

# Flint Hills District

## Agriculture & Community Development

MARCH 2021

### Sampling Grain for Mycotoxins

By Carlos Campabadal, Ph.D, Extension Specialist, Department of Grain Science and Industry

During the fall crop harvest season, one of the most common concerns of farmers, elevator personnel, and end-users is high concentrations of mycotoxins and more specifically, aflatoxin in corn. Depending on who addresses this issue, it is not uncommon to hear different ways on how to measure and handle mycotoxins. However, the reality is that mycotoxins are commonly present on the grain where their concentrations vary widely and, in some cases, exceed thresholds of concern for human consumption and animal feed.

Presence of mycotoxins depends on several factors that can affect the plant and kernels during the growing season. These factors include drought, pest infestations, and extreme wet conditions, that cause stress to the plant allowing different types of molds to enter. If the ambient conditions and moisture content are ideal, mycotoxins can be produced. Despite the fact that scientists can predict the growth of molds and its production of mycotoxins, the only way to know if they are present is by sampling the grain.

The goal of sampling grain or any type of feed ingredient is to collect a portion from a larger quantity that represents the overall average condition. The larger quantity is referred to as a "lot" which can be anything where the grain is held. For example, it can be a truck load, a railcar, a silo, a bag, or any type of temporary storage. The science behind sampling is based on statistical procedures that use probability to determine the correct number of samples needed for each purpose.

There is scientific literature with detailed explanations on sampling that have served as fundamental information for different organizations or government institutions to develop their own sampling. For example, USDA's Federal Grain Inspection Service (FGIS) has developed different sampling schemes for grain trucks, grain export vessels, etc. The nature of the sampling scheme is usually based on how consistent the quantity of the component to be measured is on a specific number of samples. This creates a statistical confidence that the number of samples from a lot will give us a true value of the average of the component's quantity measured. For example, in a feed mill the number of samples to quantify protein content of soybean meal with a certain degree of confidence is less than the number of samples needed to quantify aflatoxin in corn in a similar sized lot. The protein content of soybean meal is usually fairly consistent in a given

lot, whereas aflatoxin presence and levels are not.

The science will tell you to take several samples from a lot and mix them uniformly to get a composite sample. Also, it will tell you to take samples from at least 10% of the volume of the truck or railcar and that the higher the number of samples, the more precise your results. However, in day to day grain related operations including farms, there are many factors that can influence the way the sampling scheme is developed. These factors vary depending on each location's conditions. For example, sampling during harvest when loads are coming in rapidly compared to other times when the pace is much slower. Other factors include availability of personnel and proper sampling equipment (grain probes both manual or automatic), precision or speed of analysis of the quality specs, and overall costs. The sampling of grain for quantifying mycotoxins in the field or during handling and storage is a difficult topic due to their nature and potential negative effect on animal health, market, etc. It is important to understand that in the field or in storage, mycotoxins are not uniformly distributed. On a farm, one field can have mycotoxins and the one next to it, might not. The same is true when grain is moved on trucks. It is common for one to five samples to be collected from grain trucks carrying feed ingredients or grain. More samples will always be better when trying to determine the true concentration of mycotoxins in a given lot.

Therefore, when analyzing reports or news articles about mycotoxins presence, it is important to pay attention to the number of samples and if they were taken at random locations. For example, there are reports that show aflatoxin presence on corn in the state of Kansas, but the number of samples for the analysis were only two. Therefore, would you trust this source considering the size of the state and the amount of corn grown?

In conclusion, the goal of this article is to create awareness that the better the sampling scheme, the more trust we can have on our results or interpretation of data and reports. It is important to know the reality of the quality of the crop that we grow or use.



"A dream  
 doesn't  
 become  
 reality  
 through  
 magic; it  
 takes  
 sweat,  
 determination  
 and hard  
 work."  
 -Colin Powell

## "Spring" Into March and Livestock Shows!

Spring is almost upon us! March is the time of year where the weather begins to warm up, and spring livestock shows gear up for the season. Spring livestock shows give our youth the opportunity to take their livestock on a test run. These shows give them a chance to prepare for their upcoming county fair, state fair, and the Kansas Junior Livestock Show. However, there is one thing that they must accomplish before they begin their nomination for both state fair and Kansas Junior Livestock. All youth that plan on taking livestock to either of these two state shows must become YQCA certified.

YQCA stands for Youth for the Quality Care of Animals. This is a multi-species quality assurance program made for youth that focuses on food safety, animal well-being, and character development. YQCA is available in person and led by a certified instructor as well as online through the YQCA website.

I will be offering two in-person YQCA trainings for the 2021 show year. If you have youth planning on taking livestock to either of the state shows and need to get them YQCA certified, please have them attend either the March 28th session or the April 25th session. Both sessions begin at 1:00 pm at the Morris County Community Building in Council Grove. Even if youth are not taking livestock but still wish to become certified, they may attend as well. Please go to <https://yqca.learn-grow.io/Account/Login> to register your youth in the session they are able to attend. The registration fee is \$3 and if in 4-H, please use your 4-H Online login information.

If you have any questions regarding this certification, please feel free to contact me.

Best,

Shannon

(Agriculture/4-H Agent)



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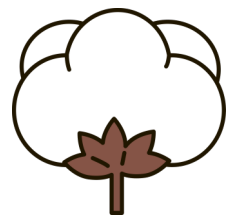
**-Website:** [www.flinthills.ksu.edu](http://www.flinthills.ksu.edu)

**-Mailing list:** Know someone who should receive this newsletter? Call the office to have them added at (620)767-5136 or email Shannon at [spspencer@ksu.edu](mailto:spspencer@ksu.edu).



### March Ag Fact

A finished bale of cotton weighs about 480 pounds.



## Nutritional Flushing in Ewes

Nutritional flushing of ewes is the techniques by which we can increase the plane of nutrition, most commonly by increasing the energy available in the ewe's diet, likely increasing ovulation rates during breeding time, leading to higher lambing rates. This technique is simple and relatively cheap to implement in any operation, from farm flock to range.

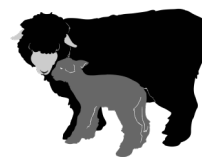
To implement this technique in your operation, we must first have some nutritional management guidelines prior to breeding.

1. To have an effective flush, the ewes cannot be over-conditioned going into the increased plane of nutrition. The body condition scores (BCS) should not exceed 3 for best results. The typical range of BCS for successful flushing usually falls between a 2.25 to 3.
2. To achieve the desired BCS, sometimes managers must remove ewes from lush pastures or remove grain from the diet to decrease condition.
3. A helpful tool for BCS scoring can be reached at this link: <https://www.agric.wa.gov.au/management-reproduction/condition-scoring-sheep>
4. Successful flushing typically increases the energy available to the ewes by 1.2 to 1.8 times the energy requirements of the ewe. This can usually be achieved by feeding a grain

source at 1 to 1.5 pounds per head per day or by turning out on lush forage at proper stocking rates. However, adjustments might have to be made for optimal success by operation.

5. Lastly, flushing diets should be fed for 2 to 4 weeks prior to breeding for best results and the same can be done with the rams. The added condition can be maintained if ewes reach a BCS of 3, however, if flushed to greater than a 3 (3.5 to 4), it is highly encouraged that their condition gradually be reduced following breeding.

Overall, flushing is a relatively simple and affordable technique that can be implemented in almost any operation with success. Lambing rates typically increase by 10 to 30% when flushing occurs, therefore, in most situations, the extra cost of grain for this short time of supplementation likely pays for itself in most cases. In conclusion, by adding extra nutritional management, the overall productivity and efficiency of ewes can be increased. (Dr. Alison Crane, KSU Sheep and Meat Goat Specialist)



## Strawberry Planting

New strawberry plantings should be set early in the growing season so that mother plants become established while the weather is still cool. The mother plants develop a strong root system during this cool period when soil temperatures are between 65 and 80 degrees F. The most appropriate planting time is mid- to late March in southern Kansas and late March to mid- April in the northern areas of the state. Space plants 18 to 24 inches apart.

Later in the season, runners and daughter plants develop. The earlier the mother plants are set, the sooner the first daughter plant will be formed and take root. These first daughter plants will be the largest daughter plants at the end of the growing season and will bear more berries per plant the following spring. When planting is done later, the higher temperatures stress the mother plants resulting in reduced growth, weaker mother plants and delays in daughter plant formation. Fewer and smaller daughter plants produce fewer berries, resulting in a smaller crop.

Remove all flowers during the first year. New plants have limited energy reserves that need to go toward establishing the mother plants and making runners rather than making fruit. If fruit is allowed to develop the first year, the amount of fruit produced the second year is drastically reduced due to smaller, weaker daughter plants.

Keep row width at 12 to 18 inches as strawberries bear most on the edges of the row rather than the center. A rototiller or hoe can be used to keep the row at the recommended width. (Ward Upham)



## Kansas Junior Meat Goat Producer Week



**K-STATE**  
Research and Extension

March 15-20, 2021  
Kansas State University  
Hosted Virtually

Join us March 15-20 for a virtual Kansas Junior Meat Goat Producer Week. This educational event will span a week of sessions during which youth, parents, meat goat project leaders, and adults can increase their knowledge of meat goat production and management practices. Presentations and demonstrations will be provided by K-State faculty members, graduate and undergraduate students, and guest speakers. Sessions will be conducted during the week, with the program concluding on Saturday morning. All presentations will be recorded and shared with those who register, so families may participate at their own pace and as their schedule allows. The program is free this year, but all attendees will need to register using the link below.

Register Online by March 8!

### Schedule (tentative):

#### Tuesday, March 16

6:30 PM Selection  
7:15 PM Nutrition & Daily Feeding  
7:45 PM Wrap-up

#### Thursday, March 18

6:30 PM Health & Wellness  
7:00 PM Livestock Guard Dogs  
7:30 PM Wrap-up

#### Saturday, March 20

9:00 AM Equipment & Daily Care  
9:30 AM Clipping & Show Day Prep  
10:00 AM Showmanship  
10:30 AM Overall Q&A, Wrap-up

1:00 PM State Livestock Nominations\*

(\*optional for those interested in exhibiting at the Kansas State Fair Grand Drive and/ or KJLS)

K-State, County Extension Councils, Extension Districts, and U.S. Department of Agriculture Cooperating. All educational programs and materials available without discrimination on the basis of race, color, religion, national origin, sex, age, or disability.

### Thanks To Our Sponsors!

Essential Show Feeds  
Valley Vet Supply  
K-State Department of Animal Sciences and Industry

### Door Prizes!

We will be drawing for show equipment and supplies!

### Questions? Contact:

Lexie Hayes  
adhayes@ksu.edu  
785-532-1264



To Register Online: <https://bit.ly/KSUJrMeatGoatWeek>



- Although the program is being provided free of charge, thanks to our generous sponsors, we do need **ALL** participants to register, including **youth and adults**.
- Make sure to use a valid email address that a member of your household checks regularly, as we'll be relying on email correspondence leading up to the program.
- Watch your email the week of March 8 for attendee details and specific links!

K-State Research and Extension and the Kansas State University Department of Animal Sciences and Industry, or their assignees, reserve the right to photograph, record the image and/or voice of participants for current or future research, educational, and/or promotional purposes. By attending, you provide consent to the above items and waive all rights to claims for payment or royalties in connection with any use of said images or recordings.



# K-STATE

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for Life*



## Upcoming Events

*The following are area or Statewide Agriculture, and/or Community Development/4-H events.*

*For more information on these events please contact the Extension Office*

### **March**

5– Cattlemen’s Day– Virtual

6– District 4-H Club Days– Chase Co.

9– Morris County 4-H Beef Weigh-In

15-20– Kansas Junior Meat Goat Producer Week– Virtual

20– Regional 4-H Club Days– Burlington

28– YQCA Training at 1:00 pm– Council Grove

### **April**

2– Good Friday—Offices Closed

4– Happy Easter!

25– YQCA Training at 1:00 pm– Council Grove

