

'Wimp' mold may be hero in war against grain fungi

MANHATTAN, Kn. — Molds are generally considered "bad," but a U.S. Department of Agriculture scientist has found one particular mold—*Aspergillus glaucus*—that acts like a "good guy" by slowing down the serious damage of more harmful fungi in stored grain.

David B. Sauer, Agricultural Research Service plant pathologist, calls *A. glaucus* a "wimp" because it grows slowly and lacks aggressiveness. "Indeed *A. glaucus* passively 'does its own thing,' which turns out to be im-

portant because it limits the effects of other more damaging molds," Sauer says.

Sauer is studying competition among molds, and looking for an effective, non-chemical way to reduce fungal growth and damage in stored grain at the U.S. Grain Marketing Research Center in Manhattan, Kan.

Sauer inoculated corn and wheat samples with three strains of *A. glaucus*. He also inoculated the grain with a combination of *A. candidus*, *A. flavus*, *A. niger*, *A.*

ochraeus, and *Penicillium citrinum*. *A. flavus* is the mold that sometimes produces aflatoxin.

Fungal growth was measured by the amount of ergosterol produced in the grain. Ergosterol is a crystalline steroid alcohol produced by molds. "If grain is clean and fungus-free, there will be an absence of ergosterol. As molds grow on grain, the amount of ergosterol increases," says Sauer.

Sauer used an ergosterol test performed by high-pressure liquid chromatography (HPLC) to find

early signs of fungal growth.

Tests were made at 68°F. and above and from 85 to 90 percent relative humidity. Grain inoculated with the five species averaged three times higher ergosterol content than grain inoculated with *A. glaucus* alone.

Inoculation with *A. glaucus* plus the five species resulted in less total fungal growth than with just the five species.

In a 1979 survey of export grain samples, Sauer found mold in every corn sample. "On the average, about 20 percent of the kernels had storage mold in them, which is probably typical of corn in commercial channels," he says.

Sauer says the storage environment is responsible for fungus invasion and growth. Such

factors as temperature, ventilation, and moisture are critical in the growth of storage molds.

"Storage molds are everywhere—in the air, in household dust. So we really can't avoid grain contamination. Studying the effects of *A. glaucus* on the more damaging molds may help us to better understand and control grain spoilage," says Sauer.

"Damp grain inoculated with any one of the five most damaging species will be absolutely destroyed within a matter of a few days or weeks," he says.

"Our tests with *A. glaucus* indicate a strong correlation between its presence and reduced damage by these five species, but we don't know yet how it limits the other fungi," says Sauer.

Farmers warned of rye hazard

ANNAPOLIS — Maryland farmers are cautioned against buying rye and other small grain for cover crop use that may contain noxious weed seeds.

As the cold weather approaches, many Maryland farmers will be buying cover crop material to prevent soil erosion over the winter. Farmers are urged to avoid untested and unlabelled seed lots which frequently are found to be heavily infested with noxious weed seeds such as quackgrass, Canada thistle and Johnsongrass.

According to Malcolm Sarna, Acting Chief of the Maryland Department of Agriculture's Turf and Seed Section, many farmers could be inviting new weed pests on their land if they buy seed for cover use that has not been tested

or is being sold for feed purposes.

"Unfortunately, some farmers are not concerned with the quality of the seed they use for cover crop purposes," cautioned Sarna, "what we are trying to do is alert farmers about buying untested and unlabelled seed. Frequently this material is loaded with noxious weed seeds."

Continued Sarna, "we urge all farmers to buy properly tested and labelled seed. If dealing on a farmer to farmer basis, at least get it tested for noxious weeds, purity and germination. It can only save you trouble in the long run."

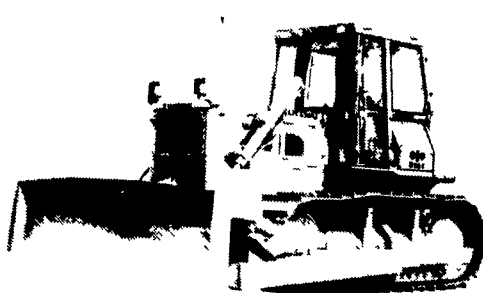
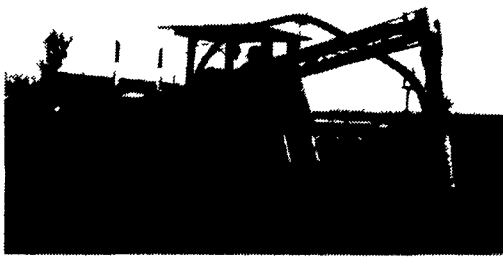
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