

## Grow and Eat Your Vegetables!

Joel Peru, PAg, Irrigation Agrolgist  
Saskatchewan Ministry of Agriculture

2016 has been a very busy year for ICDC. This was in part due to the significant expansion of its horticultural research and demonstration program. This year, ICDC partnered with the Saskatchewan Fruit Growers Association and Saskatchewan Vegetable Growers' Association to oversee ten ADOPT projects that focused on irrigated fruit and vegetable production at the Canada-Saskatchewan Irrigation Diversification Centre (CSIDC). These projects were implemented to evaluate agronomic and variety information and to promote production of irrigated high value crops in Saskatchewan.

Thanks to the help and support of ICDC seasonal and summer staff, along with Saskatchewan Ministry of Agriculture staff, this year's horticulture program was a success. The program included eight vegetable and two fruit crop projects. High tunnel production of cucumber, tomato, bell pepper, jalapeno pepper and sweet potato demonstrated different varieties for yield and quality. Field and green house varieties of tomato and cucumber were evaluated for high tunnel production of indeter-



High tunnel pepper demonstration

minate and determinate growth. Slicing cucumber and pepper varieties were evaluated for field-scale production using trickle irrigation system.

Several varieties of strawberries and raspberries were established this year to examine potential watering regimes and fertility management in 2017. The benefit of photosensitive netting will be evaluated on the existing orchard at CSIDC, which



Strawberry field

consists of Saskatoon berries, haskap and sour cherries. The photosensitive technology attempts to manipulate growth by altering the spectrum of light made available to the plants for photosynthesis, while also protecting the fruit from birds. This technology has been successful in Israel, and this project will evaluate it for Saskatchewan fruit production.

The Saskatchewan horticulture industry has the potential to grow significantly, especially near Saskatchewan's largest water reservoir, Lake Diefenbaker. The climate of the Lake Diefenbaker area is conducive to horticulture production: there is an average of 115 frost-free days and 2350 average corn heat units. With the increasing demand for locally grown food, and in particular, locally grown produce, interest in these high value crops continues to rise.

Pick up a copy of the ICDCs **2016 Annual Research and Demonstration Report** or view it online beginning early December (<http://irrigationsaskatchewan.com/icdc/publications/>) for the results of the 2016 horticulture program.

If you have any questions or comments about the 2016 ICDC horticulture program, contact Joel Peru at (306) 867-5528 or [joel.peru@gov.sk.ca](mailto:joel.peru@gov.sk.ca).

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### Save the Date! Irrigation Conference

December 6 Moose Jaw  
Call 306-796-4727 to register

### ICDC AGM

December 7 Moose Jaw

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[admin.icdc@sasktel.net](mailto:admin.icdc@sasktel.net)

## Saskatchewan Oilseed Producer Meetings

**Kaeley Kindrachuk, Regional Crops Specialist, Outlook Saskatchewan Ministry of Agriculture**

This past year presented multiple challenges to the province's canola, flax and mustard producers. The drier spring gave producers a chance to get into the fields earlier than normal, but the lack of rainfall early on also gave flea beetles and cutworms an advantage over the slowly growing crop. The change in weather during the crops' flowering stage also presented some problems, providing the perfect environment for the spread of disease, even with the use of fungicide. Once the crop was harvested, there were marketing concerns for some producers. Each area of the province struggled in its own way this year, and many producers have questions about these issues, and what can be done to maximize opportunities and manage risks next year in their oilseed crops.

The Ministry of Agriculture is once again partnering with SaskCanola, SaskFlax and SaskMustard\* to host a series of meetings for producers across the province. For four days, November 14–18, 2016, growers will have a chance to attend a meeting near them to hear new, relevant and valuable information and interact with oilseed industry experts. Speakers slated for these meetings include:

- Chuck Penner, founder of LeftField Commodity Research, will give an oilseed market outlook
- Dr. Tom Wolf, AgriMetrix Research & Training, will present on sprayer technology
- Ministry of Agriculture's specialists will present their disease and insect update

- Rachel Evans from the Flax Council of Canada
- Agronomists from the Canola Council of Canada
- Staff from the Canadian Canola Growers Association
- Research Managers from Agri-ARM sites who will present new research findings on canola, flax and mustard agronomy
- Managers and directors of SaskCanola, SaskFlax and SaskMustard\* will give brief updates on their organizations

The meetings will be held on five days:

November 14—Royal Canadian Legion Branch, Weyburn

November 15—Uniplex Convention Centre, Humboldt

November 16—Prince Albert Wildlife Federation, Prince Albert

November 17—Civic Centre, Rosetown

November 18—Living Sky Casino, Swift Current \*

\* Please note: SaskMustard and their related sessions will only be offered at the Swift Current location.



For more information, visit <http://applications.saskatchewan.ca/agrcalendar> or contact your nearest Regional Crops Specialist.

To register for one of these meetings and to view the complete agenda for each location with times, please go to [www.saskcanola.com](http://www.saskcanola.com) or call 1-877-241-7044.

## Integrated Weed Management

**John Ippolito, Regional Crops Specialist, Kindersely Saskatchewan Ministry of Agriculture**

The presence of herbicide resistant weeds is now a reality on many farms. In West-Central Saskatchewan, producers are having to deal with group 1 resistant wild oats, group 2 resistant wild mustard and group 9 resistant kochia, which may also be group 2 resistant.

It may be time to revisit an old concept known as integrated weed management, which combines a number of different agronomic practices to control weeds and reduce reliance on a single weed control practice, herbicides in particular.

Integrated weed management consists of 3 practices that:

- limit introduction and spread of weeds
- increase crop competition with weeds
- make it difficult for weeds to adapt to the management plan

Practices that limit introduction and spread of weed seeds is as simple as ensuring that clean seed is used. Thoroughly cleaning equipment between fields will also help. This is particularly important when leaving fields that have a population known to be herbicide resistant. Close attention should be given to weed populations on field margins.

Practices that can increase crop competition include:

- Banded fertilizer reduces weed density compared to broadcast applications
- Increased seeding rates increases competition
- Narrow row spacings allow for greater crop competition against weeds
- Seeding practices that lead to quick, uniform emergence increase weed competition
- Careful variety selection—semi-dwarf varieties may be easier to harvest but are also less competitive

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## 2016 Irrigation Lentil Survey

**Jeff Ewen, AAgr, Irrigation Agrolgist, Outlook  
Saskatchewan Ministry of Agriculture**

Irrigated lentil acres rose significantly this year due to anticipated good economic returns for 2016. This increase in acres is very fitting, as the UN General Assembly declared 2016 to be the International Year of Pulses.

Every year, the Ministry of Agriculture carries out a crop survey of the roughly 65,000 acres of irrigated land within “the big three” irrigation districts. In 2016, the survey showed that lentils were grown on 12,675 acres, accounting for almost 20% of the irrigated land base in the surveyed area. In comparison, 4,548 acres (7.1%) of irrigated lentils were grown in 2015 and only 540 acres (0.9%) in 2014 in the same area.



Irrigated red lentil

An increase in grower interest prompted many questions about lentils being grown under irrigation and what agronomic attributes would result in the highest yields. Comparison of research to grower experience revealed a knowledge gap on how to effectively grow lentils under irrigated conditions. The Crops and Irrigation

Branch concluded that valuable insight might be gained directly from irrigation farmers themselves through observation of producer practices for growing irrigated lentils during the 2016 season. To accomplish this, three short surveys were sent out to collect basic agronomic practices. The intention was to provide our team with research and demonstration ideas for the future.

The first of the three surveys covered activities until seeding was completed. The second survey covered activities between seeding and harvest. The final survey asked producers for their final yield results, as well as their conclusions on the agronomic decisions they made during the year. Producers were also asked to suggest ideas for future irrigated lentil research and demonstration projects. The results of this survey will be compiled and we expect to present them at the Annual SIPA/ICDC Irrigation Conference to be held December 6–7, 2016, at Temple Gardens Mineral Spa in Moose Jaw. If you can't attend the conference, watch for results in future ICDC publications.

If you would like to complete the survey or have questions on irrigated lentils, please email Jeff Ewen at [jeff.ewen@gov.sk.ca](mailto:jeff.ewen@gov.sk.ca) or call (306) 867-5512. If you would like to attend the conference, call Sandra Bathgate at (306) 796-4727 or email her at [sbathgate.sipa@sasktel.net](mailto:sbathgate.sipa@sasktel.net).



## Integrated Weed Management

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Keeping weeds off balance involves changing herbicide application windows, herbicide rotations, mixes and layering.

- Seeding crops early makes them better able to compete with weeds. One downfall is that producers can become more reliant on in-crop herbicide applications
- Delayed seeding may permit control of some weeds, like wild oats, with a pre-seeding application of herbicide
- Rotate crops as well as herbicide groups. Using tank mixes of 2 herbicide groups that control the same weed spectrum can prevent development of herbicide resistant populations
- Layering herbicides from different groups may be very effective once resistance to a herbicide group has developed. An example is the use of a soil-applied herbicide for weed control in the fall or prior to seeding, followed by a post-emergent herbicide for control of the same weeds in the growing season

- Crop diversity is important. Including 3 years of alfalfa in a rotation eliminates a lot of annual weeds in succeeding annual crops. Winter cereals, such as winter wheat and fall rye, are very competitive with annual weeds and can eliminate the need for herbicide application.
- Elimination of chemfallow should be considered. Weed control is totally reliant on herbicides and there is no crop competition. A cover crop may be a more suitable alternative if you do not wish to grow a crop.
- Tillage is a useful weed management tool in some cases.

Developing an integrated weed management plan does take some thought and requires some changes. But herbicide resistant weeds cannot be ignored; now may be a good time to start thinking about integrated weed management in your operations. For assistance in developing an integrated weed management plan, contact your regional crop specialist.



# Integrated Pest Management of Sclerotinia

**Gary Kruger PAG, Irrigation Agrologist, Outlook  
Ministry of Agriculture**

Sclerotinia is a common disease threat for several major irrigated broadleaf crops. Canola, lentil, sunflower, mustard, dry bean and field pea are all vulnerable to sclerotinia. Even some of the emerging potential crops, such as borage and soybean, are susceptible to infection. More common broadleaf weeds, including



Mold

stinkweed, shepherd's purse, narrow leaved hawk's-beard, wild mustard, and thistles, are among the 400-plus plant species able to act as a host. The mode of infection varies between these species, which helps to explain some of the differences in disease susceptibility. The many affected species emphasize why an

integrated approach to management of sclerotinia is important for an irrigated rotation. Recently, growers have responded strongly to financial pressures in their crop choices, growing a higher proportion of broadleaf crops without a cereal break. They are relying more heavily on foliar fungicides to control the disease. This reality has increased the sclerotia infection load within irrigated soils and the selection pressure for resistance within the disease population.

Irrigated canopies of both cereal and broadleaf crops are more luscious, retaining high relative humidity within the canopy. This creates a favourable environment for the life cycle of sclerotinia. The density of sclerotia bodies present in irrigated soils is high, increasing the risk of infection for susceptible crops. Managing the integration of irrigation applications and weed and disease controls is challenging, but provides additional incentive to adopt an integrated control strategy. The biological control organism in Contans is an additional tool to assist the goal of simplifying an irrigator's workload and diversifying control strategies for irrigated crop management. The Contans organism may also be incorporated through rainfall or irrigation. This option provides a potential time- and cost-saving advantage without soil disturbance.

ICDC, with the assistance of United Agri Products, initiated a demonstration during 2016 using Contans for supplemental management of sclerotinia in irrigated fields. Contans was used together with foliar fungicide applications.

For more information, please contact Gary Kruger at [gary.kruger@gov.sk.ca](mailto:gary.kruger@gov.sk.ca) or 306-867-5524, or Barbara Ziesman at [barbara.ziesman@gov.sk.ca](mailto:barbara.ziesman@gov.sk.ca) or 306-787-4671. A detailed report will be available in ICDCs **2016 Research and Demonstration Report**, which will be posted in December to <http://irrigationsaskatchewan.com/icdc/publications/>.

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