

**Western Regional IPM Grants**  
**Annual Progress Report Guidelines**  
Due October 15, 2008

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INSTRUCTIONS: PLEASE PROVIDE ONLY THE ESSENTIAL COMPONENTS OF ACCOMPLISHMENT WHICH ARE:

1. A CLEAR IDENTIFICATION OF THE PROBLEM/ISSUE ADDRESSED BY THE RESEARCH/EXTENSION.
2. A CONCISE EXPLANATION OF HOW THE RESEARCH/EXTENSION ACHIEVEMENT CONTRIBUTED TO THE SOLUTION OF THE PROBLEM/ISSUE BEING RESEARCHED.
3. THE IDENTIFICATION OF OTHER BENEFITS RESULTING FROM THE RESEARCH/EXTENSION, EVEN IF UNPLANNED.
4. **PLEASE ATTACH A SUMMARY OF THE PAST YEARS PROGRESS, ONE PAGE MINIMUM.**

PROJECT NUMBER: 2007-03623

PROJECT TITLE: Development of a female-produced pheromone for managing *Prionus californicus* in hop

LEAD PRINCIPAL INVESTIGATOR: James D. Barbour

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CO-PIs or OTHER KEY PERSONNEL, and their INSTITUTIONS or AFFILIATIONS:

Jocelyn G. Millar, University of California, Riverside  
Lawrence M. Hanks, University of Illinois at Urbana-Champaign

WHO MAY WE CONTACT FOR ADDITIONAL INFORMATION IF NOT THE LEAD PI?

NAME: \_\_\_\_\_

TELEPHONE NUMBER AND EMAIL ADDRESS:

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THE PROBLEM, ISSUE, OR REASON FOR PURSUING THIS RESEARCH/  
EXTENSION PROJECT.

*Prionus californicus* (Coleoptera: Cerambycidae) is a serious root-feeding pest of hop in the Pacific Northwest. At present there are no host-plant resistance or biological control alternatives available to control this pest, and no insecticides have been registered for its control. The only effective methods available for managing *P. californicus* infestations in hop are the complete removal of hop rootstock from infested fields followed by soil fumigation, or by a 2- to 3-year period in which the field is left fallow or planted to a non-host crop. All of these alternatives are very expensive and disruptive to hop growers. Our recent research has confirmed that female *P. californicus* produce a sex pheromone that is highly attractive to males, and we have narrowed the pheromone structure down to one of only eight possible compounds. The primary goals of this proposal are to confirm the structure of the *prionus californicus* pheromone and to develop volatile pheromones as a component of an IPM program for managing *P. californicus* in hop: by reducing populations of insect pests by preventing mating~ either by eliminating males from the population or by inundating the area with pheromone so that males cannot locate females, and consequently females produce no viable eggs

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THE SINGLE MOST IMPORTANT ACCOMPLISHMENT OR BENEFIT RESULTING FROM THIS RESEARCH/EXTENSION PROJECT.

We have confirmed the structure of the volatile pheromone produced by female *P. californicus*. The compound has been produced in quantities sufficient for laboratory and field tests of pheromone activity. Field and laboratory studies to date demonstrate that male *P. californicus* are 1) strongly attracted to the synthetic pheromone, and 2) that the racemic blend of the four possible stereo isomers is as effective an attractant of males as the active stereo isomer in isolation.

**BRIEFLY DESCRIBE ADDITIONAL BENEFITS, SUCH AS:**

SOCIAL BENEFITS -

ECONOMIC BENEFITS -

Economic benefits resulting for this project will become manifest when/if field applications become possible.

ENVIRONMENTAL BENEFITS -

Economic benefits resulting for this project will become manifest when/if field applications become possible

OTHER -

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PLEASE SUBMIT A HIGH RESOLUTION DIGITAL IMAGE REPRESENTATIVE OF YOUR RESEARCH/EXTENSION PROJECT THAT WE CAN USE IN WESTERN IPM CENTER PUBLICATIONS WHICH MENTION YOUR PROJECT.

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When you have completed this form, return to

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THIS FORM WAS COMPLETED BY:

James D. Barbour, IPM Specialist  
(Name and Title)