USDA SPECIAL GRANT

MICHIGAN AGRICULTURAL EXPERIMENT STATION

Research Progress and Impact

Enhancing Sustainable Agriculture

Summary of Research Accomplishments

- **Found that using areawide application of pheromones to control codling moths in apple orchards reduced pesticide applications by 37 percent and decreased damage to the apples by 96 percent compared with orchards not using areawide pheromones.**
- **Discovered that planting crimson clover between rows of blueberry bushes attracted honeybee populations that were 30 times larger than those seen when rye was used as a cover crop.**
- **Conducted the first statewide survey of certified organic growers in Michigan and are providing the results to policy-makers.**
- **Have found 12 hairy vetch varieties that show promise as winter cover crops in Michigan.**
- **Are compiling a comprehensive inventory of all agritourism enterprises in Michigan, which will be available in database and GIS forms for use by the Michigan Department of Agriculture, the public and university researchers.**

Research for your future.

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

109 Agriculture Hall
Michigan State University
East Lansing, MI 48824-1039

All USDA project reports are peer-reviewed.

Dale Mutch/MSU

MAES scientists are compiling a directory of all agritourism businesses in Michigan. The project's original focus was just the west side of the state, but because the Michigan Department of Agriculture considered statewide information so valuable, the project was expanded.

Dale Mutch/MSU

Crimson clover planted as a cover crop between rows of blueberry bushes attracts 30 times more bees than planting rye as a cover crop.

Enhancing Sustainable Agriculture

Sustainable agriculture researchers at the Michigan Agricultural Experiment Station (MAES) are helping farmers to manage their crops for superior yields, high quality, reduced fertilizer and pesticide use, and reduced nutrient losses to surface water and groundwater.

SUMMARY OF RESEARCH ACCOMPLISHMENTS

Found that using areawide application of pheromones to control codling moths in apple orchards reduced pesticide applications by 37 percent and decreased damage to the apples by 96 percent compared with orchards not using areawide pheromones. One way to fight codling moths, one of the most problematic pests of Michigan apple trees, is to apply pheromones, environmentally safe chemicals that interfere with moth mating. The Michigan Codling Moth Areawide Project started in 2004 with eight growers on 800 acres of apple trees. In 2006, the project expanded to 30 growers and 2,800 acres, a testament to growers' support of the project. In the parts of the orchards where pheromones were used to disrupt mating for 3 years, populations of male moths were down by 74 percent. Fewer male moths mean less mating and fewer larvae to damage the apples.

Zach Huang/MSU

Flowering cover crops planted between rows of blueberry bushes attract large numbers of honeybees, which may help pollinate some varieties.

Discovered that planting crimson clover between rows of blueberry bushes attracted honeybee populations that were 30 times larger than those seen when rye was used as a cover crop. These preliminary results suggest that flowering cover crops may be able to attract honeybees to hard-to-pollinate varieties of blueberries.

Conducted the first statewide survey of certified organic growers in Michigan and are providing the results to policy-makers. The results have been used in several public discussions of organic agriculture issues. The results have also been used in a training program for agricultural statistics enumerators and in shaping questions on organic production and practices for several new surveys.

Have found 12 hairy vetch varieties that show promise as winter cover crops in Michigan. Cover crops improve productivity, help keep carbon and nitrogen in the soil, and protect water and air quality by reducing the need for fertilizers. MAES researchers are now testing the winter hardiness of the best of these varieties. The scientists are also studying various methods of seeding the crops. Priming the seed (soaking it in water) decreased germination time by 10 to 28 percent. Slurry seeding (planting the seed with manure) reduced the number of plants, but enhanced the growth of the plants by up to 50 percent.

Are compiling a comprehensive inventory of all agritourism enterprises in Michigan, which will be available in database and GIS forms for use by the Michigan Department of Agriculture, the public and university researchers. The inventory will allow people to see where in the state certain types of agritourism businesses are located. This will encourage better marketing, more visits by the public and, ultimately, more profits for operators.

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