

## Integrated pest management of the pea leaf weevil

**Mr. Hector Carcamo**

Agriculture and Agri-Food Canada

SPG Contributions	Project Status	Duration/Timeline of Project (Year to Year)	Co-funders	Total Project Cost
\$27,750.00	Completed	April 2007 – March 2010	Alberta Pulse Growers Commission; Alberta Crop Industry Development Fund; Agriculture and Agri-Food Canada (AAFC) – Matching Investments Initiative (MII)	\$748,156.59

### Project Description

To enable pea growers to implement an integrated pest management plan for pea leaf weevil (PLW); to determine spatial distribution, both geographic and within field; to determine PLW seasonal biology; development of economic threshold (insect plant soil fertility studies); CLIMEX modeling to predict range expansion in Canada Control strategies; to screen insecticides for PLW control; to determine the timing of insecticide application for best control; to investigate the potential of trap crop borders as a cultural control strategy; to assess effects of seed treatments on weevil-plant interactions in green house; to investigate role of native natural enemies on biological control of pea leaf weevil.

### Outcome

Surveys from 2006 to 2009 showed that the weevil is well established in southern Alberta, reaching pest status only south of Highway One and continuing to spread east into Saskatchewan. Climex modeling suggests that more humid regions in south central Alberta, if warmer, could provide more suitable habitats. Monitoring protocols have been developed and determined crucial life history traits including seasonal activity and reproductive aspects required for IPM. Cage and plot studies validated the use of 30% of seedlings with terminal leaf damage (3-6 nodes) as an adequate tool to assess risk and as an action threshold.

### Research Objective

#### OBJECTIVE 1

To enable pea growers to implement an integrated pest management plan for pea leaf weevil (PLW).

#### OBJECTIVE 4

Development of economic threshold (insect plant soil fertility studies).

#### OBJECTIVE 7

To determine the timing of insecticide application for best control.

#### OBJECTIVE 10

To investigate role of native natural enemies on biological control of pea leaf weevil.

#### OBJECTIVE 2

To determine spatial distribution, both geographic and within field.

#### OBJECTIVE 5

CLIMEX modeling to predict range expansion in Canada Control strategies.

#### OBJECTIVE 8

To investigate the potential of trap crop borders as a cultural control strategy.

#### OBJECTIVE 3

To determine PLW seasonal biology.

#### OBJECTIVE 6

To screen insecticides for PLW control.

#### OBJECTIVE 9

To assess effects of seed treatments on weevil-plant interactions in green house.