Fear of GMOs prevent GM barley resistant to ‘vomitoxin’-producing fungi from reaching beers

This past summer, exceptionally hot and humid for many, was brutal for the small-scale barley farmers who have been cropping up in the northeastern United States—especially for those who intended to sell grain for malting and beer brewing. Weather conditions were optimal for *Fusarium graminearum*, a fungal pathogen that causes the wheat and barley disease fusarium head blight. The mycotoxins produced by some *Fusarium* species can be devastating. One such mycotoxin, deoxynivalenol (DON), is particularly problematic because even low levels can upset the digestive systems of animals and humans who consume infected grain, earning it the moniker “vomitoxin.”

Since the early 1990s, molecular biologists have been working to better understand *Fusarium* species, and how these fungi infect plants, to combat head blight in barley, cob rot in corn, and wilt in banana and other crops. Today, researchers are applying all manner of omics tools to breed and engineer crops that are more tolerant of, or even resistant to, *Fusarium* infection. In his North Dakota lab, Schwarz is assessing the malting and brewing quality of new,*Fusarium*-tolerant barley lines bred using traditional methods by researchers at the university’s Institute of Barley and Malt Sciences.

Despite all the work being done to stem the fungal threat, the cultural stigma associated with genetically modified foods could keep *Fusarium*-fighting malts and brews from some grocers’ shelves. In the nearer term, researchers ought to continue to reevaluate best practices, such as beneficial crop rotations, explains agronomist and cereal pathologist Juliet Marshall of the University of Idaho. “We need to focus on [agricultural management]—irrigation, fungicides, and collection of varieties,” she says.

In the long term, however, Marshall believes that genetic engineering will be key. “It’s very, very important that we get a hold of methods for really controlling this disease, which in my mind, is the basic research . . . trying to get transgenic resistance built up within the crops,” Marshall continues. “This would be the first disease that I would focus on for using [genetic modification] technology.”

Read the full, original article: Barf-Less Brews