

# Major Mycotoxins and Toxin-Producing Fungi from Corn, Cereals, Soybeans, Peanuts and Other Products and Some of Their Effects on Animals

<u>Toxin or syndrome</u>	<u>Fungal source</u>	<u>Feeds or food affected</u>	<u>Possible animal effects</u>
<i>Aspergillus</i> Toxins (primary) Aflatoxins B <sub>1</sub> , B <sub>2</sub> , G <sub>1</sub> and G <sub>2</sub> (B <sub>2x</sub> , G <sub>2n</sub> , M <sub>1</sub> and M <sub>2</sub> metabolites are seldom present in grain: M <sub>1</sub> and M <sub>2</sub> are contaminants in milk)	<i>A. flavus</i> and <i>A. parasiticus</i>	Cereal grains, peanuts, soybeans and other foods	Hepatotoxin; carcinogenic; reduced growth rate; hemorrhagic enteritis; suppression of natural immunity to infection; decreased production of meat, milk and eggs
<b>Ochratoxins</b> (nephrotoxins)	<i>A. ochraceus</i> and <i>Penicillium viridicatum</i>	Cereal grains	Toxic to kidneys and liver; abortion; poor feed conversion, reduced growth rate, general unthriftiness; reduced immunity
<b>Sterigmatocystin</b>	<i>A. nidulans</i> and <i>A. versicolor</i>	Cereal grains	Toxemia; carcinogenic
<b>Tremorgenic toxin</b>	<i>A. flavus</i> , <i>P. cyclospium</i> and <i>P. palitans</i>	Cereal grains, soybeans, peanuts and other food feeds	Tremors and convulsions
<b>Penicillium Toxins</b> (primarily) Luteoskyrin	<i>P. islandicum</i>	Rice	Tremors and convulsions
<b>Patulin</b>	<i>P. urticae</i> , <i>P. expansum</i> , <i>P. claviforme</i> and <i>A. clavatus</i>	Cereal grains, apple products	Hemorrhages of lung and brain; edema toxic to kidneys; possibly carcinogenic
<b>Rubratoxin</b>	<i>P. rubrum</i>		Liver damage and hemorrhage
<b>Citrinin</b>	<i>P. citrinum</i>		Kidney damage
<b>Penicillic Acid</b>	---		---
<b>Fusarium Toxins</b> Zearalenone (Estrogenic syndrome) Zearalenol	<i>F. graminearum</i> , <i>F. tricinctum</i> and, in a minor way, <i>F. moniliforme</i>	Cereal grains	Hyperestrogenism, infertility, stunting and even death
Emetic or feed refusal factor (Vomitoxin, deoxynivalenol) or DON	<i>F. graminearum</i> (sexual state, <i>Gibberella zeae</i> )	Cereal grains	Food refusal by swine, cats, dogs; reduction in gain

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Other trichothecenes (T-2, HT-2, Monoacetoxyscirpenol or MAS DAS)	<i>F. tricinctum</i> , some strains of <i>F.</i> <i>graminearum</i> , <i>F.</i> <i>equiseti</i> , <i>F. lateritium</i> , <i>F. poae</i> and <i>F.</i> <i>porotrichoides</i>	Cereal grains	Severe inflammation of GIT, possible hemorrhage; edema; vomiting, diarrhea; infertility; degeneration of bone marrow; death; slow growth; sterility
<b>Fumonisin B<sub>1</sub>, B<sub>2</sub></b>	<i>F. moniliforme</i>	Corn	Leucoencephalomalacia “blind staggers” in horses
<b>Ergot Toxins</b> Ergopeptines	<i>Claviceps purpurea</i>	Cereal grains	Vasoconstriction, loss of extremities
Ergovaline	<i>Acremonium</i> <i>coenophialum</i>	Fescue	Reduced weight gain, abortion, poor survivability of offspring, fescue foot.