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In defense of wheat

At current wheat prices, the cost of biological and chemical wheat seed treatments is the price of just one bushel an acre **By Lynn Grooms**

WHEN A crop is worth more dollars per bushel, it pays to protect your investment and increase the potential of a higher return per acre. With wheat bringing as much as \$8.00/bu. last year, more wheat growers are protecting their investment with biological and chemical wheat seed treatments.

Even if wheat prices drop, these treatments are still a good investment, says Tim Maloney, president, Agri-Tech Consulting, Janesville, WI. Maloney conducts independent, large-scale, on-farm testing of various crop inputs, including seed treatments.

Because biological and fungicidal seed treatments add just a dollar or two to seed cost, breakeven is only about a bushel per acre at current commodity prices, Maloney says.

Pros and cons

Maloney has tested seed treatments on winter wheat for 12 seasons and on spring wheat for three seasons at two to three locations per year. He says the benefits of chemical fungicides include protection against fungal pathogens that reduce germination and seed vigor. Treatments containing insecticidal activity provide protection against soil insects,

such as white grubs, as well as aphids that can transmit barley yellow dwarf virus.

There is the question of whether a treatment may be needed, Maloney says. Disadvantages of biological seed treatments are their extra cost and handling, although they generally cost less than chemical treatments, he says. At the same time, growers often don't accept biologicals as readily because their activity is more indirect.

Biologicals are typically marketed for their natural fungicidal and mycorrhizal activity (improved nutrient uptake) or as fertilizers that can help improve vigor. "They can be quite beneficial, depending

THE WHEAT on the right was treated with the biological T-22, which protected it from winter kill. >



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on the year," Maloney says. "They are difficult to predict. But their low cost may make the grower's choice easier."

In several seasons of testing, Maloney has observed a positive yield response four out of five years for chemical fungicide seed treatments (a 2.2- to 8.1-bu./acre advantage). He has tested Cruiser (insecticide) in combination with a fungicide on wheat for three years and has seen yield advantages of 6.9 to 18.3 bu./acre.

For biologicals, Maloney has observed a positive yield response three out of five years (a 1.3- to 5.1-bu./acre advantage).

Good investment

Craig Lindholm, marketing manager, Seed Treatments, BASF Agricultural Products, notes that growers who have more recently started treating wheat because of better wheat prices have found seed treatment to be a good investment. But even when wheat prices are lower, treatment makes economic sense, he says. "Growers would need only to get about a ½ bu./acre yield to make seed treatments pay," he says.

BASF says tests on its Charter fungicide seed treatment, which the company introduced in 2006, and Charter PB, introduced in 2007, have shown a 5-bu./acre yield advantage over untreated wheat. Because of broad spectrum fungicide protection, healthy seedlings better tolerate stress conditions, Lindholm says, adding that Charter and Charter PB are also very seed safe.

Formulated for professional application services, Charter provides control of loose smut and common bunt in wheat. It also offers suppression of Fusarium seedling blights and seed rots. BASF's new fungicide Acquire is provided with Charter for control of *Pythium*.

Charter PB, a liquid fungicide seed treatment, is formulated for on-farm application in wheat and barley. It requires no dilution or colorant.



THE WHEAT on the left was untreated while that on the right was treated with a combination of T-22 and Dividend Extreme.

BASF tested Stamina (which contains the same active ingredient as Headline fungicide) in limited supplies in the Northwest last fall. It will be available for the full market this fall. Lindholm notes that Stamina has shown yield benefits and cold tolerance, which can help with winter wheat survival.

Because the value of seed also has increased, it makes sense for growers to use treatments as insurance, says Chad Shelton, crop/marketing manager, Syngenta Seed Care. Depending on the area of the country, wheat seeding rates vary from 40 to 120 lbs./acre, with the average at 75 lbs./acre. Growers spending about \$2.00/acre on seed treatment would need less than ¼ bu. of wheat/acre to make treatments pay, Shelton says.

Shelton notes that growers can apply Cruiser insecticide at ¼ oz./cwt to

provide wireworm control. One ounce controls aphids, and a 1.3-oz. application would also provide suppression of Hessian fly.

Syngenta Seed Care recently received registration for an on-farm seed treatment formulation called Cruiser Maxx Cereals that combines disease control with insect protection for spring and winter cereals. It was available in limited supplies last fall, with a full launch planned for this spring.

The company has seen continued improvement in Dividend Extreme, its broadest spectrum cereal fungicide seed treatment, as well as its insecticide seed treatment Cruiser.

The number of wheat acres is expected to increase in 2009. At the same time so will crop inputs. "That's why it's important to maximize your inputs," Shelton says. "If growers start off with a good

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The biological T-22 could help reduce nitrogen applications in wheat. "That alone would pay for seed treatment."

Gary Harman, plant pathologist, Cornell University

stand, they'll have healthier and more productive plants."

Gary Bergstrom, plant pathologist, Cornell University, notes that, in New York, seed treatment is tied closely to the use of certified seed. The alternative is for farmers to save their own seed for planting the next year. "With the increased value of a bushel of wheat, we're seeing more use of certified seed commercially pretreated with chemical fungicide by the seed supplier as a sound production practice," Bergstrom says. Some farmers who save their own seed may also apply a seed treatment themselves.

"Depending on the seed supplier, most seed in New York is pretreated with a triazole-based fungicide," Bergstrom says. "These usually include a metalaxyl or mefenoxam co-fungicide to pick up control of *Pythium*," Bergstrom says. He has tested seed treatments annually for more than 20 years. "Raxil and Dividend are consistent performers on wheat seed against the range of problems we see in New York," he says.

Season-long protection

Chemical seed treatments provide a relatively high degree of control against seedborne and soilborne diseases for seven to ten days, which helps seeds and emerging seedlings.

An advantage to T-22, a hybrid strain of *Trichoderma harzianum* Rifai, is that the fungi colonize on the plant's roots and grow throughout the life of the crop, says Gary Harman, plant pathologist, Cornell University, who developed the strain. Today, the T-22 biological seed treatment is produced by Advanced Biological Marketing, Van Wert, OH.

ABM notes that T-22 protects roots from *Pythium*, *Rhizoctonia* and *Fusarium*

and that it enhances nutrient utilization and nitrogen utilization. The biological could help reduce nitrogen applications in wheat, Harman says, adding, "That alone would pay for seed treatment."

Rafiq Islam, researcher at the Ohio Agricultural Research and Development Center, Piketon, OH, notes that biologicals allow wheat to grow deep, extensive roots that enhance uptake of nitrogen, phosphorus and potassium. Biologicals can help growers cut as much as 25% of their application costs, he says. Over time, as biological fungi develop a niche in the soil, wheat yields will increase, Islam adds.

With the T-22 biological, contract researchers working with ABM have seen yield increases more than 90% of the time.

Harman is currently testing other biologicals, including other *Trichoderma* strains. The challenge is to be able to produce a biological in large quantities, but the companies with which Harman works have solved these problems, he says.

Tom Luhrs, who farms 1,600 acres near Imperial, NE, began testing T-22 four years ago, thinking it would be a good companion to Dividend Extreme. He planted side-by-side plots and observed a 10-bu./acre yield advantage over untreated wheat. In replicated trials for the next couple of years, Luhrs says he saw nothing less than a 5-bu./acre yield advantage with the treatment combination.

Luhrs uses a wheat/corn/oats rotation with no-till. He also produces certified seed.

Luhrs plans to test JumpStart, a phosphate fertility management product from Novozymes, formerly Philom Bios. JumpStart contains *Penicillium bilaii*, a naturally occurring soil fungus discovered by

Agriculture and Agri-Food Canada. It is available as a wettable powder that is applied as a seed treatment prior to seeding. It colonizes plant roots and makes the bound mineral forms of less-available soil phosphate available to the crop.

Most of the seed that AgriLand Co-op, a full-service ag retailer in Wisconsin, sells is already treated with commercial seed treatments. "This gives us immediate seed protection," says Brian Madigan, agronomist, AgriLand Co-op. "A biological adds protection later in the life cycle. It helps extend protection. We had a 9-bu./acre advantage on one check strip of wheat, along with noticeable root enhancement."

The cooperative has advised customers to use T-22 along with Dividend XL RTA. "This way we can custom apply the product, reducing the rate from 0.7 oz./cwt down to 0.25 oz./cwt," Madigan says. "It mixes easily in the tank. A farmer could add this to seed in the planter, but even coverage is important."

Madigan expects that farmers in his area of east-central Wisconsin will plant as much wheat as their rotation will allow. Wheat is a good rotation crop and spreads out a grower's workload. Moreover, a harvest of 80 to 90 bu./acre could earn \$500/acre of gross revenue with less than \$250 in input costs (before land expenses), Madigan says.

Maloney agrees: "Wheat is an excellent rotation crop, especially if you can market the straw." He expects the number of wheat acres to either stay flat or increase slightly in 2009. Prices are still good, even though they have fallen substantially since last winter. "Wheat is easy to grow and labor needs are spread out from traditional corn and soybean crops," Maloney says.

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