

Title:

Okanagan-Kootenay Sterile Insect Release (OKSIR) Program: The story of an integrated area-wide management system successfully implemented for codling moth control in Canadian apple orchards.

**Subject:**

The core subject of the case:

Codling moth (*Cydia pomonella*) is among the most economically important pests of pome crops as it directly attacks the fruit. Found throughout all temperate regions worldwide, sustainable management of codling moth is critical to maintain viable apple and pear orchards, especially in regions with high pest prevalence. In the province of British Columbia (BC), on Canada's west coast, codling moth had been a serious pest since 1916.

The scope of the case being studied:

First established in 1991 as a jointly supported federal and provincial initiative, *Okanagan-Kootenay Sterile Insect Release (OKSIR) Program* represents a successful collaboration between regional governments and industry. *OKSIR* delivers an integrated area-wide suppression program for codling moth in the pome fruit producing areas of BC, Canada. The *Program* integrates the sterile insect technique (SIT), as a primary control method, and mating disruption operating on about 8,440 acres (3,416 hectares) in the Okanagan, Similkameen and Shuswap Valleys. Continually enforced in the designated area, *OKSIR* is administered by the local government and funded locally by participating stakeholders. In addition, the *Program* provides continued monitoring and education for stakeholders (growers, urban tree owners and residents) involved in, and benefiting from the *Program*.

The goal of *OKSIR Program* is to keep codling moth damage below a specified economic threshold set at less than 0.2% damage on at least 90% of all commercial pome fruit orchards in the *Program* area and allows insecticide sprays only if levels of *C. pomonella* population exceed the threshold.

The stated goal(s) of the case being studied:

This case study highlights the positive impacts of Canada's longest-running (>20-years) area-wide IPM program, emphasizing factors influencing its longevity and successful implementation.

Specific elements assessed in the case study:

Efficacy of *OKSIR Program*:

The efficacy of the *Program* was last assessed in 2011 ([2011 report](#)), and included metrics such as the total amount of codling moth damage to commercial pome orchards, the number of wild moths caught in monitoring traps, the amount of urban area still infested with codling moths, and the reduction in sales of organophosphate pesticides used to control codling moth.

Elements of successful area-wide approach:

The *OKSIR's* success is in part due to the unique funding model and governance structure, as well as the cooperation collaboration between a number of non-voting stakeholders. Also, through its state-of-the-art rearing and sterilization facility in Osoyoos, BC, the *Program* is capable to continuously supply the demand for sterile moths to be released as required in the designated area.

Assessments used in the case study:

Efficacy of OKSIR Program (details available in [2011 report](#)):

- Over 90% of all commercial acreage in the *Program* service area had less than 0.2% codling moth damage (2005-2010), achieving the *Program* goal
- Organophosphate insecticides sold for codling moth control were reduced by 93% from 1991-2010
- The number of urban sites with *C. pomonella* in orchard buffer zones (potential population sources) dropped by 27% from 2001-2010.

Elements of successful area-wide approach:

The *Program* is governed by a Board of Directors that includes representatives from each of the four partnering regional governments in the *Program*'s service area, and three grower representatives nominated by industry. Over the last 20+ years, funding for the *Program* has shifted away from senior government funds to be split between local taxpayers (60%) and commercial pome growers (40%), on a per acre basis. A formal cos-benefit analysis of the *OKSIR Program* is currently underway (2014).

Summary of the Case Study Findings:

OKSIR is one of the longest-running area-wide IPM programs in the world. Controlling *C. pomonella* with an environmentally-friendly, cross-region approach has brought many economic, environmental, and social benefits to the entire area that would not be possible if control efforts were done solely on an orchard-by-orchard basis. This *Program* has led to reduction of risk from pesticides in the region through minimal reliance on chemical control for codling moth.

OKSIR staff is currently working to diversify its program and develop a sustainable funding model with reduced dependency on government funding. *OKSIR* is also working with a number of national and international partners to support development of similar area-wide approaches to codling moth management in various regions of the world.

Name of the responsible and funding organization	Okanagan-Kootenay Sterile Insect Release Board (established with bylaws of the four partnering Regional Districts of Okanagan: Similkameen, Central Okanagan, North Okanagan and Columbia Shuswap)
Website/URL	OKSIR Program Website Guide to the SIR Program (2011 report) Bloem, S., J. Carpenter, A. McCluskey, R. Fugger, S. Arthur, and S. Wood. 2007. Suppression of the codling moth <i>Cydia pomonella</i> in British Columbia, Canada using an area-wide integrated approach with an SIT component . Pages 591-601 in M.J.B. Vreysen, A.S. Robinson, J. Hendrichs. Area-Wide Control of Insect Pests: From Research to Field Implementation. Springer. Netherlands.
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