

**2015 ACORN Conference & Trade Show  
Delta Prince Edward Hotel, Charlottetown, PE**

**Workshop Title:**

An Innovative Organic Sweet Corn System for the Maritimes.

**Speaker:** Josee Owen

**Executive Summary:**

In their work comparing high and low intensity organic crop rotations, Jose and her collaborators developed a method for successfully growing a profitable crop of organic sweet corn.

**Detailed notes:**

Sweet Corn was grown at the Bouctouche research farm as part of a high intensity rotation being compared to a low intensity rotation. The study was focusing on squash production but through that considerable work was done developing a method for growing organic sweet corn and assessing it's feasibility.

**Challenges of organic sweet corn:**

It is very difficult to establish corn as the untreated seeds are susceptible to rotting and seed corn maggot. Two seedings of corn were attempted with zero success. Corn prefers warmer temperatures, the seeds germinate at 10°C but resurgence of cold temperatures can set the crop back.

Another challenge is obtaining sufficient fertility for good production. Corn is a heavy feeder and it can be difficult to understand how organic fertilizers and amendments become available to plants.

Additionally, weeds must be controlled or yields will be affected, however there are benefits to having the biodiversity supplied by these plants.

**System:**

After trial and error a high input but effective system was developed.

- 1) Red Clover that had been previously established is mown.
- 2) Clover is zone tilled where corn is to be established, leaving the clover between the rows to grow back.
- 3) High quality certified organic compost sourced from Cardwell Farms is spread in the tilled zones.
- 4) Drip tapes for irrigation and fertigation injection systems are installed.
- 5) A layer of biodegradable plastic mulch is applied (Bio 360). The rolls of mulch had to be adapted by cutting them in half to allow the clover between the rows to grow. The mulch acts to suppress weeds (and clover) in the immediate vicinity of the plants, warms the soil, and assists in the mineralization of red clover debris.
- 6) Corn is transplanted into the rows. After two failed attempts at seeding, robust transplants were grown in greenhouses, hardened off, and then transplanted into the field. Good temperature regulation is important for seedlings (use heat mats). It is also important to use a cell that is not too big and to get the timing right so that seedlings do not outgrow the cells. Cultivars used were Montauk, and Bon Appetit.
- 7) Corn is fertilized using with Nature's Nectar organic liquid fertilizer (5N-0P-0K, and 5N-4P-5K) through drip irrigation. Up to 10 times per season.
- 8) The clover between the rows had to be cut down using a whipper snipper, mid-season.
- 9) Pest control: corn is susceptible to the corn earworm, corn borer as well as army worms, cut worms, and wildlife. At the research site there was only really trouble with Corn Earworm. This was treated using a zea-later to inject ears with a mixture of Entrust and corn oil.

**Other Considerations:**

There was a concern that with such high input production that some excess nutrients, especially nitrogen would leach out of the system. Suction lysimeters were used to test the water for residual Nitrogen and it was found that Nitrate was concentrated at the 15cm depth range, which is about right to be available to crops.

**Cost Assessment:**

A detailed analysis of the costs was done including investment in specialized machinery in year 1, and without those startup costs in subsequent years. In the first year costs and revenues balanced if corn was sold at \$9 a dozen and in following years showed potential revenue of over \$11,000 but potentially organic corn could be sold for more. It is noted that 75% of the costs were just in getting to stand establishment, which creates an uneven distribution of risk. In conventional production, costs are distributed more evenly through the season.