

# Martime Certified Organic Growers

## ~ Organic Farm Profiles ~

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## Organic Cash Cropping – Cereals & Soybeans

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This profile is part of a project coordinated by the Maritime Certified Organic Growers Cooperative (MCOG), with financial assistance from Agriculture and Agri-food Canada's CARD program. The information contained in this profile was obtained from interviews with regional organic producers over the past two years, and from the author's personal experience.

### Cash Cropper

The term is not commonly used in the Maritime Region as most of the region is deficient in grains with the exception of PEI. It is common in the US and other parts of Canada. Essentially for the purposes of this profile, we will define a cash cropper as a farmer who makes a living producing and selling the seeds or grain of various types of crops. These are normally cereals (wheat, oats, barley, rye and spelt), pulse crops such as peas and soybeans as well as others such as buckwheat, oilseed radish, and forage seeds.



Organic cereal production—opportunities in the Maritimes.

### Land Base

If considering organic cash cropping, the type of land available will determine the types of crops to be grown. Ideally, flat, fertile, sheltered, well drained land would be preferred and would have the fewest restrictions as to crops and cropping systems one could use on such land. The more severe the factors such as slope and fertility, the more limiting the land will be for cash cropping.

### Production

Organic cereal production is presently very limited in the region. There are a few producers who grow organic feed grain for their own feed use, a small acreage is grown to supply local mills and bakeries and a small tonnage of soybeans has been grown for a local tofu business as well as export. There is also a limited acreage of organic grains grown for the local animal feed market. This market is developing and will develop quickly as the animal industry develops, specifically dairy and poultry. I believe presently there is an opportunity for people considering organic cash cropping as the local market in the region is strong. The production of organic cereals and cash crops differs significantly from conventional production methods and should be attempted on a small scale at first as there is a significant learning curve associated with such practices.

### Transition

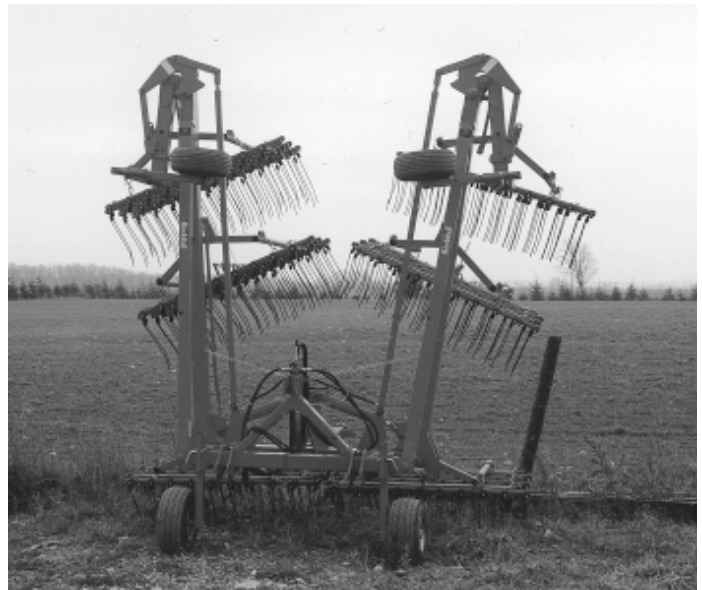
All farm land which has been conventionally farmed will have to go through a 3 year transition period before the land can be certified for organic production. During this period only organic production techniques can be used. None of the crops grown during the transition period can be certified. There are options for such grains though. The Healthy Grains group in Quebec has set up a system where transition cereals can be purchased for a modest premium

over conventionally grown cereals. In Quebec they have set up an inspection system to oversee such a program. Some countries allow transition cereals as a percentage of the ration when supply of organic certified crops is not available and during a period of severe weather conditions such as drought.

Ideally one will convert their farm to organic production over a 4-7 year period. There have been producers who have converted the whole farm at once, (one has to admire their determination) but anyone I ever met who did this would not recommended such a drastic conversion. It is during the transition period when one will learn first hand what they are up against with organic production methods. One of the key components of any organic production system is planning and using past field history to identify possible problems which can be dealt with prior to planting the crop and not realize after the crop is well established that it may not be harvestable due to weeds, disease or cultivation problems. Example: If a field is know to have a weed problem such as couch/quackgrass and you plan to grow milling wheat. Then it is critical to remember milling wheat does not compete well with perennial grasses and it will make combining very difficult especially in a fall with a high precipitation. If perennial grass is a problem, deal with the problem and then use the field for milling wheat. If one is not able to get good control of the couch/quackgrass then an alternative such as winter rye should be grown in such fields. Rye tends to inhibit couch/quackgrass and is so competitive it will simply out grow the weeds. During the transition period try various combinations of crops and cover crops with the goal of developing a crop rotation(s) which suit the farm.

## Rotation

Crop rotation development takes much more time and experience in an organic system as the farmer has to “Develop a sequence of crops and cover crops so that each leaves the field in condition favorable to the next crop.” The conventional farmer chooses a crop for a field and then selects the various herbicides, and pesticides to manage the crop thorough the season. The organic system does not have such options. When developing rotations for cash cropping first consideration has to be given to the cash crops to be grown and the frequency they can be grown in the rotation. Other factors include weed pressure in the fields, cover crops used to protect the soil over winter, production of nitrogen via plowdown crops such as red clover, when fertility will be added, any need for animal feed and the overall soil building potential of the rotation.



Mechanical finger weeder for cereals.

## Fertility

Cash cropping systems are often lacking in soil fertility. In order to achieve the yields suggested a source of fertility will be required. This can be compost, plowdown crops and straw, crabmeal, potassium sulphate, other products from the sea such as kelp and waste products from the fishery, various animal manures from local farmers and other amendments. The rules concerning importing manure will vary depending on the certifying body and the source of the manure. The OMRI manual allows raw manure if applied 90 days prior to crop harvest and not applied directly to the edible portion of the plant. One alternative with liquid manures is to apply them to a growing fall cover crop such as oil radish, thus allowing them to be incorporated into the soil system via a plant.

## Establishment

### Soybeans

Soybeans require a firm level stone-free seed bed. Plant 7-inch rows if the field is clean or 18-inch rows if cultivation is needed. Plants will emerge 2-3 weeks following planting depending on soil temperature. Use rotary hoe 10-14 days post-emergence. Depending on weed pressure, continue rotary hoe until beans are 8 inches high. Use in-row cultivation when plants are higher. Harvest is normally mid to late October. Yield can be equal to conventional beans depending on soil fertility and growing season. One should aim for a yield of 1 tonne per acre.

## Cereals

Plant cereals 1.5 inches deep in a firm, level seedbed. Plants will emerge in 7-10 days. Blind harrow just prior to emergence. Use weeder harrow when at the 3 -4 leaf stage. Harvest August through September. Yield can be equal to conventional cereals depending on soil fertility and growing season. One should aim for a yield of 1 tonne per acre.

## Challenges

There will arise many challenges which never were much of a concern in a conventional production system and ones to which a immediate pill is not available. Other growers and specialists will be a major source of information and support when the challenges seem daunting. Ideally each organic grower should have access to a local grower group which meets monthly. Such groups are very valuable and an excellent learning and sharing opportunity for all involved.

### Weed Control

The biggest challenge to organic field crop production will be weed control in all crops but potatoes and corn. Both these crops have severe pest pressure and will require specific equipment and expertise to be grown successfully under organic practices in this region. As mentioned weed control begins before the crop is planted both via field cultivation/ preparation and an understanding of the limitations of the particular field. Annual weeds must be dealt with immediately; once they become established they are difficult to kill.

Perennial grasses are best handled with fall cultivation. Once the crop has been harvested the field should be chisel plowed with a set of S-tyne teeth with 7-inch wide sweeps attached to the tyne. The field should be swept at a 3- to 4-inch depth. Sweeping the field will pull the grass roots to the surfaces, where they dry out or are unable to get reestablished before winter and die over winter. This also germinates the combine losses which produces a green manure cover crop for the winter. This is an extremely effective method for controlling couch/quackgrass when carried out on a regular basis in a rotation. If one is adding compost, it works best to add it in the fall and chisel it in. This allows the compost to become part of the soil system, which in turn allows the soil to feed the crop when planted in the spring. In the spring the field should be cultivated when the soil is ready to be worked and the crop planted. If there is severe annual weed pressure a harrowing and several days of fallow followed by a second harrowing will kill these weeds. Don't delay planting, as the earliest planted spring grain will have the highest yield. Spring cereals will emerge 7-10 days following planting. One

should inspect the field on day 5 or 6; if there is weed pressure then the field should be blind harrowed. There are many harrows which will do this job; a spike or leveling harrow works as well as any. Harrow the field just prior to plant emergence. The crop should then be left until the plants reach the 3rd-4th leaf stage. When the crop reaches this stage a second field inspection will tell one whether there is need for more cultivation.

Growers use many types of harrows to cultivate the cereal crop at this stage. Specialty weeder harrows, rotary hoe, spike and S-tyne cultivators are used for weed control cultivation. Weather is a factor at this stage as warm, dry days are needed for the harrowing to be most effective. Some harrows if used in damp dull conditions will do little more than transplant the weeds. Following this harrowing, the crop will look poor and one would think they have ruined the crop. Do not despair; I have seen people harvest up to 1.5 tonnes of grain per acre using this method. If one has a particularly noxious weed, then handweeding should be considered if the numbers are not too high. Traditionally wild mustard/radish was one which parents and grandparents hand weeded successfully on many farms. Another very effective method not often used in this region is flame weeding. This requires specialty equipment and is quite expensive due to the high use of propane. There are new flamers in Europe which use much less fuel, but they are not readily available in this region yet.

## Markets

Crops can be grown for animal feed, human consumption or seed purposes and sold locally, regionally as well as exported.

### Regional Milling Markets

Speerville Mills in Debec, NB is a locally owned cooperative which mills and sells a full line of cereal products using wheat, oats, rye, spelt, buckwheat, and lesser amounts of other crops. Their market for organic products has grown at a rate of 30% annually in recent years. They prefer to purchase locally grown certified grain but cannot at present supply their need with local product and are importing from upper Canada. They purchase wheat, spelt, oats and rye and pay up to \$500 per tonne for the various cereals. Spelt and milling wheat demand the highest price.

On PEI there is an old gristmill in the western part of the province, but it is not very active at present. There are also plans to start a mill on PEI capable of processing 30 tonnes of certified organic cereals per day; this could be a great market for locally produced organic cereals.

Maritime Soycraft in Antigonish, NS, a certified tofu producer, does buy local soybeans and is presently enjoying high demand for their product. Their projection for 2002 is a requirement of 100 tonnes of soybeans. To the best of my knowledge such tonnage is not available in the Maritimes.

Local organic bakers within the region are purchasing certified cereals and often are required to import their needs as local supply is unavailable. The small bakeries generally do not have much storage space for grain and prefer to purchase smaller tonnages. When they import such amounts the cost is very high due to transportation costs to haul partial tonnages from Ontario to various parts of the Maritimes. The supply of milling cereals to a local bakery can be a niche market for a cash cropper; the farmer can receive higher than market price while still saving the bakery money.

### Feed Market

In 2001 Pioneer Organics in partnership with Master Feeds of Kensington PEI was able to get the feedmill in Kensington certified to produce and handle organic animal feeds. This is a boost for the region as prior to this all organic feeds were made elsewhere and imported as complete feeds. Pioneer Organics is now purchasing organic feed when they can find it locally. They also are importing feed from Ontario and other areas outside of the region to meet the Maritime needs. This makes the price of feed grain landed in the region quite high when compared to the local Ontario price due to the extra trucking costs. As the organic animal industry develops in the Maritimes, especially the dairy industry, it will increase the demand for organic grain and protein feed thus creating an opportunity for the organic cash cropper. To produce organic milk and eggs you need a quality source of energy and protein, which at present requires the importation of certified product. The current price for feed wheat is \$275 a tonne and for feed soybeans is \$500-600 a tonne.

### Export market

The only crop grown for export in the Maritimes is soybeans. There have been Maritime soybeans exported to Japan in recent years. The export and tofu markets for soybeans have experienced very strong prices ranging from \$500-\$800 per metric tonne. Presently it is not feasible to export cereal grains from the region as they have to be trucked to Ontario for export. An export market available to organic farmers in the St. John River Valley is the feed market in Maine. Maine has 7-10% of their dairy farmers converted to organic production mostly for economic reasons. These farmers generally grow their own forage and purchase most of their grain ration. This has led to a market for organic feed

grains in Maine and a real opportunity for organic cash croppers in Carleton and Victoria counties of New Brunswick, as they are only two hours from this market. This market is presently paying \$300 per tonne for cereals and \$700+ per tonne for soybeans.

## Equipment

The specific equipment required will vary depending on soil conditions and the crops to be grown. The following is a list of what would be needed to produce most cereal and pulse crops in the Maritimes: mouldboard plow, chisel plow, harrows—many and varied types, rotary hoe, roller, broadcast fertilizer spreader, seed drill, and combine (the access to a combine is essential for a cash cropper as the crop has to be harvested when ripe, especially if for human consumption).

## Recommended Reading

Organic Farming by Nicolas Lampkin (Farming Press Books, UK). A well written book on large scale organic farming. Excellent reference whether or not one has animals.

Bio-Dynamic Agriculture by Koepf, Pettersson, and Schaumann (Anthroposophic Press, NY). Another good all around book for large scale organic farming; presents the information with some emphasis on Bio-dynamic methods.

The Art of Natural Farming and Gardening by R & A Engelken (Barrington Hall Press, Iowa). Story of how a 500-acre Iowa farm prospered for over two decades using organic farming techniques.

Organic Field Crop Handbook published by Canadian Organic Growers (COG, Ottawa, Ontario). This handbook was recently revised and is a practical field crop reference.

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