

## **January 2009: Looking for Yield Response**

by Ag Professional, Richard Keller, editor [http://www.agprofessional.com/show\\_story.php?id=56165](http://www.agprofessional.com/show_story.php?id=56165)

Biobased agricultural product technology has become common as various researchers and companies have discovered non-traditional products that improve crop yields. Some are being proven to be total successes and others without proven field results have lost believers.

"There is a whole culture of enzyme products, fertilizer additives and humic matter products being promoted," said Ron Heiniger, Ph.D., North Carolina research and corn Extension specialist. "This is a new arena for me and the industry to understand how these products function."

Heiniger has recently concentrated on research into narrow-row, high-population seeded corn. Some of his graduate work involved working with plant regulators and growth stimulant products.

Each product has its own formulation, mode of action and biological activity in spurring healthy crop growth. The main separation between products being proven in the field and those that have faded is consistent yield. It is yield that justifies the added costs of product and application by growers.

"Most farmers are skeptical until they see some repeatable data," Heiniger said.

Taking a product from greenhouse to field use often proves to be a difficult step in commercializing a new biobased product. In an uncontrolled environment, some products don't consistently show positive results. Additionally, refining exactly when to apply and how much product to apply to various crops usually is a multiple year process, Heiniger noted. "One piece of data is interesting and two or three makes it much more exciting," he said.

In general, biobased products are not being commercialized by macro crop protection companies with massive research and development budgets. Some biobased product developers have to rigidly prioritize financing research and field testing to be within limited budgets.

### **Word of mouth earning business**

One company that has quickly jumped into proving its new product is Biobased USA, a North Carolina-based company. The product is SoySoap, and it was applied by about 100 farmers in northwest North Carolina in 2008. On average, the soybean growers achieved average yields of 15 to 20 bushels per acre more from SoySoap-treated fields than untreated acres, according to the company's founder Don Wilshe.

"As the news ripples out from these growers in northwestern North Carolina, more than 200 farmers in the region plan to apply SoySoap in 2009. One Extension agent called SoySoap the 'craze of the county,'" Wilshe said.

SoySoap was developed in 2003, but it wasn't until 2004 that researchers discovered its nano-size colloids somehow had growth-enhancing effects on plants. It has taken four years to confirm when and how to apply the product. For soybean growers, it has been determined that on Roundup Ready soybeans, its appropriate to add it to a glyphosate tank mix, so

there's no extra trip across the field. Approximate cost is about \$10 per acre for an eight ounce per acre rate.

Results on a wider and wider number of field crops, fresh produce crops and ornamentals is still being established within the U.S. and internationally. Biobased USA will be collecting data from field results in more than 20 states and several countries in 2009.

The firm is also cooperating with universities on SoySoap trials, but few university results will be published before 2011 because of protocol to replicate trials for several years before publishing final results.

One enthusiast of SoySoap after inspecting treated wheat fields is Leon Hesser, Ph.D.; he has been a close associate of Norman Borlaug, Ph.D., the father of the Green Revolution. Hesser described the impact he saw SoySoap had on wheat. "Normally, heads of ripe wheat are about three inches long. But more than 80 percent of the heads on treated wheat I saw in North Carolina were four inches long or more. Wheat heads normally have three rows of kernels. Nearly all of the SoySoap-treated wheat heads had four rows of kernels. Normal test weight for wheat runs 55 to 57 pounds per bushel. The North Carolina wheat tested 63 to 64 pounds."

Internationally following Southeast Asia field testing, the governments of China, Vietnam, Thailand and Philippines have approved SoySoap for use in rice production. In Vietnam, where SoySoap is privately labeled as NutraGreen, field trials show it increases rice yields an average of 35 percent, Wilshe reported.

Biobased USA says the product is formulated entirely from FDA-approved food ingredients and additives; therefore, it is non-toxic. SoySoap was originally created as a highly effective cleaner for freshly harvested vegetables and fruit.

An increasing distribution network is being established for SoySoap. Wilshe said, "Individual distributors register the product under various private labels in their states. Biobased USA does not retail to the public."

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