

# Realities of Agriculture in Canada

## *A sector of innovation and growth*

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### *Four Realities of the Agriculture Sector*

1. **Majority innovate:** Fifty-one per cent of agri-business owners are adopting new and innovative technologies.
2. **Increased plans for growth:** In 2014, 44 per cent of farmers say they plan to expand their operations in the next 3 years, compared to 40 per cent in 2011.  
**Employment opportunities:** Twenty-one per cent of farmers plan to hire new employees in the next three years.
3. **Taking care of the environment:** Nearly all farmers (95%) are taking action to protect the environment.
4. **Farms are staying in the family:** Eighty-three per cent of farmers who are planning to transfer their business in the next three years will be passing the farm on to a family member.

The agriculture industry isn't what many Canadians think. Canadians have a variety of misconceptions about farming in Canada and now a new CFIB survey conducted among Canadian farmers sets the story straight. CFIB's *The State of Canadian Agriculture Survey* shows that agriculture is innovative and growing, farmers take care of the environment, and the predominant succession plan for primary producers is to pass the farm on to a family member.

## **Canadians' Misconceptions about Agriculture**

Canadians have a variety of misconceptions about agriculture in Canada, including:

**Misconception 1** - Agriculture is not innovative and modern.

**Misconception 2** - The agriculture sector is shrinking.

**Misconception 3** - Farming is unsustainable and potentially environmentally harmful.

**Misconception 4** - Farming is moving away from family businesses toward corporate operations.

These misconceptions were identified in a study commissioned by the federal government's department, Agriculture and Agri-Food Canada (AAFC). This qualitative study was conducted by the Strategic Counsel, consisting of 18 focus groups completed across the country in December 2013<sup>1</sup>.

## New CFIB Research among Canadian Farmers

To help combat these misconceptions CFIB conducted a survey among 523 Canadian agricultural producers, between March 19 and April 22, 2014<sup>2</sup>. The respondents are balanced between three primary sectors:

- Livestock and animal farming,
- Crop farming, and
- Fruit, vegetable and horticulture farming.

Findings from this survey, outlined in the following sections of this report, demonstrate that Canada's farmers are fostering an agriculture sector Canadians can be proud of – a highly sophisticated and modern industry that will continue to provide an abundance of jobs and quality food for Canadians.

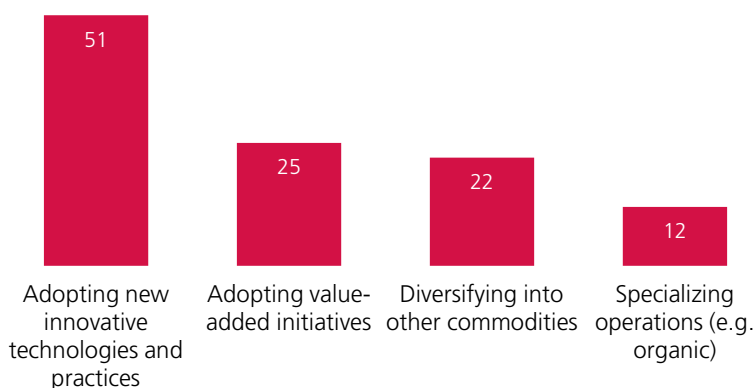
## Reality 1 – Agriculture is Innovative and Modern

Agriculture is not top-of-mind for Canadians when they think of innovative industries, but farmers are proactively embracing new technologies and innovations to modernize their operations. Over half (51%) of farmers are planning to adopt new innovative technologies and practices within the next three years. One-in-four (25%) plan to adopt value-added initiatives, 22 per cent plan to diversify into other commodities, and 12 per cent are specializing their operations (see Figure 1). These findings demonstrate the breadth of ingenuity that exists in the agriculture industry.

Given Canadians do not associate farming with innovation, it isn't surprising that in the federal government's study Canadians found it difficult to name specific innovations occurring in the sector. CFIB agri-business members provide numerous examples of specific innovative practices they have introduced in their businesses, such as robotic dairy milking, GPS tracking systems and genomic testing for livestock. The following is a selection of interesting ways farmers are innovating and modernizing their operations (see CFIB Member Comments 1. For further comments see Appendix A).

Figure 1

What are your overall plans for your agri-business during the next 3 years? (% response)



Source: CFIB, *The State of Agriculture Survey, 2014*

<sup>1</sup>Modern Agriculture and Agricultural Awareness Focus Groups: Final Report. The Strategic Counsel. Agriculture and Agri-Food Canada. [http://epe.lac-bac.gc.ca/100/200/301/pwgsc-tpsdc/por-ef/agriculture\\_agri-food/2014/040-13/index.html](http://epe.lac-bac.gc.ca/100/200/301/pwgsc-tpsdc/por-ef/agriculture_agri-food/2014/040-13/index.html)

<sup>2</sup>The survey has a margin of error of  $\pm 4.3$  per cent, 19 times out of 20.

CFIB Member Comments 1: *CFIB Farm Members Report on Their Innovative Practices*

**Introducing robotic milking for dairy cows**

“Use of robotic milking technology – gives us more efficient use of hydro, more milk with less labour, and installation of irrigation systems makes better use of purchased fertilizer, as rainfall can be timed/controlled to maximize effects.”

Livestock & Animal Farm Member

**Wind machines**

“We purchased wind machines to lower the impact of frost and severe winter temperatures on our orchards and vineyards. Have kept up with the most up-to-date and innovative vineyard equipment i.e. pre pruners and leaf strippers.”

Field Crop Member

**GPS tracking systems for planting and spraying**

“We implemented GPS operated equipment which has reduced fuel consumption and minimized chemical overlap.”

Livestock & Animal Farm Member

**Genomic testing and infrared lighting for livestock**

“Using infra-red cameras for calving... allow[s] us to have no yard lights on during the winter months, saving electricity.”

Livestock & Animal Farm Member

**Farmers use modern business tools**

Farmers are running sophisticated operations and using modern business tools to run their businesses. Eighty-one per cent of farmers use the Internet for information, products or services, 59 per cent use public sector risk management tools, 52 per cent report utilizing industry training for themselves and their employees, and 51 per cent used external consulting services (see Figure 2).

Twenty-eight per cent of farmers use a detailed annual budget, 24 per cent use private sector risk management tools, 22 per cent set specific annual profit targets, 20 per cent have a written business plan, and 19 per cent have a written succession or retirement plan. Farming in Canada isn’t an archaic operation. In fact, quite the opposite is true – the variety of business management tools used show that agricultural operations are sophisticated, strategic and modern.

Figure 2

**Which of the following does your agri-business currently use? (% response)**



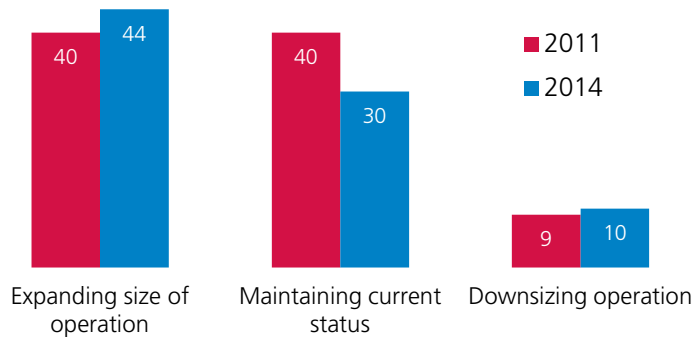
Source: CFIB, The State of Agriculture Survey, 2014

## Reality 2 - The Agriculture Sector is Growing

Some Canadians believe Canada’s agriculture sector is shrinking. This view appears to be attributed to the increasing availability of imported foods in Canadian stores (*Modern Agriculture and Agricultural Awareness Focus Groups: Final Report*, 2014). In fact, the proportion of farmers who are looking to grow their business has increased over the last three years, with 44 per cent indicating plans to expand the size of their operation within the next three years, compared to 40 per cent in 2011. There are fewer agri-business owners reporting they plan to maintain their current status – 30 per cent in 2014, compared to 40 per cent in 2011, and only 10 per cent of farmers are planning to downsize their operation, which is not a significant change since 2011’s reporting of nine per cent who were downsizing (see Figure 3).<sup>3</sup>

Figure 3

What are your overall plans for your agri-business in the next 3 years? (% response)



Source: CFIB, *The State of Agriculture Survey, 2014* and *The Future of Agriculture Survey, 2011*. \*Note: 2011 wording of question varies slightly

As evidence of the agriculture sector’s growth, the AAFC compiles data on its website showing the agriculture and agri-food sector’s contribution to GDP has grown every year since 2007, except during the 2009 recession. In 2012, the sector accounted for \$103.5 billion or 6.7 per cent of GDP<sup>4</sup>. Canadian agri-food exports have also increased in recent years from \$40.3 billion in 2011 to \$46.0 billion in 2013<sup>5</sup>. These findings confirm that the industry is expanding rather than shrinking, and farmers’ plans for the next three years show they plan to continue this growth.

### Farms are hiring!

Farmers are twice as likely to be planning on hiring more employees within the next three years than reducing the number of their employees. Twenty-one per cent of Canadian farmers are planning to hire more employees in the next three years, whereas only nine per cent plan to reduce their number of employees (see Figure 4). In fact, the agriculture industry employs more than two million people, which is

Figure 4

What are your overall plans for your agri-business during the next 3 years? (% response)



Source: CFIB, *The State of Agriculture Survey, 2014*

<sup>3</sup> The tracking data from CFIB’s 2011 Future of Agriculture Survey was conducted among 1,049 of CFIB’s agri-business owners; data is rebased to reflect the same sample composition portrayed in this report (primary producers, n=687).

<sup>4</sup> Agriculture and Agri-Food Canada. Overview of the Canadian Agriculture and Agri-Food System 2014. <http://www.agr.gc.ca/eng/about-us/publications/economic-publications/alphabetical-listing/an-overview-of-the-canadian-agriculture-and-agri-food-system-2014/?id=1396889920372>

<sup>5</sup> Agriculture and Agri-Food Canada. Canada at a Glance. <http://www.ats-sea.agr.gc.ca/stats/4679-eng.htm>

equal to one-in-eight jobs in Canada<sup>6</sup>. With more farmers planning on hiring and looking to expand their businesses, it is clear this is a growing industry – one that provides Canadians with job opportunities and an industry to be proud of.

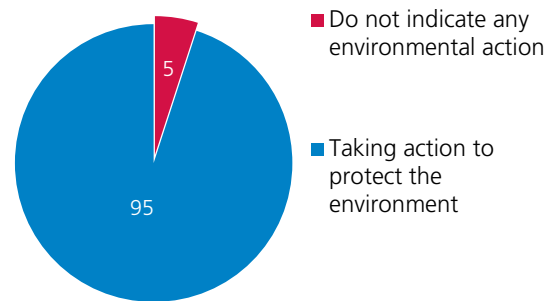
### Reality 3 – Farmers are Protecting the Environment

Considering findings from the *Modern Agriculture and Agricultural Awareness Focus Groups: Final Report* (2014), it likely comes as a surprise to many Canadians that nearly all (95%) farmers are taking action to protect the environment (see Figure 5).

In fact, Canadian farmers are working on a variety of fronts to ensure the environment is protected and environmentally friendly practices are implemented. A majority (63%) of farmers are investing in equipment, machinery, or vehicles that are more energy-efficient or environmentally friendly. A majority are also improving their management of hazardous products (61%), protecting water sources and waterways (60%), and adopting energy conservation practices (56%) (see Figure 6).

Figure 5

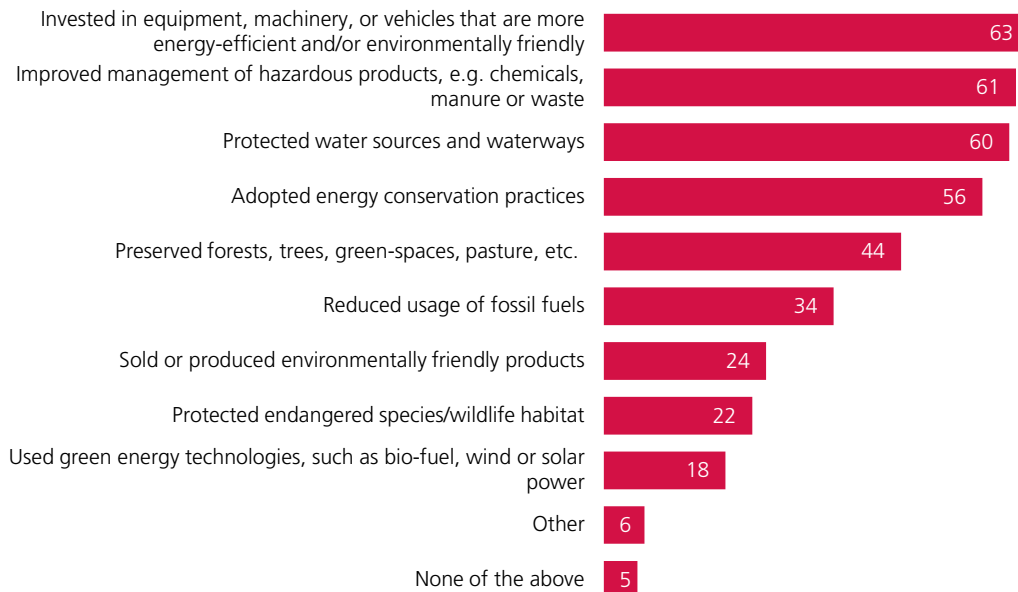
Farmers taking action to protect the environment (% response)



Source: CFIB, *The State of Agriculture Survey, 2014*

Figure 6

Which of the following actions has your agri-business taken to help protect the environment? (% response)



Source: CFIB, *The State of Agriculture Survey, 2014*

<sup>6</sup> Agriculture and Agri-Food Canada. Overview of the Canadian Agriculture and Agri-Food System 2012. <http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1331319696826&lang=eng>

Another 44 per cent say they have preserved forests, trees, green-spaces, pasture, etc., 34 per cent have reduced their use of fossil fuels, 24 per cent have sold or produced environmentally friendly products, 22 per cent protected endangered species/wildlife habitat, and 18 per cent used green energy technologies, such as bio-fuel, wind or solar power. Only five per cent indicate that they have not taken any of these specific environmental actions (see Figure 6). Contrary to public concerns of unsustainable or harmful environmental practices, these findings overwhelmingly demonstrate how important environmental protection is to Canadian farmers.

To further emphasize how important environmental protection is to farmers, CFIB agri-business members provide compelling examples of important actions they have taken to protect the environment on their farm, such as energy-efficient heating, proper waste management practices and improved resource efficiency. As well, many grain farmers mention adopting no-till planting, which helps protect the environment by decreasing erosion, preserving natural soil compositions, and diminishing disruption to animal habitats (see CFIB Member Comments 2).

*CFIB Member Comments 2: CFIB Farm Members Outline How They are Protecting the Environment*

***Installing energy-efficient heating systems***

*“We changed from fuel oil based heat to electric to save heating costs and protect the environment.”*

*Fruit, Vegetables and Horticultural Member*

***Improved resource efficiency***

*“Shifted our calving to late spring. It allows us to utilize stockpiled grass for winter feed source and sharply reduce our reliance on machinery and fossil fuels. It also virtually eliminates confined livestock and greatly improves the natural nutrient and water cycle on our grassland. The result has been a significant reduction in our inputs, both cash and unpaid labour.”*

*Livestock & Animal Farm Member*

***Increased use of recycling programs***

*“We recycled 95 per cent of all the products we use. Diverting approximately two thousand bags of garbage from our local landfill.”*

*Wholesale and Supply for Agriculture Member*

***Improved management of hazardous waste***

*“We have built a manure containment system to protect the environment from runoff.”*

*Livestock & Animal Farm Member*

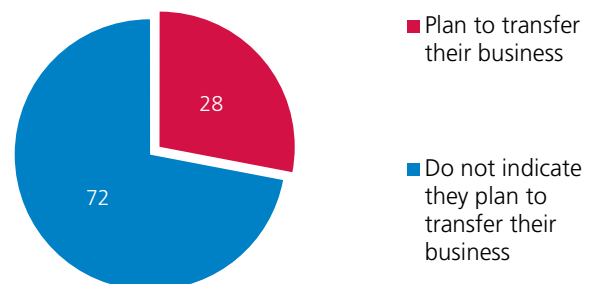
## Reality 4 – Farms are Remaining Family Operations

While current farm operations are growing, innovating and protecting the environment, some of them are also planning for retirement. Nearly one-in-three (28%) farmers are planning to transfer their business within the next three years (see Figure 7).

Many Canadians appear to be under the impression that family farm operations are on the path to extinction, but farmers planning to transfer their business to a family member far outnumber those planning to transfer the business to someone outside the family.

Figure 7

**What are your overall plans for your agri-business during the next 3 years? (%response)**

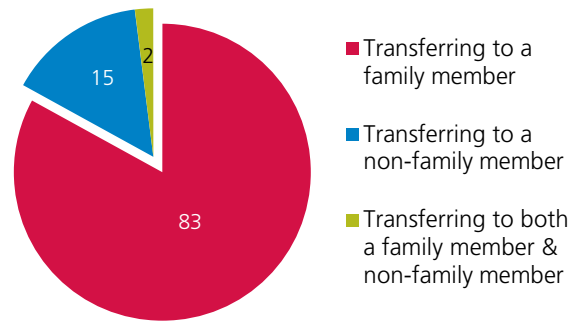


Source: CFIB, The State of Agriculture Survey, 2014

Of farmers planning to transfer their business in the next three years, 83 per cent indicate they plan to transfer their business to a family member (see Figure 8). Fifteen per cent who plan to transfer their business within the next three years indicate they will transfer the farm to a non-family member, while two per cent will transfer their business to both a family member and non-family member.

These findings should reassure Canadians that our farms are likely to remain family run operations even after the current generation has retired.

Figure 8  
**Transfer Plans (among the 28% indicating they plan to transfer their business in the next 3 years)**



Source: CFIB, The State of Agriculture Survey, 2014

## Conclusions

Given the misconceptions many Canadians have about the agriculture industry in Canada, it is encouraging that many governments and agricultural organizations are undertaking various initiatives to education and improve public perceptions about agriculture. Certainly, understanding Canadians’ misconceptions about agriculture is an important first step toward narrowing the disconnect they have with the sector. CFIB’s report provides the farmer’s voice in this important dialogue and sets a number of the misconceptions straight. Farmers in Canada are looking to innovate and grow their businesses, are taking steps to protect the environment and are planning to pass their business on to their family when they retire.

Figure 9

### Which of the following actions would help your agri-business improve overall competitiveness? (% response)



Source: CFIB, The State of Agriculture Survey, 2014

Beyond promoting positive views of the agriculture sector, government policies can also help foster agricultural competitiveness in Canada and ensure the next generation is interested in taking over the farm. Farmers' top priorities for government action include an increased focus on regulatory reform (72%) and reducing the total tax burden (66%). Almost half (44%) of farmers say an increased focus on industry research, development and innovation would also improve their competitiveness.

Other priorities include improving infrastructure (38%), increasing market access for Canadian agricultural products through international trade agreements (38%), lobbying for a reduction in international subsidies (37%), implementing policies to address labour shortages (35%), designing more responsive business risk management programs (31%), and increasing the focus on enhancing farm business management skills (27%) (see Figure 9).

Governments at all levels must work to build a healthy environment that fosters entrepreneurship and continues driving innovation and a vibrant Canadian agriculture sector.



## CFIB Agri-business Members' Comments

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

### Ag Services

*Sell eco friendly liquid fertilizers – success. Installed solar generator – partial success: HydroOne locked out the second unit. Vehicle fleet kept to most current models for fuel efficiency – success. Reduced tillage practices implemented – success.*

*Implemented automation in our production process. This has improved productivity.*

*New feed supplements - Negative: CFIA!!! Positive: positive results in the field.*

*Collecting used fryer oil and turning it into biodiesel. No till farming practices. Bringing natural gas well up to environmental standards.*

*We are recycling agricultural plastics, with no government intervention.*

*Adopted molecular techniques and incorporated new management practices. Had little uptake, industry too slow to change despite that this initiative could save a farm 100's of 1000's of dollars.*

*Set up remote monitored shutoffs and startups of our liquid manure pumping systems. Found few companies offering this type of technology for the ag sector.*

*We are focusing more on manure management and nutrient management. Also selling equipment that is more efficient and uses less fuel.*

*I am using GPS technology. Negative- Created more work for myself, harder to train employees. Positive- Better accuracy. Interesting. More efficient. Increased working days. Increasing production.*

*Our entire business is based on innovation. The equipment, the processes and even research in areas no one has ever investigated before. All to improve the health, safety & welfare of humans, animals and environment. The biggest hurdle is government sponsored agencies and representatives (Gov't employees) who are close to retiring that refuse to admit they have been giving wrong/old advice or just can't be bothered looking into newer methods.*

*We have developed machinery improvements and manufactured them which has led to a viable manufacturing company of innovative products that focus on increased safety, efficiency, and which are affordable.*

*Purchased new equipment with GPS technology to give better custom application practices.....stop overlapping of product.*

*We operate a drive-up feed store, where customers can purchase hay in small square bales. There is a need for this business due to the large number of horses in our area; however, the customers feel that the price of hay should be the same every year, despite astronomical fuel increases. We have also found it impossible to keep staff, as the kind of people we need are the ones we simply cannot afford. This means that we cannot expand the business, although we need to.*

*Developed new products for a specific segment of the market.*

*Implementing variable rate fertility plans has resulted in improved efficiency of fertilizer use (fossil fuels). Slow adoption of this technology.*

*Use of satellite imagery and VRI for efficiency.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## Ag Services, continued

*Use fuel efficient machinery to have less pollution.*

*We developed a new manure spreader, and had a horrible experience with Alberta Transportation. We lost them in the flood of 2013 as we used them to help rescue people from the rising flood waters. Don't have the capital or energy to deal with Alberta Transportation again to try and replace them.*

*I have fenced off dugouts and use a solar pump to water the animals instead of them walking into dugout and doing their business on their way out.*

*Certified organic products.*

*Reduced energy input when I adopted no-till crop production. I lowered production costs and achieved higher yields.*

*Biohazard material is now stored and then disposed at an approved site. Better for the environment, but can be difficult to have the room for storage for a period of time.*

*Went to natural feeds, no added minerals, vitamins, salt, medications, etc. We only use grain, oil seed, sugar, and pulse products. This had a very positive effect on our business as it cut Government paper work by 90%, and set our business aside from our competitors.*

*Certified organic - expensive but a must to distinguish from other products on the market and the way of the future of healthy food.*

*We are researching new grain and silage corn genetics to improve energy conversion.*

## Field Crop

*Adapting new technology for seed placement has been very trying at times. New ideas have a tendency to come along prematurely and require a great deal of time to implement.*

*We are attempting to grow non-traditional crops for our area. Sadly we get no support from any level of government for the risk that we are taking. In fact we are penalized under current risk management programs offered.*

*Overall we try to use good management practices, being careful with use of fuel/gasoline; using chemical sprays carefully and according to product recommendations for use.*

*Straight cutting canola to save time and fuel. It also increases yield and quality of crop. Yield increase is positive. Time and fuel savings are positive.*

*Selective cut on our woodland.*

*Zero till field operations, sowing less productive areas to permanent cover, no burning or removal of straw residue (all positive)*

*Participated in micro-fit program, producing green energy, it's been good for us and the environment.*

*We strive to use practices that are leading edge and reduce our working of land, reduce fossil fuels.*

*Introduced making and bottling Frizzante style wines to BC. Neg.: A lot of sourcing, equipment and knowledge, invested a lot of money and time. Huge risk involved. Needed to explore many new things. Pos.: Gained good market share.*

*Installed solar PV electricity production. Government red tape was a huge hurdle. Water efficient drip irrigation has proved to be very useful.*

*Purchase of GPS systems.*

*On our farm we were the first ones to try new grading technologies from Europe and are currently looking into automatic bunching technology from Germany as well. As minimum wage keeps increasing we need to get more efficient by automation.*

*We have tried to continue to be environmentally correct around drainage. Our municipality moved a ditch and did not follow the BMP's of drainage when completing the new ditch. Our province pushes water quality protection on farm owners yet let the local municipalities do otherwise.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## Field Crop, continued

*We have fundamentally changed the availability and the service level of our commodity to the retail grocery trade. This was well received in the beginning but now is being taken as the new normal so our competitive advantage is gone. There is no memory in large business today.*

*We recently had our land mapped for variable rate fertilizing and seeding. We intend to have slightly better yields by saving fertilizer where soils are already abundant and apply more to where soils are less fertile, trying to even out yield across fields so they mature more evenly for earlier harvests.*

*We established a fixed season price for our fresh asparagus which usually is determined on a daily or weekly basis depending on supply and demand. We incorporated this price setting 3 years ago and it has been very successful and all parties are pleased with the ability to plan without having to factor in the fluctuating price of the asparagus. In a fresh market environment this is innovative but the price has to be fair and profitable for all parties to work.*

*We have moved away from hazardous goods in our extraction procedures.*

*I was one of the first to adopt vertical tillage, allowing more surface residue from previous crops to prevent erosion, and allowing manure incorporation on light soils without covering all of the residue from previous crops. I have built my own tool, which has undergone many modifications to handle the extra loading and high speed of this method of tillage. I have also decreased fuel consumption compared to conventional tillage.*

*Trying to get access to certain chemicals to increase production, but regulatory system in Canada puts me at a disadvantage to the US farmer because they get access to stuff quicker and at a lower cost.*

*We are constantly trying new crops and varieties. Technology is changing at an incredible rate so we are always trying to stay ahead of the curve. We do many different trials on the farm and attempt to evaluate these changes before we make a huge shift on our farm to try to minimize the negative impacts.*

*We melt our own urea fertilizer to foliar apply it to the crop, thereby increasing the efficiency of the crop utilization requiring less N use.*

*Planted windbreaks of trees for conservation. Was ridiculed as a fool for planting trees on cropland.*

*Invested in a no-till drill (I know it doesn't sound innovative in a Canadian context, but in our local area, it is uncommon to non-existent) to give us the flexibility to reduce our tillage. It has worked well for us so far.*

*I have developed a product that will make seeds germinate and emerge more quickly than ever. I can't get any recognition for this product because it is readily available. No one knows the possibility of this product.*

*We are trying to go with cover crop seeding here in Eastern Ontario. There are unbelievably difficult hurdles with regard to the Growing Forward 2 program, controlled by the Ontario Government. There is adequate funding in the program but it is extremely difficult to get funding from the program.*

*Built an old style wood barn for photography attraction on the property of our garden market.*

*Purchased wind machines to lower the impact of frost and severe winter temperatures on our orchards and vineyards. Have kept up with the most up to date and innovative vineyard equipment i.e pre pruners and leaf strippers.*

*Certified farm through Zerofootprint organization to create a GHG neutral operation. Positive was that the process alerted me to the most important sources of GHG from farming activity.*

*Our business is the production of Pedigreed Seed Grains. The Canadian Seed Certification Program is the model worldwide. At a meeting in Winnipeg Feb 18th & 19th, 2014, the Seed Sector Value Chain round table's seed sector profile working group reported the estimated economic impact of the seed sector is \$5.61 billion. With some refinements to be made which will push that number higher. CFIA, without consultation with seed growers, has removed themselves from doing field crop inspections effective 2014. Putting this service in the hands of private companies and increasing the cost to seed growers by 300-800% or more. In the Maritimes there are situations of "conflict of interest" with inspectors. As well in the Maritimes there is no loss of jobs or retirements with the existing CFIA field crop inspectors. So there are really no savings in the Maritimes.*

*Developed bin securing system for apples on flat deck trailers. Our experience with SHRED was terrible.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## Field Crop, continued

*The educational elements of our retail on farm store. We remain open all year and our sales are always up year over year.*

*Implemented some on farm tile drainage. Has reduced risk (drowning out crop, can't get on the land) and improved efficiency by allowing better timely use of equipment. Negatives have been the poor perception and misunderstanding of tile drainage.*

*Have been into zero tillage since 1991.*

*We no-till all crops, grow non-GMO soy beans. Land clearing and drainage are big issues with municipal government and a lot of this work was put on hold when margins were tight, now legal costs outweigh construction.*

*Adopted no-till & the use of cover crops.*

*We were the first to grow pulse crops away back when. More people grew them later. We have GPS in all required equipment which reduces the overlap of spraying crops.*

*I am reducing my fertilizer use by increasing my soil health. My goal is to pass land to my kids that is going to be healthy for many years. It has been a positive experience.*

*Produce IP soys and receive premium for them. Started custom baling business 10 yrs ago and it has created extra income.*

*Built our own feed mill, saved operating expenses.*

*Trying to get solar energy put in. The negative about this is that the wind power has bought up all the spaces and now we are not able to sell to the grid.*

*Reduced chemical use for weed control, grain storage: empac is taxing these as an industrial tax; no-till planting uses less fuel, no erosion, healthy soil.*

*We have adapted/modified certain pieces of equipment to help us utilize cover crops in our operation.*

*Equipment fabrication and designs for our farm planting equipment for biofuel crop, planting, design and build. Negative----CRA R&D tax credits, reviewing projects and cutting down available claims.*

*I grow mostly specialty crops.*

*Variable rate fertilizer and fungicide.*

*Equipped our sprayer with SMART SPRAY technology so that the spray is directed to the target to eliminate drift.*

*Changed the format and packaging of our retail products. Was well received by consumers and has driven increased volumes.*

*Developed two new projects that will positively impact Ontario's overall economy. Negative experience: hard to find support and pre-financial options.*

*Use of local grown raw materials, development of new products from locally sourced ingredients. Too much government red tape on funding and grants.*

*Expanding aquaculture facilities and product line. Have had difficulty obtaining site licenses and organic certification.*

*Developed innovative processing techniques.*

*I think after 93 years of farming we came to the conclusion that our family should be out of it. We gave it our best but agriculture was not very kind to its producers over the years. We were lucky that our land was worth something at the end and we could keep some money for retirement but we have no gold plated pensions to for it as other members of our family got as teachers and civil servants. The Small Business Man in Canada pretty well has to sell his business if he wants funds to retire.*

*Fed and BC government Environmental plan certification program.*

*This is a privately held company employing more than 50 full time staff. Our objective is to increase sales by offering a value added service and superior seed to our customer. This is accomplished via innovation through enhanced genetics, traits and training for all.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## **Fruit, Vegetable and Horticulture**

*GPS steering for all field work to reduce overlap of tillage, planting, and spraying.*

*We developed a mix of small colored tomatoes. After we had it on the market for a couple of years the larger growers started to follow.*

*Switched from using primarily insecticides and fungicides to using biological controls such as insect predators and insecticidal fungi, nematodes and beneficial fungi.*

*We use biological instead of pesticides for bug control, we have solar microfit program, and we are in the process of changing all lights to LEDS.*

*Native plant nursery on 16 acres - successfully growing without water, filling a demand for better quality more drought tolerant landscape plants.*

*Water recycle in the operation with the help of the environmental farm plan.*

*We changed from fuel oil based heat to electric to save heating costs and protect the environment.*

*Growing as naturally as possible, with organic in mind.*

*Water Capture, implemented an IPM system, using organic fertilizers, recycling. Saving some money in certain area's spending it in other areas as some practices cost more.*

*We pursued new innovative ventures without help and we are out of capital and energy. Government programs tend to fund supporting industries. What we need is support for capital projects- new buildings, barns etc.*

*Innovation is too costly for a farm of our size.*

*Stayed in business in spite of astronomical wage increases thanks to the gov't minimum wage increases.*

*Since our government is out of touch with what is going on in the farming community we have decided to reduce the number of workers steadily by using the most modern technology available in fruit farming. We now have a harvesting machine with platform that can be used from pruning, thinning right through to harvesting reducing the man power by 30- 40%. In addition we are using a modern pruning system which further reduces the labour cost by another 40%.*

*Waterways in fields long before it became mandatory by government. Headlands of fields are sewn in barley to prevent wind or water erosion.*

*Investigated the possibility of LED lightning in greenhouse is not performing as expected.*

*We are converting to drip irrigation, away from overhead, to conserve water, as well as reduced pesticides as a result of this action. We are finding that we can reduce our fertilizer usage as well. Overall the cost increase is not totally offset by the savings yet.*

*Grafting to a new rootstock that is more suitable to the soil and environment in this climate.*

*We have come up with a way to reduce packaging on our young plants. We now are able to ship them without pots in recyclable boxes (no more waxed boxes). We can also ship about 15% more plants per truck this way.*

*Initiated a co-gen process to have less reliance on electricity from the grid. The costs of this is becoming an issue.*

*Our business is modeled on an exacting principal of excellence focused solely on what is unique about our farm. This direction was decided on as the best strategy to engage Ontario consumers in the idea of the uniqueness and excellence of wine produced locally.*

*We are working hard to recycle cardboards, plastics aluminum etc. We have purchased our own recycling machine which 'bales' the products and thereby diverting tons of garbage. We also put all new efficient lighting in all our packing barns and our store to reduce energy costs. We put in a high efficiency boiler with in-ground heating for reducing gas costs.*

*Have cut chemical use by 95%. Employees feel better about this and plants seem to grow better.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## **Fruit, Vegetable and Horticulture, continued**

*We hire out a pond vacuum cleaner for customers to clean their ponds. The positives: conserving water. Instead of draining their pond, they remove only 25% of the water, and some return the water back to the pond after filtration.*

*Built a sorting machine for plants – uses camera pixel technology to size plants for shipping.*

*We grow and use barley for heating.*

*When not growing plants we use the greenhouses for public events, such as farmers markets and weddings. Government regulation says poly greenhouses are for growing only, and should not have the public inside of them for any reason including purchasing plants. According to them, poly greenhouses are for growing wholesale crops only, no retail and no events!*

*Don't use fertilizer, we are using compost and compost tea.*

*Direct to market 12 month supply of potatoes.*

*Among other things, we placed solar panels on our barns to send energy back out on the system.*

*Wetlands filtration system for our irrigation water.*

*Working on how to heat our shop with a compost pile. In progress.*

*Added a screen for reducing the sun and heat in the summer above the building which operates on light level.*

*Planting a block of new pear varieties on a trellis system (4 wire) and planting on a 45 degree slant to encourage early fruiting. Seems to work up to now but the planting is only 4 years old yet. We are also purchasing a tractor mounted tree row hedger to speed up the pruning work = 30% of cost of production in tree fruits.*

*Sell as much as possible directly to customers/consumers. Work with nature, not against.*

*Developing new products that are not yet on the market.*

*We drip irrigate instead of watering overhead.*

*Build/construct as much equipment on the farm, as possible. Positive: more cost effective. Negative: takes time & patience.*

*Currently using recycled wood products in the form of pellets to heat the greenhouse.*

*Efficiency by buying machines.*

*Using a hoop greenhouse to extend the vegetable growing season. The Provincial Dept. of Agriculture has been very supportive of this. We also have a very proactive network for organic farms through ACORN organic in Sackville, NB. that allowed us to re-use equipment and keep costs down.*

*Developed a whole line of natural products as organic solutions for safe agricultural pest control for consumers and growers.*

*Purchased new diesel equipment which run cleaner, and we can put more product on one delivery.*

*Use of optical grading technology. This has increased productivity and lowered costs. This has increased grower returns.*

*Using returnable- recyclable containers to ship our product instead of using cardboard cartons.*

## **Livestock & Animal**

*Create temporary living snow fences for protecting public roads from drifting snow. No feedback yet.*

*On farm wind mill to produce power that is net fed into electrical grid. It off sets some power, but is not producing as much as was forecasted, thus payback is longer. But on the other hand roof top solar panels to heat water required for cleaning have worked very well cutting propane usage from an average of 17.9 liters per day down to 9.1 liters per day.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## **Livestock & Animal, continued**

*We have bought into polled genetics, and are trying to increase the number of cattle in our herd that will not have horns. It is a small market and will take several years to breed Holstein cattle that are good enough to keep.*

*We invest in leadership training, we pursue new or improved product lines through R&D initiatives, we commissioned surveys into emerging market trends to support our customers' development of their business. We are building sales into the Omega 3 market but it is very costly relative to short term payback.*

*Planted trees. Reuse wash water. Do less passes for field work, crop rotation.*

*Bagged some extra corn silage to help increase our feed storage for a year or two until we can afford a silo. Not expensive and easy to do, not as nice for unloading as having a silo, also takes up more space near barn yard.*

*Developed downstream marketing of internally developed value-added products. Better stability in income, some opportunities in expanded market opportunities. Poor appetite by lenders for investment in innovation. Poor trade access for value-added products internationally, although if TPP and CETA, and now potentially a FTA with Japan come to pass. Much too late for critical mass of production and processing in major sectors of ag and food though.*

*Imported technology and equipment from Europe to significantly reduce electricity and heating use.*

*Joined Ontario Landowners Association after realizing gov't representatives were trying to force people to cede their property rights to ministries & "arms length" organizations, such as OSPCA. As a result of fantastic research abilities of Liz Marshall we also discovered that municipalities "have authority over municipal assets only". As a result, last summer we erected a Tasco Dome without applying for a permit.*

*Using cover crops in field operations and less tillage. So far a positive change*

*Robotic milking.*

*We are cold pressing our own soybeans, ran into some problems when we tried to use the oil as fuel. Feeding corn crop via liquid fertilizer through sprayer going to put cows on bedded pack this summer and plan to experiment with different products to make the best compost pack.*

*We are the only 100% grass fed Dairy in Canada. Working with the Thompson Rivers University to do tests on the CLA levels in our products and Testing to see the benefits in regards to Vitamin K2.*

*Concerning our agriculture area only - We use no till seeding, no drift spraying, pasture rotation, crop rotation, and as little as possible summer fallow. In the farming industry we are unable to hire farm employees, because we cannot compete with the oilfield wages. We have also observed neighbours still using 1970 farming practices, which is very discouraging as we are the older generation, and don't see the younger generation progressing, due to high input costs, employee shortage, low crop, beef prices. As well as the inability to move crops to elevators for sale.*

*Installed water computers.*

*Last year we began tapping 1000 maple trees for sap and expanding each year until we reach 5000 trees. Sap is taken to another farmer who makes the syrup, but there is potential to start making our own syrup in next 2-3 years. This is a good working relationship with another farmer and opportunities for expansion.*

*We have been using manure samples and soil samples to effectively apply nutrients to the land. This has decreased our fertilizer usage and increased the area of land we cover with our own manure which has been a tremendous cost saving.*

*Purchased a remote control bale wrapper and it saves time, money and labor.*

*Use of robotic milking technology - more efficient use of hydro, more milk with less labor, and installation of irrigation system - makes better use of purchased fertilizer as rainfall can be timed/controlled to maximize effects.*

*Made new equipment to handle products.*

*Have switched to intensive rotational pasturing to minimize input costs for our bison herd.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## **Livestock & Animal, continued**

*We use heat recovery system from cooling milk to heating water before it gets to hot water heater, thereby reducing electricity usage.*

*We installed a manure separator/composter combo to recycle manure fibers for bedding. This has reduced our need for sawdust which in turn reduces the volume to spread. We are also able to target low phosphorus fields with the high phosphorous solids. Haven't seen anything negative yet other than the investment and a little extra time to manage the equipment.*

*Installed LED lighting to reduce electricity use. Did not see reduced electrical costs, possibly because of increases in electrical rates.*

*In 2013 we invested in a water treatment system to improve water quality for cattle. The system was difficult to set up, but after some hiccups the cattle are responding positively.*

*Reusing system wash water to flush cows waiting area. Heat exchanger to pre-cool milk before refrigeration, use warm water to supply cows.*

*Switched to no till farming. Was one of the first in the area now it is common practice. Injection of liquid manure into soil.*

*Use GPS for seeding, swathing and combining.*

*We have built a manure containment system to protect the environment from runoff.*

*Installed used oil boiler - had a hard time getting it insured and finding regulations about it.*

*Nothing out of the ordinary, just newer equipment and more efficient motors etc. the biggest thing is the cost of upgrading.*

*Going from conventional tillage to zone tillage and planting. Positive: less fuel, less manpower, less erosion, better soil structure. Negative: more weed pressure. Negative for others: Machinery dealer sells less equipment.*

*Built a composting facility. This has decreased pollution from incinerating and saved money as well.*

*Genomic testing, heifer's embryo transfer.*

*We shifted our calving to late spring. It allows us to utilize stockpiled grass for a winter feed source and sharply reduces our reliance on machinery and fossil fuels. It also virtually eliminates confined livestock and greatly improves the natural nutrient and water cycle on our grassland. The result has been a significant reduction in our inputs, both cash and unpaid labour.*

*Using bio composters for dead stock disposal.*

*Use of Tramlines to reduces tracks + overlapping. Use of Auto steer.*

*Bale graze cows in different paddocks instead of stacking bales and feeding them every day in the winter. Fed 250 cows for 75 days without starting a tractor.*

*Protected and enhanced the salmon on a stream passing our farm. Led to change in farming practice and water use.*

*Invested in machinery that is time, labour and fuel efficient.*

*Making better use of time; being more productive. When your next door neighbour cannot understand why farmers do what they do and complain to government and council.*

*Direct to public sales with on farm market, CSA, farmers market. Developed school tour program and agri-entertainment to attract families to the farm.*

*Introduced Mead (honey wine) as a value-added honey product in Alberta. Challenge has been to educate the public about this product and its benefits.*

*I'm creating a dairy setup that is very labour efficient while maintaining very high animal welfare standards. I believe that in order to be sustainable long term I have to be efficient and have the highest animal welfare standards possible. Positive is that it's profitable. Negative is with low outside help it can get very busy.*



Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## **Livestock & Animal, continued**

*The past 22 years we have tried to produce another product to diversify our farm. Market Gardening was this product, it was successful for the first 15 years, but once the provincial government started to introduce this form of agriculture approximately 7 years ago, I find that there became a "Glut" in our local market which stepped onto our "Toes". It was getting harder to market our product, in 2010 we closed our market garden and pursued our dairy further, which we are currently trying to increase for our son who is interested in taking over our farm.*

*Manure Storage areas. Upgrading old buildings.*

*Implemented a continuous improvement program in our facility that has had a tremendous positive result both financially and for employee morale.*

*Use of dual purpose cattle breed for on farm genetic improvement. Resulting in better animal health and longevity which lowers costs, thereby improving profit.*

*Install water bowls that do not spill water and then waste feed.*

*Range feeding and bale grazing cattle to cycle nutrients back to the fields that produced the feed. More sustainable with less fertilizer.*

*I have only been on my farm for two years and cannot afford to spend money on becoming more environmentally friendly. Even with Growing Forward 2 I still have to come up with half the money.*

*Alfalfa is cropped only once a season. During fall, winter and spring it is grazed. Hay bales are fed on these fields every three days, with surplus hay, straw and manure left on the field to encourage and sustain more growth and better roots.*

*Continued and increasing use of practice to leave more crop residue on soil surface - positives would be less soil erosion, better long term soil health.*

*We use a robotic milker to milk our cows. This allows us to be more labour efficient.*

*We have started using products in the manure to compost it. Our manure does not stink like our neighbours. Tests indicate it has more nutrients available, Nitrogen does not leach and is more available to plants, and mixing manure in the barn does not have that bad methane smell any more. Pluses - - less manure/acre, more available, less contamination to streams.*

*If a new product is on the market, we always consider if it is useful for us. For example we used SOP spray/powder in the free stalls to get less mastitis. This was a complete disaster. We have capacitors on every breaker panel and still use it. We use NEW water as a treatment for scours which is very effective, so that we don't need as much antibiotics. We considered solar panels on the roof to heat water for barn use, but in our opinion not enough saving to spend that much on the panels. When buying tractors we watch for tractors that use less diesel.*

*Diversify into a gravel business to compliment our farming cattle business.*

*The wind generator we put up was a disaster in the end. It is coming down because the repair bills are so high. A solar project will take its place.*

*Composting and selling manure.*

*Manure Nutrient Plans Grow specialized products. Expanding in further value added products.*

*Separating manure solids, composting them and reusing as bedding for animals. Also conducting animal care assessments to benchmark animal welfare outcomes.*

*GPS operated equipment which has reduced fuel consumption and minimized chemical overlap.*

*Digital controllers for control temperature in the barns. On the negative side, they are susceptible to power spikes/surges.*

*Built new buildings, use new technology, smart phones, farm mapping, use of field GPS.*

*Install Robotic milkers. Install a feed monitoring program. Main issue is lack of experience on the part of the dealers and the technicians.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

## **Livestock & Animal, continued**

*We have just put in more updated milking equipment and it is used but we have found that the cost was very high for what we got. There is little competition in the dairy services industry, so producers must bear the high cost and it is very hard for the younger farmers to justify the money for this equipment.*

## **Wholesale and Supply for Agriculture**

*We have doubled the size of some of the equipment we use, which eliminates two jobs and a third of fuel savings just to remain in business.*

*Recycle as much as possible as long as it does not cost us more time or money.*

*Produce & Broker organic grains now for 14 years. Sell full line of organic & liquid fertilizers.*

*In the operation of a seasonal, small garden centre, I have changed focus from large commercial centres to local growers for my product. This has allowed me to offer pesticide-free plants, native species and indigenous plants. In turn, this will impact bees, butterflies and other beneficial insects and offer economic support to my community.*

*We started a twitter page and web page.*

*Created our Mission and Vision statement along with our Company Promise, Consulting with Business Consultants and being a part of a master mind group that helps in business and dealing with certain issues arising. This has been a very positive experience. Asking for help sometimes is hard to do for some people so we have learned to do that more and more and search out like minded people.*

*Developed natural feed ingredients which reduce the need to use antibiotics. Positive is areas of feed industry which had adopted the use of the products. Negative is the delay by the CFIA for registration purposes.*

*Selling "safe" Health Canada approved (after 5 years of [red tape]) - sanitizing and disinfecting equipment. Most/all chemicals supplying agri- businesses are holding the farmer ransom. By telling the farmer if they do not buy chemicals from them then they will not get service (we know this is not following the anti- competition laws set out but who is going to contest it?)*

*Implemented a bar code inventory control system, products are scanned in and out of the warehouse.*

*We have tried to sell plants that don't come in plastic pots. This fails because consumers don't want to get their hands/cars dirty, which is ironic because you have to get dirty to plant.*

*We recycled 95 percent of all the products we use. Diverting approximately 2 thousand bags of garbage from our local landfill.*

*We were early adapters to precision farming.*

*Installed energy curtains in greenhouses. 40% heating savings. Payback in 2 years.*

## **Other**

*Fuel conservation.*

*Evaluation and adoption when applicable of new veterinary medical techniques, pharmaceuticals and treatments as we learn of new initiatives in the industry. Staying current with professional development and continuing education opportunities for all levels of staff in the organization. Some clients embrace the new right away and some are hesitant to try.*

*I do hay stack grazing when wintering my cattle; this is similar to bale grazing (new management practice) but uses loose Hesston hay stacks (old technology) that require no plastic twine or net wrap and can be put up tougher because they convection dry themselves rather than getting moldy as tight damp round bales will. The farmers who I have talked to have commented that it is a good idea if you are feeding hay near where it is put up (which is ideal in many ways).*

*Use green energy products.*

*We are looking into the use of robotics in our processing plant. Too early to comment on how this initiative will work out.*

Please give an example of something your business has done that you consider to be innovative and outline any positive or negative experiences you have encountered in pursuing this innovation.

### **Other, continued**

*Using infra- red cameras for calving... allowing us to have no yard lights on during the winter months. Saving electricity.*

*We farm organically and use non- polluting chemicals which are hard on the environment as well as humans.*

*Using state of the art new equipment.*

*Launched a plastic recycling program for our customers to take advantage of at no cost to them. Feedback was positive but actual participation has been poor. So - it's a nice "feel-good" thing but reality seems to be a bit different in terms of people's willingness to be involved.*

*We dug a large dugout to collect runoff water. We use this water to water our plants, flush toilets, etc. We also have cisterns to collect roof water. Works well.*

*Put water heating solar panels for our domestic water. Started taking down old fence lines so deer etc. can cross easier. Seeded some land into grass so no inputs etc. are put on land.*

*DEF for our trucks and it has been a terrible experience.*

*Aeration of run- off wetlands.*

*Use GPS for planting which increases yields therefore reducing the amount of land or crop inputs to get the same result.*

## State of Agriculture Survey Tables

Figures 1, 3, 4, 7

What are your overall plans for your agri-business during the next 3 years? (Select as many as apply)

	(% response)
Adopting new innovative technologies and practices	51
Expanding size of operation	44
Maintaining current status	30
Adopting value-added initiatives	25
Transferring business to a family member*	24
Diversifying into other commodities	22
Hiring more employees	21
Specializing operations (e.g. organic)	12
Downsizing operation	10
Reducing number of employees	9
Transferring business to a non-family member*	5
Other	3

*\*Note: the total percentage transferring a business in the next three years is 28 per cent (Figure 7). Some respondents selected they plan to transfer their business to both a family and non-family member, see table below.*

Figure 8

What are your overall plans for your agri-business during the next 3 years? (Select as many as apply)

	(% response among the 28% indicating they plan to transfer their business in the next three years)
Transferring business to a family member	83
Transferring business to a non-family member	15
Transferring to both a family member & non-family member (Selected both plans options above)	2

Figure 2

Which of the following does your agri-business currently use? (Select as many as apply)

	(% response)
The Internet for information, products and/or services	81
Public sector risk management tools (e.g. AgriStability, Crop Insurance)	59
Training for myself and/or my employee(s) (e.g. certifications)	52
Consulting services	51
Detailed annual budget	28
Private sector risk management tools (e.g. futures/options)	24
Specific annual profit targets	22
Written business plan	20
Written succession, retirement plan	19
None of the above	5

Figures 5 &amp; 6

Which of the following actions has your agri-business taken to help protect the environment? (Select as many as apply)

	(% response)
Invested in equipment, machinery, or vehicles, that are more energy-efficient and/or environmentally friendly	63
Improved management of hazardous products, e.g. transporting, storing, disposing of products such as chemicals, manure or waste	61
Protected water sources or waterways	60
Adopted energy conservation practices	56
Preserved forests, trees, green-spaces, pasture, etc.	44
Reduced usage of fossil fuels	34
Sold or produced environmentally friendly products	24
Protected endangered species/wildlife habitat	22
Used green-energy technologies, such as bio-fuel, wind or solar power	18
Other	6
None of the above	5

Figure 9

Which of the following government actions would help your agri-business improve its overall competitiveness? (Select as many as apply)

	(% response)
Increase focus on regulatory reform, reducing regulation and red tape	72
Reduce total tax burden	66
Increase focus on industry research, development, and innovation	44
Increase market access for Canadian agricultural products through international trade agreements	38
Improve infrastructure (e.g. roads, railways)	38
Lobby for a reduction in international subsidies	37
Implement policies to address labour shortages	35
Design more responsive business risk management programs	31
Increase focus on enhancing farm business management skills (e.g. marketing)	27
Other	14