



OTSC Quarterly Newsletter



Volume 25, No. 3

Office of the Texas State Chemist

August, 2018

Sample Preparation for Testing of High Moisture Corn

Corn is harvested dry (< 16% moisture) for storage or harvested wet (>20% moisture) for direct delivery to feed yards. High moisture corn is difficult to test (e.g. for fumonisin) due to the challenge of grinding a representative sample. At the request of industry stakeholders, the Office of the Texas State Chemist (OTSC) is conducting a study to validate the use of microwave and slurry methods to prepare samples of corn.

The objective is to provide a sample preparation method for high moisture corn that will allow for accurate measurement of fumonisin. Preliminary work has been done to evaluate the microwave and slurry prep methods using naturally-contaminated corn (containing 16 to 34 ppm fumonisin) at different moisture levels.

The goal of the microwave method is to dry the high moisture corn at or below 20% moisture to facilitate grinding. Preliminary results show that fumonisin had lower recovery in the microwaved product compared to initial values.

For the slurry method, naturally-contaminated whole corn (and water) were mixed using a retail Ninja® blender. This prep method eliminates the

OTSC Compliance Updates

In order to protect consumers and enhance agribusiness in Texas, the OTSC has implemented a continuous improvement program to improve the processes within its regulatory compliance program. According to Ben Jones, Associate Director of Compliance, the feed and fertilizer industry continues to improve compliance rates.

Some compliance highlights of Fiscal Year 2018 include:



Figure 1

need for drying corn prior to grinding and the only alteration to the initial fumonisin level would be the dilution. Preliminary results are promising and fumonisin recovery does not appear to be affected. Larger sample size and longer blend time did result in better recovery of fumonisin (Figure 1). Additional work is being conducted to determine optimum sample size and blending time for this method.

Next steps include validation of the preparation methods and application of the best preparation method to test high moisture corn at various moisture stages (field validation) with testing locations to be determined.

- Sample violation rates for feed is approximately 13%
- Sample violation rates for fertilizer is approximately 15%
- Zero OTSC lab findings were overturned by referee labs.

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Protects consumers & enhances Agri-Business through its Feed & Fertilizer Regulatory Compliance Program, surveillance & monitoring of Animal-Human health & environmental hazards, & preparedness planning.

Reviewing Analytical Variation Values in Feed

Analytical Variations (AV) are used to determine if a guaranteed nutrient in feed falls within a range of inherent variability. AV values are important to the industry because they determine if samples that are close to the guarantee are violative. A need exists for a re-evaluation of the AVs due to advances in testing methods.

OTSC re-evaluated the AV values using Association of American Feed Control Officials (AAFCO) proficiency test results over the past four years. The AV is calculated as $2 \times$ coefficient of variation (CV). The coefficient of variation is also known as the relative standard deviation and is a ratio of the standard deviation divided by the mean. Fifty three total datasets from the 2014-2017 AAFCO check sample program, were analysed. Analytes with significant differences between original and new AV values are summarized in Table 1.

Table 1- Analytes with significant differences between original and dataset AV values

Analyte	Meet Current AV	Out of Concentration Range	Higher than Current AV
Fat	24.0%	17.3%	58.7%
Fiber	2.0%	18.4%	79.6%
Moisture	19.2%	1.9%	78.8%
Protein	34.6%	11.5%	53.8%
Selenium	15.1%	0%	84.9%
Riboflavin	35.9%	0%	64.1%
Vitamin A	2.3%	0%	97.7%

After comparing the dataset AV values to the original AV values, OTSC found that some of the original AV values need to be updated. New models were created to update the original AAFCO AV values. For example, some analytes have AV values that rely heavily on concentration. For these analytes, concentration was added into the new model. Data from OTSC along with input from chemists on the properties of certain analytes will also be used to evaluate and validate the new model.

Fall OTSC Advisory Committee Meeting Scheduled for October 5th

The Fall OTSC Advisory Committee meeting is scheduled for Friday, October 5th. The Advisory Committee will be discussing:

- Testing high moisture corn for fumonisin
- Economic analysis of mycotoxin one-sample-strategy
- Mycotoxin update (aflatoxin/fumonisin incidence and policy)
- Proposed definition of a feed product produced and sold by a farmer
- Fumonisin risk assessment, step one-meta data analysis
- Copper in sheep feed
- Compliance update

