

Flower-dwelling yeast licensed for use against scab disease

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A beneficial yeast that tolerates fungicide may offer a "one-two punch" against *Fusarium graminearum*, the fungal culprit behind Fusarium head blight ("scab").

U.S. Department of Agriculture (USDA) and Ohio State University (OSU) scientists isolated an improved variant of the [yeast](#) *Cryptococcus flavescens* about two years ago, and are evaluating its potential as a biocontrol agent.

In susceptible wheat and barley varieties, scab-afflicted kernels appear shrunken and chalky-white. The fungus can also produce a mycotoxin that can diminish the grain's value or make it less safe to eat.

Spraying fungicide can reduce scab by 50 to 60 percent; however, farmers are required to stop using the chemicals soon after wheat starts to flower. Although this measure keeps fungicide residues to a minimum, it can leave the grain vulnerable to new invasions by the scab fungus, notes David Schisler, a plant pathologist with USDA's Agricultural Research Service (ARS). He works at the ARS Crop Bioprotection Research Unit in Peoria, Ill. ARS is USDA's principal intramural scientific research agency.

Since 1998, he has teamed with OSU professor Mike Boehm and others to exploit the ability of some microorganisms to outcompete *F. graminearum* for space and nutrients in wheat's flowers and seed heads.

In December 2009, their "top pick," the naturally occurring yeast *C. flavescens*, was licensed by Sci Protek, Inc., of Visalia, Calif. In July, Sci Protek received a second license, this time for strain OH 182.9 3C, a fungicide-tolerant variant of *C. flavescens* recently discovered by Schisler and Boehm. ARS and OSU are working together in the patenting and licensing of the technology.

According to Schisler, 3C is better at preventing scab than its predecessor and can be applied to wheat either alone or combined with prothioconazole or other similar [fungicide](#) chemistries. In 2009 field trials, 3C reduced scab by 30 to 70 percent, versus 10 to 50 percent for *C. flavescens*. And when combined with prothioconazole, 3C reduced kernel damage by 85 percent versus 60 percent for prothioconazole alone.

A second round of multi-state trials aims to replicate the results, potentially opening the door to dual protection for [wheat](#), both before and after it flowers.

More information: This research was published in the Proceedings of the National Fusarium Head Blight Forum.

Provided by United States Department of Agriculture

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