



Zearalenone (ZEA) Fact Sheet

Background Information: Zearalenone is a *Fusarium*-produced mycotoxin that has a chemical structure similar to estrogen, and can produce estrogenic responses in animals. Swine are very sensitive to ZEA, as well as ruminants. Ruminants can metabolize some toxins down in the rumen to reduce their effects, but in the case of ZEA, more than 90% is converted to alpha-zearalenol, which is 4-10 times more toxic than the parent toxin and to a lesser extent, to beta-zearalenol, which has an equal to lower toxicity than the parent toxin.

Major crops affected: Cereal grains and their corresponding silages. Corn (most frequently affected), and on grains/silages that are late harvested and/or late maturing.

Associated Mold: *Fusarium sp.*

Conditions favoring production: Cool & wet. After infestation of *Fusarium* mold, warm conditions promote more mold growth, while cool conditions promote more Zearalenone toxin formation. ZEA growth occurs more often in storage than in the field, in particular on higher moisture grains that are questionable for storage.

Symptoms: Estrogenic effects - Irregular heats, low conception rates, ovarian cysts, atrophy of ovaries, pseudo pregnancy, malformation of fetus, embryonic loss, abortions, infertility, vulva edema, vaginitis, vaginal secretions, prolapses, enlarged &/or twisted uterus, reproductive tract infections, abnormal return to estrus, hyperestrogenism, stillbirths, fetal mummification, udder edema, teat enlargement, udder secretions, shrunken udder/agalactia, reduced feed intake, decreased milk production, milk contamination, reduced testicular size, delayed sexual maturity (male), low sperm production, tail necrosis (swine), splay-leg of piglets, and decreased litter size (swine).

Interpretation Guidelines:

Detection Limit	Concern Level* (TRDM)	Potentially Harmful Level** (TRDM)	
		Cattle	Swine
10 ppb	560 ppb	3,900-7,000 ppb	600-3,900 ppb

*Level indicating possible favorable conditions for mycotoxins and probable need for further testing of all feeds or the TMR. Pending further tests, negative samples should be considered at concern levels in the presence of moderate symptoms and at harmful levels with marked symptoms. Limit amounts fed if moderate performance effects are present. Discontinue use at least temporarily if pronounced performance effects or acute clinical symptoms are present. Closely observe animals and continue checking for other possible causes.

**Mycotoxins at these levels indicate probable involvement in performance effects or acute clinical symptoms. Discontinue feeding at least temporarily in the presence of either type of symptoms. Observe animals closely in the absence of symptoms and do further testing of all feeds or the TMR.

TRDM = Total Ration Dry Matter

Dairyland Lab Packages that include Zearalenone:

- Individual Mycotoxin request
- Mycotoxin Basic Package
- Mycotoxin Select Package
- Mycotoxin Complete Package

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