AgriInnovation Program Stream B

2016-17 Annual Performance Report

For projects or activities that started late, it is expected that answers may be brief for some questions and not applicable or premature for other questions. Indicate "Not applicable" if the question is not relevant at this time.

Name of Recipient: **Eastern Canada Oilseeds Development Alliance Inc. (ECODA)**	
Project Title: **Market-Driven Research for Soybean and Canola Supply Chain Profitability**	
Project Number: **AIP-P025**	Period Covered by Report: **2016-04-01 to 2017-03-31**
Activity #: **17** Name of Activity: ***Crop rotation with potatoes (QC)***	Principal Investigator: **Progest 2001 inc.**

1. Performance Measures. See Annex A for an explanation of each measure.

Innovation Items	**Results Achieved**	Provide a description (2-3 paragraphs) for each item produced and describe its importance to the target group or sector. Explain any variance between results achieved and targets. Use plain language.
# of Intellectual property items flowing from the project	***N/A***	
# of new/improved products	***N/A***	
# of new/improved processes or systems	***N/A***	
# of new/improved practices	**0**	***The purpose of this project is to evaluate the integration of canola in a crop rotation system for potato production and to measure the benefits and/or negative impacts during the potato year. The trial is conducted during 5 years and rotation systems, including canola with conventional and new potato crop rotations will be compared. The experiment will allow us to determine the best temporal position in the rotation system for the canola and evaluate the impact on other crops included in this crop rotation.*** ***In Eastern Canada, the rotation period for potato crop is short i.e. one, two or three years only. This situation is mainly caused by the difficulty to introduce a crop as profitable as the potatoes in the rotation. The introduction of canola in the crop system could be an advantage for both potato and canola industries.*** ***The experiment is still ongoing and no real conclusion***

Innovation Items	Results Achieved	Provide a description (2-3 paragraphs) for each item produced and describe its importance to the target group or sector. Explain any variance between results achieved and targets. Use plain language.
		regarding the results is to be made at this stage of this 5-year project.
# of new varieties	***N/A***	
# of new/improved genetic materials	***N/A***	
# of new/ improved gene sequences	***N/A***	
# of improved knowledge	***N/A***	

Information Items	Results Achieved	**Provide the complete citation for each item. Please see Annex A for examples.**
# of peer reviewed publications	***NONE***	
# of information items	***NONE***	
# of media reports	***NONE***	
# of information events	***NONE***	
		Provide the # of attendees
# of individuals attending information events	***NONE***	
		Provide the # of attendees who intended to adopt new information or technology
# of individuals attending information event who intend to adopt new innovation	***NONE***	
		Provide the name, degree completed and date of completion
# of persons who completed a M.Sc. or Ph.D. during project	***NONE***	

2. Executive Summary

The Executive summary contains two parts: Key highlights of activities and scientific results and Success story. Information may be used for internal and external communication purposes. Write for a general audience using plain language. Do not include sensitive or confidential information.

Key Highlights - This section describes the key activities and final scientific results of an activity/ project in such a way that readers can rapidly become acquainted with a large body of material without having to read it all. Include a brief statement of the problem(s), background information, concise analysis and main conclusions. Suggested length – maximum 1 page.

Project is still ongoing.
Success Story - A success story presents a significant result or an important milestone achieved. It is intended to showcases achievements in applied research. Focus on research results, successful technology transfer, potential for pre-commercialization, and/or potential impact. A Success Story is not a progress report for each activity (suggested length 2 – 3 paragraphs).
Since the project is in the middle of the 5-year experiment it's still too soon to reveal any real impact of the different rotation systems on the crops.

3. Objectives/Outcomes (technical language is acceptable for this section)

Provide a brief summary that includes introduction, objectives, approach/methodology, deliverables/outputs, results and discussion, and any Ph.D or Master students recruited to work on the project.

Objectives of this activity include:

- *Evaluate the integration of canola in a crop rotation system for production of potato and measure the benefits and/or negative impacts during the potato year;*
- *Compare rotation systems, including canola with conventional and new potato crop rotation systems; and*
- *Determine the best temporal position in the crop rotation system for the canola and evaluate the impact on other crops included in this rotation.*

Methodology

The trial took place in Ste-Croix near Quebec City. The plots were established in a sandy soil.

This trial takes place over a five-year period. Each year, rotation pattern is set up on the same place in the field. For the third year (2016), plots were planted with buckwheat, canola, potatoes, soybean or corn.

The experiment was conducted in a randomized complete block design with four replicates. The plots have an area of 28 m^2.

Potato tubers and corn were hand planted with a ruler and cereals plots were sows with a Melroe 244 cereal drill of 18 rows on May 25th.

Harvest of each crop was done as follows:
Buckwheat: July 22nd
Canola: August 10th
Potato: October 12th
Soybean: November 1st
Corn: November 1st

Measured parameters for cereals

1. *Fresh weight of 1 m^2 of grain*
2. *Weight of 1 m^2 of shoot biomass*
3. *Fresh weight of 500 grains*
4. *Fresh weight of 500 ml of grain*
    a. *Test weight was calculated from those data using the "Test Weight Conversion Chart" from the Canadian Grain Commission*

Measured parameters for potatoes

1. *Yield of the different size categories*
2. *External quality (growth crack, misshapen, common scab, rhizoctonia, etc.)*
3. *Internal quality (hollow heart, brown center, vascular discoloration, etc.)*
4. *Specific gravity*

Results

Results obtained for most of the crops planted in this third year of the 5-year project, show that there is no significant difference amongst the treatments.

It was observed that potato crops plant in monoculture during 3 years cause an increase in soil-born disease, i.e. rhizoctonia. A significantly higher rhizoctonia index, on tubers, was attributed to the monoculture treatment. Those results suggest that rotation could decrease soil-born pathogens such as rhizoctonia.

4. Issues

- Describe any challenges or concerns faced during the project. How were they overcome or how do you plan to overcome?
- Describe any potential changes to the work plan and the budget. How were or how will they be managed?

Because we used a commercial-type drill in small plots, during the second year of this project we had some difficulties to achieve a constant and fairly fast speed to allow a plant density similar to producers. This led to a seeding rate slightly higher than what is planted in fields and lack of seeds in some places. For this third year, we made some modifications and replaced some parts of the drill and more uniform plots were obtained. However, the plant density was still quite high.

5. Lessons Learned:

Describe the key lessons learned gained as a result of executing the project (e.g., a more efficient approach to performing a specific task for activity / project).

Since the project is a 5-year experiment it's still too soon to reveal any key lessons learned.

6. Future Related Opportunities:

Describe the next steps for the innovation items produced by the activity/project. Is additional research required? Is there potential for commercialization or adoption?

Project is still ongoing

Annex A

Project is still ongoing	
Performance Measures	**Description**
# of Intellectual property items flowing from the project	These include: declaration of invention, patent application, patents, trademarks, copyrights, trade secrets, signed license agreements, and royalties generated. This does not include IP for plant varieties; those should be reported under "# of new varieties" below.
# of new/improved products	New products could include: a new commercial product, bacterial strain, cartographic product, cell culture, analysis certificate, computer software, database, enzyme, equipment/instrument, fertilizer, hormone, methodology, model, monoclonal antibody, pest control product, polyclonal antibody, standard reference-chemical, standard reference-biological, standard reference-plant, etc.
# of new/improved processes or systems	This is the set of operations performed by equipment in which variables are monitored or controlled to produce an output. A combination of inter-related components or processes is arranged to perform a specific function and generate a given outcome.
# of new/improved practices	This is for a research that generated new knowledge that can be applied directly on the ground by the sector. This is mostly for new agronomic practices but can also cover new practices by processors.
# of new varieties	This includes registered varieties, cultivars, or breeds. This includes invention disclosure, protection and license for new plant varieties. For each new variety, please provide the registration number and the variety name.
# of new/improved genetic materials	This could include genetic map and gene probes. Include new varieties, cultivars or breeds in category "New varieties."
# of new/ improved gene sequences	The discovery of order of bases of a DNA [segment] making up a gene.
# of improved knowledge	This category is for reporting results following completion of the final year of the activity, or results against an activity's improved knowledge target. It is intended for results that do not fit in any of the above categories.
Information Items	
Performance Measures	**Description**
# of peer reviewed publications	These are published items such as: research papers published in scientific journals, books, book chapters, review articles, conference proceedings, research notes, or other that receive peer-review. Items that are not yet published (ex. manuscripts in development or review) should not be reported. For each reported item, please provide the following: author(s), year of publication, article title, title of journal, volume (issue), and page number(s). If the item is a book or a book chapter, add name of publisher. If the item is an article for conference proceedings, add title of published proceedings, location, and year/month/day.
# of information items	Information items include: posters, abstracts, pieces in publications such as trade journals, articles in industry magazines or press, industrial reports (confidential or not), technical bulletins, brochures, guides, flyers, newsletters, other technical transfer publications. If an item is published in a medium whose audience is the general public, it should be reported in the # of media reports category below. For each reported item, please provide the following: author(s), article title, title of magazine/trade publication etc., page number(s), type of information item such as poster or abstract or guide etc., and year/month/day.

# of media reports	Examples include articles or interviews about project results in media such as newspaper, tv, radio, and internet (announcements about project funding are excluded). (These are items prepared by a third party, usually with input by the project). If an item is published in an industry journal, newspaper, or magazine, it should be reported in the # of information items category above. For each reported item, please provide the following: author(s), article title, name of interviewee(s), source of reports (TV or radio interview etc.), and year/month/day.
# of information events	These are events such as a scientific meeting, symposium, conference, industry meeting, or field day where a project participant has been invited to present a talk or presentation directly related to the activity. For each reported item, please provide the following: name of presenter, title of presentation, name of the event, location, and year/month/day.
# of individuals attending information events	Please provide the number of attendees per event.
# of individuals attending information event who intend to adopt new innovation	Please provide the number of attendees intending to adopt the new innovation per event.
# of persons who completed a MSc or PhD during project	Only students who completed their MSc or PhD in the last year should be included in this category. For each reported graduate, please provide the following: the name of the student, degree completed and date of completion.