



Ohio State HCS News

HORTICULTURE & CROP SCIENCE IN VIRTUAL PERSPECTIVE - THE OHIO STATE UNIVERSITY

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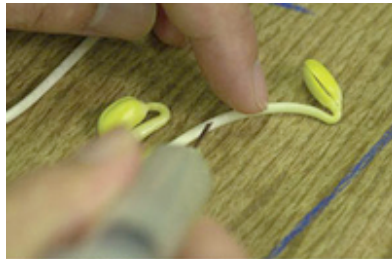
OBIC Bolsters OSU Soybean Breeding Program



Dr. Steve St. Martin's soybean breeding program has benefitted from increased resources provided by OBIC.

With rising oil costs, industries worldwide are pushing to develop cost-effective and renewable sources of energy, fuel, chemicals, polymers and other materials. Plant-derived products will play a key role in our country's plan to cut down dependence on foreign petroleum by boosting production and use of domestic energy and feedstock sources. And in Ohio - where agriculture and the chemicals, plastics and rubber materials sector are king - an Ohio State University-based endeavor is on its way to change the chemistry of the state's economy.

Established last year through an \$11.5 million award from the state's Third Frontier Project, the [Ohio BioProducts Innovation Center](#) (OBIC) links research and industry along a supply chain, to commercialize renewable sources of plastics, paints, lubricants, solvents and other materials. OBIC includes innovators from Ohio's leading agricultural and manufacturing organizations, [Battelle Memorial Institute](#), [U.S. Department of Agriculture](#) (USDA), and [U.S. Department of Energy](#) (DOE) national laboratories.



The OSU Soybean Breeding Program tests large numbers of experimental lines in the hope of finding one that has the desired combination of traits.

The Center is providing resources to accelerate research in plant genetics, biomass processing, chemistry and engineering towards bioproducts applications. One beneficiary of increased resources is The Ohio State University's Soybean Breeding Program. **Dr. Steve St. Martin** and his collaborators are looking for soybean traits and varieties targeted to industrial applications.

"The soybean breeding program continues to do what it has for 30 years. We test large numbers of experimental lines

in the hope of finding one that has the desired combination of traits. We work on developing varieties with high yield and disease resistance, but now with incorporation of genes for modified fatty acid profile," said St. Martin, a professor in the Horticulture & Crop Science Department.

"Vegetable oils are a key raw material for making industrial chemicals, and in Ohio, soybean is our most important oilseed crop. Although Battelle has already developed some soy-oil-based products, such as a toner for photocopiers, soy oil would be a better raw material if its fatty acid composition were changed somewhat," explained St. Martin. "These changes can be made genetically, and in fact some of the same modifications are now being introduced for the food uses of soy oil, i.e., low linolenic acid and reduced levels of saturated fat. But no modified-oil variety will be successful unless it yields well in Ohio and is resistant to prevalent diseases."



Ohio State soybean breeders are looking for a modified-oil variety that yields well in Ohio and is resistant to prevalent diseases.

"OBIC has provided us with additional staff and equipment to expand the research. Specifically, we have two new plot combines, with trucks and trailers to haul them. We also have a sizeable investment in equipment and staff by OBIC at the [Molecular and Cellular Imaging Center](#) (MCIC), which will enable us to use molecular markers to streamline the process of identifying experimental lines that have desired genes for oil quality and disease resistance. OBIC's investment shifts the odds of finding such a combination in our favor," said St. Martin.

"Our goal right now is to enable corporations across the state to access OBIC for development of biobased products," said **Stephen Myers**, OBIC director and assistant director of the university's Ohio Agricultural Research and Development Center (OARDC). "We provide value to our industry partners by operating through a market-pull approach designed to link genetics, biotechnology, chemical conversion and product development. As a national leader in chemical manufacturing and with a strong agricultural industry, Ohio is well positioned to succeed in the production of specialty products from bio-based materials."

"Ohio's economy will be impacted favorably at several levels thanks to the work of OBIC," said **Wayne Earley**, executive director of [PolymerOhio](#) - an umbrella organization that supports the state's polymer, plastics, rubber and advanced-materials industries. "First, the polymeric materials developed as part of this program will add value to the products developed from them. That is, the new materials will often be more than just substitutes for existing materials: They will add functionality and value by being, for example, biodegradable. Second, as the price of oil continues to increase, these materials will provide producers an alternative for controlling costs. Even if petroleum prices do not increase dramatically, they will be uncertain. Manufacturers are significantly affected by this type of uncertainty."

One of OBIC's major partners is the [Ohio Soybean Council](#) who promotes soy product development use across Ohio. Click on [OBIC Video](#) to learn more about the

3rd Frontier initiative - the Ohio BioProducts Innovation Center.

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Published October 10 2006 - <http://HCS.OSU.EDU>