OTSC Quarterly Newsletter

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One-Sample-Strategy Extends to Fumonisin

The Office of the Texas State Chemist (OTSC) regulates contaminants in feed and fertilizer under the authorities granted to the Texas Feed and Fertilizer Control Service (FFCS) contained within the Texas Commercial Feed and Fertilizer Control Acts and rules. Among contaminants in cereals and oilseed are mycotoxins, which are toxic fungal metabolites.

Since 2011, OTSC initiated a form of co-regulation to manage aflatoxin risk, under a program titled the "One-Sample-Strategy" (OSS). The program was given this tagline because the test result from a single sample collected, prepared and measured accurately could be used multiple times (e.g. purchasing decisions, crop insurance and regulation). The Service recognizes the aflatoxin test results of OSS participants as official for the purpose of regulation (thus the title co-regulation). Based on the successful implementation of this program, stakeholders requested the One-Sample-Strategy program be extended to fumonisin.

Fumonisins are a group of mycotoxins produced by fungi from the genus *Fusarium*, a field fungi that infects a number of grain crops including corn. Two animal diseases associated with fumonins include equine leukoencephalomacia (ELEM) in horses and porcine pulmonary edema syndrome in pigs.

The Office of the Texas State Chemist (OTSC) is the only regulatory agency within the United States that has promulgated rules defining maximum levels for fumonisin in animal feed, which were subsequently adopted by the Food and Drug Administration (FDA) in their guidance for fumonisin levels.

Advances in field kit testing technology to measure fumonisin in the past year enabled these kits to be successfully deployed at grain elevators. Additionally, in the past year the Grain Inspection, Packers, and Stockyard Administration (GIPSA) of the United States Department of Agriculture (USDA) has issued new guidance for testing performance of field kits including testing range.

During 2016, two grain elevators participated in a pilot study to assess the suitability of the One Sample Strategy (OSS) to manage fumonisin risk. OTSC re-evaluated the retained portion of the sample measured by grain elevators and found the results were highly correlated. Samples containing less than 5 parts per million regulatory ML for fumonisin were correctly classified by the grain elevator. These preliminary results were shared with the OTSC advisory committee. OTSC is working closely with the Risk Management Agency (RMA) to achieve the same recognition that has been extended to the aflatoxin OSS risk management program and is working with test kit providers to facilitate their successful deployment by the Texas grain and feed industry.

Drs. Dai & Herrman Present at AOAC Meeting

The 2016 AOAC Annual Meeting was held in Dallas on September 18-21, 2016. At the meeting, Dr. Dai facilitated a scientific session titled "Advancing Regulatory Science in Food Testing: Sound Measurement, Analytical Science, Sampling & Quality Systems toward Food Safety Regulation" with Dr. Herrman as one of the contributors. The session focused on the role of sound measurement science plays in regulatory science and producing fit-for-purpose analytical data, which are critical for regulatory decisions. In addition, best practices related to science-based surveillance strategy, validated method, quality control and quality assurance programs within food/feed testing laboratories were discussed. Examples of laboratory quality systems and co-regulation models currently implemented within various regulatory agencies to advance regulatory science were presented. Dr. Herrman's presentation, entitled "A Global View of Science Driven Approach for Food Safety Regulation in East Africa," explores the suitability of a quality systems approach to managing aflatoxin risk in East Africa. The Aflatoxin Proficiency Testing and Control in Africa, Asia, and Americas (APTECA) involves a public-private sector partnership involving government entities and the formal milling sector, designed to improve food safety and profitability through more accurate aflatoxin testing. APTECA improves aflatoxin testing through 1) proficiency testing, 2) use of working controls, and 3) verification of mill test results in the TAMU Agrilife ISO accredited lab in Kenya. Currently, the program has involved 162 labs in 55 countries around the world. Notable partners in this effort include the Common Market of Eastern and Southern Africa (COMESA), the Food and Agriculture Organization (FAO), and test kit companies.

New Policy of Fertilizer Grade Statements

Based on recommendations from the OTSC advisory board subcommittee led by Justin Gough, the Service has adopted a revised policy on fertilizer grade statements. This new policy was adopted to address the issue of how fertilizer grade statements are deviating away from the standard definition of grade (N-P-K) and extending the grade statement to include beneficial substances and non-plant food ingredients. Numerous states have agreed to enforce their existing laws/rules relating to grade statements and adopt the AAPFCO (SUIP#1) Statements of Uniform Interpretation and Policy.

The policy reads, in summary, "The Office of the Texas State Chemist will use the Texas Commercial Fertilizer Control Act (§63.001 Definitions, §63.004 Rules; Standards, §63.021 Grade Statements, §63.051 Labeling of Commercial Fertilizer), AAPFCO (SUIP#1) and OTSC Policy (Fertilizer Industry Memorandum No. 2-1) as guidelines for grade statement requirements." This policy will be effective starting on June 1, 2017 and will be posted on the OTSC website.

New Policy on Fertilizer Nutrient Stablizer Additives

Nutrient stabilizer additives are approved for use in Texas and must meet registration, labeling and measurement requirements contained within the Texas Commercial Fertilizer Control Act §63.002 and the Texas Commercial Fertilizer Rules §65.17 and §65.27 . The Texas Commercial Fertilizer Code §63.002 explains that unless otherwise stated in the Act, a substance is subject to the Law if it is a fertilizer material (§63.001(8)), a mixed fertilizer (§63.001(11)), a customer-formula fertilizer (§63.001(5), or any other substance or material that is intended for use, or used, as a component of a mixture that is intended to promote plant growth. This provision allows the Texas Feed and Fertilizer Control Service to enforce requirements pertaining to the registration, labeling, and measurement of certain agricultural products incorporated in commercial fertilizer mixtures.

As per the Texas Commercial Fertilizer Rules §65.17(e)(3), the Service may request proof that any non-nutritional fertilizer components or additives guaranteed or claimed on the label provide: long-term safety to animals, plants, and the environment; and availability and efficacy. Texas Commercial Fertilizer Rules §65.27 requires that when additives are incorporated in a commercial fertilizer: the fertilizer mixture must be registered in accordance with §63.031 and guaranteed with respect to the kind and percentage of each additive (§63.051 & §63.053); the additive(s) must be determinable by an acceptable laboratory method; and the fertilizer mixture must be labeled to prominently display the purpose of the additive. In addition, “it must be shown by scientific data that each additive is present in sufficient quantities to impart a distinctive characteristic to the product.”

At the request of the OTSC advisory committee, the Service introduced a new policy to clarify the responsibility of firms to register and label products containing nutrient stabilizer additives and the requirement that each nutrient stabilizer additive have a currently accepted laboratory method of analysis. The new policy (5-11) will be posted on the website.

Shireen Jahedkar joins OTSC!

Shireen Jahedkar recently joined the OTSC as a Program Assistant for our Outreach and Education program. Shireen received her Bachelor’s in Psychology and Leadership Studies from Austin College in Sherman, TX. Her junior year was spent abroad attending Bangor University in Wales, UK, where she successfully completed a 12-week intensive outdoor course. Shireen returned to College Station for graduate school at Texas A&M’s Bush School of Government and Public Service, where she obtained a Master’s in Public Service and Administration and a graduate certificate in Advanced International Affairs. After graduation, she worked in the San Antonio area with the Department of Family and Protective Services and New Life Children’s Center. Her passions include traveling, hanging with her dog and cat, speaking Farsi, and watching fightin’ Texas Aggie football (whoop!).

Some of Shireen’s early accomplishments include developing training material and brochures explaining the different responsibilities and functions of the agency to Texas, U.S. and international stakeholders; and formatting the Journal of Regulatory Science, published by the Office of the Texas State Chemist on the Texas Digital Library platform.

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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.

OTSC Fall Advisory Committee Meeting

The OTSC advisory committee met November 18, 2016 in College Station, TX. Topics of discussion included expansion of the One-Sample-Strategy to include fumonisin; development of a new method to evaluate fertilizer mixer performance at the request of Texas fertilizer industry; implementation of Animal Feed Regulatory Program standards including the laboratory, field, and outreach; policies involving ammonium nitrate facility inspection by fire marshals per an amendment to the Fertilizer Control Act during the 84th Texas legislature; development of a roadmap for the approval of new feed ingredients; a policy on nutrient stabilizer additives; OTSC current responsibilities involving the Food Safety Modernization Act; and a budget update. The new chair of the Advisory Committee is Ben Weinheimer, Vice President of the Texas Cattle Feeders Association. New advisory committee members include Kimberly Destefani, James Hopkins and Brian Lehrmann. Thanks to outgoing members Scott Piercy and Sid Brough.

New Lab Personnel

Emma Gorishek joined the OTSC in October as an Analytical Chemist. She attended the University of North Texas in Denton where she received a Bachelor of Science in Chemistry, a forensic science certification, and a Master of Science in Analytical Chemistry. During her time at UNT Denton, she conducted research with mass spectrometry instrumentation and wrote a thesis on imaging ICP-MS and Raman spectroscopy. Emma grew up in Austin where she was a flautist in her high school marching band and the James Bowie Outdoor Performance Ensemble. She has marched in the Macy's Thanksgiving Day Parade. She is a member of Alpha Lambda Delta, Alpha Chi Sigma, and the American Chemical Society. She enjoys drawing, internet culture, video games, baking, and cooking.

Justin G. Hydock joined the OTSC in October as an Analytical Chemist. He was raised in Southern California and has lived there for the majority of his life. He attended the California State Polytechnic University, Pomona (Cal Poly Pomona) and received his B.S. in Chemistry in 2014. He has a great deal of experience in working with GC-MS doing analysis of raw materials, latex and inks, and maintaining and troubleshooting instruments. At the OTSC, he is working with GC-MS & LC-MS equipment analyzing toxins. In his off-time, he loves participating in sports and other outdoor activities and meeting new people. He is looking forward to getting to know College Station better.