



organic

overview



What Is Organic Farming?

Organic farming is a method of sustainable agriculture based on long-term ecologically and environmentally sound practices. Its general principles are based on protecting the environment and its practices in minimizing soil degradation and erosion, decreasing pollution and optimizing biological diversity and productivity.

Organic farming strives to optimize the health and productivity of the interdependent communities of soil, plant and animal life. Management practices are carefully selected with an intent to restore and then maintain ecological harmony on the farm and in the environment.

In Canada we now have national standards that define organic agriculture and the food produced under this system. The question 'Can it be done?' is no longer relevant today. It is being done. Today, the appropriate question is 'How can I do it?'

What Is Organic? - And - What Is Organic 'Not'?

When discussing what organic is, most people focus on what it is not. In some ways, yes, it is accurate to say what organic is 'not' since, to a great extent, it entails, 'not' utilizing many inputs that conventional farming practices use on a regular basis. In brief, organic farming does not, for example, use synthetic fertilizers, pesticides, herbicides, irradiation to preserve food, intensive feedlots for livestock or genetically modified organisms or genetically engineered seed/stock. But organic is far more than this.

In order for an organic farm to be certified and to function properly, organic farmers 'must' employ conscientious management techniques, such as well-designed crop rotations, replenishment of organic matter, use of green manures and composting.

These techniques are designed to help build the soil, enhance organic matter and encourage optimum soil health.

What does 'Certified Organic' Mean?

'Certified Organic' assures the consumer that three basic criteria have been met:

1. production has met regulated standards;
2. a yearly inspection has been passed; and
3. an audit trail has been kept.

Standards

'Certified Organic' assures the consumer that the product has been produced according to regulated standards, which include, as stated above, production without the use of synthetic fertilizers, pesticides, herbicides, sewage sludge, irradiation to preserve food or genetically modified organisms or genetically engineered seed/stock. Livestock are not subjected to intensive feedlots, nor to antibiotics, medicated feed or growth hormones. Farmers also judiciously employ management techniques such as well-designed crop rotations, replenishment of organic matter, use of green manures and composting.

Certified organic practices assure the consumer that production has meet national organic standards regulated through certification agencies. While specifics may change between certifying bodies, Canada has national standards that define organic agriculture and the products produced under this system and certifying bodies will assure at least this minimum is maintained.

Many certifying bodies maintain standards higher than the minimum qualifications required in Canada and maintain standards equivalent to or higher than international standards as well. For more detailed information regarding standards, refer to the Canadian General Standards Board and the various certifying bodies listed in the Resource Guide.

Inspection

When a product is labelled 'Certified Organic' the consumer can trust that there has been a carefully monitored transitional period on the farm/production facility during which all organic standards have been met or exceeded and that each farm/production facility is certified each and every year thereafter.

Farms can lose their certification if they fail to meet any one of the standards. Certification would be reinstated as soon as the inspector and the certification board were satisfied that problem has been resolved and the standards maintained. Inspection is carried out by trained, independent inspectors who can, for example, request that the grower provide soil, water and plant tissue tests.

Audit Trail

'Certified Organic' products must have an audit trail to ensure that a product can be traced back to the producer and to the records detailing how that product was produced.

Why Support An Organic Food System?

The Power of the Consumer

Why support an organic food system? It's a very reasonable question with several practical answers. Today's consumers are increasingly aware of the important role they can and should play in influencing the world around them.

Issues such as health, the environment and economic growth are on the platform of most every government body. Why? Because it's important to the public. The public wants accountability and they want solutions, especially when the issues are the environment or public health. Outbreaks of disease among livestock, contamination of public water supplies and the destruction of marine habitats leave the public asking why and asking for solutions.

The power of the consumer and of the voting body is enormous. In asking ourselves what can be done to protect the environment, health and indeed make a living, we often feel burdened by a task that's seemingly insurmountable. How on earth can we make a difference? Organic agriculture tackles this issue at some of its most basic levels, allowing the consumer to influence future decisions in government through a simple purchase. Consumers, along with their purchasing dollars and their votes can make a difference.

The desire for economic growth often sabotages changes that would benefit the environment and public health; however, even governments now acknowledge that organic agriculture may offer the greatest chance of any form of agriculture for economic growth tied to environmental protection and sustainability. These changes are, in great part, a result of public pressure and by organic farmers demonstrating that "It can be done."

Environmental Protection and Sustainability

Environmental degradation such as soil erosion, deforestation and contamination of waterways are increasingly in the media and increasingly a problem. Unfortunately, agriculture can and does have a great impact on all of these issues. Utilizing sustainable agricultural practices can minimize the impact of farming on the environment and attempt to enhance the ecosystem.

In many ways, organic farming returns to the most basic of principles: reduce, reuse and recycle. Organic farming seeks to protect and enhance soil, water and air quality while at the same time reducing energy utilization and waste. In the end, organic farmers respect, accommodate and try to encourage biological diversity. The consumer can influence future decision-making by supporting organic farmers, whose methods respect the integrity of the ecosystem.

Economic Sustainability and Growth

Organic farming has been developed to be economically sustainable for both present and future generations. Conventional farms tend to have higher average annual gross incomes; however, net income, after expenses are deducted, tends to be higher on organic farms.

The profitability of organic systems is largely dependent on labour costs and product price. Labour costs are usually higher on organic farms. However, 'total crop production costs' are usually lower on organic farms.

Yields can be as high or higher than average conventional yields over the long-term; however, in the short-term, yields on organic farms tend to be lower than the average conventional yield. Benefits of organic agriculture, like better soil health and higher prices for organic products, tend to offset short-term losses due to lower yields.

The most difficult financial time for an organic farmer is during the transition from conventional to organic farming (discussed later). Experience and market demand, however, increase the financial payback in the long-term and diversification on the farm makes it easier to weather market fluctuations.

In terms of economic growth, according to Agriculture and Agri-Food Canada, Canadian organic retail sales are expected to increase at an average of 20% through to at least 2005.

At this time, almost all Canadian organic products are exported, unprocessed, to the United States, where they are in turn processed and resold to other markets. European and Japanese markets are Canada's next largest buyers of organic products. These three markets are likely to provide the most interesting and lucrative international markets for certified organic products from Canada in the future. It should be noted that most retailers and processors in Atlantic Canada import certified organic products from outside the region. This suggests that there is large and more immediate demand that growers could meet.

Public Health

Fresh food is, by its very nature, of the highest quality. Unfortunately, food is often transported from one geographical region to another at a great expense to the environment. To prolong its shelf life and attractiveness, products are often treated with artificial preservatives, additives, colourings and coatings, many of which are known to be harmful to human health.

health

By supporting organic farming, we protect our health both directly and indirectly. By consuming products grown organically we can assure ourselves that we are not consuming products produced with harmful or potentially harmful chemicals like synthetic pesticides, fertilizers and herbicides. Organic farming also allows us the possibility to choose not to consume products that contain or were produced using genetically modified/engineered organisms and products.

We also protect our health indirectly when we support organic farming by protecting the environment. Organic farming practices take care not to spoil local water supplies but instead strive to protect them. Organic farmers also work to preserve the integrity of the soil and soil communities and to protect air quality. Reductions in energy expenditures and waste production promote a healthier environment altogether.

Organic food producers prefer to sell their fresh produce in the local market, to present the highest quality food to the consumer and to avoid the excessive use of fossil fuels in transportation. Since organic certification standards prohibit the use of synthetic chemicals, artificial preservatives and additives, the consumer can purchase these products with confidence.

Product Labelling

The issue of product labelling has been brought to light in recent years due to public concern (particularly in Europe) regarding the use of genetically modified organisms (GMOs) in food. The reluctance of companies to include a full list of ingredients (including GMOs) on labels is symptomatic of the problems encountered by today's well-informed consumer. Though there is much discussion and research currently being conducted regarding the potential health and environmental dangers GMOs may present, this is currently a question of ethics. Does the consumer have a right to make a complete and informed decision regarding the food they eat? The view of the organic farmer is, in a word, yes.

Labels on certified organic produce are required to include a full list of ingredients, including the name of the certifying body. This recognizes not only the consumer's right to be able to trace the produce back to the individual producer but the producer's willingness to fully disclose their production processes.

Genetic Engineering

'Certified Organic' products have no genetically modified organisms (usually termed GMOs) or genetically engineered (GE) seed or stock included in their production or processing. Genetic engineering, of the sort referred to, entails the transfer of genes or genetic material from one species into another species, usually using a viral vector. In genetic research, this type of genetic movement is referred to as horizontal gene transfer.

The market place already has many products that contain GMOs. Many crops, such as corn, have been conferred with insect-resistant genes found in certain bacterium. Such transfers of genetic material are not possible through traditional plant and animal breeding systems.

While most evolutionary geneticists concur that horizontal gene transfer can and does occur between unrelated species in nature, the release of genetically modified organisms into the environment could potentially harm species and their ecosystem. It is almost inevitable that genetically engineered organisms created for agriculture will come into contact with wild species. Crosses between wild and genetically engineered stocks provide unknown effects to the surrounding ecosystem. The potential consequences to human health are also unknown at this time.

National and international organic organizations have taken the stand that these potential risks are too great, particularly given the ability for successful production without these techniques. They have taken the position that GMOs are not to be utilized in organic farming until they are scientifically and indisputably proven safe to human health and the environment.

Preservation of Rural Life

As large-scale agricultural production continues to make it increasingly difficult for small-scale farmers to maintain economic viability, more and more small farms are going out of business each year. In Atlantic Canada, the disappearance of small farms is occurring at an alarming rate. As small farms disappear, so do the time honoured traditions and culture of rural life.

The small farm, requiring moderate rather than excessive financial investment for land and machinery, is the backbone of rural existence, yet the small conventional farm can have a very difficult time staying afloat today. What can be done? The smaller but more diverse organic farm should be able to weather the long-term economic storm with greater ease than the conventional farm, allowing for the continuation of a way of life, of rural living, that many cherish.

These farms can make a viable economic and social contribution to the community while offering a significant value-added element, organic production is environmentally sustainable. Today organic farms are injecting another economic element, tourist growth. Each year more visitors seek out organic farms for their health, the environment, education and the simple pleasures of spending time in an environmentally friendly farm setting.



Research

Organic farming can and is being done and its practice shows that there are sustainable methods of supporting economic growth while protecting the environment, human health and producing food. The more knowledge we acquire, the better prepared we will be to deal with the long-term difficulties faced the world over due to destruction of the environment. Canada has a vast amount of natural resources and pristine habitat compared with many other developed countries in the world at this time. These are commodities and treasures alike and we should protect them. By developing our knowledge surrounding organic production, we can move to the global forefront and demonstrate that sustainable agriculture can be attained with the benefits of economic sustainability and protection of our environment and public health.

At present, farmers themselves conduct most organic research. With the strong convictions held by most who enter organic farming, knowledge gained is readily taught and passed on to others. Cooperative movements, networking, new publications, etc. are all making it easier to pass this information on. Still, with few resources, the current knowledge base is small, compared to where it should be, and there is still much to be learned. Increased support from governments and research institutions would make a great difference in encouraging more farmers to make the transition to organic farming and in educating the public.

Going Organic - What Does It Take To Be An Organic Farmer?

Commitment and Learning

Organic farmers typically view themselves as students and stewards of nature, attempting to emulate the effectiveness of existing natural systems and using them to their benefit for food production. Organic farmers can also be, and often are, entrepreneurs, business people and researchers, yet all of these are also rooted in development through sustainable methods. Learning these methods requires time, effort, astuteness and overall commitment.

Protection of the Environment

Organic farmers, while producing a product, must strive to protect the environment, not just in part but in its entirety, including protecting air, water and soil quality. When practised correctly and with care, the farmer can maintain the health of the environment.

Caring for the Soil- Understanding the Importance of Soil

The basis of organic agriculture is that the soil is a complex, living ecosystem in its own right and that protection and nourishment of the soil aids in the development of strong and healthy crops. The soil is not just a medium in which to grow crops, but a living organism. Organic growers, therefore, place paramount importance on practices which restore and maintain the optimum health of the soil. These methods recognize that plants are equipped with their own internal systems of defence against pests and disease. When these systems are strong, thanks to a healthy growing environment, they need little outside help. From soil to crop, crop to animal, the quality of agricultural stewardship affects the whole chain.

Maintaining and Increasing Biodiversity

The biodiversity of any ecosystem is its key to long-term stability, including the agro-ecosystem. Organic farming is practised with the maintenance and improvement of biodiversity, within the soil, as well as on the land and in the air and water, as one of its main premises.

Recycling

Organic production entails trying to reduce the amount of energy expended in essentially every step of production, including transportation, handling and bringing food to market. When possible, organic farmers try to be self-sufficient, to recycle and reuse materials from the premises to promote a healthy ecosystem.

Care for livestock

Organic livestock must be raised and cared for in ways that promote their health and behavioural needs. To attain this, organic feed, properly structured shelter, careful handling and monitoring and access to fresh air, water and exercise are all necessary. Such practices have been found to produce superior products from those animals.

Maintaining organic integrity of goods

Organic goods must, of course, be produced following the strict guidelines of the certifying body, assuring the consumer that proper organic practices have been undertaken to produce the goods.

Organic Certification and Standards

Certified organic farmers grow their produce according to specific standards, are inspected annually by a third-party agent for compliance and must provide producer identification on their labelling. The 'audit trail' they are required to maintain as part of the certification process provides the means for the consumer to trace the produce back to the farmer, 'from fork to field'.

Certification guarantees that organic methods were used in production, but it cannot guarantee the product is free from chemical contamination. Contamination may occur indirectly through drift of spray from a neighbouring conventional farm (despite buffer zones), or from careless handling between the producer and the retailer. The importance of the consumer voice cannot be understated in order to protect the reputation and, indeed, livelihood of the organic farmer, by urging agricultural and environmental policy-makers to encourage a general move from conventional to organic farming, and by encouraging retailers to carry and respectfully treat certified organic produce on the shelf.

What is organic certification?

Organic certification is a validation process administered by a certification body (CB) to verify that a product is being produced according to an organic standard. Farmers are often in contact with the certifying body for some time prior to applying for certified status in order to obtain information and assistance regarding standards and transition. During this transition period, the farmer seeks to bring the farm or production facility up to the certifying body's standards. (Both of these are discussed in more detail later.) When the farmer feels sure he/she has attained the standard required for certification he applies to the CB for certified status. The process typically involves a written application, a visit by an independent third-party inspector to assess the farm, review of the inspector's report by a certification committee, and approval or denial of certified status by the certification committee.

All certifying bodies refer to an organic standard which outlines the authorized methods and materials for organic production of crops and livestock. In some cases, certifying bodies also certify processing facilities, in which case they also have a standard of authorized methods and materials for processors. Most standards are quite similar in content. The basic unifying principles of all standards are that the farming techniques used should be sustainable and soil-building and that no synthetically-produced, fertilizers or pesticides have been used for at least three years. The Canadian General Standards Board published the National Standard of Canada Organic Agriculture in June 1999.

Do I need to be certified organic?

At present organic certification is a voluntary process; however, the Food Labelling Act does include a definition of organic, which technically restricts the use of the term "organic" in the marketplace. Whether you need to be certified or not, at this time, depends in large part on the market you wish to attain.

When products are directly marketed from the farm gate or at farmers markets, a relationship of trust and respect develops between the producer and the consumer. In these cases, the word of the producer may be enough of a guarantee for the consumer that the product was produced using organic practices.

It is when products are not marketed directly by the primary producer that certification becomes most important. Certification becomes necessary to assure consumers that a third

party has verified that the product was organically produced. The further removed the product becomes from its point of origin, the more important certification becomes. More and more consumers are requesting organic products, and buyers and distributors require this proof to sell the products. Buyers and distributors from outside of the province often require certification of products as organic, and exports to other countries almost always need to be certified by a recognized organization.

The Organic Certification Process

Once you have decided that you would like to become certified organic, the following steps should be taken:

1. Contact the Certifying Bodies (CB) that interest you and request information from them. Choose an organic certifying body. This choice should be based on the following factors:
 - Your market - Some CBs are officially recognized within their own province, or region, but not in other provinces. You should make sure that certification by your chosen CB will be recognized in the regions where you sell.
 - Fees - Each CB requires fees which usually include a membership fee, administrative or application fees, and inspection charges.
 - Organization services - Some of the CBs in the region provide services to their members including newsletters and educational programs; others operate purely as certification bodies and do not provide additional services.
 - Organic standard - Although most CBs use very similar standards, there can be minor differences. You should check the standards used by each CB to make sure that their standards fit the criterion you'd like to attain.
2. Once you have chosen the CB you'd like to certify with, request copies of their application forms, along with information on deadlines for application.
3. Study the organic standards carefully and make sure that your operation meets all the criteria before applying for certification.
4. Fill out your application and submit it to the CB along with the required fees before the deadline.

The Certification Committee of the CB will review your application and either:

1. Reject it due to some obvious non-compliance with the standard;
2. Contact a third-party inspector and ask him/her to set up an inspection visit; or,
3. Return it with a request for clarification or additional information.

An organic inspector will visit you in order to review your application with you and inspect your operation. Be prepared to show all aspects of the operation to the inspector including machinery, product storage, soil and water tests, bookkeeping system, crop and livestock records, etc.

Some CBs require that applicants attend workshops or certification meetings. The organic inspector will submit a report to the Certification Committee¹. This committee reviews the

1. Some CBs require the inspector to make a recommendation i.e. approved or not approved. In other cases, the inspector only reports areas of non-compliance with the standard.

report and makes a final decision on whether the operation will receive certified organic status. In some cases, the inspector may recommend that certain documentation or changes at the farm level are required before certification is granted. In this case, the Certification Committee may grant certification on a conditional basis. In other cases, certification will not be granted.

You will receive a complete copy of the inspector's report. This should be carefully reviewed and any suggested changes and criticisms taken seriously. In subsequent years, copies of previous year's inspection reports will be reviewed to ensure that recommendations have been followed.

Conversion/Transition to Organic Farming/Production

The conversion from conventional to organic farming is commonly called the transition period. Transition, in many cases, entails a significant restructuring of the farm and, thereby, a great deal of commitment from the farmer. All certifying bodies require at least a three-year transition period before land that has been under conventional management can be considered organic.

While many farmers may be anxious to make the change as quickly as possible, a gradual transition is recommended. A slow change will allow the farmer to build their own knowledge base while at the same time reducing drastic alterations in productivity, thereby reducing financial strains. It should be kept in mind though that during transition, many

farmers do incur higher short-term expenses. Field-crop yields may drop initially, while organic systems of soil fertility management, such as crop rotation and manure composting, are perfected. Just as it takes us time to adjust to changes in diet, it takes time for soils and crops to adjust, and drastic changes are most likely to incur difficulties and reduced yields.

Dr. David Patriquin (a researcher from Dalhousie University) studied a transitional farm in the Annapolis Valley of Nova Scotia and reported declines in yields of up to 50% in the first year of conversion.

Since the crop is not marketable as certified organic for the first three years of conversion, there may be an economic cost to the farmer due to yield reductions and the lack of a premium price for the product. In the long term, crop yields should approach or equal average yields in conventional systems.

Thankfully, organic farming is no longer something that you have to go into alone. There are many organic organizations today, locally, regionally, nationally and internationally, that can be great resources for information on organic farming.



Courses, conferences and various reading materials are becoming more frequent and available and organic farmers are often prepared to share their knowledge with others. For further contacts, check the Resource Guide in this kit.

Economics of Organic Systems

Organic farming is developed to be economically sustainable for both present and future generations. A University of Guelph study investigated the economics of seven organic and nine conventional farms in Ontario. The bottom line? While the conventional farms had higher average annual gross incomes than organic farms (\$246,476 compared to \$126,526), net income, after expenses were deducted, was higher on the organic farms (\$22,048 compared to \$5,830). Even when crop yields on organic farms were lower than conventional yields, similar gross revenues were generated from the crop due to the premium price received for organic products in the marketplace. Another interesting conclusion of this study was that organic farms would be better able to withstand future fluctuations in the economy because they are diversified and less reliant on purchased inputs than conventional farms.

The profitability of organic systems is largely dependent on labour costs and product price. Labour costs are usually higher on organic farms due to the reliance on mechanical weed control methods rather than herbicides. However, 'total crop production costs' are usually lower on organic farms because of reduced expenditures for inputs, such as synthetic fertilizers and pesticides. Organic livestock farmers also report that their veterinary bills are almost non-existent due to the improved health of animals raised in organic systems.

Table 1: A University of Guelph study comparing some economic factors on organic and conventional farms.²

Factor	Organic	Conventional
Average farm size	378 acres	653 acres
Length of crop rotation	9 years	4 years
Corn		
Weed control costs	\$49/acre	\$40/acre
All other production costs ³	\$72/acre	\$156/acre
Yields	organic equal or better than conventional	
Gross revenue from corn	organic higher than conventional	
Fall grain		
Weed control costs	\$21/acre	\$12/acre
Yields	conventional higher than organic	
Gross revenue from grain	both systems equal	
Overhead expenses	\$43,994/farm	\$95,010/farm

2. As reported in Stonehouse, P. 2000. Economics of pesticide use in Canadian agriculture. Eco-Farm & Garden, Canadian Organic Growers. Summer Issue.

3. Includes seed, fertilizer, and insecticides, and labour and machinery excluding weed control.

As seen in the Guelph study, while, for an experienced organic farmer, yields can be as high or higher than average conventional yields, for the most part yields are lower than the average conventional yield. This is highly dependent on what is being produced and yield is generally lower during the transition period. High premium prices for organic products tend to offset losses due to lower yields.

The most difficult financial time for an organic farmer is during the first 3-5 years of transition from conventional to organic farming, when yields drop and the premium price of an organic product is not present. Farmer experience and market demand increase the financial payback in the long-term. As mentioned, diversification on the farm makes it easier to weather market fluctuations and hardy organic crops, which tend to have higher pest and disease resistance, also tend to weather environmental fluctuations better than conventional crops.

At present, organic prices fluctuate widely but over time, as more organic farms develop and products are available, this should stabilize. Cooperative movements, government and the collaborative nature of most organic farmers should help to stabilize the market through education and development of both the farmer and the market.

Scope of the Industry in Atlantic Canada

The organic food industry in Atlantic Canada has made great strides recently and has gained the necessary momentum to begin building a comprehensive infrastructure. Greater consumer education and commitment to health and the environment have led to major shifts in government policy, and support from both the public and the government have allowed for the development of organizations, such as the Atlantic Canadian Organic Regional Network (ACORN), whose main goals are in supporting and developing the organic industry.

The organic industry in this region can be summarized as follows:

Organizational Support

The following organizations can help new growers find the support they need to enter the organic food industry in Atlantic Canada.

Canadian Organic Growers Association (COG)

COG is Canada's national information network for organic farmers, gardeners and consumers. One of their primary resources is the quarterly publication *Eco Farm & Garden*, which is included with the annual membership. COG also has an extensive mail-order library which is free to members.

Atlantic Canadian Organic Regional Network (ACORN)

ACORN is a regional group that has set out to consolidate all resources and stakeholders in the organic food industry in Atlantic Canada, to build a comprehensive organic food infrastructure and to increase the viability of Atlantic Canadian family farms and their communities.

Certification Bodies and other Provincial Groups

There are four active certification bodies in Atlantic Canada as well as a provincial organic group in Newfoundland (see Part III-Organic Resources).

Government Support

There are government organic specialists in both PEI and New Brunswick. In addition, the provincial and federal governments are creating programs to assist with the development of the organic agriculture industry (see Part III-Organic Resources).

Production Base

There are well over 100 certified organic growers in Atlantic Canada. Production capacity in this region can easily increase as the current production base cannot fulfill demand.

Materials and Equipment

There are several new outlets for organic materials in the Atlantic region. Finding good sources for equipment for small-scale organic production in this region is more difficult. It is available, to a limited degree, from other parts of North America and from Europe.

Distribution Capacity

At present there are few well-organized organic food distribution networks. Growers generally supply markets directly. This system is not ideal for the grower or the retailer. New distribution channels are currently being explored and developed.

Markets

There are many new markets being created for organic produce, which makes good distribution of organic products more critical. These markets include:

- Farm gate
- CSAs (consumer supported agriculture networks) and greenbox programs (subscriptions to weekly home deliveries)
- Farmer's Markets
- Specialty Retail Stores
- Chain Grocery Stores
- Regional and out-of-region processors
- Restaurants
- Export markets

The organic industry in Atlantic Canada is diverse and developing at a rapid pace. With the demand for organic products increasing regionally, nationally and internationally at the frenetic pace it has attained of late, each new grower becomes an important part of this growing industry.

What Is The Market for Atlantic Organic Food Products?

The potential market for Atlantic Canadian organic products is massive. Environmental and ecological problems today are moving organic agriculture to the forefront of solutions worldwide, and are increasing demand for organically produced products at incredible rates. According to Agriculture and Agri-Food Canada, Canadian organic retail sales are expected to increase at an average of 20% annually, from \$0.7 billion in 1997 to \$3.1 billion by 2005.

In 1999, there were some \$500 million worth of farm cash receipts for the industry in Canada, totalling about 1.5% of agriculture's total farm cash receipts. With an average annual growth of 20% for the organic industry, it is expected that the market share will increase to approximately 10% of the Canadian retail market by 2010.

Internationally, Canada is already one of the top 5 producers of organic grains and oilseeds in the world, with a retail value of approximately \$1 billion. At this time, almost all Canadian organic products are exported, the majority as unprocessed product sent to the United States where it is in turn processed and resold to other markets. This fact alone leaves a space in the Canadian business place to be filled. European and Japanese markets follow as Canada's main buyers of organic products. Together, these three international markets are likely to provide the most interesting and lucrative markets for certified organic products from Canada in the future.

The agri-food industry is recognizing the potential of organic markets and are themselves producing organic lines of products. The H J HEINZ Co, for example, has produced a line of organic baby food since 1996 and in 1999 Gerber Products Co released a line to compete with Heinz. This change in consumer demand has created numerous market opportunities. Organic milk is also in high demand in the US, with sales rising 94% in 1997. Growth at such a scale has created demand for organic feed for dairy cattle, further developing the industry.

In the Maritimes there are currently multitudes of organic market opportunities that are not being fulfilled locally. The Speerville Mill, near Debec NB, imports a substantial amount of the organic wheat, spelt and soybeans, as they are unable to source the product locally at this time.

Recently, about 7% of the dairy farmers in Maine have converted to organic production. It's little wonder when they are receiving a 50% premium for their milk (\$21 V.s. \$13.5/cw). The majority of the grain ration utilized for dairy feed is imported from Quebec, Vermont or the Western US. As demand increases for organic animal products, the organic feed market will also grow.

Consumer demand and economic forecasts have convinced the Atlantic Provinces grocery store chains of Sobeys and Atlantic Wholesalers (Superstore) to renovate most of their outlets in the region to house sections specifically for organic and/or natural food products. These sections carry organic products from all over North America. Local products are on the shelf beside products which could be produced locally but are imported due to a lack of source in the Maritimes; for example organic chicken and eggs are brought in from Ontario.

The Pulsifer Report (1999) spoke of a potentially large market in the New England States and forewarned that the Atlantic industry should start producing for this market right away or face competition from outside the region. This is currently happening. The markets are developing and product is coming in from outside the region. Atlantic producers need to act quickly to supply these markets or face losing them to producers from other regions.

In the fast-paced economic world that we live in, timing is everything. The easiest way to enter a market is to be the first one there. Demand for organic products is increasing world-wide but this does not leave room for complacency. Organic production is growing at a furious pace and many governments, for example Switzerland, are making incredible progress in switching farmers to the more environmentally sustainable methods of organic agriculture. Atlantic Canadian farmers, with the newly developing markets, and initiatives and assistance from organizations and the government, have an incredible opportunity to enter this burgeoning market.

Examples of Typical Organic Farms in Atlantic Canada

Market Gardens

Probably the most common organic operations certified in the region are market gardens. These can range in size from less than an acre, to 15 or 20 acres. In many cases, these market gardens have a small number of livestock such as a flock of chickens and a few goats, sheep or cows. The livestock provide manure for the fields as well as meat, milk and eggs for either home-use or the market.

Crop rotations, green manures and composted manure are used to maintain soil fertility. Before planting, the soil is prepared by forking the soil by hand, roto-tilling or discing the soil using a small tractor. The crops are then planted by hand in raised beds or rows.

Many market gardens have attached or unheated greenhouses used for starting seedlings. Untreated seeds are used and most gardens grow a wide range of heirloom and exotic vegetables. Greenhouses, cold frames and row covers are used to extend the growing season. Floating row covers are also used for pest control throughout the season. Market gardens are very labour intensive. Weeding is done by hand or through hoeing and possibly mechanical cultivation. Mulches like straw, leaves and seaweed are also used to reduce weed competition and protect the soil.

Crop rotation is practised even in small gardens. Garden crop rotations are often quite complicated due to the extensive number of crops and the susceptibility of vegetables to pests and diseases. A well-designed crop rotation ensures that related crops are not grown within several years of each other, and that crops with high nutrient demands are only grown once every four or more years. Companion planting is also common in market gardens, with more than one type of vegetable grown in a bed, and flowers or green manures grown with vegetables.

Market gardeners have many innovative approaches to marketing. Many of them have tables at local farmers markets and some market to health food stores. Some even provide weekly vegetable delivery services. In-roads are also being made at local supermarkets, such as the Superstore and Sobeys, which now house sections specifically for organic products.

Almost all of the farm families have an outside income, with one or two members of the household working at other jobs. Most market gardens do not hire labour but sometimes take advantage of unpaid labour (apprentices or WWOOFers) in exchange for providing a learning experience and room and board.

Mixed Farming - Field Crops and Beef or Meat Production

Many farmers of mixed farms in Atlantic Canada have been able to make the transition to organic farming profitably. A typical mixed farming operation in this region might grow a variety of field crops and produce certified organic beef or lamb.

Livestock are fed only certified organic feed, preferably produced on the farm. Beef farmers generally use older, hardier breeds like Herefords and Angus, which can be finished on grass. Rotational grazing systems are used to control parasites and manure is managed to conserve nutrients. Beef cattle or sheep, if housed in the winter, are usually bedded on straw and the manure composted before spreading in the field. This reduces weed seed, parasite and pathogen levels. Health problems on certified organic livestock farms are dealt with by using alternatives to antibiotics and de-wormers. Rotational grazing, homeopathy and herbal remedies are common approaches.

The crop rotation used on a mixed farm might be, for example: three years of hay, potatoes, winter wheat/oil radish, oats/peas under seeded with hay (6-year rotation).

There is a growing market for organically produced grains and meat in the region. Good quality winter wheat can be sold to flour mills for human consumption. Lower quality grains can be marketed as organic feed. Vegetables are often marketed to an organic market gardener for sale at local farmers markets, while certified organic meats are commonly marketed at the farm gate.

Free-range chickens

There is a growing demand for free-range chicken meat in the marketplace today. Many types of organic farms, both crop and livestock, include meat bird production as one of their enterprises. Chickens are a supply-managed commodity and free-range chicken producers (whether certified organic or not) must therefore obtain a license from the marketing board which allows them to produce this specialty product.

Most farmers producing certified organic chickens use meat birds purchased from a conventional hatchery. These chickens must be fed 100% organic, non-medicated grains from the time they are acquired at one day-old. Many farmers do not produce their own chicken feed and had to, until recently buy certified organic feed from Ontario.*

For most organic producers, meat bird production is a seasonal activity since free-range chickens must have access to pasture and fresh air, when seasonally appropriate. Many producers use mobile chicken houses for this purpose, which house about 30 birds and are moved around in a pasture once the birds have feathered out. After only eight weeks, conventional meat birds raised in this system can be slaughtered and will dress at about 4 to 6 pounds. If larger birds are desired, they can be raised longer. In most cases, the birds should be slaughtered in a government-inspected slaughterhouse in order to satisfy regulations surrounding the sale of poultry.

Certified organic chicken meat is often marketed in health food stores and at farmers markets, while farm gate sales of organic chicken are also a common marketing approach.

*An organic feed mill, operated by Pioneer Organics, is now up and running, a first for the Atlantic Provinces.

Examples of Typical Organic Food Processors in Atlantic Canada

Organic processors must undergo a certification process similar to that of organic farmers. They often have other, special considerations though and must undergo inspection from various government agencies as well as the organic certifying body.

Maritime Soycraft

Maritime Soycraft, located in Antigonish, Nova Scotia, produces certified organic tofu. This small scale, family run business adheres to organic processing standards. Not only must the processing plant meet the standards of the organic certifying body, it is also inspected by representatives from the Quality Evaluation Services section of the Nova Scotia Department of Agriculture and Fisheries and by the Canadian Food Inspection Agency.

Production utilizes pure well water, which is filtered and treated with a UV light, rather than chemically treated. Biodegradable cleansers, including vinegar, are used to sanitize equipment. Parts treated with bleach are carefully triple rinsed. Finally, an artificial wetland has been developed to treat wastewater from the facility. Production also entails the use of certified organic soybeans, which are brought in from Ontario.

Maritime Soycraft tofu is marketed through all the major retailers and health food stores in the Maritimes as well as via private buying clubs and through direct sales to individuals.

Speerville Flour Mill

Speerville Flour Mill (a cooperative of growers), located in Debec, New Brunswick, utilizes locally produced conventional and organic grains to produce flour and other products. Because of the combination of organic and non-organic production, care has been taken to develop an operation which maintains the integrity of their organic products. The mill carefully tracks the origin of each shipment of grain that arrives at the mill and notes the producer's name and the organization that certified the grain. The movement of products through the mill is tracked using an audit trail system.

Careful separation is a must. Separate grain bins are used for organic and conventional streams of grains and only approved sanitation and pest control products are used in the mill.

Speerville Mill markets its products through health food stores and supermarkets. A significant portion of the Mill's sales also occurs via "food buying groups." These are groups of consumers who get together to order in bulk. Such orders are delivered to a central location in the food buyer group's community and then divided up among the members.