



## Task Force

### Gib Ear Rot of Corn

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Farmers, and especially hog producers, should be aware of the potential for Gibberella (Gib) ear rot in corn this year. There is a higher incidence of Gib when cool, wet weather occurs during the first 21 days after silking, a condition experienced in many areas of Indiana this year.

#### Identification

Gib ear rot can be readily identified in the field on intact ears, but it is much more difficult to identify once the grain has been shelled. The easiest and most accurate visual detection of Gib infection can be made just before a field is harvested. Inspect at least 10 ears in several locations in a field prior to harvest by peeling back the husks and observing the ears. Look for a pink to reddish mold that begins at the tip of the ear and develops toward the base. This symptom is reasonably reliable for the identification of Gib ear rot. Severely affected ears may be largely rotted with husks adhering tightly to the ear; they may have a pink to reddish mold growing between the husks and the ear. Except in highly susceptible hybrids, the disease usually involves only part of the ears. Superficial blue-black specks (perithecia) are sometimes found on the husks and ear shanks. Partially infected kernels discolor from the tip towards the cap, having a light water-soaked line transversing the kernel and separating the infected portion from the noninfected portion.

#### Danger to Animals

The fungus that causes Gib ear rot, *Gibberella zeae* (*Fusarium graminearum*), can produce two mycotoxins (toxic substances produced by fungi) in the infected kernels: deoxynivalenol and zearalenone.

Deoxynivalenol, also known as DON and vomitoxin, may cause swine to reduce consumption, regurgitate feed, or refuse to eat infected grain. As little as 2% infected kernels (approximately 1.3 ppm DON) may cause hogs to reduce consumption, and as little as 10% infected kernels (approximately 10.0 ppm DON) may cause total feed refusal. Other animals with emetic centers (cats, dogs, and humans) can be affected by DON. Little or no effect occurs in chickens or cattle at low levels. Production of DON is favored in preharvest grain by 20.5% or more grain moisture with 70-85°F temperatures.

Zearalenone is an estrogenic hormone type mycotoxin. It can cause infertility, abortion, or other breeding problems. As little as 1 to 5 ppm zearalenone in a feed ration may produce an estrogenic effect in swine. Zearalenone is more likely to be produced in improperly stored grain following a period of cold temperatures, but it may also be produced in preharvest grain.

Production of zearalenone is favored by grain moisture in excess of 20.5% and 70-85°F temperatures after a cold shock period.

#### Harvest

Fields affected with significant amounts of Gib ear rot should be harvested and handled separately. Harvest affected fields as early as possible. Quickly dry the grain to 15% or lower moisture. Proper storage at or below 16% moisture will prevent further growth of causal fungus and mycotoxin production. Adjust combines to reduce the amount of fines and small, shriveled or broken kernels because mycotoxin concentrations are almost always higher in fines and screenings.

Gib ear rot can occur throughout Indiana, but it tends to be more prevalent in the northern half. It may be more severe in fields where corn followed corn and where the previous corn crop was affected with either Gib ear rot or stalk rot. The same holds true where corn followed wheat affected with head scab (caused by the same fungus). Hybrids differ in their susceptibility to Gib ear rot, and, fortunately, many hybrids grown in the state today have fair to good resistance to Gib ear rot.

### **Storage**

It is advisable for hog producers to store Gib-infected grain separately from grain having no disease. This provides producers feeding their own corn the opportunity for blending the infected corn with the noninfected corn at the time swine diets are mixed to minimize the effects on feed intake.

### **Handling Procedures**

It is illegal to blend contaminated grain with sound grain for marketing or sale. Feed with less than 1 ppm vomitoxin, which is approximately equivalent to 2% of the kernels of corn infected, usually can be fed safely. Screenings from affected fields should not be fed to hogs, and only with caution to cattle or other animals. It is advisable not to feed corn showing evidence of any molds to breeding animals.

Vomitoxin is water soluble; however, that does not offer a practical solution to the problem. Many procedures and treatments including roasting, adding propionic acid, molasses, or ammonia to the feed have been tried, but all failed to increase feed intake.