

Washington Commission on Integrated Pest Management - Application Form(Assigned by WCIPM) **Project #** 26AN030**PROJECT TITLE:** Testing a new codling moth mating disruption technology**APPLICANT: Washington Tree Fruit Research Commission**

User Group: Apples

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DETAILS:Treatment Method (Select one): ☐ Pesticides ☒ Alternative to Pesticides

Crop: Apple

Pest: Codling Moth

Registration: 0 %

Non-Registration: 100 %

CATEGORIES:Good Laboratories Practices Research (Select all that apply): ☐ GLP ☒ Not GLP

Impact Categories (Select all that apply):

☐ A1 ☐ A2 ☐ A3 ☐ A4 ☒ A5 ☐ B1 ☐ B2 ☐ B3 ☒ B4 ☐ C1 ☐ C2 ☒ C3 ☐ C4

Project Type (Select all that apply):

☒ Efficacy Trial☐ Residue Study☐ Pesticide Resistance Study☐ Phytotoxicity Study☒ Integrated Pest Mngmt☐ Other:**FUNDING:** (Must match budget form)

Start Date: Jan 1, 2026

End Date: Dec 31, 2026

WCIPM Request: \$19,342

Fund Contributions Cash: \$ 20,000

From: WA Tree Fruit Research Commission

Fund Contributions In-kind: \$

From:

Total Project Cost: \$39,342

PROJECT SUMMARY: (150 words or less, font size may be less than 12-point to fit on this page)

Codling moth mating disruption has been the cornerstone of management since shortly after it was introduced in the early 1990's. Few advances have been made since then, and farmers currently have two main technologies by which they can deploy pheromone into orchards: hand-applied passive dispensers with high numbers of point sources, and active aerosol emitter dispensers with few point sources per acre. Evidence suggests that increased point sources more effectively disrupts codling moth mating, but labor costs often necessitate their reduction. Revisiting an established technology, Splat®, for codling moth mating disruption has the potential to increase point sources in orchards, while reducing labor costs if applied aerially. This project will investigate a new experimental formulation variant of Splat® known as ISR:CDA-025M1 impregnated with codling moth pheromone for use in Washington State.

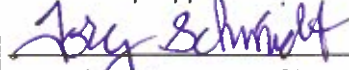
To the best of my knowledge, my signature certifies that the information in this application is true and correct.

WA Tree Fruit Research Commission

Project Manager

User Group Applicant Name (Print)

User Group Applicant's Title



11/14/25

User Group Applicant Signature

Date

Washington Commission on Integrated Pest Management - Application Form

Problem Description

Codling moth is the key apple and pear pest worldwide. In Washington State nearly 174,000 acres are grown (USDA NASS, 2025); Washington State is the top US producer of apples at over 7.6B LB of fruit valued at nearly \$2B (USDA NASS, 2025). Apples are Washington's largest agricultural product (nwhort.org, 2024).

Since organophosphate use was discontinued, the primary codling moth management tools are mating disruption and applications of selective insecticides. Mating disruption is only effective when used in combination with other tactics such as insecticides and cultural controls. Mating disruption was registered for use in 1992 and is now applied to over 95% of all Washington acreage. There haven't been new advances in mating disruption technology in at least 20 years. Labor costs for deploying high point source mating disruption are high.

Farmers need ways to save money on their management programs. One option is to deploy fewer point sources and risk loss of control. The other option is to use aerosol emitters that require fewer devices over the same area. However, evidence suggests that aerosol emitters are less effective when codling moth populations rise.

This project proposes to test a new codling moth mating disruption device, a new experimental formulation variant of Splat® known as ISR:CDA-025M1 impregnated with codling moth pheromone. This device may be deployed by drone, thereby reducing nearly the entire labor cost to use mating disruption. Splat® deployed by drone can easily increase or decrease the number of point sources in an orchard by altering flight speeds during deployment. This study will test the new experimental formulation on Washington apple farms and compare it with current commercial practices.

Value of the Industry: The Washington apple industry is comprised of ca. 174,000 acres and is valued at nearly \$2 billion (ca. \$11,513/acre) (USDA NASS 2025). By developing new codling moth management tools, this project will facilitate more effective management programs. Development of these IPM tools will lower labor costs.

Acres Impacted: All 174,000 acres grown in Washington are affected by codling moth and may be impacted by this project. Lower labor costs are desirable by most farmers.

Aggregate impact to the industry: Losses due to codling moth are difficult to quantify across the industry. Organic farmers may employ labor-intensive tactics, such as hand thinning, to manage codling moth infestations, and deploying additional passive dispensers. A significant portion of the cost of mating disruption is the labor to deploy it. It is likely that high costs in our current economic environment will cause many farms to cease operations.

Effect of the problem on the industry: High labor costs, lower farm income, and regulations are making farming more difficult each year. Without the development of viable alternatives, such as the new mating disruption technology described herein, pome fruit production in Washington will suffer.

Effect of the problem on consumers, society, environment, non-target species or human health: Ineffective mating disruption programs will lead to increased pesticide residues on pome fruits, lower yields and acreage taken out of production. Acreage that transitions out of production will not harm communities, raise costs for consumers, and damage the economy. Broad-spectrum insecticides also negatively impact the environment, farm workers, and surrounding communities.

Description of alternative control measures and why they are not effective or additional information on the specific need: Hand applied, passively dispensed mating disruption works well when high numbers of point sources are deployed, but there are high labor and product costs associated with this technology. Aerosol emitter, actively dispensing mating disruption works best when codling moth populations are well-controlled by other tactics, and labor costs to deploy few point sources are low, but evidence shows that this technology is riskier when populations rise. This new technology may bridge the gap between these two technologies by deploying high numbers of point sources, with low labor inputs.

Because this project will develop a new control measure, codling moth management may improve in future years.

Funding Category

Category A - Protection of Human Health

I. Prevention of acute illness (e.g., organophosphate poisoning) – This project will develop a management tool that will continue to reduce the need for broad-spectrum insecticides that are acutely toxic to humans.

III. Prevention of illness in domestic animals (e.g., pesticide poisoning) – Reduced broad-spectrum insecticide use reduces risk to domestic animals.

V. Other projects that would benefit WA State pest management needs – This project, if successful, would benefit Washington's pome fruit growers by providing them with a new tool in their codling moth management toolbox.

Category B - Protection of Environment

III. Control of non-native, invasive species – Codling moth is a non-native species that has been the subject of management efforts since at least the 1700's.

Category C - Significance to Local or Regional Economy

I. Existence of an emergency situation with no effective alternative – Farm revenues are currently low and farmers need new ways to save money. This technology has the potential to lower their labor costs.

II. Resistance management; only one alternative exists and pest has a history of developing resistance – Codling moth has developed resistance to several insecticides, going back at least 100 years. Effective mating disruption is a resistance management tool because it helps farmers spray less.

III. Development of an integrated pest management tactic – This project will develop a new tool to supplement current management options. This new tool may also mitigate resistance development and slow its spread.

Project Description

Codling moth mating disruption has been the cornerstone of management since shortly after it was introduced in the early 1990's. Few advances have been made since then, and farmers currently have two main technologies by which they can deploy pheromone into orchards: hand-applied passive dispensers at 300-400/ac, and active aerosol emitter dispensers at 1-2 per acre. Evidence suggests that increased point sources more effectively disrupt codling moth mating, but labor costs often necessitate their reduction. Revisiting an established technology, Splat®, for codling moth mating disruption has the potential to increase point sources in orchards, while reducing labor costs if applied aurally.

This project proposes to study the efficacy of deploying a new experimental formulation variant of Splat® known as ISR:CDA-025M1 impregnated with codling moth pheromone in Washington State orchards to disrupt mating. ISCA Global, the Splat® patent holder, currently produces mating disruption products in the United States and several different countries targeted at spongy moth, false codling moth, oriental fruit moth, and semiochemicals for several other insects. ISCA recently began to develop next-generation Splat® formulations with promising characteristics for the sustained release of codling moth pheromone that may be deployed by hand or UAV. Although this technology shows promise, on-farm testing is needed to demonstrate at least equivalence with established technologies.

Objectives:

- 1) Evaluate ISR:CDA-025M1 with codling moth pheromone for mating disruption in Washington State
- 2) Compare ISR:CDA-025M1 with codling moth pheromone to other established mating disruption technologies
- 3) Assess economic costs and benefits of the tested technologies and ISR:CDA-025M1 with codling moth pheromone
- 4) Disseminate findings to the industry

APPROACH:

This project is a simple season-long field trial designed to compare current mating disruption technologies with a new experimental formulation variant of Splat® known as ISR:CDA-025M1 impregnated with codling moth pheromone in Washington State apple orchards. We will work with farmer collaborators to locate and use commercial orchards that provide reasonable comparisons. Experimental blocks will have similar management, with the only unique factor across plots being the mating disruption technology in use. We will compare passive mating disruption with hand applied dispensers to Splat mating disruption. We will also compare aerosol emitter mating disruption with Splat. For this study, Splat will be applied by hand, but other systems are currently applying Splat using UAVs, so that technology may be available immediately for apple. The treatments will be evaluated by trapping codling moths in pheromone monitoring traps through the season, banding to monitor larvae, and mid- and end-of-season fruit damage assessments. Fruit damage assessments will evaluate 600 fruit per plot at each assessment. The costs of application, benefits or losses due to the treatments, and other insights will also be considered in the analysis of data.

Project findings will be disseminated to the industry at extension events and through written materials that will be made available. Depending on the findings of this study, new recommendations may be made to farmers to improve their mating disruption programs.

Washington Commission on Integrated Pest Management - Budget Form

Who certified this budget for accuracy?

Name: Susan Kendall

Title: Grants & Contracts Lead

Email: susan.kendall@wsu.edu

☒ Accurate Table 1 Calculations

☒ Accurate Table 2 Calculations

☒ Table 1 Totals = Table 2 Totals

☒ Totals = Funding Totals on Application Form

TOTAL PROJECTED [ESTIMATED] EXPENDITURES:

TABLE 1	WCIPM Request	FUND CONTRIBUTIONS			TOTAL
		Cash	In-kind	In-kind Time	
Salaries ¹	\$19342	\$20000	\$	\$	\$
Benefits	\$	\$	\$	\$	\$
Temp/Hourly Workers	\$	\$	\$	\$	\$
Travel ²	\$	\$	\$	\$	\$
Equipment ³	\$	\$	\$	\$	\$
Other ⁴	\$	\$	\$	\$	\$
TOTAL	\$19342	20000	\$	\$	\$39342

¹ Research Assistant Professor (10% FTE), and project technician (\$20/hour, 20hours/week, 26 weeks)

PROJECTED [ESTIMATED] EXPENDITURES BY QUARTER:

TABLE 2	2026 Q1 (Jan-Mar)	2026 Q2 (Apr-Jun)	2026 Q3 (Jul-Sept)	2026 Q4 (Oct-Dec)	2027 Q1 (Jan-Mar)	2027 Q2 (Apr-Jun)
WCIPM Funds	\$4835.38	\$4835.38	\$4835.38	\$4835.38	\$	\$
Fund Contributions	\$5000	\$5000	\$5000	\$5000	\$	\$
TOTAL	\$9835.38	\$9835.38	\$9835.38	\$9835.38	\$	\$

Has this project been funded previously by WCIPM?

☐ YES

☒ NO

↳ IF YES: What was the WCIPM Project #:

↳ IF YES: For how long and with what progress? (Summarize in less than 200 words)