Zearalenone (F2 toxin) and zearalenol are produced almost exclusively by *Fusarium* species. These species of *Fusarium* contribute to ear and stalk rot and scab on the heads of cereal grains (scab) standing in the field. *Fusarium* species can also be storage pathogens. The zearalenone mycotoxins can be found at concentrations up to 5 ppm in corn silage and delayed harvest soybeans. When consumed by swine at dietary concentrations of 0.1 to 5 parts per million (ppm) (mg toxin/kg feed), these compounds cause an estrogenic syndrome, which is characterized in females by a swollen and edematous vulva with enlarged mammary glands, and in young males by atrophy of the testes and a swollen anal area. Young gilts may show nymphaemia, vaginal prolapse and gilts, boars and barrows may have prolapse of the rectum. Anoestrous and false pregnancy may be observed in gilts and sows. Abortions generally do not occur, but reduced litter size may be observed. If lactating sows consume zearalenone-contaminated feed, piglets may develop enlarged vulval and anal regions. Splay-legged piglets are linked to sows consuming zearalenone-contaminated feed during late pregnancy. These impacts on reproductive performance cause financial loss to the hog industry. Zearalenone poisoning (estrogenism) in swine and occasionally in dairy cows is usually more prevalent in the winter and early spring because once the fungus is established in the grain or silage, it generally requires a period of relatively low temperatures to produce biologically significant amounts of zearalenone. Some strains of *Fusarium graminearum*, when growing in corn, produce zearalenone and a mixture of other mycotoxins. In zearalenone poisoning, the animal is generally exposed to a mixture of *Fusarium* mycotoxins. In addition to estrogenism, severe stunting and other deleterious effects can be observed in swine. Nymphaemia, decreased fertility, prolonged estrus and swelling of the vulva and decreased milk production are signs of zearalenone poisoning in dairy cows fed rations containing zearalenone. The offending feeds are usually corn, barley, corn silage and occasionally hay. In incidents where zearalenone was linked to estrogenism in dairy cattle, the zearalenone level detected in the concentrate was 1.5 ppm with 1.0 ppm deoxynivalenol (DON). The effects of zearalenol are similar to zearalenone but zearalenol is generally considered to have 3 to 5X greater estrogenic effects.

Broiler chicks and laying hens, unlike swine and dairy cows, are affected very little by dietary zearalenone, even when fed massive doses. Pure zearalenone fed to broiler chicks and finishing broilers at rates up to 800 ppm resulted in no effect on weight gain, feed consumption, and feed-to-gain ratio. The weights of the liver, heart, spleen, testicles, oviduct, comb, and bursa were similar to those in the controls that received no
zearalenone. In laying hens, zearalenone had no effect on egg production, egg size, feed consumption, body weight, fertility, hatchability of fertile eggs, or reproductive performance. When turkeys ate feed containing 300 ppm of zearalenone (a massive dose) they developed greatly enlarged vents within four days, but there were no other gross effects.

Categories: Stored Grain, Fungi, Zearalenone, Zearalenol, Estrogenic Syndrome

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