Annual Report 2007

Acknowledgements

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Agriculture and Agri-Food Canada (AAFC)
Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)
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Annual Report Designed by Lisa Kwan

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Canada

Ontario

Executive Summary

The 2007 Annual Report displays the results of 2007 in our core activity areas and provides a vision for the future. The possibilities for soybean utilization and wealth generation have just begun in this country. It is with this clarity that we acted in 2007 and upon which we will move forward.

CREATING AN INNOVATION CLIMATE

1 Network Interaction

- Engaged all other soy organizations
- Attended 6 public meetings with soy industry organizations
- Participated in 10 information and strategic communication meetings
- Collaborated with the Ontario Soybean Growers on a market assessment project
- Maintained contact with leading business developers in the USA
- Established the Agri-Innovation Group of Ontario
- Participant in the non-food uses committee of AAFC's Oilseeds Value Chain Roundtable
- Attended or participated in 8 meetings within the agri-food sector.

2 Market Analyses

- Led and completed five new market analyses.

These included:

a) an analysis of soybean availability for bio-products
b) a re-analysis of a high oil soybean
c) an analysis of soy wax for corrugated applications
d) an analysis of methyl soyate production
e) an analysis of a flexible crush soybean processing facility

RESEARCH COORDINATION

1 New Projects

- Supported or collaborated in four new research projects:
  1. Obtained funding for more research into soybean seed coat utilization
  2. Completed a research proposal to fund high oil soybean research
  3. Supported a bioproducts economic research project
  4. Participated in developing 2 new bioproduct network funding applications

2 Continued Projects

- Maintained involvement in 7 existing research projects:
  1. High Oil Soybean Development
  2. Soybean Peroxidase Utilization
  3. Soybean Seed Coat Development
  4. Soy Protein Separation
  5. Soy Protein Characterization
  6. Economics of Bio-Products
  7. Impact of Developing an Ontario Biodiesel Industry

3 Project Reviews

- Reviewed 11 research project applications to government programs

REALIZING OPPORTUNITIES IN THE CANADIAN SOYBEAN INDUSTRY

Food

- Supported the retail launch for next generation meat alternative products
- Pursued efforts to commercialize the production of edamame in Canada
- Involved with a leading processor in the development of a high protein beverage
- Pursued a multi-million dollar investment opportunity for soy flour with a large Japanese company
- Secured funding for a novel oil processor

Bio-Products

- Helped secure $158,000 to conduct a feasibility study for a soybean based biodiesel facility
- Worked with a technology company to implement plans for on-farm biodiesel production
- Continued discussions with a major candle manufacturer about the use of soybean wax
- Developing an opportunity for soy wax based on the waxed cardboard market
- Supported and worked with the newly formed Ontario BioAuto Council to establish polyol production

OPERATIONAL EXCELLENCE

- Created and submitted 14 regularly scheduled reports on time and in full
- Completed the year within budget and with a strong fiscal record
- Replied to countless requests for information from interested parties

THE FUTURE FOR SOYBEAN BUSINESS DEVELOPMENT IN CANADA

- This is a period of organizational self analysis, including positioning for the future
- Soy 20/20 continues to focus on working with companies; this is where Soy 20/20 ultimately has made and will continue to make a difference
- Soy 20/20 is in the business of building the business of soy. This vision is clear, and simple
- The glass is not half full…it might be 20% full, at best
- We will continue to create new wealth by picking and choosing businesses which can take advantage of our quality assured method of producing soybeans
- We see many opportunities on the horizon, of differing potential impact. The likely successes occur where we can breed soybeans cultivars that work particularly well in the specific applications
- Building an industry will take time - 5–10 years minimum
- Soy 20/20 believes there is a key role for Canadian soybean researchers, businesses and governments to play in developing new soybean opportunities
- We appreciate, in advance, the continued support of our funding partners to get to the next level of businesses development in Canada
- Soy 20/20 is well positioned to continue building the business of soy

Introductions

Message from the Chair

Soy 20/20 presents our 2007 Annual Report to showcase the results we achieved this year in analyzing soybean value added markets, capturing soybean opportunities and aligning soybean researchers with market opportunities. Since Soy 20/20's current mandate expires in the spring of 2008, this report also identifies key focus areas, as we move into the future.

The concept of Soy 20/20 first emerged five years ago. At that time, Soy 20/20 was an innovative idea to bring together industry, government and academia in a collaborative effort to enhance and strengthen the Canadian soybean value chain. This type of thinking required clarity and shared vision by the founding members of Soy 20/20 – OMAFRA, AAFC, OSG and the University of Guelph. I truly appreciate the continued support and contribution of these member institutions. I wish to offer thanks to the member and industry representatives – past and present – who comprise our Board of Directors and who so actively and insightfully contribute to the operation and direction of Soy 20/20.

The contributions are generous and a wise investment. The results emerging from Soy 20/20 in 2007 demonstrate that success. This year, we worked with 16 companies, including 9 new firms, and 3 new researchers.

Such success is not possible without the hard work and energy of the Soy 20/20 staff. Thank you to both Jeff Schmalz and David Lee for the ideas and expertise that you constantly bring to Project, the Board and the public.

We started Soy 20/20 with a vision. As we learned and adapted, the Project grew into a respected organization with a dynamic and ever improving view of the future. We can now see what we have done and with great clarity, what we must do next. We must show the value chain the opportunities that exist in the emerging bioeconomy, secure more investment in Canadian processing businesses, bring new specialized soybean varieties to market and generate more wealth. This is what we have done since we started five years ago and these remain key focus areas as we continue moving forward.

Today, we clearly understand the roles, opportunities and strategies that will carry Soy 20/20 into the future.

Peter Hannam,
Chair, Soy 20/20 Project

Message from the Executive Project Director

This report clearly demonstrates the success that Soy 20/20 has had in 2007. I hope that you will enjoy reading what we have compiled and discovered this year. For Soy 20/20 and myself personally, this past year has been a year of learning, strategizing and making things happen. After more than a full year as Executive Director, a number of things have become clear.

It is clear to me what opportunities are worthy of our time and resources. While industrial commodity based soy opportunities can benefit Canadian soybean farmers, smaller niches that take advantage of our I.P. expertise will command our attention. The recent upsurge in the price of commodity soybeans, which is positive for our producers, is almost directly related to the prolific development of the heavily subsidized U.S. ethanol and soy biodiesel industries. We project that biodiesel businesses will develop in Canada, but they will not have a major impact on the price of Canadian soybeans. The clear opportunities are those that allow us to capitalize on our existing advantages and that offer long-term opportunities for our value chain participants.

It is very clear to me where Soy 20/20's expertise lies. We excel at identifying innovative wealth generating ideas and building the business case to capture those opportunities. We excel at helping companies connect with other businesses, others organizations and researchers. While we excel at securing pre-commercialization funding for our researchers and businesses, we rely on the strengths of other organizations in securing private capital for business commercialization. We actively seek out global soybean opportunities, which have the potential for success in Canada. Where we are well versed and able, we dedicate our energies and offer expert services to others.

In fact, it is clear that we need an even greater presence in the areas in which we excel and upon which we will build future soy businesses. It is with this in mind that we are working more closely with like-minded organizations wishing to bring innovation to commercialization in a more integrated and professional manner. With this same clarity, we refreshed our Soy 20/20 logo and brand promise this year to clearly delineate what we do today and what we'll do tomorrow. Fresh, focused and with clarity, we look beyond what is typical of soy and consider where we'll need to be and how we'll get there.

The possibilities for soybean utilization and wealth generation have just begun in this country. It is with this clarity of purpose that we move toward a future that is, in fact, brimming with opportunities. We need to and will build upon the very successful base that has been created.

Jeff Schmalz
Executive Project Director, Soy 20/20 Project

The new look of Soy 20/20 is clear.

The three beans represent our core activities: research coordination, opportunity realization, and creating an innovation climate.

The swoop in the shape of the letter 'S' stands for Soy – our focus, our passion

The colour green indicates that we are concerned with all things new, fresh, and growing – markets, ideas, and opportunities. Green also represents money, wealth, and business – the things that make Soy 20/20 a success.

soy20/20

building the business of soy

The bean pod shows that our approach begins in the early stages. The upward movement shows that we also look beyond the bean to the markets, the growth, and the products that are possible.

The colour black shows our commitment to responsible and accountable use of funds.

The tag line tells people what we do. It's broad, but clear.

Creating an Innovation Climate

Soy 20/20 helps to create a climate in which innovation can thrive through two key mechanisms:

1. Interacting with various networks; and
2. Performing and sharing market analyses of potential opportunities.

1 NETWORK INTERACTION

Soy Industry Networks

The soy industry in Canada is broad and encompasses a variety of entities from seed to end use. As such, there are a number of organizations, committees, and councils representing the various segments and aspects of the industry. To someone unfamiliar with this industry, the amount of organizations may seem overabundant. Within this web, Soy 20/20 clearly understands its unique role in supporting the commercialization of individual business opportunities that can add next generation value to soybeans or the soybean value chain. Based on previously conducted market analyses, Soy 20/20 works on specific opportunities with specific researchers or companies. Yet, through meetings, updates, and informal communication, Soy 20/20 makes a concerted effort to stay engaged with all groups.

Soy 20/20 partnered with Ontario Soybean Growers and a private agricultural company to conduct an evaluation of the market potential for specialty trait soybean oil in Ontario and of the feasibility of establishing a facility dedicated to specialty trait soybean oil production. In July, a leading agri-food consultant was contracted to complete the study. If results are positive, the work will be a cornerstone of future work for the partners.

The 11th annual Project SOY competition displayed twelve projects that created new uses for soybeans – from food products to fashion accessories. Topping the undergraduate/ graduate category was a soy-based alternative to a European truffle. Project SOY is sponsored by DEKALB Brand Seeds; Agriculture and Agri-Food Canada; the Ontario Ministry of Agriculture, Food and Rural Affairs; Maple Leaf Foods International and the Ontario Soybean Growers. Soy 20/20 assisted students prior to the competition, and is available to assist in developing opportunities.

In 2007, Soy 20/20 attended six public meetings with soy industry organizations and participated in over ten information and strategic communication meetings. Soy 20/20 attended the Project SOY competition. Soy 20/20 collaborated with the Ontario Soybean Growers on a market assessment project and on evaluating research proposals.

International Networks

The international soybean business is massive and the speed and scale of opportunity development is vast. The United States and some South American countries all support research and the capture of value-added opportunities in much the same ways as Canadian governments. Relatively speaking, Soy 20/20 is a small organization with limited resources. Soy 20/20 strives to be aware of the vast number of new opportunities Therefore, Soy 20/20 maintains close contact with leading business developers in the US.

Soy 20/20 communicates regularly with Omni Tech International, a leading consulting firm that provides technical and commercial development services to the United Soybean Board in the US, and to the chemical and manufacturing industries. Omni Tech focuses on renewable resource development and commercialization of soy bio-based products. This relationship is an asset that provides Soy 20/20 with insight into the opportunities being pursued in the US, and with access to technical expertise.

"The United [States] Soybean Board is mainly interested in opportunities that will utilize over 10 million bushels of beans; that means that there are a substantial number of smaller opportunities that might be well suited to commercialization in Canada."

– Jim Pollack, Omni Tech International

Commercialization Networks

There has been significant effort in recent years by governments to support new organizations in the commercialization spectrum. To avoid duplication, share ideas, and manage the innovation climate, Soy 20/20 works closely with like organizations and projects in the agri-innovation space. This constant communication and interaction is critical to the efficient use of public funds and to providing the maximum assistance to businesses in the commercialization of new concepts.

AGRIGO

Dedicated to Profitability in Agriculture through Innovation

In an effort to provide more clarity to the public and to international and domestic companies, Soy 20/20 in collaboration with Ontario Agri-Food Technologies, BioEnterprise Corporation, and MaRS Landing established the Agri-Innovation Group of Ontario (AgriGO). AgriGO is a web based portal dedicated to "profitability in agriculture through innovation". The simple site provides a single-entry point to the innovation and commercialization agents in Ontario. For more information, see www.agrigo.ca.

Agri-Food Networks

The structure of the Soy 20/20 Board of Directors provides direct industry linkage to the Ontario Soybean Growers as well as the Guelph Food Technology Centre. This connection, combined with diligent analysis and awareness of industry information provides Soy 20/20 with a unique comprehension of many issues from farm to final product.

In terms of policy development, Soy 20/20 is an active participant in the non-food uses committee of AAFC's Oilseeds Value Chain Roundtable.

The Oilseeds Value Chain Roundtable (OVCR) brings together stakeholders from the flax, soybean and canola industries. The most recent meeting of the OVCR, held in March 2007, worked to implement strategies in three priority areas: 1) new product development and commercialization; 2) international trade challenges and 3) non- food uses for oilseeds (industrial and energy). The OVCR has established three working groups to lead discussions on key priorities between meetings and develop recommendations for the larger group. The working groups are: 1) regulations in support of innovation; 2) international trade challenges, and 3) non-food uses for oilseeds (industrial and energy). Soy 20/20 sits on the Non-Food Uses Committee and is committed to advancing the most promising Canadian soybean bioproduct initiatives.

Sharing ideas and learning from farm leaders is an important part of staying engaged with the farm community. In 2007, Soy 20/20 attended or participated in 8 meetings within the agri-food sector. Soy 20/20's current and broad understanding of agriculture and the agri-food sector is a great benefit to many small businesses or non-traditional agri-food businesses becoming involved with soybeans. By maintaining a strong connection to agriculture, the Soy 20/20 team ensures that projects will provide a benefit to Canadian farmers and helps companies and researchers to do the same.

2 MARKET ANALYSES

Through all of its work, Soy 20/20 consults, updates, and reviews previously completed market analyses. In most cases, the opportunities continue to exist, the challenges remain the same, and the information is still relevant. For analyses completed from 2003 to 2006, please see www.soy2020.ca.

In 2007, Soy 20/20 led and completed five new market analyses. These included:

- **A.** Analysis of soybean availability for commodity bio-products
- **B.** Re-analysis of a high oil soybean
- **C.** Analysis of soy wax for corrugated applications
- **D.** Analysis of methyl soyate production in Ontario
- **E.** Analysis of a flexible crush soybean processing facility

Interested parties can obtain full discussion documents and references for these analyses by contacting Soy 20/20 or visiting www.soy2020.ca.

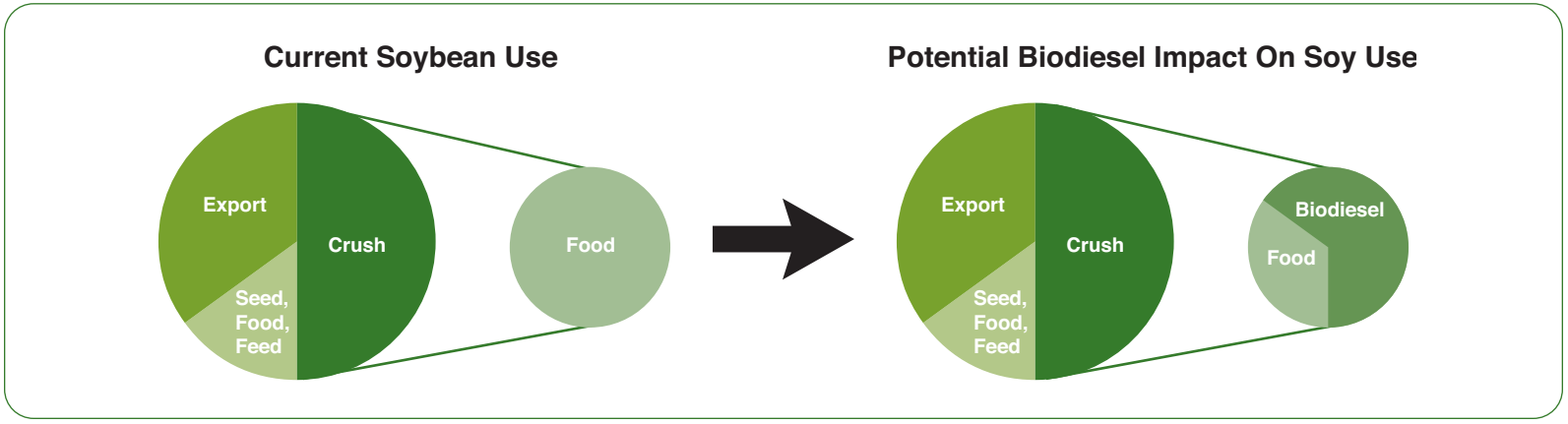
A. Soybean Availability for Bio-Products

Based on government renewable fuel mandates, by 2010 Ontario will require 184 million litres of biodiesel in turn requiring 900,000 tonnes of soybeans – or roughly 1/3 of Ontario's soybean production. Ontario's soybean utilization and disposition will not likely differ significantly from the status quo of 1/3 for food grade export, 1/6 for seed, food, feed, and 1/2 for crush.

However, the oil produced through domestic crushing may not be readily available for bio-diesel production as markets are built on food use. Any oil use shift from existing food usage patterns may be offset by the fact that the supply of US soy oil and soybean exports is expected to tighten.

This all indicates that Ontario is not flush with available commodity soybean oil required for large-scale biodiesel or bio-product opportunities that will use commodity soybean oil as a feedstock.

The global biodiesel industry is still important for the long-term profitability of soybean production, primarily through its role in increasing economic demand for traditionally lower value fats and oils and creating new politically driven demand for commodity beans.



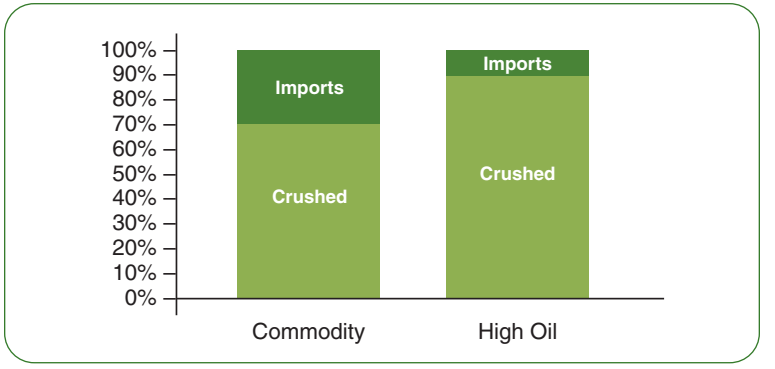
More importantly, this indicates that the Canadian soybean industry should continue its pursuit of producing higher value soybeans and seeking special end-use opportunities that offer premiums over commodity prices. A recent discussion with a U.S. expert indicated promising potential for low saturated fat soybean oil in the development of bio-based plastic polymers. As the manufacturing industry more accurately defines bioproduct end uses, the Canadian soybean industry will leverage the knowledge, expertise and infrastructure it has accumulated in developing a world leading identity preserved soybean industry. If this vision comes to fruition, farmers will be able to secure a real benefit from the emerging bioeconomy.

B. High Oil Soybean

At present, an unprecedented demand exists for vegetable oils, especially soybean oil. To meet this demand the soybean industry has three options: soybean producers can grow more acres, soybean breeders can continue to enhance the yield of soybeans, or soybean breeders can increase the oil content of soybeans. The last option offers the largest opportunity to provide a source of soybean oil that requires no additional inputs, representing pure incremental supply growth.

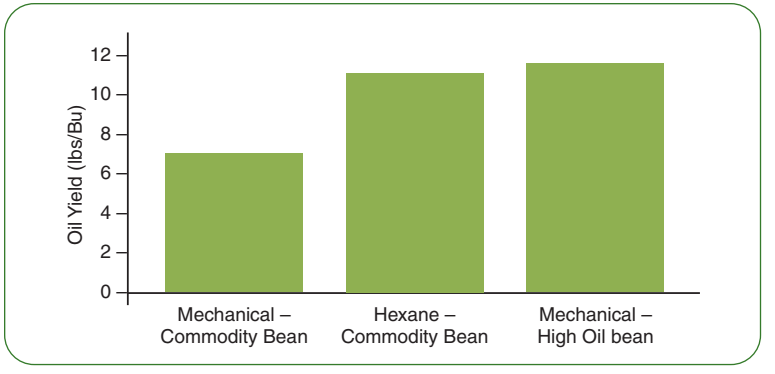
It is believed that an oil increase of 1/3 could be achieved with little negative impact on the long-term value of soybean meal.

If all soybeans crushed in Canada were high oil soybeans, oil yield per bushel would increase nearly 28%, and incremental soybean oil supply growth would be 78,000 tonnes. If the economics of biodiesel allow biodiesel producers to outbid food users of soybean oil, this incremental soybean oil could produce over 88 million litres of biodiesel, which would satisfy nearly half of Ontario's biodiesel requirement without growing a single acre more or crushing any additional volume. Considered another way, high oil soybeans could displace over 2/3 of Canada's current soybean oil imports – imports from the US which represent a lost opportunity.



Using current market prices of approximately 38.76 cents Canadian per pound, this incremental oil supply has a total value of over $66 million dollars. Alternatively, this equates to increasing the value per bushel by $1.21. While existing crushers would capture this premium through the sale of the oil, a method could be established to ensure that soybean producers shared in the value added.

Even without a price premium, the value added through higher oil could provide the impetus for producer owned mechanical soybean crushing facilities. The incremental oil yield per bushel could offset the relatively low oil yield achieved through



mechanical extraction. As with any new development, consideration must be given to the ease with which it can be integrated into an existing environment. It would be very easy to integrate high oil soybeans into Canada's soybean value chain because:

- Soybean producers would not encounter much change from current production practices
- Soybean processors would use the same equipment and methods
- Onerous regulatory hurdles would not likely emerge
- Current soybean storage would be sufficient (whole bean volume may not change)

The only change necessitated by the introduction of high oil soybeans would be managing the supply chain logistics to handle nearly 1/3 more soybean oil than usual, but given the state of the industry, this is certainly a positive problem to have.

C. Soy Wax for Corrugated Packaging Applications

Packaging is the single largest sector use of wax in Canada, using approximately 1/3 of all wax. Within this market, corrugated board uses the majority of wax volume. When treated with wax, corrugated board has improved dry strength and appearance, is resistant to water and vapour transmission, and reduces abrasiveness of corrugated board contacting the packaged product. Wax coatings prevent ply separation, the loss of strength and rigidity when the corrugated container is wet by acting as a barrier between the paperboard and the moist environment. Laboratory studies show wax corrugated boxes are three times stronger than non-waxed.

About 5% of the corrugated board produced in Canada ends up with some type of wax coating. The most widely used wax in corrugated plants is paraffin wax. However, soy wax is beginning to increase in use. Invented in 1991, soy wax is produced by hydrogenating soybean oil. Soy wax has proven effective in alleviating supply and price concerns associated with the petroleum based paraffin wax.

Current soy wax technology for packaging coatings requires further research to improve thermal stability, viscosity and discoloration concerns for both saturating and curtain coating applications, but has been successfully back blended with paraffin for enhanced stability. Representing 5% of total corrugated production, more than 100 million pounds of wax can be used annually by the wax corrugated packaging industry in Canada.

If soy wax was to capture a 10% market share of the wax used in wax corrugated applications, initially through soy/paraffin blends, it could use the oil derived from over 32,000 acres of soybeans.

D. Methyl Soyate

A number of biomaterials made with soy-based methyl soyate represent valid opportunities for Canada. Interest in methyl soyate biomaterials is growing due to the improved safety they provide to industrial processors and consumers.

One of the renewable solutions is methyl soyate, a petrochemical replacement made from soybean oil. Soy methyl ester (methyl soyate) is made by adding methanol to soybean oil. There are many market applications for this product, such as:

- hand cleaners, skin lotions and other personal care products
- household cleaners
- fuel base for biodiesel
- paints, wood and concrete stains

- penetrating oils
- lubricity additives for fuels
- paint, ink and adhesive removal products

The many benefits of methyl soyate include biodegadeability, low flammability, high flash point and very low levels of volatile organic compounds (VOC) levels, making it an ideal compound for a variety of industrial and consumer applications. Methyl soyate represents an opportunity for Canada and Soy 20/20 is in the process of gauging both feasibility and interest in this product for our market.

The Canadian market is estimated at 40 million pounds annually. If a company could achieve a 20% market share, this would result in the usage of 4.8 million pounds of soybean oil and around 11,000 acres of soybeans. Further benefit could accrue to producers who will ultimately be able to plant Identity Preserved soybeans ideally suited to methyl soyate production.

E. Flexible Crush Facility

Since 2004, Soy 20/20 has recognized the need to capture the value of soybean breeding and new product development by increasing flexible, responsive soybean processing in Ontario. Whether attempting to produce new proteins or oils, beans must be crushed.

Most of the opportunities on which Soy 20/20 works may one day be integrated into a facility that can truly move farmers and processors from whole bean producers to producers of seed components for specific ends uses. However, very few soybean crushing and separation operations in Ontario are interested and able to participate in this vision. The few options that do exist are either too large, too small, or are not food grade.

There are a number of roadblocks to the development of such a facility including: the need to market all outputs; the inefficiency of smaller scale commodity crushing operations; the existence of more favourable investment options; the need to ensure benefits to farmers; and the need to have a facility in advance of any real opportunity. However, changing market conditions, including the development of specialty trait soybean oils and the emerging bioeconomy, have increased the likelihood that this vision will be realized in the intermediate future.

In an effort to validate the concept, Soy 20/20 brought together OSG and a leading agricultural company to complete a thorough analysis of the opportunity. In July 2007, the team hired a leading agri-food consulting firm to undertake an in-depth and quantifiable analysis of the opportunity for a flexible crush facility by looking into the real market potential for specialty trait soybean oils. A final report will be available in late 2007 with results provided to the Soy 20/20 network of agri-businesses, food companies, and farmer groups. If the results are favourable, the report may serve as the foundation for a full business plan.

Research Coordination

In 2007, Soy 20/20 supported or collaborated in five new research projects. Funding was successfully obtained from AAFC for continued research into soybean seed coat utilization. A research project to fund high oil soybean research was completed. A bioproducts economic research project was supported and is still under review at the printing of this report. Lastly, two new bioproduct network funding applications were approved in the initial stages of a funding program and are moving to the full proposal in the fall of 2007.

Soy 20/20 also provided expertise and comment on eleven research project applications. In addition, Soy 20/20 maintained its involvement in several existing research projects. The following table described these projects.

Title	Partners	Year Initiated	2007 Update
High Oil Soybean Development	University of Guelph	2004	• The goal is to develop a soybean variety adapted to Ontario conditions with high oil levels in an effort to address future needs for soybean oil while offering a production opportunity for Ontario farmers. • Soy 20/20 continues to work with Dr. Rajcan to secure much-needed public funding for the project. Soy 20/20 produced a fact sheet and market analysis to clarify, characterize, and devise material in order to garner funding for the opportunity.
Soybean Peroxidase Utilization	Imperial Oil University of Windsor	2005	• The goal is to demonstrate the effectiveness of using soybean seed coat derived peroxidase for the treatment of hazardous industrial waste. • Soy 20/20 continues to offer in-kind support as needed and await funding so that it can lead industry technical transfer and potential commercialization
Soybean Seed Coat Development	AAFC University of Ottawa	2003	• The goal is to make the soybean seed coat a delivery and production platform for a host of protein based structures for use in various industrial applications. • The initial project ended in 2007. The project team received additional funding from AAFC for three years, and is establishing a new research project this fall.

Title	Partners	Year Initiated	2007 Update
			• Soy 20/20 remains interested in spin-off opportunities from the original platform technology project including commercial enzyme and anti-microbial peptide production. Soy 20/20 is willing to work with industry to capitalize on this innovative research platform.
Soy Protein Separation	University of Guelph University of Western Ontario	2006	• The goal is to develop an innovative and gentle process for isolating soy proteins and protein sub-units from Canadian inputs. • Soy 20/20 continues to offer in-kind support as needed. When work is complete Soy 20/20 will work to share information and possibly commercialize the innovative technology.
Soy Protein Characterization	University of Guelph AAFC	2006	• The goal is to identify and characterize the specific protein and protein sub-units found in Canadian soybean varieties. • Soy 20/20 remains interested in the results of this project and its long term role in developing unique protein processing and flexible processing opportunities. Work will be completed this year.
Economics of Bio-Products	University of Guelph	2006	• The goal is to determine the actual on-farm benefits of bio-products. The study will also provide critical direction for the pursuit of opportunities in the bio-products sphere. • Soy 20/20 is participating in the analysis of the impact of bio-products on soybean prices and in evaluating the economic potential of soybean seed coat technology.

These projects are all part of a long term vision to generate more value from all soybean components by targeting end uses from specifically designed and separated components. Soy 20/20 eagerly awaits the time when these research projects will transition into the opportunity capture area in which Soy 20/20 has specific expertise.

Obstacles are those frightful things you see when you take your eyes off your goal." - Henry Ford.

Realizing Opportunities in the Canadian Soybean Industry

In 2007, Soy 20/20 continued to dedicate a great deal of time toward the development of opportunities identified and to make a positive impact on the Canadian soybean industry. The level of involvement varies from finding information to creating reports, from obtaining funding to providing contacts. Soy 20/20 worked closely with nine companies during 2007.

It is clear that there are two major areas of emphasis in this sphere – new food uses for soybean components and new industrial uses for soybean derived bioproducts. Both markets represent incremental utilization of soy components that can add wealth to the value chain by replacing existing products in current distribution channels.

1 FOOD

A new company making next generation **meat alternative** products made significant progress in the development of its brand, marketing strategy, and sales plans this year. The company produces extruded vegetable (soy and wheat) based products that offer the texture, mouthfeel, versatility, and flavour of meat that appeals to a variety of customers. With support and as-needed input from Soy 20/20, the company has selected brokers and distributors and is now in the midst of a full retail launch.

Soy 20/20 pursued its efforts to commercialize the production of **edamame** in Canada by working with two companies to build the value chain. The edamame industry has grown since the idea was first generated in 2003, although Soy 20/20 efforts have not led to successful commercialization as of yet.

evo *the evolution of food*

"evo Foods is grateful for the guidance and advice offered by Soy 20/20 during this critical stage of business development".
– Suzanne Merrill, President of Operations, evo Foods

A leading Ontario agricultural based continued its pursuit of a high **protein beverage** combining the benefits and properties of two different proteins. Product development work is at the late development stage with marketing plans and a retail launch expected in 2008. Soy 20/20 has been involved in this project by for over one year.

Soy flour remained an opportunity that Soy 20/20 pursued in 2007. A large Japanese company worked with Soy 20/20 to identify a strategic partner for the establishment of a full fat soybean milling facility in Ontario. The plant would service both domestic and international markets with soy flours for use in a variety of baking and food ingredient applications. The proposed model would include an initial premium for soybean farmers in Ontario. As at the printing of this report, the opportunity is a one of the most promising for the industry as it would result in a $30 million in investment and utilize 100,000 acres of Canadian soybeans.

In 2007, Soy 20/20 continued to work with a **novel oil processor**. Soy 20/20 assisted in securing $150,000 in funding through the Strategic Transition & Application of Research ("STAR") Proof-of-Principle Program. This money will be used in 2007 and 2008 to develop recipes and validate the functionality of the uniquely structured fat product. The patented product is generating a great deal of attention as the food industry looks for functional, financially viable alternatives to partially hydrogenated and high saturated fat vegetable oils.

Coavel™

Coavel™ is the first product of its kind and will provide an additional option to food producers challenged to reformulate products containing trans-fat and assist them in meeting the nutritional requirements necessary to make health claims that attract consumers who are demanding healthier foods. Coavel™ will increase the demand for and profile of Canadian soybean oil and soybean related innovation and research. Once production commences in October 2007, the opportunity will employ ten full-time staff in addition to the management team. The product will use up to 150,000 acres annually by year ten of operations.

"The role of Soy 20/20 in helping to secure funding has been a major benefit to our company"
– Steve Bernet, CoaGel Corp.

2 BIO-PRODUCTS

In the fall of 2006 Soy 20/20 wrote a letter of support for a farm cooperative's application to AAFC's Biofuel Opportunities for Producers Initiative (BOPI). The project was approved for $158,000 to conduct a feasibility study for a soybean based **biodiesel** facility in south-western Ontario. The study, completed by a leading North American biofuels consulting firm, produced a cautiously optimistic result for pursuing such an opportunity. The business plan is now being completed to further assess the potential of this opportunity for Ontario. The initial study indicated that given Canadian biofuels policy and the market forces, a biodiesel facility would likely require access to American subsidies to be financially viable. However the information garnered and relationship established was positive. Soy 20/20 and its industry clients still believe that a processing opportunity involving farmers may one day be possible as new opportunities for specialty trait oils and bio-products emerge.

Soy 20/20 worked with a technology company to implement plans for on-farm **biodiesel** production and use. This bio-fuel model is based on cost reduction rather than revenue. This could alleviate concerns about biodiesel profitability and would result in direct benefits to farmers. However, even in this model, cost reductions were sensitive to input prices. Rising soybean prices have necessitated a review of the business premise and reduction in cost structure. While the current viability is questionable, the technology and business model remain interesting.

Wax remained a major opportunity for Soy 20/20 in 2007. Discussion with a major candle manufacturer about the use of soybean wax continued, but did not result in any increased use. With increasing soy oil prices and without significant demand for soy wax in Canada, the feasibility of a large scale production facility is not great. However, the long term projections for petroleum price escalation will continue to motivate this company to consider soybean wax as a partial replacement for petroleum based waxes.

A new soy **wax** opportunity also developed in 2007 – wax corrugated board for packaging applications. As discussed previously in this report, the market analysis for soy wax for packaging is very positive. Armed with this information, Soy 20/20 began to build the value chain for wax production in Canada. Discussions were held with potential soybean growers, soy oil researchers, a soybean oil processing company, and waxed cardboard manufacturers and users in Canada. This opportunity is still being pursued.

Establishment of a **polyol** plant in Ontario was another opportunity pursued in 2007. The lead on attracting a major chemical manufacturer to establish a processing facility in Ontario was transferred to the newly formed Ontario BioAuto Council in fall 2006. Soy 20/20 supported the creation of this focused organization to work specially and directly on this major bio-based opportunity for the soy industry, given the major usage potential of biobased polyols in the auto sector. Soy 20/20 continues to work closely with BioAuto on the polyol opportunity in Ontario.

The Ontario BioAuto Council has a vision of positioning Ontario as a global leader in the manufacture of automobile parts and related materials from agricultural and forest feedstocks. The council links Ontario's strengths in agricultural production and processing, forestry, automobile assembly and part manufacturing, and chemical and plastics production. Examples of these bio-based products include flexible foams for car seats, and wood-fibre composites for automotive and building construction. Funding is being provided by the Province of Ontario and various industries and industry groups including the Ontario Soybean Growers and Ontario Agri-Food Technologies.

ONTARIO BIOAUTO COUNCIL

"Together with Soy 20/20, we welcome a future where Ontario will be a leader in the manufacture of "green" cars made from soybeans and other biological feedstocks."

– Terry Daynard, President, Ontario BioAuto Council

Operational Excellence

Soy 20/20 created and submitted 14 regularly scheduled reports on time and in full. This reporting requirement is important and demonstrates the accountability and responsibility of the Soy 20/20 team. Soy 20/20 also completed the year within budget and with a strong fiscal record as verified by a positive third party audit.

Soy 20/20 works diligently. Staff often spend the day replying to requests for information, directing interested parties, finding data, compiling reports, meeting with clients or stakeholders, or writing funding applications. These useful activities highlight the responsiveness and need that Soy 20/20 fills.

At the writing of this report, the long term future of Soy 20/20 is not perfectly clear. Developments in the soy food and bioproduct sectors necessitate a long term vision with respect to the creation of new wealth generating soy based businesses for Canada. We are focused and clear in where we want to take Soy 20/20 and are very confident in our ability to produce real results in the years ahead.

*"More important than the quest for certainty is the quest for **clarity**".*
– Francois Gautier.

The Future of Soybean Business Development in Canada

As the end of the current Soy 20/20 mandate nears, many government funded not-for-profit organizations are analyzing what has happened to date, what has worked, what hasn't worked and why? A number of questions arise. What can we do better? What should be we doing less of? What should we be doing more of? Have we really made an impact? Are there major opportunities out there that still need development? If yes, what has been the real impact? How many acres, how many bushels? How much new profit has been generated in the respective sectors? How much of a difference have we really made?

These are the questions we are also asking ourselves. This is a real period of organizational self analysis, including positioning for the future.

In the early years, Soy 20/20 was quite highly regarded in the Science and Innovation space. We excelled in a variety of key areas such as market analyses, Canadian soybean researcher involvement, business plan development, business networking and relationship development. Soy 20/20 excelled in working with companies and helping them get off the ground with their new soybean ideas. As our small organization has evolved, we continue to work in all of the above areas, but more than ever are focusing in the area of soybean business commercialization. This is where Soy 20/20 ultimately has made and will continue to make a difference.

Soy 20/20 is in the business of building the business of soy. This vision is clear, and simple.

It takes a relatively long time to get products to market and businesses off the ground. Such is the case with soybean business development in this country. In our view, the glass is not half full…it might be 20% full, at best. We will assess which opportunities make sense for Canada and then work with stakeholders to bring them to reality.

In Canada, soybeans are unique, given our internationally recognized expertise with identity preservation. We are unique in our comparatively small acreage size, which is about three (3) million acres. Our true soybean wealth creation opportunities are not going to be large volume and commodity based in nature. We do and will continue to create new wealth by picking and choosing businesses which can take advantage of our quality assured method of producing soybeans. This is the roadmap that our valued producers must follow, one that will reward them for growing higher margin 'in demand varieties'. Those same producers may well take equity positions in these future businesses, if it makes sense for them. In all situations, if the business case is there, the required capital will be found.
We see many opportunities on the horizon, of differing potential impact. These include, but are not limited to, the following:

- soybean (bio) based polyols for plastic and foam production
- soy based methyl ester (biodiesel)
- methyl soyate based business opportunities (a variety of them)
- wood adhesives
- soy based lubricants
- coatings, inks and other adhesives
- other industrial opportunities, such as bioremediation, transformer fluids

Not all of these opportunities will come to fruition in Canada. The likely successes will be those where we can breed soybeans cultivars that work particularly well in the above applications.

Whether the requirement is unique fatty acid profiles, novel seed coat attributes, altered compositional breakdowns or enhanced nutraceutical benefits, we will succeed when we figure out which ones work the best and we can subsequently plant, harvest and sell them profitably into the market.

This will take some time indeed……5 – 10 years minimum. And Soy 20/20 believes there is a key role for Canadian soybean researchers, governments and businesses to play.

Soy 20/20 has made terrific progress to date. Soy 20/20 has done and will continue to champion and lead new soybean opportunity development in Canada. We appreciate, in advance, the continued support of our funding partners, which will enable us to grow the business to the next levels.

It will take time, talent, money and energy to create new soybean wealth in Canada. Soy 20/20 is well positioned to continue building the business of soy.

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