



**AAFC RESEARCH BRANCH  
Research Project Final Report**

Developing Innovative Agri-Products Program (Vote 10 Funding)

<b>Project Title:</b>	Activity B.6: General agronomy
<b>Start Date (yyyy-mm-dd):</b>	2011-04-01
<b>Expected End Date (yyyy-mm-dd):</b>	2013-03-31
<b>Actual End Date (yyyy-mm-dd):</b>	2013-03-31
<b>Principal Investigator (PI):</b>	Claude Caldwell
<b>Short Executive Summary of report:</b>	
<p>Field experiments were conducted at several sites in Eastern Canada to evaluate the effects of certain agronomic practices on canola production. A field experiment was conducted to determine the optimum seeding rates and dates for spring canola grown in Eastern Canada. It was carried out in 2011 and 2012 at sites in Harrington, PEI; Canning, NS; Fredericton, NB; McGill, QC; Laval, QC; Ottawa, ON; and Guelph, ON. The trial was setup as a 3 × 3 factorial experiment arranged in a split plot design with four replications, where three seeding dates were the main plots, and three seeding rates were the subplots. The three seeding dates were designed as early, intermediate and late dates. Seeding dates varied at each site. The three seeding rates were 2.5, 5.0 and 7.5 kg ha<sup>-1</sup>, targeting seed densities of 35, 65 and 130 seeds m<sup>-2</sup>, respectively.</p> <p>A second experiment was established to gain better understanding of how canola will fit into existing cropping systems. A four year crop study conducted at three locations (Canning, NS; Ottawa, ON and McGill, QC) with canola, wheat, soybean and corn in the rotation began in 2011. Specifically, the objectives of this study were to:</p> <ol style="list-style-type: none"> <li>1. Define the effect of canola on other crops in the rotation and the effects of those crops on canola performance across Eastern Canada.</li> <li>2. Collect data of soil, crop growth, yield and tissue N concentration in order to allow for calculation of economic benefit of growing canola as well as nutrient utilization efficiency and carbon footprints in different cropping systems.</li> <li>3. Investigate major diseases and insects of canola production in different cropping systems.</li> <li>4. Identify and establish a sustainable cropping system for canola production in eastern Canada.</li> </ol> <p>The experiment is arranged in a RCBD with 13 different rotations and four replications.</p> <p>Conclusions drawn from the canola seeding date x seeding rate trials indicate that to obtain a higher seed yield, early seeding date is preferred. Increasing seeding rate could increase seed yield, but the increase was not dramatic, therefore, the medium seeding rate is recommended. Oil content reached the highest when it was early planted. As far as yield component, branch number per plant and pod number per plant did not show any strong correlation with seed yield.</p> <p>As this is only the second year of a planned minimum four year study of these rotation sequences no conclusions can be made at this time. The continued data collection in the next two years will further the understanding of the rotation effects on these crops.</p>	



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### A. Research Progress and Accomplishments (to date in relation to expected milestones and deliverables / outputs)

- Include brief summary of:
  - Introduction, literature review, objectives, milestones and deliverables / outputs.
  - Approach / methodology (summary by objectives).
- Include results and discussion (overview by objectives and milestones), next steps and references.

#### Canola Seeding Date x Seeding Rate

**Objective:** To define the individual and interactive effects of seeding rate and seeding date on canola performance over a range of environments in Eastern Canada.

**Deliverables:** Reliable, site responsive recommendations on seeding rate and date for optimum yield and quality for canola in Eastern Canada.

**CANOLA Seeding Date x Seeding Rate Report Attached**

#### Canola Rotations

**Objective:** To define the effect of canola on other crops in the rotation and the effects of those crops on canola performance across Eastern Canada.

**Deliverables:** Recommendations on best management practices in crops to use in rotation with canola.

**CANOLA Rotation Report Attached**

### B (I). Funded Collaborators (Co-PI, AAFC, other federal scientists)

- Include the name of scientist / organization.

Dr. Aaron Mills, AAFC Charlottetown, PEI (Canola SD X SR)

Dr. Bao-Luo Ma, AAFC ECORC, ON (Canola SD X SR & Canola Rotations)

### B (II). Acknowledgement of non-funded collaborators (who provide support, e.g. access to other laboratory or other facilities and equipment input / advice / guidance / assistance, etc).

- For research supported by targeted funding programs (e.g. DIAP, Clusters, etc.) please list any collaborators who are receiving Contribution Vote 10 funds (e.g., university and industry collaborators). In addition, please list separately the participants who support your project but are not receiving any funding through the program.
- Include name of scientist / organization.

#### Funded Collaborators

Peter Scott, NB Dept Agriculture and Aquaculture, NB (Canola SD X SR)

Dr. Donald Smith, McGill University, QC (Canola SD X SR & Canola Rotations)

Dr. Anne Vanesse, Laval University, QC (Canola SD X SR)

Dr. Hugh Earl, University of Guelph, ON (Canola SD X SR)

### C. Variance Report (if applicable, describe how the work differs from the proposed research)

- Include changes to objectives and project work plan / budget, changes to the team, other constraints.



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None

**D. Impact Assessment** (if applicable, describe how the variance factors above will impact project continuation)

- Include changes to the objectives, changes to the project work plan / budget, changes to performance (i.e. meeting targets).

NA

**E. Achievements** (include only those related to this project)

- Include innovations, publications / conferences, technology transfer, capacity building, success stories, media, recognition and other outputs.

**Conference Presentations**  
ECODA Meetings – Montreal, QC, December, 2011 & Ottawa, ON, March 5, 2013  
Vanasse, A. 2013. Essais de régie sur le canola. Journée d'information INPACQ sur le canola. Bécancour, Québec. 26 février 2013.

**F. Lessons learned** (self-evaluation of project)

<b>Claude Caldwell</b>		
<b>PI Name</b>	<b>Date</b>	<b>Signature</b>

**Note: After completion and signature, this report must be provided to the appropriate Science Director for assessment. A PDF copy of this report will be sent to Science Operations by the Science Director's office along with the project assessment.**