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RESEARCH TRIALS
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Foliar-applied Nitrogen-fixing biological products

Wheat and canola generally require a large supply of nitrogen (N) to support high yields and quality, provided naturally from the soil as well as with applied fertilizer. New, commercially available biological products may have the ability to facilitate biological N fixation in non-legume crops, potentially reducing the N fertility requirements of these crops. However, there is little publicly available data regarding the performance of N-fixing biological products on wheat and canola.

Objective:

The objective of this field-scale trial is to determine if there are agronomic and economic benefits of applying a commercially available, foliar-applied N-fixing bacteria product in wheat or canola under various management, soil and weather conditions in Saskatchewan. Producers will determine the value of utilizing the product of their choice under the typical management practices and environmental conditions of their operation.

Project Overview:

Cooperators will implement a replicated field-scale trial in a canola or wheat field of their choice, using their own equipment and otherwise normal practices. An agronomist or trial manager will provide support throughout the season, including setting up the trial and collecting data. Statistical analysis of the data will be conducted following harvest, and a report with your results including economic analysis will be provided. Data from all field-scale trials will also be pooled to examine the results across different environments and varying fertility levels. Results from all trials will be publicly available, however individual farm data will be kept anonymous, apart from the location of the trial (nearest town or R.M.). Collaborators will be invited to join a network of producers who are conducting on-farm research through field tours and a year-end results meeting and banquet.

Study Design:

Producers will choose the foliar N-fixing bacteria product that they would like to use in the trial. Multiple products can be evaluated if desired. The treatments will compare crop treated with the foliar N-fixing bacteria product(s) to an untreated check:

1. Untreated Check 2. Foliar N-Fixing Biological Product 1 3. Product 2 (Optional)

Foliar N-fixing bacteria products must be applied according to the label, with consideration given to handling, storage, crop stage, application timing, application conditions, water volume and tank mixing.

The treatments will be replicated four times for a minimum of 8 strips, and randomly arranged within blocks in the field. Apart from the treatments, all strips must be managed the same agronomically including seeding date, seeding rate, applied fertilizer, and pesticide application. Variable rate (VR) fertilizer application can be used.

Example randomized field plans with two and three treatments are shown below.

Two treatments:

	Block 1		Block 2		Block 3		Block 4	
	1	2	2	1	1	2	1	2
Treatment	Untreated	Product 1	Product 1	Untreated	Untreated	Product 1	Untreated	Product 1

Three treatments:

	Block 1			Block 2			Block 3			Block 4		
	1	2	3	2	1	3	1	3	2	3	1	2
Treatment	Untreated	Product 1	Product 2	Product 1	Untreated	Product 2	Untreated	Product 2	Product 1	Product 2	Untreated	Product 1

Data Collection:

Agronomists or trial managers will help the cooperator set up the trial according to the protocol and will complete the following in-season data collection.

- Pre-seed and post-harvest soil samples
- Yield – weighed separately for each treatment strip using weigh wagon or grain cart scale
- Harvest samples for quality from each treatment strip
- Regularly scouting for treatment differences in flowering, maturity, disease pressure, and plant health
- Management data
- Weather data

For more information or to participate in the program contact:

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