

Harnessing microbes to boost plant production

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Farmers, home gardeners, golf course managers and other growers now have access to a new type of microbial fertilizer that dramatically increases plant size and yield, thanks to a licensing agreement between Michigan State University and Bio Soil Enhancers Inc.

C.A. Reddy, MSU professor of microbiology and molecular genetics, and Lalithakumari Janarthanam, visiting research associate in the same department, isolated beneficial bacteria, fungi and other soil microbes. The scientists then combined selected groups of organisms and identified a formulation that significantly increased plant growth and productivity.

"The microbe formulation offers a number of benefits to plants," Reddy said. "It promotes growth by enabling plants to use atmospheric nitrogen. This reduces the need for chemical fertilizers, which reduces greenhouse gas emissions. The formulation also helps the plants become more disease-resistant and helps mobilize key minerals, such as phosphate, which helps crops produce plant growth stimulating hormone. Above all, the formulation is cost effective and environmentally friendly."

"We tested the formulations on a number of plants -- from bell peppers, squash and tomatoes to corn, soybeans and grasses," he said. "The improvement in growth and yield was 25 percent to more than 90 percent. Even we were surprised by the broad spectrum of plants that benefited from the formulation. I don't know of any other product currently on the market that benefits so many types of crops."

The two most beneficial formulas have been commercially licensed by Bio Soil Enhancers, based in Hattiesburg, Miss. Wayne Wade and Krish Reddy, co-founders of the company, said initial products are on the market now and new products are expected to be released very soon. The microbial fertilizers cost less than nitrogen-based fertilizers, according to Wade and Krish Reddy. Bio Soil Enhancers is pursuing organic certification for the compounds, according to Lou Elwell, company president and co-founder.

"Our mid-season reports showed a 50 to 90 percent increase in cotton yield for the growers that were using our microbial-based fertilizer," Elwell said. "The improvements are very impressive."

"We look forward to working with Bio Soil Enhancers to further develop this promising soil enhancement formulation," said Mike Poterala, executive director of MSU Technologies, which is responsible for commercializing MSU technology and negotiated the license with Bio Soil Enhancers. "This is a very exciting development for MSU that promises significant improvements in plant quality and yield."

Source: Michigan State University

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