bioenergy alternatives, potentially by connecting feedlots with other sectors such as an emerging greenhouse sector.	In the long term, SouthGrow could consider furthering its greenhouse opportunities by exploring more alternative greenhouse technologies and produce. SouthGrow could work with research institutions to promote the development of other vegetable and fruit varieties, or the development of new techniques for the sector.	In the long-term, SouthGrow would focus on attracting more commercial facilities for the development of biochemicals. This could include: <ul style="list-style-type: none"> <li>Assessing leads for new technologies and biochemical developers</li> <li>Working with other government groups to engage potential leads to explore full scale or near full scale commercial facilities</li> </ul>

**TARGETED INVESTMENT ATTRACTION PLAN AND LEADS**

Sector	Fish Farms/Aquaponics	Feedlots	Greenhouses	Biochemicals/Biomaterials
Ideas to Consider	<ul style="list-style-type: none"> <li>SouthGrow should consider an economic and environmental analysis to quantify the total number of locally grown fish to demonstrate the potential for larger operations. This could be funded through Growing Forward 2.</li> <li>SouthGrow may also want to develop and implement trade missions with Asian partners to attract Asian fish farming investment opportunities and migrant workers to increase labour availability.</li> <li>SouthGrow could facilitate the development of consortiums who can apply to SDTC for project funding for closed containment fish farm (this has been successfully undertaken by Namgis First Nations in B.C.)</li> </ul>		<ul style="list-style-type: none"> <li>The Indian community in the Lower Mainland has been identified as a potential group who may be interested in expanding their greenhouse operations into Southern Alberta. Targeted marketing (potentially translated into Punjabi) may be an effective method of attracting this group.</li> </ul>	

## APPENDIX 2 - LIST OF POTENTIAL LEADS EVALUATED

The following list of leads was generated from Adfarm and MNP's own internal research. In addition, MNP recommends contacting industry associations within British Columbia, Ontario, and the United States to identify more businesses who may be interested in investing in the SouthGrow Region.

Sector	Name	Description	Contact Information	Potential Contact
<b>Fish Farms</b>	Marine Harvest Canada (Canadian arm of Marine Harvest)	Salmon farm operations. Traditionally off-shore, but could be interested in contained farming	#124 - 1334 Island Highway Campbell River British Columbia, Canada V9W 8C9 Phone 250.850.3276 (FARM) Fax 250.850.3275 Sales 250.850.3474 (FISH)	Dave Ashcroft
	Miracle Springs Inc.	<ul style="list-style-type: none"> <li>• Rainbow trout</li> <li>• Supply to restaurants and retail market</li> <li>• Provide fish for research purposes and stocking purposes</li> <li>• Export across provinces</li> </ul>	Box 500 380 - 233 W 1st Street North Vancouver, B.C. V7M 1B3 Canada Phone: 604-987-1230 Fax: 604-987-1238 e-mail: info@miraclespringsinc.com <a href="http://miraclespringsinc.com/">http://miraclespringsinc.com/</a>	
	Blue Goose Foods	<ul style="list-style-type: none"> <li>• Organic poultry, fish and beef</li> <li>• Supply retail and restaurants</li> <li>• Growing rapidly with new investment from Dundee</li> </ul>	#123, 1305 Welch Street North Vancouver, BC V7P 1B3 Phone: (604) 980 -9106 Fax: (604) 980 -9146 Email: dsinclair@bluegoosecattle.com Website: <a href="http://www.bluegoosecattle.com">www.bluegoosecattle.com</a>	
	Willowfield Enterprises	Closed containment (salmon and trout) farms in Langley	117-15272 Croydon Drive Surrey, B.C. V3S 0Z5 Canada Phone: 604-531-1228 Fax: 604-531-1255 Toll Free (in North America): 877-588-1227 Email: info@willowfield.net <a href="http://www.willowfield.net/index.html">http://www.willowfield.net/index.html</a>	
	Swift Aquaculture	Coho Salmon farmers	Background information: <a href="http://www.seafoodchoices.org/seafoodsummit/documents/Swift,Bruce.pdf">http://www.seafoodchoices.org/seafoodsummit/documents/Swift,Bruce.pdf</a>	Bruce & Mary Lou Swift
	AquaSeed Corp	Coho salmon farmers in Seattle		
	Langsand Laks	Has world's largest recirculating aquaculture system in the world.	Langsand Laks AS Langsand 34-6960 Hvide Sande, Denmark CVR NR 335725 Phone:+45 973 11 253 Fax: +45 973 13 571	Thue Holm, CEO
	Mainstream Canada	Salmon farming for Atlantic Salmon in BC  Parent company is Cermaq and they are seeking to expand and explore new opportunities	203 – 919 Island Highway Campbell River, BC V9W 2C2 Phone: 250-286-0022 Fax: 250-286-0042 <a href="mailto:contact@mainstreamcanada.com">contact@mainstreamcanada.com</a>	
	Agrimarine	The company has developed innovative aquaculture technology for salmon farming.  They use solid-walled floating tanks to farm salmon in closed	Suite 1218 – 1030 West Georgia Street Vancouver, BC Canada, V6E 2Y3 Phone: 604-568-4672	

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Sector	Name	Description	Contact Information	Potential Contact
		containment in freshwater bodies or in marine environments.	Fax: 604-568-4673	
Feedlots	Harmony Beef	Plant will emphasize Alberta fed beef located in Balzac, Alberta.  Major market will be the European Union and Asia		
	Canadian Premium Meats Inc.	<ul style="list-style-type: none"> <li>• Slaughter and Meat Processing Facility</li> <li>• European Union (EU) approved custom slaughter and meat processing plant</li> <li>• Approved and certified by the Islamic Society of North America (ISNA) for the production of Halal produce.</li> <li>• Certified by ECO Cert – Canadian Premium Meats is also a processor for Organic produce.</li> </ul>	3401 - 53rd Ave. Lacombe, Alberta, T4L 2L6 Canada Phone: 403-782-9366 Fax: 403-782-7163 <a href="mailto:cpmeats@cpmeats.com">cpmeats@cpmeats.com</a> <a href="http://www.cpmeats.com/">http://www.cpmeats.com/</a>	
	Sungold Specialty Meats	<ul style="list-style-type: none"> <li>• Species of animals slaughtered, fabricated and packaged are lamb, mutton and goats in compliance with the requirements of the Halal method of slaughtering.</li> <li>• Approved to export products to United States of America, Mexico, South Africa, European Union, Switzerland, Hong-Kong and Chile from CFIA</li> </ul>	Phone: 403-227-3386 Fax: 403-227-1661 4312-51 Street, Innisfail, AB T4G1A3 Email: <a href="mailto:info@sungoldmeats.com">info@sungoldmeats.com</a> <a href="http://www.sungoldmeats.com/">http://www.sungoldmeats.com/</a>	
	Heritage Angus Beef	<ul style="list-style-type: none"> <li>• Export to EU</li> <li>• Looking to expand</li> </ul>	Box 358 Hudsons Hope, B.C. V0C 1V0 Telephone: 250 783 9999 Mobile: 780 978 2697 Fax: 888 828 8339 Email: <a href="mailto:christoph@heritageangus.com">christoph@heritageangus.com</a> <a href="http://www.heritageangus.ca/en/index.php">http://www.heritageangus.ca/en/index.php</a>	Dr. Christoph E. Weder
	Spring Creek	<ul style="list-style-type: none"> <li>• Good track record</li> <li>• Natural beef program</li> <li>• Looking to expand</li> </ul>	#303, 13220 St. Albert Trail Edmonton, AB T5L 4W1 Phone: 780.436.0335 Fax: 1.888.524.3022 Email: <a href="mailto:info@springcreek.ca">info@springcreek.ca</a> Twitter: <a href="#">@springcreekbeef</a> Facebook: <a href="http://www.facebook.com/springcreekbeef">www.facebook.com/springcreekbeef</a>	Bern and Kirsten Kotelko
Greenhouses	Devry Greenhouses	<ul style="list-style-type: none"> <li>• DeVry Greenhouses, family business in the lower mainland of BC</li> <li>• The company has locations with a total growing area of 35 acres.</li> <li>• Supply a comprehensive range of bedding plant and hanging baskets.</li> </ul>	49259 Castleman Road Chilliwack, BC V2P 6H4 Phone: 604-794-3874 Fax: 604-794-3752 <a href="http://www.devrygreenhouses.com/about.html">http://www.devrygreenhouses.com/about.html</a>	
	Barnston Island Herbs	<ul style="list-style-type: none"> <li>• Barnston Island is in the middle of the Fraser River in Surrey, BC</li> <li>• Herbs, lettuce, specialty vegetables, Edible flowers, specialty mushrooms</li> </ul>	148 Barnston Island Surrey, BC V4N 4R1 Canada Tel: 604-581-8017 Fax: 604-581-0515 Toll-Free: 1-800-663-4882	Peter Hoffman

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Sector	Name	Description	Contact Information	Potential Contact
			Email: <a href="mailto:info@biherbs.ca">info@biherbs.ca</a> Twitter: <a href="https://twitter.com/BarnstonHerbs">@BarnstonHerbs</a> <a href="http://www.biherbs.ca/">http://www.biherbs.ca/</a>	
	Devan Greenhouses Ltd.	<ul style="list-style-type: none"> <li>• 2006 Outstanding young farmer</li> <li>• Flowers</li> </ul>	28904 Fraser Hwy Abbotsford, BC V4X 1G8 Phone: 604-857-4944 Fax: 604-857-4947 <a href="http://www.devangreenhouses.ca/">http://www.devangreenhouses.ca/</a>	
	Millenium Pacific Greenhouses	Non-GMO tomatoes in a hydroponic environment	3752 Arthur Drive, Delta, B.C. V4K-3N2 Tel: 604-940-4440 Fax: 604-940-1118 Email: <a href="mailto:info@millenniumpacific.com">info@millenniumpacific.com</a>	
	Origin Organic Farms	<ul style="list-style-type: none"> <li>• Organic tomatoes, cucumbers, peppers</li> <li>• Delta, BC – Head Office</li> </ul>	6225-34B Avenue Delta, BC V4L 2N8 Canada  Tel: 604.940.3928 Fax: 604.940.3968 E-mail: <a href="mailto:info@origino.ca">info@origino.ca</a>	
	Desert Hills Ranch	<ul style="list-style-type: none"> <li>• Greenhouse supplies retailers throughout the BC interior</li> <li>• They have a farm market</li> </ul>	Physical Address: Old Mill Rd, Ashcroft, BC, V0K 1A0 Mailing Address: PO Box 1228, Ashcroft, BC V0K 1A0 Phone: 250-453-9878 Fax: 250-453-9870 Email: <a href="mailto:deserthillsranch@hotmail.com">deserthillsranch@hotmail.com</a>	
	Great Northern Hydroponics	<ul style="list-style-type: none"> <li>• One of the largest greenhouse operations in North America</li> <li>• 55-acre greenhouse tomato operation</li> </ul>	1418 Road 3 E Kingsville, ON N9Y 2E5 Phone: 519-324-9924	
	Freeman Herbs	Largest fresh herb grower in Canada and listed in the top five in North America	4838 Lincoln Ave. Beamsville, Ontario L0R 1B3 Phone: (905) 563-8890 Fax: (905) 563-5860 email: <a href="mailto:freeman@freemanherbs.com">freeman@freemanherbs.com</a>	
Biochemicals/Biomaterials	Amyris	The company applies its industrial synthetic biology platform to convert plant sugars into a variety of molecules	5885 Hollis Street, Suite 100 Emeryville, CA 94608 USA Phone: 510-450-0761 Fax: 510-225-2645 Email: <a href="mailto:info@amyris.com">info@amyris.com</a>	
	BioAmber	Uses economically-viable, clean and sustainable feedstocks to produce platform chemicals for a diverse range of chemical applications	Head Office: 1250 Rene-Levesque Blvd West, Suite 1410 Montreal, Quebec, H3B 4W8 Phone: 514-844-8000 Fax: 514-844-1414	
	Cereplast	Designs and manufactures proprietary starch-based, sustainable plastics created from breakthrough bioplastics	2213 Killion Avenue Seymour, IN 47274 Phone: 812-220-5400	

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Sector	Name	Description	Contact Information	Potential Contact
		technology	Fax: 812-524-1715	
	Myriant	Myriant produces a broad pipeline of bio-based chemicals including bio-succinic acid and its derivatives and other bio-based chemical intermediates that perform equal to, or better than, traditional petroleum-based chemicals	3 Batterymarch Park, 3 <sup>rd</sup> Floor Quincy, MA 02169 Phone: 617-657-5200	
	NatureWorks	Manufactures Ingeo brand polylactic acid (PLA) and lactides, plant-based biopolymers used to manufacture plastics and fibers	15305 Minnetonka Boulevard Minnetonka, MN 55345 USA	
	Calysta Energy	Calysta Energy uses natural gas as feedstock to create high value sustainable fuels and chemicals	1140 O'Brien Drive Menlo Park, CA 94025 Phone: 650-492-6880 Email: info@calystaenergy.com	
	Synthesis Energy Systems	Synthesis Energy Systems is a global energy and gasification technology company that converts low-cost feedstocks into high value energy and chemical products	Three Riverway, Suite 300 Houston, TX 77056 Phone: 713-579-0600 Fax: 713-579-0610	
	AkzoNobel	AkzoNobel is a leading global paints and coatings company and a major producer of specialty chemicals	Corporate Head Office Strawinskylaan 2555 1077 ZZ Amsterdam The Netherlands Phone: +31 20 502 7555 Email: info@akzonobel.com	
	Novamont	The company uses renewable feedstock for the production of bioplastics for specific applications with a low environmental impact	Via G. Fauser 8 28100 Novara, Italy Phone: +39 0321 6996 11	
	Roquette	One of the world's most advanced producers of starch and starch derivatives. Factories are located in Europe, America and Asia and they exclusively process renewable raw materials	Roquette America 2211 Innovation Drive Geneva, IL 60134 Phone: 630-463-9430	

## APPENDIX 3 – COMPARISON OF ALBERTA REGIONS

**Note:** N/A refers to information that could not be collected.

	SouthGrow	City of Lethbridge	Palliser	Red Deer
Population	131,008 (2006)	89,074 (2012)	112,000	97,109 (2013)
Average Age	34.9 (2004)	37	36.9 (Median – 2006)	32 (2013)
<b>Environment</b>				
Water Availability	Large water availability	N/A	N/A	N/A
Growing Season	185 days	123 days	120 days	N/A
Avg High Temp	12.1	11.95	11.2	8
Avg Low Temp	-1.0	-1.2	-1.95	-4.5
Sunlight	2,300 hours per year	2,506 hours per year	2,512 hours per year	2,133 hours per year
<b>Infrastructure</b>				
Energy Infrastructure	Affordable utilities as well as various solar, wind and bio-diesel initiatives	N/A	Variety of electricity/natural gas providers. Gas exploration, drilling and processing is prevalent in this region.	Modern and expanding infrastructure. Strong Fibre Optics Network
Energy Costs	N/A	Natural gas costs -\$0.47 US\$/CCF (100ft <sup>2</sup> )	Varies based on community. Advertises lower utility rates	N/A
Avg Tax Rate	Residential/Farm (Municipal) – 8.2 Non-Residential (Municipal) – 13.7 Residential/Farm (Mill Rate) – 11.6 Commercial/Industrial (Mill Rate) – 16.4	Residential (Mill Rate) – 9.898 Farm (Mill Rate) – 9.898 Multi-Family Residential (Mill Rate) – 12.842 Non-Residential – 21.323 Machinery and Equipment – 17.367	N/A	City council has eliminated Red Deer's business tax
Post-Secondary Institutions	University of Lethbridge (U of L) and Lethbridge College (LC)	University of Lethbridge (U of L) and Lethbridge College (LC)	Medicine Hat College	Red Deer College
<b>Market</b>				
Major Industries/Sectors	Agriculture, Alternative Energy, Engineering/Construction, Building Products, Metal Fabrication, Manufacturing, Tourism	Agri-food, Aviation and Aerospace, Environmental Products and Services, Information and Communications Technology, Manufacturing, Supply Chain and Logistics	Agri-food (pulse crops strong), Energy, Metal Fabrication and Machinery, Defence and Aerospace, Information and Communication, Engineering and Construction, Non-Metallic Minerals, Chemicals and Rubber, Tourism	Oil and Gas, AgriBusiness, Petrochemicals, Manufacturing, Construction, Service, Distribution, Health, Education and Government
Labour Availability	Low unemployment rate of	Unemployment rate of 5.1%	Unemployment rate of 5.1%	Unemployment rate of 4.4%

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	4.2% (2006). Keeping a full range of the labour force working within the region may be a challenge	(July 2013)	(2010). Major employers for the above sectors found throughout the region	(2006), relatively young and ready workforce
Market Destinations	N/A	N/A	N/A	N/A
Destination Market Size	N/A	N/A	N/A	N/A
Market Incentives	Large amount of water available, Irrigation systems, proximity to the U.S, relatively inexpensive land, business parks	Irrigation systems, proximity to the U.S, business parks	2 Irrigation districts, proximity to the U.S, sunniest area of Canada	Proximity to Calgary and Edmonton, Abundant natural resources
Identified Opportunities/Strategic Direction for the Future	To be determined	N/A	Value add products (meats, sausage), Ingredients supply for pet foods, Pulse Processing, Manure Processing/Electrical Cogeneration, Organic/Halal/Kosher Meat Processing, Vegetable Green housing	Agriculture, mixed farming, petroleum industry, value-added agriculture

## APPENDIX 4– COMPARISON OF NATIONAL/INTERNATIONAL REGIONS

	<b>SouthGrow</b>	<b>Guelph</b>	<b>Washington State</b>	<b>Ireland</b>
Population	131,008 (2006)	119,950 (2006)	6.897 million	6.3 million
Average Age	34.9 (2004)	36.4	36.7	35.1
<b>Environment</b>				
Water Availability	Large water availability	No significant excess	No significant excess	N/A
Growing Season	185 days	N/A	N/A	N/A
Avg High Temp	12.1	11.6	11	19
Avg Low Temp	-1.0	1.4	N/A	2.5
Sunlight	2,300 hours per year	N/A	2,170 hours per year (Seattle)	1,598 hours per year (In the sunniest areas of the country – southeast coast)
<b>Infrastructure</b>				
Energy Infrastructure	Affordable utilities as well as various solar, wind and bio-diesel initiatives	Hydro	N/A	N/A
Energy Costs	N/A	<i>Residential - \$0.104/kwh General less than 50kw - \$0.104/kwh General above 50kw/Large use customers– Weighted average hourly spot market price or hourly Ontario energy price or energy retailer contract price</i>	Residential - \$0.096/kwh	N/A
Avg Tax Rate	Residential/Farm (Municipal) – 8.2 Non-Residential (Municipal) – 13.7 Residential/Farm (Mill Rate) – 11.6 Commercial/Industrial (Mill Rate) – 16.4	Residential – 1.26% Commercial – 3.37% Industrial – 4.23%	Retailing - \$0.00471 Wholesaling - \$0.00484 Manufacturing - \$0.00484 Service & Other - \$0.015	N/A
Post-Secondary Institutions	University of Lethbridge (U of L) and Lethbridge College (LC)	University of Guelph, Conestoga College	University of Washington, Washington State University, Central Washington University, Eastern Washington University, Western Washington University , The Evergreen State University, Bellevue College (and additional two year institutions)	Trinity College Dublin, University College Dublin, University College Cork
<b>Market</b>				
Major Industries/Sectors	Agriculture, Alternative Energy, Architecture/Engineering/Construction,	Agri-food and Innovation, Environmental Technologies,	Agriculture (livestock and crops, value-added	Animal & Grassland, Dairy, Cattle, Crops (cereal grains,

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	Building Products, Metal Fabrication, Manufacturing, Tourism	Advanced Manufacturing, Information Communication, Tourism	agriculture and food processing), Manufacturing, Mining, Fishing, Services, Agri-Tourism	oilseed rape, fodder crops) Sheep (significant contributor to national economy), Horticulture, Energy, Forestry
Labour Availability	Low unemployment rate of 4.2% (2006). Keeping a full range of the labour force working within the region may be a challenge	Unemployment rate 6.2% (July 2013)	Unemployment rate of 6.9% (July 2013)	N/A
Market Destinations	N/A	N/A	China, Japan, Canada	UK, Continental EU, International
Destination Market Size	N/A	N/A	N/A	N/A
Market Incentives	Large amount of water available, Irrigation systems, proximity to the U.S, relatively inexpensive land, business parks	Strong research support, climate, ranked #1 in the agricultural biotechnology cluster, strategic partnerships between University/Industry/Government, established infrastructure	Rich soils, diverse climates, large scale irrigation, deep water ports, proximity to Asian markets, tax incentives, grants and marketing programs	Many programs geared toward innovation, research and opportunities. Integrated approach to identifying opportunities and providing resources to allow farmers to capitalize on these opportunities.
Identified Opportunities/Strategic Direction for the Future	To be determined	Focus on Agri-Innovation: Food and Wellness (functional foods and nutriceuticals), Agri-Business (bioproducts, agri-energy, agri-tech)	Top crops are: Apples, milk, wheat, potatoes, hay, cattle/calves, cherries, nursery/greenhouses, grapes, pears. Has an Organic Food program, will focus on this emerging factor as organic, local, sustainable, free-range, grass-fed and alternative types of production are demand led and increasing	Organic farming, equine husbandry, deer and goat farming, rural tourism, artisan food (commercial and free range poultry, eggs).

## APPENDIX 5 – IDENTIFIED OPPORTUNITIES

#	Opportunity	Notes
1	<b>Sugar Beet Processing</b>	Sugar beet producers have expressed an interest in more opportunities for sugar processing capabilities in the region. In a discussion with Redpath Sugar, the President was open to the idea of a facility in the region
2	<b>Pet Products</b>	The region can support this with the amount of inputs they can provide (corn, wheat, meals, fats and oils). Currently, there are a couple small processors within and around SouthGrow who develop dog treats and bird feed, respectively.
3	<b>Pulses and Pulse Processing</b>	Alberta produces around 14% of Canada's pulses (~750,000 tonnes), predominantly peas. <sup>23</sup> A significant amount of the pulse crops grown in this region are being shipped elsewhere for further processing. Viterra is the only pulse processor in the region. With a value-added component located in the area, more processing could be kept in the region. As well, additional pulse crops could be promoted for Asian markets.
4	<b>Corn</b>	There is an opportunity to market corn (especially Taber corn) as a premium product. Alberta imports corn to fulfill domestic demand – there could be an opportunity for Alberta to fulfill their own demand
5	<b>Canola</b>	<b>Oilseed.</b> Promising for biodiesel, proven industry in the region, Canada already grows enough to fuel the growth of biodiesel without affecting supply of cooking oil
6	<b>Flax</b>	<b>Oilseed.</b> Large increases in demand, opportunities for use in multiple areas, recent Canadian breeding project
7	<b>Food Product Manufacturing /Processing (Secondary Processing)</b>	Opportunities for Halal, kosher, ethnic foods, baby foods for both local and international markets needs to be explored further and could be a large opportunity as SouthGrow has a large amount of the needed inputs. The Palliser region has also identified similar opportunities. Other entrees/finished meals could be produced, benefitting from benefits of regional foods (e.g. Taber corn, Alberta beef...)
8	<b>Greenhouse and Organic Vegetables</b>	There is a growing demand for these products, most greenhouses are clustered around central Alberta, could be opportunity for Southern Alberta. SouthGrow offers a very strong environment for greenhouses. If potential market access issues can be addressed there could be medium to large scale facilities attracted from Ontario businesses
9	<b>Biomaterials/ Biochemicals</b>	There are multiple opportunities associated with biomaterials and biochemicals which can be explored including: <ul style="list-style-type: none"> <li>Using hemp and flax fibre to develop clothe, building materials, erosion control materials</li> <li>Developing bio based industrial solvents and specialty chemicals. The Government of Alberta is currently undertaking a study to assess the 10-50 most commonly used hydrocarbon based chemicals, with the intent of assessing a potential for bio-based versions. SouthGrow could position itself as a lead for such developments.</li> </ul>
10	<b>Livestock</b>	A proven industry in this region. Trends in organic meat could be pursued. Feeds into other industries as well (solid waste management, pet products). However, history has demonstrated that small scale livestock processing, will not likely succeed.
11	<b>Solid Waste Management/ Garbage Incineration</b>	Movement toward sustainable/renewable energy along with making use of waste. SouthGrow has necessary inputs, no similar facilities found in region. Bioenergy and potential refinement opportunities could exist
12	<b>Fish Farming or Aquaponics</b>	Forecasted growth within Alberta, however new entrants must be prepared to perform a large number of marketing/advertising activities to introduce their product. Tilapia is the easiest to farm, but in less demand. There is growing capacity to farm salmon and other cold water fish. Local researchers have placed great interest in the development of fish farming, and it could be a potential opportunity for SouthGrow, but would be smaller initially and longer term.
13	<b>Bottled Water</b>	The abundance of water in the region makes this a possibility. There are a few bottled water facilities in and around SouthGrow, with Coca-Cola and Pepsi-Co already represented in some fashion. Likely this would not be a large opportunity for a new player.
14	<b>Camelina</b>	A possibility for the future, this is fairly new, not a lot is known about this crop although it looks promising. Currently no open market. Recent acreage estimates at 50,000, but opportunity for up to 1-3 million camelina acres for oil, biodiesel, lubricants, and

<sup>23</sup> Alberta Pulse Growers “Pulse Brown Bagger”

[http://www.sugar.ca/english/pdf/canadiansugarindustry/Confectionery\\_Opportunity.pdf](http://www.sugar.ca/english/pdf/canadiansugarindustry/Confectionery_Opportunity.pdf)

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		nutriceuticals. However, it was only approved in 2010 as food.
15	<b>Candy/ Confectionary</b>	Has already been identified as an opportunity for the SouthGrow region. A case has been made for the low cost of Alberta sugar and related confectionary. Can sugar beet product, which is less sweet, be effectively used for candy? Closest existing confectionary is in Okotoks. No major player in Alberta currently
16	<b>Hemp Seed</b>	Is a possibility for the future, but several false starts have happened over the years, supply chains not fully developed, increased experience and knowledge needed, market for moulded or pressed hemp automotive products may require proximity to automobile plants
17	<b>Pasta</b>	Canadian durum wheat popular for pasta making, but growth in this industry is low, and there have been previous unsuccessful attempts. However, failure attributed to poor management rather than lack of demand. Only other pasta maker in the region is small, Lethbridge company.
18	<b>Rendering Plants</b>	May be an opportunity but there is at least one facility in the region (Lethbridge) Is there a need for additional?
19	<b>Renewable Energy</b>	The renewable energy industry is growing, and Alberta has the highest wind capacity than any other province, but the strong oil and gas industry may hinder growth
20	<b>Soy Beans and Soy Processing</b>	Soybean production largely clustered in Eastern Canada. Could Alberta compete? Saskatchewan is better positioned for soy development; however, with innovative products being developed from soy (with entities like Soy 20/20 seeking new developments), this may be worth exploring.
21	<b>Natural Gas</b>	There is a potential for natural gas in the area; however, price forecasts are so low that this is not feasible on its own.
22	<b>Technology Services</b>	Limited opportunity. Lethbridge is actively seeking technology opportunities, and can leverage the proximity to the University to build these centres. SouthGrow would not likely be able to compete.
23	<b>BioEnergy From Feedlot Waste</b>	The significant amount of waste generated by the feedlots can be used to generate energy. A further opportunity would be to leverage research funding to improve methane conversion efficiencies and improve power generation. The energy could also be used to support greenhouse opportunities in the region.
24	<b>Metal Manufacturing</b>	Alberta is already one of Canada's major metal manufacturing centres due to the demand from Alberta's energy sector; this market has also attracted global supply chains. Demand will require \$200 billion in new construction and maintenance spending over the next 25 years, much for fabricated metal products. <sup>24</sup> There is also the Alberta Metal Fab Innovation Program (AMFI). The abundance of water also suits metal manufacturing well.
25	<b>Gluten Free</b>	Gluten-free foods have become more predominant. According to a survey by the NPD Group (January 2013), 30% of adults want to either reduce gluten or eliminate it altogether. As a result, the market for gluten free foods is growing significantly (estimated at \$6.6 billion internally by 2017) and could be an opportunity for the region.
26	<b>Nutriceuticals</b>	The development of nutritional supplements and other food ingredient is a growing opportunity in Canada. This could also be seen as an opportunity for First Nations to brand traditional foods or medicinal foods, and as such could be an attractive opportunity for Blood Tribe.
27	<b>Natural or Organic Feed</b>	There is a rising interest in natural, therapeutic, or organic feed for livestock, including cattle. With SouthGrow's crop mix, it could position itself as a leader in this area.

<sup>24</sup> <http://www.albertacanada.com/business/industries/metal-manufacturing.aspx>



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