TEXAS A&M AGRILIFE EXTENSION

Texas Dairy Matters

Higher Education Supporting the Industry

USE CAUTION WITH DROUGHT STRESSED FEED

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As the drought continues, all livestock producers struggle to find enough forage. At the same time, many growers are attempting to salvage corn and sorghum crops. Although these crops may be used in dairy rations, danger may be lurking.

Drought-stressed crops may harbor aflatoxins, prussic acid or high levels of nitrates. Aflatoxins are a poisonous by-product of the growth of some species of the mold *Aspergillus*. Metabolites of aflatoxin are potent cancer-causing agents, thus government regulations specify milk must contain less than 0.5 parts per billion.

To keep milk from becoming tainted with aflatoxins, producers must adhere to the Food & Drug Administration guidelines and keep the aflatoxin in dairy feed less than 20 parts per billion. Thus caution is required when considering the use of corn grown under stressful conditions.

For example, Texas A&M AgriLife Extension plant pathologists collected samples from corn fields north of Dallas that were being baled for whole plant hay. Composite samples of several ears from two samples measured 590 ppb and 1,700 ppb aflatoxin. The Extension pathologists then analyzed the kernels from the plants and found 2,200 and 1,400 ppb aflatoxin.

Representative ear samples from the Frisco, TX corn field, collected on July 13, 2006. The ear at the bottom of the photo shows visible colonization by *A. flavus*. (Photograph courtesy of Tom Isakeit)

The kernels were one-third of the total plant weight, which would make it difficult, if not impossible, to use this whole plant hay for dairy cattle.

Another problem that may occur in drought-stressed forages is high levels of nitrate. Typically, rumen microbes break down the nitrates; however whenever nitrates are more than 0.44 percent of the forage on a dry-matter basis, feeding strategies are required. For example, pregnant animals should be limit fed forages to no more than half the dry matter in the ration when nitrate concentrations are between 0.44 and 0.66 percent of the dry matter.

The third concern with drought-stressed crops is prussic acid. Prussic acid accumulates in sorghum, sudangrass, johnsongrass and sorghum-sudangrass hybrids when these forages are stressed. High levels of nitrogen fertilization can increase prussic acid accumulation. Re-growth after a rain is often associated with prussic acid poisoning.

Test forages to determine the level of prussic acid. Levels less than 500 parts per million on a dry matter basis are usually considered safe, while levels greater than 1,000 ppm are considered hazardous and can be fatal to livestock.

Whenever Texas has suffered through drought, locally grown crops must be monitored for aflatoxin, nitrates and prussic acid. Purchase grain from reputable companies that test for aflatoxin. Check to ensure the company properly monitors their grains.

If you suspect your forages may be high in nitrates or prussic acid, consider ensiling the forage. The ensiling process decreases prussic acid and nitrate concentration. The result may make the forage safe to feed, but retest to determine if dilution is still needed.

Don't buy poor quality feed or feed ingredients. A good deal on feed can be very expensive if it contains aflatoxin, nitrates or prussic acid.

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