



Welcome to ON Organic

Evan Elford, New Crop Development Specialist, OMAFRA

As we celebrate the harvest season this month, I hope you have many things to be thankful for and lessons to reflect upon from this year.

We hope you enjoy this month's edition of ON Organic with information about the effects of high somatic cell counts on fertility in dairy cows and an update on no-till organic trials for vegetable production systems.

As always, we want to hear from you! Are there livestock, crop or business management issues you are facing or would like to learn more about? Please let us know so we can address it for you (and others) in an upcoming newsletter!

We welcome your comments and any suggestions for topics in the newsletter. Thank you once again to our contributing authors and to EFAO, OCO and others who pass along our newsletter on a regular basis.

Subscription to this newsletter is easy and no cost. For details go to the webpage:

<http://www.omafra.gov.on.ca/english/subscribe/indx.html#organic>

The newsletter is also posted on the OMAFRA website at:

<http://www.omafra.gov.on.ca/english/crops/organic/news/news-organic.html>

The French version of these newsletters is available at:

<http://www.omafra.gov.on.ca/french/crops/organic/news/news-organic.html>

The OMAFRA Organic pages are linked from:

<http://www.ontario.ca/organic> and <http://www.ontario.ca/biologique>

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Black Plastic: Is there a Viable Organic Mulch Alternative?

Evan Elford, OMAFRA New Crop Development Specialist

Black plastic mulch is widely used in the production of vegetable crops due to its effectiveness as a weed barrier, capability to conserve soil moisture and ability to warm soil temperatures in spring. Although it is permitted in organic production, the question of using a product which creates non-biodegradable waste is of concern to many organic producers. Early forms of biodegradable films were developed to address this concern, however due to poor performance in early years and restrictions on starch based feed stocks (e.g. Genetically Modified Organism starch) by organic regulations, many producers continue to use plastic mulch. The quality of biodegradable films has improved in recent years but growers and researchers are still exploring other options for organic farms, including organic no-till systems, in order to find management strategies that benefit the whole biological system.

Research supporting organic no-till options for vegetable crops is still in early development. The system is termed 'no-till' but it should be clarified that it is actually a rotation based on reduced tillage and the use of cover crops to build soil health and manage weeds. The Rodale Institute located in

Pennsylvania, USA outlines three fundamentals of organic no-till: "1) soil biology powers the system, 2) cover crops are a source of fertility and weed management, and 3) tillage is limited and best described as rotational tillage." (Feeser et al., 2014). In 2009, the Rodale Institute received funding to study alternative no-till options to black plastic mulch in vegetable crop production systems. Results from their three year study (2010-2012), including replicated trials and on-farm experiences, are summarised in a free resource entitled "Beyond Black Plastic: Cover Crops and Organic No-till for Vegetable Crops" and is available on their website at http://rodaleinstitute.org/assets/SARE_BeyondBlackPlastic_20140401.pdf.

The treatments investigated during the study were based on cover crops which were terminated with one of three methods: a) tilled one month prior to application of black plastic mulch; b) use of a roller-crimper; or, c) mowed. Tomatoes were the representative vegetable crop used in the replicated studies. Figure 1 outlines the 9 mulch and termination treatments used in the study.

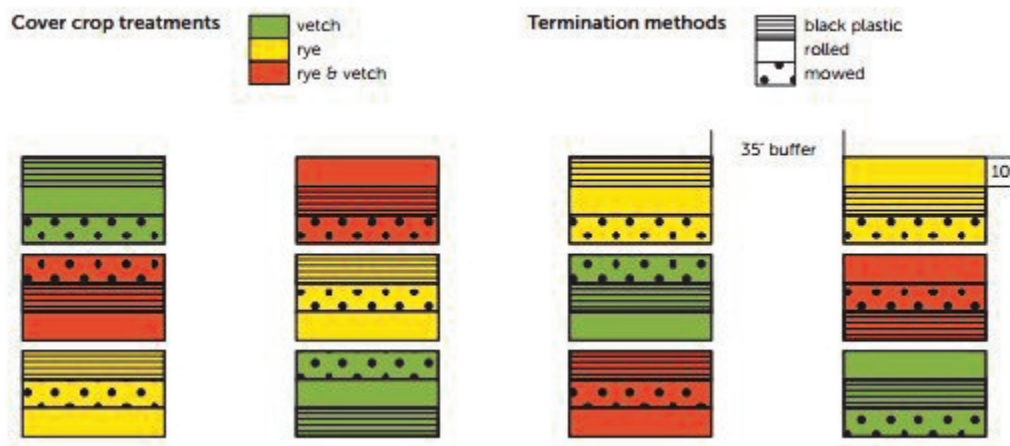


Figure 1. (from Feeser et al., 2014): Cover crop treatments used for organic no-till vegetable crop study consisting of vetch cv. 'Purple Bounty' planted at 39 kg/ha; rye cv. 'Aroostook' planted at 188 kg/ha; and rye-vetch mix planted at 106 kg/ha (78 kg rye:28 kg vetch).

Black Plastic: Is there a Viable Organic Mulch Alternative? (Cont'd)

Data on weed biomass, tomato yields (total and marketable), cover crops (biomass, carbon input and nitrogen input), soil moisture, soil temperature and other parameters were collected in each of the three years of the study. Weed biomass and tomato yields will be the focus in the remainder of this article.

Weed Biomass

Weed Biomass was recorded four weeks after tomato planting in each of the three years. Data recorded in 2010 and 2012 were taken in the planting bed and in paths between beds, whereas data recorded in 2011 were only taken in the planting bed. Variable results were observed across the three years, possibly due to differences in data collection methods as well as environmental effects. Overall, the black plastic mulch treatments were the most consistent in suppressing weeds. However, the rye/vetch mix and individual rye and vetch cover crops terminated with rolling performed better than the cover crop treatments terminated with mowing.

Yield

Tomato yields were recorded once or twice per week as harvest dictated through the growing season. Only total yields were recorded in 2010 and the highest yields were obtained in rolled and mowed treatments of all organic mulch types.

In 2011 and 2012, total yields and marketable yields were recorded. Marketable yields of tomatoes were approximately 20% lower than total yields in the 2011 growing season. The highest marketable yields were obtained in black plastic mulch treatments followed by the rye/vetch mixture that had been rolled or mowed. Marketable yield in the rye/vetch mixture

(rolled or mowed) was approximately 70% of the black plastic mulch marketable yield.

In 2012, severe late blight reduced marketable yield to 23% of total yield across most treatments. Vetch treatments terminated by rolling or mowing exhibited the lowest yields of all treatments. No significant differences were observed between the other treatments.

Summary

Results were variable over the three years of this initial study and therefore a longer term analysis should be considered for organic mulch treatments.

Initial outcomes from this study suggest that organic mulch mixtures (e.g. vetch/rye mixture) terminated through rolling may provide a reasonable alternative to black plastic mulch for weed management in most years.

In order to obtain acceptable weed control, the Rodale report suggests using cover crops that produce 6.5-9 tonnes of dry matter per hectare in order to have enough biomass for weed suppression after termination. Additionally, cover crops with a Carbon-Nitrogen ratio of 20:1 or higher should be considered as they will break down more slowly, thus providing longer weed suppression through the growing season.

References

Feeser, J., Zinati, G., and Moyer, J. 2014. Beyond Black Plastic: cover crops and organic no-till for vegetable production. Pennsylvania, USA: Rodale Institute.

High Somatic Cell Counts Can Have a Detrimental Effect on Fertility

Mario S. Mongeon, OMAFRA Livestock Specialist, Alfred Resource Center

There are many good reasons to monitor somatic cell counts (SCCs) in milk from individual cows. Keeping your animals healthy and productive is one of them. Elevated SCCs can result in revenue losses from reduced milk production, potential penalties, altered milk quality and increased culling risks. Monitoring SCCs in milk from individual cows can

improve your herd's health, including improved reproduction performance.

Somatic cells in milk consist mainly of a cow's white blood cells. They are little soldiers fighting against mastitis-causing bacteria entering the udder. These cells are always in milk. However, when an infectious agent enters the udder or when the udder is

High Somatic Cell Counts Can Have a Detrimental Effect on Fertility (Cont'd)

damaged, somatic cells number can increase substantially.

Recent studies reveal udder infections adversely affect fertility, which is why you should monitor and keep SCCs of individual cows low.

Clinical or visible mastitis can be detrimental to your cows' reproductive performance. Epidemiological studies conducted in 2010 have shown clinical mastitis occurring before or after first breeding can negatively impact reproductive performance. Researchers are still debating the specific effects on conception, particularly with regard to mastitis' timing, whether it occurs before or after first breeding.

Nevertheless, researchers generally agree clinical mastitis after breeding is strongly linked with lower conception rates and a higher number of services per conception.

Subclinical mastitis may also disrupt fertility and can reduce conception probability even more so than clinical mastitis. This is likely due to its long-term, chronic nature. In one study, one third of the subclinical mastitis cows had abnormal follicular development, specifically at the hormonal level that delayed ovulation when cows were affected by subclinical mastitis before first breeding.

Elevated SCCs also can be linked to reproduction problems. A Japanese research team analysed the

relationship of high SCCs with the incidence of abnormal resumption of the oestrus cycle after calving and reproductive performance. They studied the reproductive performance of more than 350 cows from six commercial dairy herds over a three-year period. The researchers found cows with high SCCs, ranging between 200,000 to 500,000 cells per millilitre, had a higher incidence of prolonged luteal phase than cows with SCCs between 50,000 to 100,000.

These prolonged luteal periods occurred because the corpus luteum was maintained and failed to regress. A prolonged luteal phase is associated with lower first service conception rate and more services per conception. Cows with SCCs of 200,000 to 500,000 had more days from calving to conception than cows with SCCs lower than 200,000.

A study published this past October has shed some light on the relationship between SCCs and reduced dairy cow fertility. Researchers examined mastitis' effects on the oocytes ability to undergo maturation, fertilization and further development in-vitro. Their findings reveal the oocytes developmental ability was significantly affected when SCCs were above 200,000.



Resources

Looking for Information on Cover Crops?

Cover crops have a lot of places where they can fit in horticultural crop rotations. Before late planted crops like pumpkins to provide weed suppression. After early harvested crops like peas or snap beans to cover and protect the soil while enhancing soil structure. After winter wheat to suppress resistant weeds in the rotation or as a part of the overall crop rotation to suppress nematodes in preparation for planting strawberries.

Looking for more details on how a cover crop can fit, herbicide concerns or the basics on a particular cover crop species? There is an improved version of the Purdue Midwest Cover Crop Field Guide

available now. The pocket guide, released Monday (Sept. 22), is produced by Purdue University and the Midwest Cover Crops Council. The first cover crops guide was released in February 2012. The updated guide is in response to the increasing interest in cover crops in the Midwest and to requests for additional information.

"All this new information will help farmers better choose appropriate cover crops for their situation and better manage the cover crops they grow - all for greater potential benefit for their soils and cash crop growth," said Eileen Kladvik, Purdue professor of agronomy.

Resources (Cont'd)

The updated guide features seven new topics:

- Getting started in cover crops.
- Rationale for fitting cover crops into different cropping systems.
- Suggested cover crops for common rotations.
- Cover crop effects on cash crop yields.
- Climate considerations including winter hardiness and water use.
- Adapting seeding rates and spring management based on weather.
- "Up and coming" cover crops.

There also is more information about herbicide carryover, manure and biosolids applications, and crop insurance issues (note: US crop insurance issues). There has been a significant contribution from Ontario research to the new material,

particularly in the area of herbicide carryover (Dr. Darren Robinson, University of Guelph- Ridgetown campus)

The guide's second edition is available at Purdue Extension's The Education Store at www.the-education-store.com. Search by the name of the publication or product code ID-433.

A link to a video clip of Purdue University agronomy professor Eileen Kladvik explaining the benefits of cover crops is available at <http://youtu.be/2NlyQeZ8jxQ>

Learning Opportunities

Nutrient Management eLearning Courses

We heard your requests!

The Ministry of Agriculture, Food and Rural Affairs has online nutrient management courses!

Our training courses give learners the tools to safely manage nutrients while protecting the environment. Take our courses to become a government-certified Nutrient Management Planner or Consultant.

Our eLearning format allows you to learn on your own time and at your own pace. The newest eLearning course – Introduction to Nutrient Management –

provides a basic understanding of nutrient management best management practices. This course will be of interest to a wider audience beyond those who require certification.

Visit the [University of Guelph Ridgetown Campus](http://www.uoguelph.ca/extension/learning-opportunities) website for more information on in-class and online nutrient management training options.

Contact the University of Guelph Ridgetown Campus for more information:

Toll Free: 1-855-648-1444

Email: mmcdonal@uoguelph.ca

Organic Seed Workshops, 2014 – Presented by Everdale

As part of their work for The Bauta Family Initiative on Canadian Seed Security, Everdale is offering a special series of organic seed production workshops in 2014 across Ontario.

[The](#) final workshop of 2014 currently scheduled in Ontario will take place on December 5-6 during the EFAO Farmer Training Conference in Orillia, Ontario.

For more information on seed workshops near you, please visit the Everdale website at: <http://everdale.org/workshops/organicseed/> or contact Aabir Dey, Regional Coordinator for the Bauta Family Initiative on Canadian Seed Security for Ontario at 519.855.4859 ext.103; email: aabir.dey@everdale.org.

EFAO Ecological Fruit Production Course for Small to Medium Scale Orchards Fall Session II

Date: Saturday October 18, 2014, 1-4pm

Location: Orchard Park Office Centre. Ignatius Farm Guelph, ON

Member Prices: member - 1 Individual (s) - \$65.00

Non-Member Prices: non-member - 1 Individual (s) - \$75.00

For more information please visit the EFAO website at <https://efao.ca/upcoming-events/>

Conferences, Meetings and Tours



Ontario Organic Roadshow – Presented by the Organic Council of Ontario

OCO is proud to be part of Canada's new "Think Before You Eat" Campaign. Organic remains the best choice to reduce exposure to pesticides and GMOs. Products sporting the Canada Organic Logo have met or exceeded rigorous standards and are third-party inspected annually. Great tasting, fresh organic fare from Ontario's best companies!

The Ontario Organic Roadshow will support producers and retailers to share the good news of organics, including helping people find foods that are both Local AND Organic- better together.

In addition to samples and information on pioneers and innovators, OCO will bring the latest information and insights on organics with our 10 minute power presentations throughout the Roadshow. And look for the first in our Think Before You Eat video series "Think Animal Welfare". To be a part of the Roadshow as a host or a sponsor, please contact event coordinator Jennifer Berman Diaz marketing@organiccouncil.ca

Getting to the Roots: Successful Organic Farming Eco Farm Day, 2015

Date: Saturday, February 21, 2015

Call for Volunteers: Volunteers are currently being invited to join the Eco Farm Day Organization Team to complete the plans and take on various essential roles to make this conference happen for organic farmers in Eastern Ontario and Western Quebec.

Dates and Locations:

October 17-19, Delicious Food Show, Toronto
October 24-25, Nature's Emporium, Newmarket
October 25, Nature's Emporium, Vaughan

October 30, Rainbow Foods, Ottawa
November 1, Evergreen Brickworks Market, Toronto

For more information, please visit the OCO website at: www.organiccouncil.ca

64th Annual Southwest Hort Expo (SWHE) Presented by the Essex County Associated Growers

Date: November 25-26, 2014

Location: Kinsmen Recreation Centre, 249 Sherk St., Leamington, Ontario

A variety of speaker sessions and a trade show are planned for the two-day expo.

More information:

1st Annual Ecological Farmers Association of Ontario Conference

Date: December 4-6, 2014

Location: Geneva Park YMCA, 6604 Rama Rd., Orillia

To celebrate EFAO's 35th Anniversary, we're launching our first annual conference.

You can expect 200 participants on beautiful Lake Couchiching with over 30 intermediate and advanced level workshops on market gardening, livestock, soil health, seed saving, field crops and more!

More information: Please visit the website at www.efao.ca.

If you are interested in volunteering at Eco Farm Day 2015, please contact Coordinator of Volunteers, Johanna at cogoso.volunteers.jc@gmail.com and cc Gary Weinhold at weinhold_g@yahoo.ca.

For more information about Eco Farm Day 2015, please visit the COG website at: <http://cog.ca/ottawa/eco-farm-day/>

Conferences, Meetings and Tours (Cont'd)

Organic by Design

34th Annual Guelph Organic Conference

Date: January 29-February 1, 2015

Location: University of Guelph, Guelph, Ontario

For more information please visit the website at: <http://www.guelphorganicconf.ca/>

GUELPH ORGANIC CONFERENCE & EXPO 2015

Organic
BY DESIGN

January 29 to February 1, 2015
Guelph University Centre, ON Canada
guelphorganicconf.ca
519 824 4120 EXT 56311
TRADE ENQUIRIES organix@auracom.com

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Links to Organic Agriculture Information

Organic Council of Ontario (OCO)

<http://www.organiccouncil.ca>

Canadian Organic Growers (COG)

<http://www.cog.ca>

OMAFRA Organic Agriculture

<http://www.ontario.ca/organic>

Ecological Farmers of Ontario (EFO)

<http://www.efao.ca>

Organic Agricultural Centre of Canada

<http://www.oacc.info>

FarmStart

www.farmstart.ca

Agricultural Information

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Northern Ontario

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1-877-424-1300

www.ontario.ca/omafra