2022 Apple Crop Protection Research Priorities

Request for Proposals (RFP)

The Washington Tree Fruit Research Commission (WTFRC) is seeking apple crop protection research proposals in the following priority areas.

Some of the priorities listed do not specifically ask for organic options or pollinator protection. We are interested in having organic practices and pollinator protection considered in all proposed work, when appropriate. Collaboration of scientists between institutions and across states and agencies is highly encouraged. Also, proposals are expected to include an industry outreach component if the sought-out project outcomes are anticipated to directly translate into management changes. Maintaining profitable and sustainable tree fruit companies is of utmost importance to our industry and economic considerations need to be included in project designs.

RESEARCH PRIORITIES

HIGH PRIORITY

Codling Moth (CM): We are not looking for demonstration trials. We request replicated controlled studies and research that provides statistically significant paths forward for pest management. Priorities are listed in order of importance.

1. CM management
    a. Understanding GDD model (when to start counting)
    b. Validation of monitoring tools: comprehensive evaluation of all commercially available CM lures
    c. Crop protection product efficacy testing of current and new materials (i.e. Spear®-Lep, Virosoft CP4) especially development, refinement and deployment of new organic control strategies (i.e. trapping, nematodes, new products, EC effects, extended coverage)
2. Resistance bioassays for CM and other pests with suspected resistance evolution to current insecticides
3. Mass trapping and sterile insect release: comprehensive approaches
4. CM management on an area wide basis (education effort, SOP's, implementation, point person to contact)

Fire blight:

- Build program options for growers (focus on entire season and weather events)
- Product efficacy testing of new materials and development of SOP's for optimized efficacy (especially focus on shoot blight control, getting to the end of the season, orchard sanitation, new materials)
- Continued product resistance testing
- non-tree host plant: ID & control

Postharvest decay:

1. Decay management:

- Survey of decays in WA to ID new ones
- Resistance management for blue and grey mold (ex. coordination between field and warehouses to avoid loss of products)
- Reasons for new decay organisms (life cycle vs. commercial practices)
- Organic preharvest products to manage postharvest decay

2. Patulin: build on ongoing work funded by WTFRC
   - determine if new strains of blue mold affect patulin production
   - develop SOP for organic apples to minimize patulin production
   - develop updated whole supply chain SOP to manage patulin

Soil health improvement:

- efficacy testing of wide range of new products (i.e., biological inoculants) to increase soil fertility (example: mycorrhizal fungi) including economic feasibility and suitability under Washington state conditions
- replant best management: steps after fumigation to restore soil health?

Pesticide residue management:

- Continue WTFRC work (include new fungicides)
- Get new materials on list to test ASAP (living document: new products, new challenges)

Technology projects in apple crop protection or across several different crops are encouraged. Those projects may be moved into the technology committee. Specific interest:

- Automated insect monitoring and scouting programs
- Adoption of precision crop protection application methods (needs to include efficacy data)
- Plant health monitoring, pest, and disease identification with sensors

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MEDIUM PRIORITY

Pollinator safety:

- Refugia for increasing pollinators
- Best management tactics to protect pollinators

Apple replant:

- Develop an SOP for mustard seed program

Beneficial insects:

- Determine timing, rates, release techniques of beneficial release
- Rearing techniques that are more economically feasible to growers

Mealybugs:

- Organic and conventional control strategies

Mouse and rodent control:

- Organic control methods

OBLR (organic & conventional): extension project

- New products or good tank mix beyond Bt

- Develop a detailed spray program
- Align model output vs. ground truth (effects of Bt on model)

Woolly Apple Aphid:
- Determine which beneficials to use and how to attract them to the trees to feed
- Organic materials, increase options

Powdery mildew (organic)

LOW PRIORITY

Thrips:
- More management options especially for organic

Apple leafcurling midge:
- How to manage it in newer plantings/young trees

Brown Marmorated Stink Bug:
- Pesticides to control populations

Oriental fruit moth:
- determine location and distribution of the insect populations
- efficacy of commercially available pheromones (application method, type of pheromone)

San Jose scale (especially organic):
- Develop an effective spray program
- Determine which beneficials to use
- Use of pheromones

Spider mites, leafrollers, apple maggot

Extension:
- Update the orchard pest monitoring guide (bilingual)

Novel ideas in areas not listed as priority are encouraged. It is suggested to contact Ines Hanrahan (hanrahan@treefruitresearch.com) to discuss any ideas outside of the priorities identified by the 2022 Request for Proposals (RFP), before submitting a preproposal.

Detailed instructions for preproposal submissions may be found at: https://treefruitresearch.org/proposals-reports/pre-proposal/instructions/

Preproposals should be submitted by **October 22**, 2021, to: amy@treefruitresearch.com

For general information about the funding process please consult the Proposal, Review, and Funding Process Description Document: https://treefruitresearch.org/proposals-reports/new-researcher-onboarding/

For more information or context please contact: hanrahan@treefruitresearch.com