

Article 22-2

The Science of Organic Agriculture in Canada

**Lead Researchers:**

Dr. Kevin Allen, University of British Columbia

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Industry Partners:

Carmen believes that research is needed to be able to learn how to innovate and stay on top, especially for small and medium scale producers

ABOUT THE ORGANIC SCIENCE CLUSTER

This bulletin reports research results from the Organic Science Cluster program which is led by the Organic Federation of Canada in collaboration with the Organic Agriculture Centre of Canada at Dalhousie University. Organic Science Cluster 3 is supported by funding from the AgriScience Program under Agriculture and Agri-Food Canada's Canadian Agricultural Partnership (an investment by federal, provincial, and territorial governments) and over 70 partners from the agricultural community. More information about the Organic Science Cluster Program can be found at,

www.dal.ca/oacc/OSC.

Eat More Organic Sprouts

Organic Science Cluster II
Activity C.24

Sprouts are a popular low-calorie, nutritious food, which unfortunately have been responsible for outbreaks of foodborne illness. If seeds are contaminated with disease-causing microorganisms, such as *E. coli* O157:H7, *Listeria* and *Salmonella*, the microbial populations can surge during the sprouting process and continue to grow during storage. In conventional production, concentrated chlorine is commonly used to disinfect seeds before sprouting. However, in organic production, chlorine levels of rinse water cannot exceed the maximum levels for safe drinking water. Stronger concentrations are not permitted for organic farmers due to occupational health concerns and concerns over the safety of residual chlorine in food products.

In Organic Science Cluster (OSC) II (2013-2018), researchers and industry partners searched for an organic approach to seed disinfection. In Activity C.24, Eatmore Sprouts and Greens partnered with researchers to test a variety of disinfectants – and discovered a simple organic solution that is more effective than chlorine!

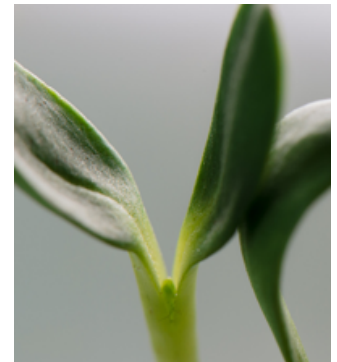
The Organic Solution

Nearly ten years after the start of the study, OSC reached out to Carmen Wakeling, co-owner of Eatmore Sprouts and Greens Limited, to learn how the research has affected her business. The OSC researchers used a variety of organic treatments disinfect seeds before sprouting. **They found that a mixture of hydrogen peroxide, acetic acid, and hot water was actually more successful at disinfecting seeds than chlorine.**

The organic treatment led to an increase in alfalfa sprout yields by 25-43%. Before using the treatment, one pound of seed would produce seven to eight pounds of alfalfa sprouts. Now, one pound of seed produces ten pounds of sprouts. The research verified that the organic treatment effectively disinfects seeds without a negative environmental impact.

The Yields from Organic Research

Eatmore Sprouts and Greens is now able to sprout more Canadian seeds than before, including alfalfa, Canadian garbanzo, lentils, peas, radish, and clover. The seed treatment destroys pathogens linked with foodborne illness and also microorganisms that cause plant disease. The treatment led to higher germination rates allowing Eatmore to use seeds that were previously unsuitable for sprout production due to poor germination rates. Also, sprouting time is shorter and sprout quality has improved (although these might also reflect improvements in plant breeding). Since participating in the research, Carmen has shared the OSC results with other sprout growers through the International Sprout Growers Association, the US Sprout Safety Task Force, and Sprouts and Microgreens Canada. She also taught staff at two facilities how to use this organic alternative to chlorine, and this research contributed to a change in American policy regarding the use of chlorine treatments. The Organic Science Cluster research has been instrumental in validating that this organic treatment is effective at killing pathogens.



The use of the organic treatment has led to an increase in alfalfa sprout yields by 25-43%.

