

FARM, FOOD & BEYOND:

OUR COMMITMENT TO SUSTAINABILITY



Our Commitment to Sustainability

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Twenty-five years of achievement by the Ontario Farm Environmental Coalition and its partners through Environmental Farm Plans and other programs will serve as the base for a new, expanded focus that includes global environmental issues and the other pillars of sustainable development: economic and social sustainability.

In Farming, Food and Beyond: Our Commitment to Sustainability, we explain what, why and how.

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Our Commitment to Sustainability

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Ontario farmers

SUMMARY OF KEY POINTS

List of Acronyms

AAC	Agricultural Adaptation Council
AAFC	Agriculture and Agri-Food Canada
AGCare	Agricultural Groups Concerned About Resources and the Environment
ALUS	Alternative Land Use Services
BMP	Best Management Practice
CFFO	Christian Farmers Federation of Ontario
CWA	Clean Water Act
EFP	Environmental Farm Plan
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GHG	Greenhouse gases
GYFP	Growing Your Farm Profits
IMPACT	Innovative Management and Practical Animal Care Training
NASM	Non-agricultural source material
NMA	Nutrient Management Act
NMP	Nutrient Management Plan
NSWCP	National Soil and Water Conservation Program
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
OFA	Ontario Federation of Agriculture
OFAC	Ontario Farm Animal Council
OFEC	Ontario Farm Environmental Coalition
OSCIA	Ontario Soil and Crop Improvement Association
SF2P	Sustainable Farm & Food Plan
WAMQI	Water Adaptation Management and Quality Initiative

- **It's time to celebrate a quarter-century of farm environmental achievement in Ontario.** It has been 25 years since the formation of the Ontario Farm Environmental Coalition and the beginnings of highly successful initiatives like the Environmental Farm Plan program and Best Management Practices publications.
- **Ontario farmers are ready to renew and broaden their commitment to sustainability.** Going forward, this includes an expanded environmental outlook and additional aspects of sustainable development.
- **Farm and rural environments have improved in many ways over 25 years, even as the portion of Canadian disposable family income spent on food has continued to decline.** That portion is about 10% today, with farmers receiving about 15% of the 10%. Each Canadian farmer now grows food for 120 other Canadians.
- **Ontario agriculture must increase its production of food ingredients per unit of farmland by at least 3% per year.** Higher productivity is necessary to meet the demands of an increasing provincial population with a desire for more locally grown food, and to achieve the provincial goal of doubling the rate of growth of the Ontario agri-food gross domestic product (GDP). This increase must occur in a manner that reduces our environmental footprint and is consistent with other societal expectations, under conditions that require increased efficiencies due to factors such as declining farmland to urban development.
- **Environmental Farm Plans will be transformed into Sustainable Farm & Food Plans to encompass the other two main pillars of sustainable development: economic and social sustainability.** This includes the need for a continuous supply of affordable, high-quality food under conditions that align with the expectations and needs of both consumers and food producers.
- **Social sustainability includes a commitment for the respectful and responsible treatment of farm animals.** Continuing efforts to maintain and enhance their welfare can contribute to a more sustainable food supply and good farm soil and water management.
- **Sustainable Farm & Food Plans will include a special focus on climate change.** Farmers can help reduce emissions and transform atmospheric carbon dioxide into soil organic matter – and ensuring a sustainable food supply despite a changing climate.
- **Sustainable Farm & Food Plans will recognize all opportunities to reduce wastage.** Forty percent of Canadian food ingredients are not consumed as food, although the portion of this loss occurring on farms is only 9%. This "wastage" may be used for livestock feed or other lower-value uses.
- **Efforts to enhance farm sustainability will be developed in close cooperation with Ontario and Canadian food industry partners, the largest users of Ontario-grown farm products.**
- **Ontario-based efforts to produce new, renewable, bio-based non-food products as replacements for traditional fossil fuel-derived materials will continue to be emphasized.** These efforts will not compromise the quantity and quality of food available for Canadians.
- **Sustainable Farm & Food Plans will be developed with three objectives:**
 - 1) Guide farmers in the identification of needs/opportunities for improvement in sustainability.
 - 2) Assure/inform the general public about these transformations.

OVERVIEW

Ontario farmers have had a long history of environmental leadership. In 1991, Ontario farm organizations made an historic commitment to environmental improvement by establishing the Ontario Farm Environmental Coalition (OFEC). Among other initiatives, OFEC wrote a visionary document entitled *Our Farm Environmental Agenda* and started the Environmental Farm Plan (EFP) process. These initiatives were a major step forward by farm groups in identifying environmental integrity as a top priority, and demonstrated the farm community's commitment to environmental improvement with a plan for action.

Since then, the EFP initiative has grown and developed substantially, and become a core part of the Ontario agricultural and rural fabric. More than 35,000 Ontario farm families have completed EFPs, and while precise statistics are unavailable, most of Ontario's total agricultural production is derived from farms with EFPs. This reflects both commitments by individual farmers and successful farmer-government partnerships. Public funds and the expertise of government staff were important in helping farmers correct many of the environmental concerns identified in individual EFPs. EFPs indicate best practices and provide opportunity for producers to develop an Action Plan where improvements are required. EFPs empower producers to conduct their own self-assessment based on the premise that self-directed adult learning is the most effective tool to instigate change.

The EFP process that began in Ontario has been extended to all Canadian provinces, and is now the basis for farm environmental improvements across Canada. Many newer programs for environmental and stewardship advancement require the completion of an EFP as an initial and mandatory step for participation.



The EFP program has been well-recognized through various awards, including:

- Ontario Pollution Prevention Leadership Award
- State of the Great Lakes Ecosystem Conference Success Story Award, and
- American Society of Agricultural Engineers' Blue Ribbon Award.

The EFP program also forms part of some newly developed/developing corporate protocols for sustainable food production (e.g., potato production for McCain). The process initiated by OFEC 25 years ago continues to have a substantial positive impact on farming and the quality of the natural environment.

This is the time for renewal as well as celebration. Societal

expectations have changed and the understanding of environmental issues has advanced. Climate change, which was recognized by OFEC as one of many issues a quarter-century ago, now reigns as a dominant global and national issue. And the scope of concern has grown beyond our environment to encompass all aspects of sustainable development, including social and economic aspects.

Global and Canadian food producers and marketers have made major commitments to producing/supplying food products in more sustainable ways. It is critical that farmers, including Ontario farmers, provide leadership in ensuring that standards relating to sustainable food reflect measures that mean true sustainability at the level critical to them, i.e., primary production. It is also important that non-farming citizens be assured of the integrity and commitment of the tens of thousands of Ontario farm families who grow food and food ingredients.

The need for, and challenges of, a sustainable agri-food system will continue to grow. An increasing

human population and rising standards of living mean increasing demands on the world's ever-decreasing, available supply of quality agricultural land. Ontario's population is projected to increase at a rate of 1% per year over the next 30 years – as the availability of farmland shrinks at a corresponding rate because of urbanization and the accompanying need for transportation and utility corridors. In addition, the Government of Ontario has stated its goal of decreasing provincial dependence on imported food by buying more local food, and doubling the rate of growth of the Ontario Agri-Food Gross Domestic Product (GDP). Ontario farmers currently supply 65% of the ingredients used by Ontario food processors, and good opportunities exist for this percentage to grow. In total, at least a 3% average annual increase in agricultural productivity per hectare of farmland is needed to meet demand. This is equivalent to adding the amount of farm produce now grown on 1,500 square kilometers of farmland, or an area 2.5 times the size of Toronto, each year. The challenge of increasing productivity is further complicated by a changing climate, which some believe will make agriculture more difficult.

While increasing agri-food productivity, we also need to reduce net greenhouse gas (GHG) emissions associated with agricultural production, through gross reductions in emissions and by increasing the transformation of atmospheric carbon dioxide into soil organic matter. We also need to find even greater efficiencies in our use of farm inputs for energy, pest management, and crop fertility.

The relative expenditure by Canadians for food continues to decline. It's now about 10% of disposable income compared to about 20%, 50 years ago. And the farmers' share of that total expenditure has also decreased with farmers now getting about 15 cents for every dollar of food purchases, or about 1.5% of disposable income. The other 85 cents goes for processing, packaging,

transport and marketing. The fact so little of each food dollar goes to farmers is a direct result of the ingenuity and high efficiency of Canadian farmers and their input providers.

About 40% of food ingredients are not consumed as food in Canada. Commonly termed "wastage," in fact some of this material is used for livestock feed or to produce compost. While most of this loss occurs after produce leaves farms and food manufacturing plants, 9% of it is estimated to occur on farms. This includes produce that is not marketed because of physical appearance, as distinct from nutritional value and/or safety. There are also opportunities to produce new food products and non-food "bioproducts." The latter can be derived both from dedicated crops and by-products associated with agricultural, food and biofuels production.

Many Canadian families struggle with monthly grocery bills. Ontario agri-food systems must continue to keep basic food costs low, while striving to provide an abundant supply of high-quality food products. That is an integral part of sustainable agriculture. Sustainable agriculture also includes the need for reasonable profits for farm families, enabling them to enjoy an income level and quality of life comparable to other Canadian families.

With this document, Ontario farm groups renew their commitment to environmental improvement, and introduce a process by which EFPs will be transformed into Sustainable Farm & Food Plans (SF²P) that include all aspects of sustainable development.



WHAT IS SUSTAINABLE AGRICULTURE?

The term "sustainable development" comes from a high-profile report called *Our Common Future* issued in 1987 by the World Commission on Environment and Development of the United Nations.

The commission was chaired by Ms. Gro Brundtland, former prime minister of Norway, and the report is commonly called the "Brundtland Report" by the "Brundtland Commission."

The report states:

Sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.

Sustainable development means a strong focus on environmental quality. It means ensuring that current human activities – including agriculture – do not cause irreparable damage to the natural environment for future generations. It means maintaining and improving the quality of water, air and agricultural soils. It also means using agriculture, where possible, as a mechanism for environmental improvement – supplying renewable resources, for example, and converting atmospheric carbon dioxide into soil organic matter.

Sustainable development is recognized as having two other dimensions: social and economic. For agriculture, social sustainability includes an adequate supply of safe, nutritious food at affordable prices – for both Canadians and the rest of the world's 7.3-billion citizens. The Brundtland Commission's emphasis on needs of the poor is especially significant. Environmental improvement must be balanced with the daily food needs of the billions of impoverished people across the globe. Sustainable development also means a decent quality of life and safe working/living conditions for those who work in agriculture – farmers, their families, employees – and others in the agri-food system.

Social sustainability includes a commitment to respectful and responsible treatment of farm animals, which form a critical component of the Canadian and world food system. Farm animals are important in providing a high-quality, nutritious diet for many people. They play essential roles in converting many plant species that are not directly digestible by humans into food products (e.g., meat, milk, eggs), and that are especially valuable in maintaining/building agricultural soil quality (e.g., alfalfa and other forage crops). Food supply, quality and safety, and animal care are core elements of agricultural sustainability.

The economic component is equally critical. Agriculture and food-supply chains directly dependent on agriculture cannot be sustainable if there is not a reasonable financial reward from farming that enables an appropriate standard of living for farm families. Canadian farm families should enjoy the same quality of life and financial well-being as other Canadian families.

While subsistence agriculture (also called low-input/low-output agriculture) is frequently portrayed as sustainable because of minimal effects on

environment, it cannot meet the needs for social and economic sustainability. Productivity per unit of farm land and per farmer is also very significant. Crop yields and livestock-feed-use efficiency are typically two-to-three times larger than they were two or three generations ago. In 1901, 3-million Canadian farmers produced food for 5-million Canadians. Currently, Canadian statistics show one-tenth that number or 0.3-million farmers now produce food for 35-million Canadians, and that efficiency/productivity contributes directly to the quality of life for all Canadians. Canadians consume an estimated 100-million meals per day.

Sustainable agriculture is also considered by some to mean an emphasis on older technology, but this is not consistent with the Brundtland Commission report. While the report recognizes "limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs," it also states "technology and social organization can be both managed and improved to make way for a new era of economic growth." This, in fact, is what happened with genetic improvements of semi-dwarf wheat developed by plant breeders, including Nobel Laureate Dr. Norman Borlaug, in the

1960s. The Green Revolution of that era eliminated famine in many countries around the world.

The Food and Agricultural Organization (FAO) of the United Nations uses the term "sustainable intensification" to refer to the global need to increase agricultural productivity for a growing human population, while respecting the three dimensions of sustainable development.

The three dimensions of sustainable development have been referred to as "people, planet and profit". This perspective works well for agriculture, though we might substitute the word "participant" for "people" so as to include farm livestock.



WHAT WE HAVE ACCOMPLISHED IN 25 YEARS OF ENVIRONMENTAL IMPROVEMENT, AND WHAT WE ARE DOING NOW.

Twenty-five years ago, farm leaders from the Ontario Federation of Agriculture (OFA), Christian Farmers Federation of Ontario (CFFO), AGCare (Agricultural Groups Concerned About Resources and the Environment), and Ontario Farm Animal Council (OFAC) made the decision to establish the Ontario Farm Environmental Coalition (OFEC). The impetus for the coalition was to provide a forum where farmer representatives from virtually all farm organizations could develop and promote environmental protection policies and strategies appropriate for the farm sector. At the time it was established, OFEC represented a total of 39 Ontario farm and agricultural organizations.

In 1991 OFEC released *Our Farm Environmental Agenda*, a document endorsed by all its member organizations, that outlined environmental concerns associated with agricultural production practices, and, importantly, made a number of commitments to that end. One of those commitments was to establish an Environmental Farm Plan (EFP) that would guide farmers through an environmental assessment of their individual farm operations.

The first EFPs were completed in Ontario in 1993 and since then more than 35,000 others have followed. EFPs are a voluntary assessment prepared by individual farm families to increase environmental awareness in up to 23 different areas on their farms. The program consists of a workshop, a self-assessment binder, and independent verification. The plans include an implementation strategy to correct environmental concerns identified in the self-assessment. Technical expertise to support the program is provided by staff of the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), and funds have been provided by OMAFRA and Agriculture and Agri-Food Canada (AAFC) to co-fund improvements triggered by the EFP process. The Ontario Soil and Crop Improvement Association (OSCIA) has been responsible for delivery of the EFP program in Ontario, with oversight provided, until recently, by OFEC and with the support of OMAFRA.

The completion of an EFP is a prerequisite for participation in several other publicly supported programs for farm/environmental improvement.

A 2011 survey of EFP program participants found that:

- Farmers invested an average of \$53,900 per farm of their own finances and accessed \$15,600 per farm from cost-share programs to implement activities in their Action Plan.

- Almost all – 95% – of farmers said their EFP has had a positive impact on their farming operation, including:
 - 74% said it led to improvements in soil quality
 - 7% said it led to improvements in water quality
 - 63% said it led to improvements in family health and safety.

Fourteen evaluations/audits of the EFP program have been completed over 25 years, all of them endorsing the value of EFPs for on-farm environmental improvement. Details are available from OSCIA.

While EFPs have been central to Ontario farm/agricultural environmental improvements, there have been many other initiatives as well. One of the major ones involves the creation of more than 30 Best Management Practices (BMP) guidebooks, with 15 more in development. As an initiative, BMP relates to a sector-wide, consensus-based, policy statement regarding specific environmentally sustainable agricultural practices. BMP guidebooks have been developed cooperatively by Ontario Federation of Agriculture (OFA), OMAFRA and AAFC to guide farmers in the adoption of more environmentally benign practices. Farmers and staff from a wide range of farm organizations have been involved in the production of each publication, which present a range of farm-level BMPs on a given topic. As stated in a recent program overview, for a management practice to be considered a BMP, it must be:

- Protective of the environment – safeguards surface water, groundwater, soil, air and habitat;
- Production-related – helps producers meet their yield and quality targets;
- Profitable – lowers costs or increases returns;
- Proven – field-tested before being deemed effective;
- Practical – verified by farm managers that candidate BMPs are a good fit with their operations and circumstances.

The continuing value of OFEC to Ontario's farm community was demonstrated when OFEC was approached by Ontario's Agricultural Adaptation Council (AAC) to partner with it in delivering the National Soil and Water Conservation Program (NSWCP) to Ontario farmers in 1997, and the Agricultural Environmental Stewardship Initiative (AESI) in 2000. Together these programs provided an infusion of \$5 million to support agricultural initiatives enhancing the sector's environmental sustainability.

An enduring testament to the value of the EFP Program and BMP publications comes as a result of the Walkerton tragedy in May 2000. The town's municipal drinking water system had become contaminated, resulting in the death of seven people and illness of 2,300 residents. While the Walkerton Inquiry that investigated this tragedy ruled that "the primary, if not the only, source of contamination was manure that had been spread on a farm", the Inquiry clarified that ruling by stating "the owner of the farm followed proper practices and should not be faulted."

The "proper practices" included the completion of an EFP by the farmer as well as meticulous recordkeeping – a BMP that pertains to many agricultural production practices. This was a monumental ruling in that it exonerated a farmer on the basis that he had done everything within his control to protect both human and environmental health. The fact that human health was compromised was seen as a combination of weather-related factors and errors made by the operators of the municipal water system.

It is noteworthy that OFEC sought and received standing at the Walkerton Inquiry. Legal representation was arranged through OFA. OFEC also participated on a number of working groups established by the Walkerton Inquiry, and filed two submissions with the Inquiry, one of which outlined Ontario farmers' commitment to the natural environment.

Another point of interest is that OFEC and AAC approved a number of NSWCP projects prior to the Walkerton tragedy that investigated pathogens associated with livestock production, thus signaling recognition by the farm community that livestock production practices had the potential to introduce contaminants to both surface and ground water.

Another farmer/ministry environmental achievement involves the introduction of Nutrient Management Plans (NMPs), which are now mandatory in Ontario for livestock farms generating a certain amount of animal manure per day. Again, OFEC was instrumental in fostering the need for NMPs, both before and after the Walkerton tragedy. In 1998, with the assistance of OMAFRA, OFEC developed a Nutrient Management Planning Strategy that was a precursor to the Nutrient Management Act, 2002 (NMA). During the developmental phase of the NMA, OFA, AGCare and OFAC participated on a Minister's Nutrient Management Advisory Committee on behalf of OFEC.

As of early 2015, more than 1,250 Ontario farmers had completed NMPs, representing about 36% of provincial farmyard manure production. Another 3,500 had completed related Nutrient Management Strategies. More than 1,850 Non-Agricultural Source Material (NASM) plans have been approved, regulating the application of nutrients on 83,500 hectares of farmland. In addition, a new program

is being introduced for greenhouse waste water, and another is in development for the application of composted urban wastes to farmland. Both the NASM and composted urban waste initiatives are services to help urban Ontario.

Ontario's Source Water Protection Initiative was a direct consequence of the Walkerton tragedy. Again, both OFA and OFAC represented the interests of OFEC on a Minister's Advisory Committee struck to assist in the development of the Clean Water Act, 2006 (CWA). The CWA is designed to ensure the provision of safe municipal drinking water throughout the province.

OFEC also orchestrated the selection of agricultural representatives to populate 18 Source Protection Committees that were established across the province in 2006 to prepare local source water protection plans. OFEC made an important contribution to this process by preparing a Farm Source Water Protection Framework in 2013. Farm groups have initiated and been involved in several programs for enhancement of endangered species in rural Ontario, including programs for the American chestnut and, more recently, bobolinks and eastern meadowlarks.

Though the origins of the Ontario Farmer Pesticide Certification program predate the establishment of OFEC, this initiative came from Ontario farm organizations and is now administered by the University of Guelph, in cooperation with OMAFRA, the Ontario Ministry of the Environment and Climate Change, and Ontario farmers.

The Water Adaptation Management and Quality Initiative (WAMQI), administered by Farm & Food Care (a member of OFEC), support demonstration and applied research projects that showcase innovative technologies and solutions for agricultural water conservation, and water efficiency activities related to adapting to climate change. Projects that support the efficient use of nutrients and effective nutrient management related to water quality are also included.

Alternative Land Use Services (ALUS) is an approach developed by farmers and environmental groups that compensates farmers for environmental services of benefit to the larger society. It was started in Manitoba, introduced into Ontario in 2007 on the former tobacco soils of Norfolk County, and has since expanded to involve other parts of rural Ontario and Canada.

Through these and other programs, Ontario farmers and their organizations have a solid track record of initiating, managing, partnering and advising on the design and delivery of many programs directly related to environmental quality in Ontario. And they are eager to do more to enhance agricultural sustainability in the province.



IMPROVING AGRICULTURAL SUSTAINABILITY

From a number of perspectives, the sustainability of the Ontario/Canadian food system can be judged as "very good".

- Canadians enjoy a diverse supply of quality foods. Even for low-income Canadians, the relative expenditure on food has declined substantially over time. The continuing need for food banks and other food-aid services is generally more reflective of increasing costs for other needs, especially housing.
- The safety of Canadian food has improved substantially over time and is now considered excellent. While incidents of sickness and even deaths caused by unsafe food are rare in Canada, they do still occur, and we must continue to seek improvement.
- Farm productivity has tripled in Canada since 1961, at an average growth rate of 2.3% per year. Input use efficiency has also increased, at an average annual rate of 1.6%, meaning Canadian farmers produce more than twice as much per unit of input/resources used (e.g., fertilizer, capital, feed, pest-control products) than they did 50 years ago.
- Family farm income has been generally favourable in recent years because of the adoption of new technology, farm consolidation (low-income producers selling out to more profitable farmers), and higher global farm commodity prices. Unfortunately, global farm/food commodity prices are very volatile and can drop precipitously at any time. Increasing labour costs are affecting viability for some farmers. A reasonable goal is an average family farm income equivalent to that of other average Canadian families, or about \$75,000/year (see footnote for farm family comparison).¹

There are many ways in which the sustainability of Ontario agriculture can be improved further.

An increasing concern is the continuing loss of farmland in the province, especially prime farmland (i.e., class 1, 2 and 3) to non-agricultural development. In near-urban areas, this is coupled with other stresses, often bureaucratic, which affect farm family well-being and their ability to produce local foods. Public policies need to focus on farm viability and sustainability, as well as farmland protection.

While fertilizer-use efficiency continues to improve, too much fertilizer, especially nitrogen and phosphate, still leaves the farm fields on which it was applied. This can lead to problems in water/stream/river/lake quality, nitrous oxide emissions (a greenhouse gas) and economic loss to farmers. Increased emphasis is needed on developing farm methods and technologies that help to keep inputs on the farm. Precision agriculture is one such technology that uses satellite navigation systems and sophisticated plant/soil monitoring to control field fertilizer application rates (i.e., rates are varied in accordance with micro-scale needs), and time of application is more closely matched to the needs of growing crop.

Although the amount of soil tillage used for crop production in Ontario has declined, there is opportunity to go much further, with attendant savings in fuel/energy usage, reductions in soil losses caused by wind and water erosion, and improvements in soil quality for crop production.

There has been a major renewed interest in the use of cover crops (crops grown solely to protect soil and add organic matter) and crop rotations for soil protection. This needs to be further encouraged and fostered by agricultural research and public support for innovative farmers.

The use of advanced technologies, including genetic enhancement, and integrated pest management practices that reduce the use of pesticides for crop production must continue to be explored and encouraged. This includes industry innovation and regulatory policies that promote these opportunities for enhanced agricultural sustainability.

The loss of GHGs associated with nitrogen fertilizer usage and livestock agriculture can and must be reduced through the use of newer technologies for manure/fertilizer application and continued improvements in feed efficiency. (Improved feed efficiency means lower animal emissions of GHGs.) At the same time, we need to further emphasize soil management practices that increase the conversion of atmospheric carbon dioxide into soil organic matter, which will promote crop growth.

Crop yields must continue to rise to meet the need for an increased supply of locally grown food on a decreasing farmland base. These yields will be attained by superior cropping practices – notably those that improve soil quality – and by advanced genetic technologies and plant and animal breeding.

The supply of Ontario-grown niche farm crops and livestock products must grow to meet greater local demand. This includes organic foods and ethnic foods where costs of production in Ontario must remain or become competitive compared to the price of the imported equivalents. However, niche production cannot occur at the disadvantage of Ontarians who want to choose to purchase more conventionally grown food (generally at lower prices) or compromise Ontario's ability to feed itself (to the maximum extent possible given the need for tropical food imports) using sustainable technologies.

The safety and well-being of farmers and agricultural workers must continue to be a priority, through the adoption of evermore rigorous standards.

The use of renewable, Ontario-grown agricultural crops/feedstocks for the production of fuel and bioproducts must continue to be supported in a manner that reduces net GHG emissions and fossil-energy usage for transportation, but does not compromise the supply of locally grown food. This is especially important for Ontario with its large land base, favourable growing conditions for agricultural and forest production, and its low within-province supply of fossil hydrocarbons.



¹ For an average Ontario farm with \$250,000–500,000 in annual sales, a typical one-family farm operation, Sparling and Uzea (Ivey Institute, Western University) calculated average net farm income of \$42,000 for 2010, up from \$20,000 in 2005. This average farm also earned \$26,000 in off-farm income in 2010.



OUR CUSTOMERS AND PARTNERS: FOOD AND BEYOND

Food:

Ontario farmers and food producers have received continuing solid support from Ontario consumers – for example, through support for local food production and consumption. Foodland Ontario is an identification and promotional program operated by OMAFRA in cooperation with farm groups, and has been highly effective in creating awareness of, and preference for, Ontario-grown foods. Ontario farmers are deeply appreciative of this recognition.

A close partnership exists between Ontario farmers and the Ontario/Canadian food processing industry. While substantial quantities of Ontario farm produce are exported annually to meet the food requirements of other countries, domestic food processors are by far the largest users of what we grow on Ontario farms. In turn, 65% of the ingredients used by Ontario processors come from Ontario farms.

Ontario's sustainable agricultural strategy and Sustainable Farm & Food Plans (SF²Ps) will be developed in close cooperation with Ontario/Canadian food processing and retailing companies and associations. A close partner will be Provision Coalition, representing Canadian food and beverage manufacturers.

Ontario farmers will continue to be eager supporters and cooperators in efforts by food processors to develop foods that are even healthier and more nutritious. SF²Ps will be designed to meet part of the protocol requirements for certification of sustainability. These requirements are being developed by various food industry partners and alliances where this is seen to be important for commodity-specific farmer-processor-retailer food supply chains.

And beyond:

A significant and growing portion of Ontario farm produce is used to develop bio-based products other than foods. Examples include starch sizing, derived from corn and used for paper coatings and adhesives, and oilseed-derived lubricants and paints. Ontario-grown wheat straw is now providing the fibre portion of polymer-composite materials used to manufacture automobile components and other consumer and industrial products. Major research

is underway at several Ontario universities – in partnership with governments, farm organizations and manufacturers – on other opportunities to use renewable, agriculturally based feedstocks and byproducts to make bio-based alternatives for products traditionally made from fossil hydrocarbons.

In 2010, OFA received \$2.5-million in funding from AAC to investigate the feasibility of using agriculturally generated biomass as a solid fuel substitute for coal in thermal power generating stations. Funding support for the project was also provided by OAFT and OSCIA, as well as OFA. When it became clear that the future of thermal power generating stations in southwestern Ontario was uncertain, the project was modified to investigate a multitude of factors that would assist in moving forward Ontario's emerging bio-economy sector. Fourteen project reports were completed on topics ranging from the environmental sustainability attributes of biomass to the development of a business case on the use of cornstalks in bioprocessing. The latter study was recently updated with funding from AAFC to reflect that new technology is reducing the cost of extracting biochemicals from agriculturally generated biomass.

Ethanol is widely used in Ontario and Canadian gasoline as an octane enhancer and bio-based fuel source. Biodiesel derived from oilseed crops, restaurant waste and byproducts of food processing is also being used increasingly. Major efforts are underway by Ontario-based manufacturers to find new high-value uses for byproducts of grain and oilseed crop processing to produce biofuels and other bioproducts. All of this adds to the sustainability of Ontario's economy and contributes to national and provincial efforts to reduce GHG emissions.

Technological advancement is part of the "beyond," in enabling Ontario farmers to produce ever-greater quantities of high-quality food and food ingredients, at lower real costs and with ever-increasing input-use efficiencies.

Efforts to increase the use of Ontario-grown farm products to help meet provincial and national sustainability objectives while not compromising the supply and quality of food for Ontarians and Canadians is part of *Farming, Food & Beyond: Our Commitment to Sustainability*.

SUSTAINABLE FARM & FOOD PLANS (SF²PS)

Since the first Environmental Farm Plans (EFPs) were completed in Ontario in 1993, EFPs have been core to many initiatives designed to improve farm and rural environmental quality. These plans will be expanded to encompass a larger number of environmental concerns, especially those of broader national and global significance.

SF²Ps will rely on the EFP platform for addressing environmental aspects of sustainability, and draw on other existing initiatives to address other dimensions of sustainability: economic and social. For example, SF²Ps will be designed to link electronically to existing platforms such as national protocols for animal welfare or food safety. CanadaGAP serves as an example of such a platform.

Among the global environmental concerns to be added are human-induced climate change and the net emission of GHGs. Agriculture provides an important "sink" for the transformation of atmospheric carbon dioxide into soil organic matter through crop plant growth. Ontario farmers can make an important contribution to Ontario's stated goal of reducing net GHG emissions by 80% by 2050. This can be achieved by reduced field operations (less tillage and more efficient equipment), improved crop and livestock/poultry genetics (including advanced genetic engineering technology), precision agriculture technology for fertilizer and pesticide management, increased use of integrated pest management, increased use of renewable fuels and continuous improvements in the efficiency of their manufacture from agricultural and other biological feedstocks, and an array of methods and technologies to build soil organic matter (promoting carbon sequestration).

An average increase of only 0.1% in the organic matter percentage in the upper 15 cm of Ontario's 5-million hectares of farmland would be equivalent to 15-million tonnes of carbon dioxide transformed.

That far exceeds the 9-million tonnes of emissions currently attributed directly to agriculture. The 9-million tonne estimate does not include fossil energy use for field operations, transportation of goods and heating of buildings, which are also targets for reductions.

Ontario agriculture can help meet provincial goals for GHG emission reductions in other ways too. For example, substituting 10% ethanol into gasoline in Canada means an annual reduction of 2.3 million tonnes of carbon dioxide emissions, equivalent to the annual emissions from 440,000 cars. Scope exists to add to this contribution using agricultural waste products, dedicated crops, or partial use of crop residues for biofuel production.

SF²Ps will be designed to integrate, where possible, with the Government of Ontario's plans for cap-and trade on GHG emissions.

New modules will be included on GHG reduction and sequestration, and on agricultural adaptation to climate change. Ontario is projected to have periods of more intense rainfall and more intense droughts due to higher climatic temperatures. SF²Ps must include measures to respond to these changes.

Social sustainability involves the well-being and safety of farm workers and farm family members. Social sustainability includes philanthropy and giving back to the communities in which farms operate. It also means an assured supply of safe, nutritious and reasonably priced food for Ontario residents. It includes food bank and food aid programs – for impoverished Ontarians in some situations, and as contributions to international efforts in emergency situations. Care must be taken, however, to ensure that shipments of subsidized and/or below-cost-of-production farm produce do not undermine the efforts of farmers in developing nations to produce more of their own food. Social sustainability involves





contributions to quality of life, including agro-tourism and an attractive countryside for the enjoyment of all Ontarians and visitors to Ontario.

Social responsibility includes the respectful and responsible treatment of farm animals, an area where the Ontario farm community is already well-advanced through a series of programs managed by Farm & Food Care Ontario as well as through individual livestock and poultry organizations. The recently launched IMPACT (Innovative Management and Practical Animal Care Training) is one of these programs.

Economic sustainability is equally important. Agriculture cannot be sustainable unless farm families receive a fair economic return from their labour, skills and investment. The definition of farming continues to change, with many farmers now adding further processing and retail ventures to their core farm operations in an effort to meet consumer needs and enhance farm income. The scope for all of this will need to be included in the economic component of the SF²P assessment protocol.

Growing Your Farm Profits (GYFP) is a self-evaluation process, complete with workshops, expert advice and guidebooks for self-assessment, which has been developed by OMAFRA in cooperation with OSCIA. More than 5,000 farmers have now completed GYFP plans. The GYFP process will be integrated in the new SF²Ps. Ontario's AgriFood Management Institute provides a series of programs and services also designed to improve economic sustainability.

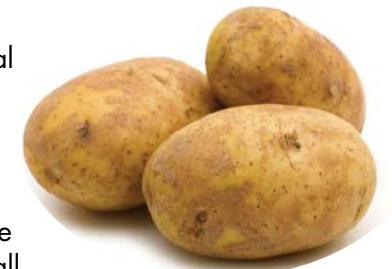
A growing number of food processing and retailing companies, both global and domestic, are introducing or exploring third-party certification to ensure compliance with standards for sustainability. These include both collective standards, such as the Sustainable Agricultural Initiative based in Europe,

and company-specific protocols. The Canadian food industry is actively pursuing this approach as well through the newly formed Provision Coalition.

Canadian Environmental Farm Plans are being used in some of these standards, such as the certification for sustainability protocol used by McCain Foods. This opportunity will be developed further, allowing SF²Ps to be used to help meet certification requirements for additional companies and consortia.

In order for this to occur, SF²Ps – for those farmers and Ontario farm commodity sectors wishing to use this option – will need to be subject to third-party auditing and verification, and become non-confidential to specified purchasers. This is similar to the protocol being used for organic certification or for other international sustainable certification programs, such as the LEAF Marque in the United Kingdom.

While the protocols for sustainability certification are commonly commodity-specific – for example, sustainably produced soybeans, beef, and potatoes – Ontario's SF²Ps will and must be whole-farm based. SF²Ps will be grounded in solid science and reflect a systems approach, which is basic to good farm management.



There is growing international demand for measurable reporting of sustainable practices, including soil carbon capture and GHG emission reductions. Real-time electronic recordkeeping of all performance measures where possible is the logical route. In building for the future, most producers will be tech-savvy, and rural internet/cellular service access will allow the use of this

technology. However, SF²Ps will also be designed to be user-friendly for farmers who are not so tech-savvy.

Precision agriculture is defined as "the application of technologies and agronomic principles to manage spatial and temporal variability associated with all aspects of agricultural production for the purpose of improving crop performance and environmental quality."

Development and delivery of SF²Ps will integrate logically with the growing adoption of precision agriculture. Numerous challenges will require careful analyses to ensure the SF²P is designed as a platform to accommodate existing and evolving electronic platforms, some open-sourced, others private and proprietary. There are currently at least half a dozen precision agriculture platforms in North America, individually soliciting clients. All farmers will own their own data and determine with whom it will be shared for traceability and verification.

Establishing an electronic SF²P and a portal for data management, and accommodating the needs of each member of the value chain, will be among the greatest challenges in creating an SF²P that meets the multi-dimensional requirements of the food industry. We are working with Canada's food and beverage processing industries to accomplish these goals in

a cooperative, coordinated manner. Incorporating best practices for security and privacy of data will be critical. Collaborating and accommodating competing interests not just within Ontario, but nationally and internationally, will require a significant commitment of time and resources. A technical committee will be established early in the SF²P development to review approaches, establish consensus, and provide recommendations.



RESPECTING TRADITIONAL AND ACQUIRED FARM KNOWLEDGE



Archeologists tell us that Ontario has been home to farmers for an estimated 1,500 years. To the expertise of First Nation farmers was added that of European immigrants

who first arrived at least 300 years ago. Ontario agriculture and food consumers have benefitted from the continuous improvement and new knowledge provided by the combination of new immigrants, accumulated experience from years of applied agriculture, and innovations provided by farmers, researchers and industry partners.

Ontario farmers are experts at knowing how to blend the new with the old – ensuring that new ideas are explored and adopted where they enhance sustainability – while not abandoning the principles, values and practices they know to work. Farming is an especially risky business, in that it combines the price and market uncertainties of most other businesses with the added risk of highly variable weather. There are no rooftops over most farm fields.

It is crucial that any strategy for sustainable agriculture and food in Ontario recognizes the value of this traditional and acquired knowledge. Too often this is forgotten in proposals for radical changes in farm technology made by those who have not farmed.

The vast majority of Ontario farms are family owned and operated. The farm, for most of us, is not just a business but where we live and raise our children. Farm sustainability is vital to our way of life as well as our livelihoods.

Ontario farmers have done a good job and have served Ontario well. With commitments being made herein for enhanced sustainable agriculture and food, we will do even better.



A BETTER JOB OF COMMUNICATION WITH ONTARIANS

While Ontario has more farm residents than any other province (175,000 in 2011 census) farmers still represent only 1.4% of Ontario's population, a steep decline from the 15–20% who were farmers in the mid-20th century. Indeed, only about 15% of Ontario's residents were even classed as rural in the 2011 census. Generations ago, most Ontarians had a relative or distant cousin, perhaps a grandparent, who was a farmer. For most residents now, there is no connection to farming at all – except, of course, through the grocery store and information portrayed by urban-based media, often by journalists who are equally uninformed about agricultural issues.

The problem is compounded by activist groups – often with good media skills – who have a negative view of modern agriculture and portray a vision of farming based on an idealistic image of earlier “simpler” times. Commonly ignored are the societal and environmental costs that a return to those times would entail, such as higher relative food costs, much greater food-land requirements, and higher percent employment as agricultural workers, to name only three. (For more on this, see *The Real Dirt on Farming*.)

Farm organizations have attempted to address this void in various ways – individually through commodity sector-specific approaches, and collective approaches. Farm & Food Care Ontario (created by a merger of two former affiliations, AGCare and the Ontario Farm Animal Council) has many programs designed to inform urban residents and media about the nature of modern farming. Ontario farmers need to do much more of this, in both proactive and reactive ways – the latter involving efforts to counter some of the misinformation distributed intentionally or unintentionally about farm practices. These efforts need to be carried out in an open and honest manner – explaining what we do on modern farms, what we do well, and the ways in which we are striving to do better. We need to do this in a language that reflects the values important to the 98.6% of Ontarians who are non-farm residents,

and show how modern farming relates to Ontario provincial goals for a more sustainable economy and way of life.

Urban society knows little about efforts by Ontario farmers to reduce soil tillage, improve soil quality, increase the efficiency of fertilizer usage, and reduce pesticide usage. They do not know about the effectiveness of farmer efforts to improve livestock feed-use efficiency, and to increase crop productivity even as the amount of farmed arable land declines.

And farmers must do this while receiving ever-declining real prices (inflation-adjusted) for their products. Lower real prices are of benefit in reducing real food costs for consumers, but a challenge to the maintenance of family farm income. Most of all, urban residents need to understand that farmers are consumers too, who eat foods made from their own farm products, and who live and raise families in the rural environment where their farms are located. Urbanites need to be assured repeatedly that “Farmers Do Care.”

Ontario's EFP program has led to major improvements to the rural environment and has received international recognition. Yet, very few Ontario urbanites know of its existence – including most members of the Ontario Legislature and even senior food company executives.

Better communication with the rest of society must be a core part of our renewed plan for agricultural sustainability in Ontario. Perception is reality and we need to ensure that urban perceptions reflect farm/agricultural realities.





Our Commitment to Sustainability

SUPPORTING ORGANIZATIONS



www.christianfarmers.org



www.farmfoodcare.org



www.ofa.on.ca



www.oaft.org



PROCESSING FOOD SUSTAINABLY

www.provisioncoalition.com



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