

Research Progress and Impact

Safeguarding the Supply of Specialty Crops for Consumers

Summary of Research Accomplishments

- Developed a mechanical application method for pheromones, an environmentally friendly way to control codling moths, one of the most problematic apple pests in the country.
- Conducted the research that supported the planting of new nematode-resistant varieties of sugar beet, which have increased yields and profits for Michigan growers.
- Developed new management strategies for sugar beets that have increased yields and the amount of white sugar produced.
- Found that certain upright black bean varieties don't need fungicide applications to control white mold. This significantly cuts costs for growers.

Kurt Stepnitz/MSU



MAES bean breeder Jim Kelly helped develop Jaguar, an upright black bean variety that doesn't need to be sprayed for white mold. This translates into a \$500,000 savings for growers.

Kurt Stepnitz/MSU



Richard Ledebuhr, former agricultural engineering specialist, developed this spray mechanism to apply wax droplets to orchards. MSU is now nationally known for its wax drop pheromone research.

Research for your future.

For questions about this or other MAES publications, contact Val Osowski (osowskiv@msu.edu; 517-355-0123).

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All USDA project reports are peer-reviewed.

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Safeguarding the Supply of
Specialty Crops for Consumers

A multidisciplinary team of Michigan Agricultural Experiment Station (MAES) scientists assists growers in producing high quality fruit, dry beans and sugar beets with environmentally responsible, safe and effective pest control methods and management approaches.

SUMMARY OF RESEARCH ACCOMPLISHMENTS

Developed a mechanical application method for pheromones, an environmentally friendly way to control codling moths, one of the most problematic apple pests in the country. Female moths secrete pheromones to attract males to mate. Placing sources of synthetic pheromone throughout an orchard disrupts mating. No mating means no larvae, and no larvae means no wormy, blemished apples. Synthetic pheromones do not affect any other insects or any animals or plants. Traditionally, pheromones have been applied by hanging polyethylene ropes or other dispensers in tree tops. The work must be done by hand and costs more than \$100 per acre. MAES scientists developed a method to embed pheromones in wax drops and then developed a spray mechanism that can apply the wax drops to the apple trees. The researchers are tweaking the design and formulation, but calculations show that applying pheromones in wax saves growers about \$35 per acre, which would total more than \$4 million in savings per year.

Kurt Stepnitz/MSU



Codling moths can damage up to 90 percent of an apple crop if a control program is not in place.

Conducted the research that supported the planting of new nematode-resistant varieties of sugar beet, which have increased yields and profits for Michigan growers. Over the past 2 years, Michigan growers who planted the new variety have seen yields increase by more than 10 tons per acre. Though the variety is a commercial hybrid, research by an MAES scientist demonstrated the potential of the crop in Michigan.

Developed new management strategies for sugar beets that have increased yields and the amount of white sugar produced. MAES researchers found that planting sugar beets in narrow rows of 15 inches (as opposed to the traditional row width of 30 inches) led to a substantial increase in sugar beet tonnage and recoverable white sugar.

Found that certain upright black bean varieties don't need fungicide applications to control white mold. This significantly cuts costs for growers. Growers who plant new upright black bean varieties, such as Jaguar released by MSU, do not have to spray their crop for white mold. This saves \$34 per acre, which would translate into a statewide savings of \$500,000 on the upright black bean acreage planted in 2006.

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