



# Swine Fact Sheet

## Animal and Dairy Sciences

### Auburn University



SFS-0200

August, 2000(revised 01/02)

## Aflatoxicosis in Swine

W. F. Frank@Owsley, Extension Animal Scientist  
James G. Floyd, Jr., Former Extension Veterinarian

Aflatoxins are produced by *Aspergillus flavus*, a fungus often found in corn in the southeastern United States. This fungus thrives at high grain moisture levels (22% to 26%) and temperatures of 82° to 90° F. Drought-stressed corn is especially susceptible to aflatoxin contamination. *Aspergillus flavus* produce two toxins: aflatoxin B<sub>1</sub> and aflatoxin B<sub>2</sub>. Both are toxic to swine.

The effects of feeding aflatoxin-contaminated corn depends on the age of the pig and the concentration of the toxin in the feed. Low levels (20 to 200 ppb) can affect pig performance through reduced feed intake and suppression of the immune system. High levels (1,000 to 5,000 ppm) can result in death. A metabolite of aflatoxin (aflatoxin M) can be found in milk from sows fed diets with aflatoxin. Lactation diets with 500 to 750 ppm aflatoxin can result in mortality and reduced growth of nursing pigs.

There are no maximum safe levels of aflatoxin in swine diets, as effects can be found with low concentrations (20 ppb.) There are published maximum tolerable levels in complete diets for some classes of swine: pigs less than 50 pounds - 20ppb; finishing pigs - 200ppb; breeding swine - 100ppb.

If the fungus is present and viable, aflatoxin levels can increase during grain and feed storage. One severe case of aflatoxicosis (850ppb aflatoxin in the finished feed) resulted from feeding corn with less than 20 ppb aflatoxin, but the feed was stored in large, outside feeders for seven to 14 days. There is a risk of aflatoxin toxicity in feed from low levels of aflatoxin in corn.

The first step in addressing aflatoxin in swine on the farm is prevention. The potential for aflatoxin is reduced by drying (less than 15% moisture), removal of foreign material and cracked kernels, and routine aeration of stored corn. Suspect corn should be analyzed for aflatoxin B<sub>1</sub> and aflatoxin B<sub>2</sub>, through a commercial lab or the veterinary diagnostic lab. If aflatoxin is present, the concentration will determine the next step.

The simplest method of dealing with aflatoxin contaminated corn for on-farm use is blending. Contaminated corn can be mixed with clean corn to reduce aflatoxin to an acceptable level. For example, mixing 500 pounds of corn containing 400ppb aflatoxin with 1500 pounds of aflatoxin free corn reduces the aflatoxin level to 100ppb. If the contaminated corn contains viable fungus, the aflatoxin levels will increase with high moisture and warm temperatures.

Fungal inhibitors such as propionic acid can reduce or prevent fungal growth. These inhibitors can be expensive to use and difficult to apply properly. They will have no effect on the aflatoxin already present in the corn.

ALABAMA A&M AND AUBURN UNIVERSITIES, AND TUSKEGEE UNIVERSITY, COUNTY GOVERNING BODIES AND  
USDA COOPERATING

The Alabama Cooperative Extension System offers educational programs, materials, and equal opportunity employment to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability.

The commercial feed industry often uses compounds called aluminosilicates to improve the pelleting and flow properties of feed. In the early 1980s, research showed some of these compounds reduced the negative effects of feeding aflatoxin contaminated corn. Mixing 10 pounds per ton sodium bentonite in feed using corn with 750ppb aflatoxin produced growth comparable to aflatoxin free feed. Similar benefits were found using a hydrated sodium calcium aluminosilicate. These compounds partially bind aflatoxin in the digestive tract and reduce their absorption.

Aflatoxin is a problem that can often be controlled through proper grain handling. During drought conditions, however, it is a constant possibility. Suspect corn should be tested, and appropriate action taken based on the level of aflatoxin and the age and weight of the pigs to be fed.

For more information, contact your local county Extension office or veterinarian, or the Alabama Department of Agriculture and Industries feed control office.

*Note: Information in this fact sheet applies only to swine feed for on-farm use. Sale of feed containing any mycotoxin is regulated by FDA.*

*Note: Portions of this fact sheet were adapted from **Mycotoxins and Swine Performance** PIH-129, in the *Pork Industry Handbook* published by Purdue University.*