



WARC Update **February 2019**

As the sun rises earlier each morning, our anticipation for the 2019 project season increases. We are quickly filling up our 2019 research program and can't wait to get out to the fields! January was a busy month of getting back into the swing of things after the Christmas holidays. We were kept busy with data entry and report writing as well as attending meetings and conferences. The WARC team attended the Crop Production Show in January. We spent a day at the AgriARM booth having exciting conversations with producers and industry members. WARC's own Jessica Weber had the opportunity to present some of our research on weed control in pulse crops at the AgriARM Research Update on January 17. Visit <https://www.westernappliedresearch.com/research/presentations/> to download her presentation from this event.

Events

2019 Crop Opp

Registration is open for our annual Crop Opportunity Meeting will be held on March 13, 2019 at the Dekker Centre in North Battleford. Speakers include **Dr. Jeff Schoenau, Elliott Hildebrand, Dr. Steve Shirliffe, Garry Hnatowich, and Scott Chalmers**. Registration begins at 8:30 am and a catered lunch is included! Visit our website at www.warc.ca or call (306) 247-2001 for more information and to register today!

Crop Opportunity
March 13th, 2019
Dekker Centre, North Battleford
Pre-Register \$25.00 (Door Price \$35.00)

WIN A DOORPRIZE DONATED BY BASF!

FEATURED SPEAKERS:

Canola Seeding Rates: How Low Can You Go? by **Dr. Steve Shirliffe**
Intercropping on Your Farm by **Scott Chalmers**
Alternative Crop Options for Saskatchewan Producers by **Garry Hnatowich**
Evaluating Soil Properties, Yield, Protein, and Response to Variable N Applications by **Elliott Hildebrand**
Challenges in Accounting for Variability and Developing Variable Rate Prescriptions by **Dr. Jeff Schoenau**

Visit the Website for More Details
Register today at www.warc.ca

#CropOpp **CATERED LUNCH INCLUDED!**

If you have any questions contact Chelsea at
(306) 247-2001 exec.admin@warc.ca

Hosted by the Western Applied Research Corporation



Research Update – 2018 Project Spotlight

Title: Production Management Strategies to Improve Field Pea Root Health

Objective: To demonstrate an effective management strategy to improve field pea root health in aphanomyces affected soils.

Locations: Scott, SK and Melfort, SK

Funding: The project was supported by the Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canada-Saskatchewan Growing Forward 2 bi-lateral agreement.

Treatments:

- 1) Conventional Management Strategy:
 - a. Pre-seed glyphosate; starter fertilizer (N,P,K); liquid inoculant; no seed treatment; no fungicide application of phosphite salts
- 2) Enhanced Management Strategy:
 - a. PRE-seed glyphosate/trifluralin; starter fertilizer (N,P,K); granular inoculant; seed treatment; fungicide of phosphite salts
- 3) Intensive Management Strategy:
 - a. PRE-seed glyphosate/trifluralin; starter fertilizer (N,P,K); granular inoculant; seed treatment; fungicide of phosphite salts; foliar nutrient application

Results:

2018 Yield (Scott Location):

Although there were yield differences up to 9 bu ac⁻¹ between the three management strategies at Scott, a significant difference was not detected. This is likely attributed to the variation that occurred within the plots. With a seeding rate of 80 seeds m⁻² average yields at Scott were 32.7 bu ac⁻¹ for the conventional management strategy, 36.9 bu ac⁻¹ for the enhanced management strategy and 41 bu ac⁻¹ for the intensive management strategy. Therefore, a yield difference of 9 bu ac⁻¹ was seen between the conventional and intensive strategies. This increase in yield could be accredited to the additional phosphite salt fungicide and nutrient applications as a decrease in disease was seen throughout the treatments in the plant foliage and roots. Overall, the average yield between the three management strategies was 36.8 bu ac⁻¹.

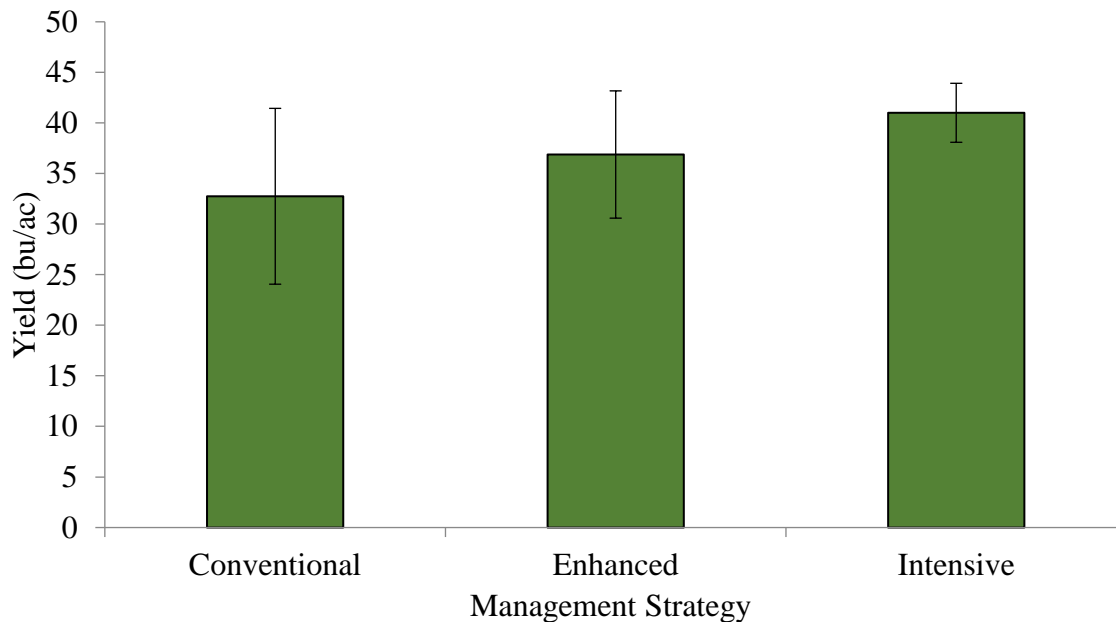


Figure 1: Average yield response to three different management strategies at Scott, SK in 2018

At the Melfort location, the treatments did not result in any significant yield differences ($p=0.5597$) and averaged $5942.4 \text{ kg ha}^{-1}$ or 88.3 bu ac^{-1} . This effect was expected, as there was little disease present and differences in vigor detected.

2018 Disease Incidence (Scott Location):

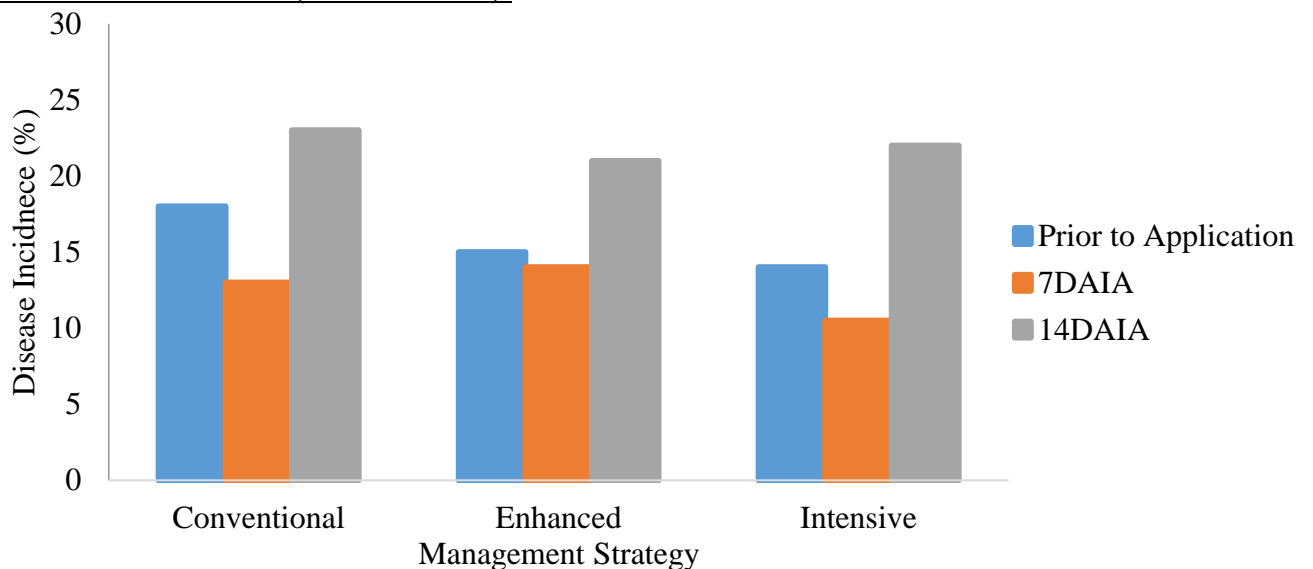


Figure 2: Overview of the three disease ratings from Scott, SK. Disease was rated for total disease of both root and leaf diseases on a 0 – 100 scale. Significant treatment effects were seen prior to the first application ($p=0.0048$) between conventional and intensive management strategies. No treatment effects were seen at 7DAIA (days after initial application) and 14 DAIA ($p=0.1151$ and $p=0.3256$, respectively).



Economic Analysis:

For both locations an economic analysis was done. The economic equation took into consideration the yield per treatment and price per bushel to determine gross income minus the total cost [cost of seed, seed treatment, inoculant, fertilizer, herbicide, phosphite salt fungicide, foliar nutrient, and equipment cost] to determine net grain. Equipment costs include the cost of labor, fuel, and all other associated costs.

Within the total cost expenses, the factors that do not differ throughout treatments are seed and fertilizer costs. The main factors within the total cost expenses that did influence net gain were seed treatment, herbicide, inoculant (liquid versus granular), phosphite salt fungicide, foliar nutrients, and equipment costs. Intego solo and Apron Maxx RTA were excluded in the conventional strategy as opposed to the enhanced and intensive management strategies. The addition of the seed treatment increased the enhanced and intensive total costs by \$33.84/ac. Conventional management strategy used liquid inoculant priced at \$3/ac as opposed to \$13/ac of granular inoculant that was used in the enhanced and intensive management strategy. The addition of treflan and phostrol in the enhanced and intensive strategy increased the herbicide cost \$9.07/ac and the fungicide cost \$10.84/ac over the conventional strategy. The foliar nutrient addition of Rogue II increased intensive total costs by \$11.65/ac over the conventional and enhanced. The extra costs associated with the enhanced and intensive treatments exceeded the yield gain, therefore, the net gain (\$/ac) of the enhanced and intensive management strategies compared to the conventional is lower. For the purposes of this analysis, we used grain priced at \$7/bushel.

While there may not be an economical benefit to the enhanced or intensive management strategies, the increase in plant foliage and root health shows that the application of a phosphite salt fungicide and foliar nutrient may have environmental benefits. These benefits could possibly decrease aphanomyces spore levels, creating good soil health for future years. Therefore, there may be non-grossing benefits such as reduced spore load, resulting in a less severe infestation in future years and overall good soil health.



	<i>Conventional</i>	<i>Enhanced</i>	<i>Intensive</i>
Yield (bu/ac)	32.7	36.9	41.0
Price (\$/bu)	7	7	7
Gross Income (\$/ac)	228.90	258.30	287.00
Seed (\$/ac)	48.73	48.73	48.73
Seed Treatment (\$/ac)	0	33.84	33.84
Fertilizer (\$/ac)	22.5	22.5	22.5
Herbicide (\$/ac)	28.28	37.35	37.35
Inoculants (\$/ac)	3.00	13.00	13.00
Fungicides (\$/ac)	0.00	10.84	10.84
Foliar Nutrients (\$/ac)	0.00	0.00	11.65
Equipment (\$/ac)	64.72	73.68	78.16
Total Cost (\$/ac)	167.23	239.94	256.06
NET Gain (\$/ac)	61.67	18.36	30.94

*Equipment costs includes labour, fuel, and all other associated costs

Figure 4: Economic analysis for Scott, Saskatchewan 2018 comparing the three management strategies

Visit www.warc.ca for full results and reports of our past projects!

For more information about WARC, visit our website or follow us on twitter!

www.warc.ca

 @WARC_SK

If you have questions, call our office anytime at (306) 247-2001 or email exec.admin@warc.ca.