

## MSUE “I Know MI Numbers” Program Summary

# Agriculture that Protects Michigan’s Waters

In 2011, MSUE sought to determine how recent changes in practices and behaviors that came about as a result of its contributions to environmental education translate to improved water quality.

MSUE staff members surveyed 1,202 growers and homeowners who participated in programs in 2010 – 2011.



### PROGRAM IMPACTS

#### Reduced nutrient applications

Programming has focused on optimizing nutrient use with plant needs. Extension sees continued progress in matching plant needs with nutrients provided. Based on the sampled audience, our programs in 2011 contributed to:

- » 937,830 fewer pounds of nitrogen (N) being applied over 87,821 acres.
- » 44,871 fewer pounds of phosphorus (P<sub>2</sub>O<sub>5</sub>) being applied over 4,912 acres.

These figures represent field crop and vegetable crop production as well as home gardener responses. Nutrient application reductions were achieved without compromising yields or quality. These numbers reflect only the actual value that was captured in a limited survey.

#### Reduced pesticide applications

MSU Extension staff members work with growers to identify pest management strategies that protect yields, improve quality and reduce residue risk to surface and

#### Mission

Michigan State University helps people improve their lives through an educational process that applies knowledge to critical issues, needs and opportunities.

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## PROGRAM IMPACTS, CONTINUED

ground waters, food and feed products. As a result of recent MSU Extension efforts, growers report:

- » A 402,155-pound reduction in active ingredient of pesticides applied over 403,498 acres.
- » A 39,626-pound reduction in broad-spectrum pesticide used on 15,055 acres in favor of new, narrow-spectrum chemistries that limit the impact on non-target organisms on 15,055 acres.

Pest pressures vary considerably from year to year. In some cases, pesticide use increased compared to previous years to maintain crop quality and productivity. This is not unexpected; rather, it is a reflection of good management practices.

### **Retained nutrients and sediments by using cover crops**

Based on change in cover crop seed sales, use of cover crops has increased by an estimated 202,209 acres over the past year. Using predictive models, we estimate that the increase in cover crop use corresponds to:

- » 506,817 fewer tons of soil sediment loss.
- » 26,530 fewer pounds of nitrogen moved.
- » 136,575 fewer pounds of phosphorus making its way to surface waters.

### **Reduced water use**

Protecting water supplies has long been emphasized in MSU Extension programming, but it is only one piece of the puzzle. Conserving water is a growing area of programming by MSUE that translates to large water savings. Current MSUE programming efforts report a water use savings by surveyed participants of 5,910,000 gallons on 4,876 acres.

### **Translation to improved water quality**

Nutrient and sediment data collected from the 1,202 survey respondents were evaluated by a watershed modeler to judge their contribution to a change in the Michigan water quality index of 88 that was cited as part of Gov. Snyder's MiDashboard. Using just the data reported in the survey (no extrapolation to the broader industry), the models estimate that the index value of 88 moves to 88.8 based on the adoption, and resulting impacts, of practices encouraged as part of MSUE programming efforts in 2010-2011. This improvement, while at first seeming small, represents an important contribution by Michigan farmers and gardeners, toward protecting Michigan's vital water resources.

