# ONE SAMPLE STRATEGY MYCOTOXIN RISK MANAGEMENT FOR TEXAS

Texas Feed and Fertilizer Control Service

Office of the Texas State Chemist

## 2021 Handbook

Version 11.2

*6/21/2021: Appendix N file sample retention revised*
*8/4/2021: Appendix N file sample retention corrected*

Until further notice OTSC field staff will follow Texas A&M AgriLife Coronavirus (COVID-19) employee guidance (https://agrilife.org/coronavirus) to reduce exposure and transmission of disease. OTSC field staff will observe social distancing and minimize contact during visits.

**Office of the Texas State Chemist**

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# 2021 One Sample Strategy Overview

## BACKGROUND

To manage the economic and food safety risk of mycotoxin contamination, Texas producers, crop insurers, grain elevators, feed mills, and regulators need real-time information about the level of aflatoxin and fumonisin in corn. Accurate measurement of mycotoxins is complicated by the nature of the toxins and the challenges of sampling and testing. To standardize these processes and reduce the variability of test results, the One Sample Strategy promotes the voluntary adoption of uniform sampling and the use of official testing equipment and methods.

As the competent authority in Texas, the Office of the Texas State Chemist (OTSC) provides administration for the One Sample Strategy and recognizes the analytical result reported by OTSC designees as official. OTSC's Texas Feed and Fertilizer Control Service (FFCS) field staff, who carry state and U.S. Food and Drug Administration (FDA) credentials, provide program oversight. In cooperation with OTSC, the USDA Risk Management Agency (RMA) recognizes One Sample Strategy locations as approved laboratories for mycotoxin testing and accepts OTSC official reports of analysis for crop insurance purposes. **(Appendix A. USDA Approval)**

## ELIGIBILITY & PARTICIPATION

The One Sample Strategy encourages any mycotoxin testing location in Texas to apply. Firm management agrees to:

- Be licensed by the Office of the Texas State Chemist (i.e., one-time $75 fee);
- Train employees to use official USDA Grain Inspection, Packers & Stockyards Administration (GIPSA) sampling and grinding equipment **(Appendix B. Equipment List)**
- Train employees to use USDA Federal Grain Inspection Service (FGIS performance verified mycotoxin test kit according to official instructions **(Appendix C. Rapid Test Kit Selection)**
- Submit a written Sampling and Testing Plan **(Appendix D. Sampling and Testing Plan)**
- Conduct employee evaluations **(Appendix E. Qualification Checklist)** and return forms to OTSC
- Train employees to collect and grind representative samples **(Appendix F-I. Sampling, Grinding, & Sub-sampling)**
- Train employees to follow official testing methods **(Appendix J. Official Sample Analysis);**
- Train employees to implement preventive controls **(Appendices K-N. Preventive Controls);**
- Maintain program records **(Appendices O. Records)**;
- Follow use guidelines for the corn exemption stamp **(Appendix P. Corn Exemption**); and
- Monitor personnel, equipment and performance records, take corrective actions **(Appendix Q. Monitoring & Corrective Actions Report)**, and retain forms for OTSC review.

OTSC does not charge for participation in the One Sample Strategy. Firms are responsible for all operating costs associated with the program, but the cost of conducting the analysis and generating official results may be passed along to the seller. Firms that test for aflatoxin are automatically enrolled in the of Aflatoxin Proficiency Testing (PT) Program **(Appendix R)** and have the option to file an annual Plan to Blend **(Appendix S)**.

## EMPLOYEE QUALIFICATON

Firm management must evaluate at least two employees at each location using OTSC form **(Appendix E)**. To be approved:

- Must be trained to follow the One Sample Strategy handbook and approved Sampling & Testing Plan;
- May not wear clothing or headwear that represents any product or establishment other than OTSC while performing One Sample Strategy activities**;**
- Must meet the minimum age requirements established by the Texas Child Labor Law; and
- May be required to pass a Texas criminal background check.

Additionally, samples collected for crop insurance must be analyzed by personnel who are considered 'disinterested third parties' as per the USDA Loss Adjustment Manual Standards Handbook (LAM). OTSC designees may only analyze samples for crop insurance if:

- They are not engaged in purchasing and selling the grain, including senior management, who oversee such activities; and
- The corn is not owned by the employee or relatives of the employee.

Family-owned operations may participate in the One Sample Strategy but cannot issue results for insurance.

## PREVENTIVE CONTROLS

Firm management monitors personnel, equipment, and performance records **(Appendix Q)** and takes corrective actions to maintain equipment and analytical performance at five process points (Table 1).

**Table 1.** Preventive control points, objectives, and parameters.

| ***POINT*** | ***OBJECTIVE*** | ***CONTROL PARAMETER*** |
|---|---|---|
| **Sample Collection** | Ensure that the sample represents the entire truckload of corn | Follow GIPSA sampling patterns to collect and grind:<br>• 5 lb. (minimum) sample from individual truckloads, or<br>• 15 lb. (minimum) composite sample |
| **Grinder Check** | Ensure that the sample is finely ground and homogeneous | ≥70% of the ground particles (% fines) pass through a 20 mesh sieve |
| **Lab Scale Calibration** | Ensure that the scale is calibrated | 50 gram weight standard measures within 49.5 - 50.5 g |
| **Control Sample Analysis** | Maintain analytical performance to accurately measure mycotoxin concentrations | Control sample test results duplicate within acceptable range |
| **File Sample Verification** | Retain and label a representative file sample for each official sample | Verification results duplicate within acceptable range |

## SAMPLING & TESTING

Uniform procedures reduce the variability of test results. One Sample Strategy procedures are based on the USDA Loss Adjustment Manual (LAM), and GIPSA's Aflatoxin Handbook, Grain Inspection Handbook, and Equipment Handbook. Each participating location submits a customized Sampling and Testing Plan to describe how the standard operating procedures will be implemented.

Companies may choose to sample some or all truckloads incoming and/or outbound, and trucks may be sampled either individually or as a composite. The benefits of reduced regulatory surveillance vary depending upon sampling frequency (Table 2).

**Table 2.** Sampling frequency/regulatory surveillance scenarios

| **Scenario** | **Description** |
|---|---|
| **A** | If all corn is analyzed inbound (individual truckloads or composite) and segregated by toxin level; or all corn is analyzed outbound, the firm receives the full benefit of increased market confidence and reduced regulatory surveillance. OTSC will not sample or seize corn as it is distributed through the marketplace. |
| **B** | If some but not all corn is analyzed inbound and/or outbound, OTSC may sample incoming truckloads and/or truckloads that have not been tested outbound. |

Option to Divide Before Grinding: For individual truckloads, original samples larger than 10 lbs. may be reduced using a GIPSA approved divider (e.g., Boerner or cargo). Composite samples may be reduced to 15 lbs. (minimum).

Subsampling After Grinding: Proper subsampling techniques provide a representative sub-portion of a ground sample for testing. If the company's milling equipment does not subsample the ground material into two or three portions, the firm must subsample using GIPSA-approved equipment or an approved alternate method.

## RECORDKEEPING & REPORTING

All participating locations agree to keep records for a period of one year and make records available for OTSC review. Companies that issue official results also agree to share crop insurance sample information with RMA through OTSC. Records include:

- Scale tickets (to record the date, producer information, county of origin, weight, etc.)
- Sample log;
- Printed test results;
- Labeled file samples;
- Preventive control records**;**
- Report of analysis record (if official results are issued for crop insurance); and
- Corn exemption stamp.

## MONITORING, CORRECTIVE ACTIONS & RISK COMMUNICATION

Firm management monitors personnel, equipment, and performance records **(Appendix Q)** to ensure compliance with the program standards. Grain elevator management conducts monitoring weekly during harvest. Feed mill and bagging-only facility management conducts monitoring every 2 weeks. Monitoring includes the review of:

- Sampling, grinding and testing procedures;
- Records;
- File samples; and
- Corrective actions.

Monitoring reports, control sample records and file samples will be collected and reviewed by FFCS field investigators **(Appendix T)**. File samples are analyzed (without further grinding) by the OTSC Agricultural Analytical Service (AAS) for:

- Aflatoxin using high performance liquid chromatography (HPLC); and
- Fumonisin using Ultra-high Performance Liquid Chromatography with a Tandem Mass Spectrometry Detector (LC/MS/MS).

Aflatoxin and fumonisin verification results are reported online at http://mycotoxinbmps.tamu.edu/mapsupdate.aspx. OTSC compares the firm's result with the AAS result and reports the levels to the company's management. Verification results are not used for regulatory purposes and no report of analysis is issued. When verification results do not agree or processes are out of control, firm management investigates to find the cause of the discrepancy and initiates corrective actions. Corrective actions may include:

- Adjustment or repair of equipment;
- Retraining of personnel;
- Correction of records; and/or
- Assistance from OTSC.

Failure to monitor and take corrective actions may result in:

- Suspension or removal of an employee or firm from the program; and/or
- Criminal investigation if OTSC suspects that results have been intentionally misrepresented.

## CONTACT INFORMATION

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http://otscweb.tamu.edu/Risk/OneSample

## APPENDIX A: USDA APPROVAL

United States Department of Agriculture

Farm Production and Conservation

Risk Management Agency

1400 Independence Ave, SW,
Mail Stop 0801
Washington, DC 20250

**BULLETIN NO.: MGR-17-015**

**TO:** All Approved Insurance Providers
All Risk Management Agency Field Offices
All Other Interested Parties

**FROM:** Heather Manzano */s/ Heather Manzano* *10/6/2017*
Acting Administrator

**SUBJECT:** One Sample Strategy for Mycotoxins in Texas

**BACKGROUND:**

The Risk Management Agency (RMA) issued Manager's Bulletin MGR-11-011 on July 26, 2011, authorizing the "One Sample Strategy (OSS)" for aflatoxin testing in approved Texas elevator facilities for the 2011 crop year. The Bulletin stated RMA would annually reauthorize the program. RMA held discussions with the Office of the Texas State Chemist (OTSC), Regional Offices, and other interested parties and received written summary results from OTSC to determine whether to continue the program beyond the 2011 crop year. RMA issued Manager's Bulletin MGR-12-004 on April 12, 2012, authorizing the "One Sample Strategy" for aflatoxin testing in approved Texas elevator facilities for the 2012 and succeeding crop years.

**ACTION:**

For the 2017 and succeeding crop years, Approved Insurance Providers (AIPs) may consider OTSC-approved Texas grain elevator facilities to be approved laboratories for Mycotoxin testing for crop insurance purposes unless RMA or OTSC announces the suspension of OSS. The OTSC will provide a list of participating elevator facilities they have certified to test for Mycotoxins on their website for verification purposes at the following address: http://otscweb.tamu.edu/Risk/OneSample/Default.aspx

This list will be updated weekly. If an elevator is decertified by the OTSC, Mycotoxin tests conducted by that elevator after the date of decertification must not be used for Federal crop insurance purposes.

The OTSC will provide official test certificates of analysis documenting the level of Mycotoxin, which will be completed by the participating elevator and provided to the insured. AIPs using these test results for claims settlement must maintain a copy of this official test certificate for the claim file.

For fumonisin, the FDA has no published action levels or use restrictions for crops with 0 to 2.0 parts per million (ppm). Therefore, crop insurance policy provisions will provide quality adjustments for levels 2.1 ppm and above.



AIPs may continue to use other approved private, State, or University laboratories for Mycotoxin testing in lieu of any elevators operating under the OTSC' OSS program. A link to a list of these approved sites can be found here:
https://www.gipsa.usda.gov/fgis/serviceproviders_listing.aspx

**DISPOSAL DATE:**

December 31, 2017

Source: http://www.ag-risk.org/FCICDOCU/MGRBUL/2017/m17015.pdf

## APPENDIX B: EQUIPMENT LIST

Early selection and procurement of equipment is essential for successful implementation of the One Sample Strategy. Refer to the GIPSA Active Approved Equipment list before purchasing and contact sales representatives early to ensure timely delivery. Example items are listed below. Equivalent items may be available from other suppliers.

***Sampling & Grinding Equipment***

- ☐ 6' spiral hand probe or hydraulic probe
  - Part #39C-OH; 72" brass spiral probe with 12 openings
  - Part #72SBOH; 72" brass spiral probe with 11 openings
- ☐ Sampling containers
- ☐ Grain test scale (to check the weight of original samples)
- ☐ Gram scale near the grinder (to weigh 100 g for particle size check)
- ☐ #20 wire-mesh sieve and pan
  - Part # 20SS8F: 8" diameter grain sieve, 20 mesh wire sieve, stainless
  - Part # PS8F: matching bottom pan for the sieve
- ☐ *Optional:* Divider (to reduce whole grain sample before grinding)
  - Part # 34: Boerner divider complete with 2 pans
  - Part # 292: Cargo type divider
- ☐ Mill capable of producing ≥70% fines, such as:
  - Part # 9453: Grinder, 3-lb. Bunn with Part # 9517 Divider for Bunn Grinder
  - Part # EQMMS2010: Romer Series II Sub-Sampling Mill – 115V
  - Part # 70: Wonder Mill
  - Part # 43: Glen Mills Disk Mill
- ☐ Subsampling method or equipment (e.g., riffler) if mill is not equipped with diverter/sub-sampler

***Rapid Test Kits***

- ☐ Rapid test kit reader
- ☐ Rapid test kit printer (or equivalent printing capabilities)
- ☐ Rapid test kits
- ☐ Accessories (e.g., multi-channel pipettes; air pumping station, glassware, incubator, etc.)
- ☐ Calibration set (if not included with the kit)
- ☐ Reagents (e.g., methanol or ethanol; and distilled or deionized water)
- ☐ Laboratory scale (with a minimum division of 0.1 grams)
- ☐ 50 gram weight standard (to calibrate the laboratory scale)
  - Part # WT-50F: 50 gram stainless steel weight, class F
- ☐ File sample bags

***Equipment Providers***

- Hoffman Manufacturing, Inc., (800) 692-5962, http://www.hoffmanmfg.com
- Eriks Grain, (800) 821-5578, http://grain.eriksna.com
- Wheatland Equipment Co. (903) 577-0637, http://www.seedburo.com
- Romer Labs, http://www.romerlabs.com, (636) 583-8600, office@romerlabs.com,
- Charm Sciences, Inc., http://www.charm.com, (800) 343-2170, info@charm.com
- Vicam, http://vicam.com, (877) 228-4244, orders@vicam.com
- Neogen Corporation, http://www.neogen.com, (800) 234-5333, foodsafety@neogen.com
- EnviroLogix, Inc., http://www.envirologix.com, (866) 408-4597
- R-Biopharm, Inc., http://www.r-biopharm.com, +49 (0) 61 51-8102-0
- Grain Belt Supply, (800) 255-2742, http://www.grainbeltsupply.com
- Grainger, https://www.grainger.com, (800) 472-4643
- GlenMills, http://www.glenmills.com, (973) 777-0777

## APPENDIX C: RAPID TEST KIT SELECTION

In 2010, OTSC Agricultural Analytical Service (AAS) began in-house validation of rapid test kits used by grain operators in Texas. To address new technologies and continue validating rapid test kits above the FGIS-verified range, a field validation process is now used to validate FGIS Performance Verified Test Kits that have not yet been validated by OTSC. Any kit on the FGIS list at www.ams.usda.gov/sites/default/files/media/FGISApprovedMycotoxinRapidTestKits.pdf can be utilized for the One Sample Strategy. However, only test kits validated by OTSC (in-house or field) can be utilized to issue official sample reports of analysis for crop insurance purposes.

**A. Process for Validation (Figure 1):**

1. Mill or grain operator selects an FGIS Performance Verified Test Kit listed at www.ams.usda.gov/sites/default/files/media/FGISApprovedMycotoxinRapidTestKits.pdf
2. Mill or grain operator submits One Sample Strategy Sampling and Testing Plan to OTSC;
3. AAS requests/receives GIPSA data package from Test Kit Manufacturer;
4. Mill or grain operator analyst passes qualification exercise;
5. Mill or grain operator analyst runs high and low OTSC control samples daily;
6. Mill or grain operator analyst retains a labeled file sample for each official sample analyzed;
7. FFCS collects records and file samples for verification by AAS;
8. AAS completes statistical data analysis and notifies FFCS upon completion of the validation;
9. Results that significantly deviate from the performance criteria (Tables 3 and 4) may not eligible.

**B. Criteria for Validation:**

1. **Analyst Qualification:** Analyst correctly follows FGIS official instructions to produce four test results within the acceptable range of duplication (Tables 3 & 4):
   a. Two analyses of a low concentration control sample; and
   b. Two analyses of high concentration control sample.

**Table 3.** Aflatoxin Duplication Limits for control sample analysis.

| **If the Aflatoxin control is:** | ≤ 25 ppb | > 25 to ≤ 50 ppb | > 50 to ≤ 100 ppb | > 100 ppb |
|---|---|---|---|---|
| **The Acceptable Duplication limit is:** | ± 40 % | ± 34 % | ± 25 % | ± 20 % |

**Table 4.** Fumonisin Duplication Limits for control sample analysis.

| **If the Fumonisin control is:** | ≥ 5 ppm |
|---|---|
| **The Acceptable Duplication limit is:** | ± 30 % |

2. **Control Sample Results:** Analyst documents control sample results and describes corrective actions if the initial result is out of the acceptable duplication limit
   a. **Verification Sample Results:** The results from retained file samples that are collected by FFCS field investigators and analyzed (without further grinding) by AAS must duplicate within the acceptable limits.
   b. **Statistical Data Analysis Results:** Overall statistical data analysis must indicate that the kit meets accuracy and precision requirements.
3. **Cost for Validation**
   a. OTSC does not charge for test kit validation. Reference material that is produced under the ISO/IEC 17034:2016 standard is provided free of charge to firms participating in the One Sample Strategy.

## APPENDIX D: SAMPLING & TESTING PLAN

**Contact Information**

Firm Name: _____

Main office phone: _____

Physical address *(for FedEx deliveries)*: _____

_____

Primary contact: _____

Email: _____

Phone: _____

Secondary contact: _____

Email: _____

Phone: _____

Additional information (i.e., satellite storage facilities, etc.): _____

_____

**Participation *(include additional pages as necessary)***

1. Which toxin(s) will your firm will test under the One Sample Strategy? *(choose all that apply)*

   ☐ Aflatoxin: At what **Aflatoxin** level is grain rejected by your firm? _____ ppb

   ☐ Fumonisin: At what **Fumonisin** level is grain rejected by your firm? _____ ppm

2. Does your firm segregate all grain by toxin level(s)? ☐ YES ☐ NO

3. Will your firm issue official results for crop insurance purposes? ☐ YES *(MS Excel & email required)* ☐ NO

4. Where will truckloads be tested? ☐ Inbound ☐ Outbound ☐ Both

5. What is your testing frequency? ☐ All loads ☐ Some loads ☐ Composite*

** Describe sampling frequency, equipment, and composite sample labeling/identification method, etc.*

6. Describe probe (hand or pneumatic) and probe pattern(s) you will follow to collect a representative sample:

**Comments:** *Describe any other methods that are unique to your operation (e.g., grinder cleaning method; subsampling, etc.)*

**Equipment & Methods**

Describe the equipment your firm has allocated for the One Sample Strategy. Refer to GIPSA's approved equipment list and the brand-specific equipment required for each test kit in the GIPSA Mycotoxin Handbook. Refer to FGIS list of Performance Verified Test Kits at http://www.ams.usda.gov/sites/default/files/media/FGISApprovedMycotoxinRapidTestKits.pdf.

| Item | In Place | On Order | N/A | Manufacturer/ Model or Part # | Comments |
|---|---|---|---|---|---|
| 6' spiral hand probe | | | | | |
| Hydraulic/pneumatic probe | | | | | |
| Sampling containers | | | | | |
| Grain test scale *(to check weight of min. 5 lb. sample)* | | | | | |
| Gram scale near the grinder *(to weigh 100g for grinder check)* | | | | | |
| 20 wire mesh sieve | | | | | |
| Boerner or cargo grain divider & 2 pans *(optional equipment used to reduce whole grain samples larger than 10-lbs)* | | | | | |
| Mill capable of producing ≥70% fines | | | | | |
| Subsampling equipment (aka riffler) | | | | | |
| AFLATOXIN FGIS Rapid test kit part # | | | | | |
| FUMONISIN FGIS Rapid test kit part # | | | | | |
| Ability to print rapid test kit results | | | | | |
| Calibration set *(If not included with kit)* | | | | | |
| Rapid test kit accessories *(e.g., multi-channel pipette, etc.)* | | | | | |
| Methanol (or Ethanol)/Water *(if provided by commercial supplier)* | | | | | |
| Laboratory Scale *(minimum division of 0.1 grams)* | | | | | |
| 50 gram weight standard | | | | | |
| File sample bags | | | | | |

Please send completed application to: oss@otsc.tamu.edu, Phone: (979) 845-1121, Fax: (979) 845-1389

## APPENDIX E: QUALIFICATION CHECKLIST

| | | |
|---|---|---|
| **Firm Name/Location** | | |
| **Designee Name (print)** | | **Date of Birth** |
| **Designee Signature** | | |
| **Manager Signature** | | **Today's Date** |
| *By signing above, I confirm that I have received and read the One Sample Strategy Handbook, and agree to follow the program criteria and methods.* | | |

**Sampling (Appendices F& G)**

| *Yes* | *No* | | |
|---|---|---|---|
| ☐ | ☐ | 1. | Employee follows the sampling pattern described in the approved sampling and testing plan |
| ☐ | ☐ | 2. | Employee collects representative sample (≥ 5 lb. single; ≥ 30 lb. composite) |
| ☐ | ☐ | 3. | Employee cleans and dries sampling equipment and containers |

OTSC OFFICE USE:
Date: _____
Approved: ☐ Yes ☐ No

**Grinding (Appendix K)**

| *Yes* | *No* | | |
|---|---|---|---|
| ☐ | ☐ | 1. | Employee correctly performs particle size check (_____%) |
| ☐ | ☐ | 2. | Employee flushes or cleans mill, pans, dividers, and containers |

OTSC OFFICE USE:
Date: _____
Approved: ☐ Yes ☐ No

**AFLATOXIN TESTING (Appendices L & M)**

| *Yes* | *No* | | |
|---|---|---|---|
| ☐ | ☐ | 1. | Employee correctly performs laboratory scale calibration |
| ☐ | ☐ | 2. | Employee collects and weighs a 50 g test sample |
| ☐ | ☐ | 3. | Employee correctly performs two analyses and results duplicate within acceptable limits (Appendix M: Table 3). |
| ☐ | ☐ | 4. | Employee understands how to retain and label official file samples |

OTSC OFFICE USE:
Date: _____
Approved: ☐ Yes ☐ No

**AFLATOXIN Test Kit (FGIS PART NUMBER): _____**
https://www.ams.usda.gov/sites/default/files/media/FGISApprovedMycotoxinRapidTestKits.pdf

Control A# _____ Target: _____(ppb) Range_____(ppb) Results: A1: _____(ppb) & A2: _____(ppb)
Control B*# _____ Target: _____(ppb) Range_____(ppb) Results: B1: _____(ppb) & B2: _____(ppb)

**FUMONISIN TESTING (Appendices L & M)**

| *Yes* | *No* | | |
|---|---|---|---|
| ☐ | ☐ | 1. | Employee correctly performs laboratory scale calibration |
| ☐ | ☐ | 2. | Employee collects and weighs a 50 g test sample |
| ☐ | ☐ | 3. | Employee correctly performs two analyses and results duplicate within acceptable limits (Appendix M: Table 4). |
| ☐ | ☐ | 4. | Employee understands how to retain and label official file samples |

OTSC OFFICE USE:
Date: _____
Approved: ☐ Yes ☐ No

**FUMONISIN Test Kit (FGIS PART NUMBER): _____**
https://www.ams.usda.gov/sites/default/files/media/FGISApprovedMycotoxinRapidTestKits.pdf

Control A# _____ Target: _____(ppm) Range_____(ppm) Results: A1: _____(ppm) & A2: _____(ppm)

Control B*# _____ Target: _____(ppm) Range_____(ppm) Results: B1: _____(ppm) & B2: _____(ppm)

** Run Control B (1 & 2) only if test kit has not previously been validated by OTSC (Appendix C)*

Submit report to oss@otsc.tamu.edu

## APPENDIX F: TRUCKLOAD SAMPLING

**Purpose:** Maintain uniform sampling methods.

**Objective:** Ensure that each sample is: representative of the entire truckload of corn; and ≥ 5 lbs.

**Frequency:** Refer to the approved Sampling and Testing Plan for your firm. Some or all truckloads may be sampled inbound and/or outbound. Truckloads may be sampled individually or as a composite. (Appendix G)

**Equipment & Materials:**

- 6' spiral hand probe or hydraulic probe (to collect the sample)
- Sampling containers (to transport the sample)
- Grain test scale (to check the weight of the sample)

**Records:**

- Scale ticket (to record the date, producer information, county of origin, weight, etc.)
- Appendix Q: Monitoring and Corrective Actions Report

**References:**

- USDA Risk Management Agency Loss Adjustment Manual, PAR. 102 F (2) (d) Representative Sampling Pattern Guidelines (Fig. 1)
- GIPSA Grain Inspection Handbook, Book 1, Chapter 2, Probe Sampling

**Method:**

1. Using clean and dry sampling equipment;
2. Collect a 5 pound (minimum) sample:
    - Select the appropriate sampling pattern;
    - If using a hand probe, angle the tip of the closed probe at 10° from vertical;
    - If using a hand probe, push the probe to the bottom of the trailer; If using a hydraulic/pneumatic probe, use caution to collect the sample from the all levels of the grain mass in the truck;
    - Open the probe as you begin to pull the probe up;
    - Close the probe before pulling it out of the grain;
    - Empty the grain into a clean and dry sample container.
3. Samples >10 lbs. may be reduced by half using an approved divider prior to grinding.
4. Clean and dry sampling equipment (for hydraulic/pneumatic probes, discard the first 200 g from the first probe to avoid cross contamination from the previous load);
5. Deliver the sample to the grinder with the Scale Ticket

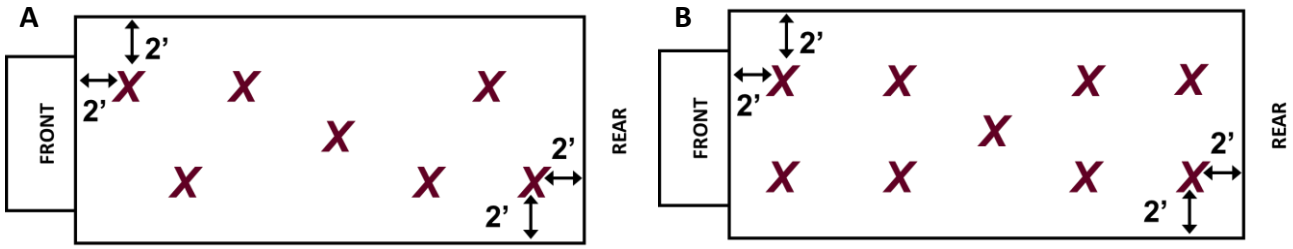



Figure 1. Representative Sampling Patterns. (A) PATTERN 1: With the tip of the probe angled 10 degrees, following the pattern below to insert the probe seven times when grain is loaded *more* than four feet deep in a flat-bottom truck or trailer. (B) PATTERN 2: With the tip of the probe angled 10 degrees, following the pattern below to insert the probe nine times when grain is loaded *less* than four feet deep in a flat-bottom truck, trailer, or when dealing with difficult sampling scenarios.

## APPENDIX G: COMPOSITE SAMPLING

**Purpose:** Promote uniform composite sampling methods to meet grain operator and crop insurance needs.

**Objective:** Ensure that each individual sample is representative of the entire truckload of corn. Ensure that the combined composite whole grain sample is representative of the unit and > 15 lbs.

**Frequency:** Refer to the approved Sampling and Testing Plan for your firm.

**Equipment & Materials:**

- 6' spiral hand probe or hydraulic/pneumatic probe (to collect the whole grain sample)
- Sampling containers (to transport the whole grain sample)
- Grain test scale (to check the weight of the whole grain sample)
- Boerner or cargo divider (to reduce the whole grain sample before grinding)

**Records:**

- Scale tickets (to record the date, producer information, county of origin, sample weight, etc.) for each individual truckload in the composite sequence.

**References:**

- GIPSA, Grain Inspection Handbook. Book 1. Chapter 1. Section 1.8 Proportional Sampling
- USDA Risk Management Agency Loss Adjustment Manual, PAR. 1109 F (2) (d) Representative Sampling Pattern Guidelines and requirements for 'blended samples' PAR. 1102 A (2) (c)
- GIPSA Grain Inspection Handbook, Book 1, Chapter 2, Probe Sampling

**Method:**

1. Follow the method described in the approved Sampling and Testing Plan for your firm.
2. Whole grain samples >30 lbs. may be reduced by half using an approved divider prior to grinding.

**Constraints:**

- Scale tickets must be kept with the composite sample;
- Sample information for each truckload must be recorded in the sample log;
- The first scale ticket number in the sequence is used to identify the composite.

# APPENDIX H: GRINDING

**Purpose:** Promote uniform grinding methods and prevent cross-contamination between samples.

**Objectives:**

- Ensure that the grinder is cleaned to avoid cross contamination; and
- Ensure that each corn sample is ground to a sufficiently fine particle size to produce a homogeneous blend for testing.

**Frequency:** Each official sample

**Equipment & Materials:**

- Representative corn sample (minimum 5 lbs. for individual truckloads; minimum 15 lbs. for composite samples) with ≤ 20 % moisture
- Mill (to grind the sample)
- One or more pans (to collect the ground sample)
- Cleaning method and/or equipment (to flush or vacuum the mill)

**Records:**

- Scale ticket(s) to record the date, producer information, county of origin, weight, etc.

**References:**

- GIPSA Mycotoxin Handbook, Chapter 4: Sample Preparation
- GIPSA Mycotoxin Handbook, Chapter 4.6: Cleaning Grinders

**Method:**

1. Clean and dry grinding equipment, or flush by:
    - Grinding and discarding at least the first 200 g of the sample; or
    - Physically cleaning the grinder
2. Grind the entire sample
3. Sub-sample the ground portion to collect a representative portion for analysis (Appendix I)

## APPENDIX I: REPRESENTATIVE SUB-SAMPLING

**Purpose:** Collect a sub-portion of ground corn for testing and retain the remaining portion as a file sample (Fig. 1).

**Objective:** Ensure that the subsample represents the aflatoxin and/or fumonisin concentration of the entire truckload.

**Frequency:** Refer to the approved Sampling and Testing Plan for your firm.

**Equipment & Materials:**

- Ground corn sample
- Grain scale (to weigh the ground sample)
- Container (to transport the sample)
- Divider (aka riffler) or equivalent reduction method
- Spatula or spoon
  (to stir ground corn and collect portion for testing)
- Scale with a minimum division of 0.1 gram
  (to weigh a 50 g portion for testing)

**Records:**

- Scale ticket (to identify the sample)

**References:**

- GIPSA Mycotoxin Handbook, Chapter 4: Sample Preparation

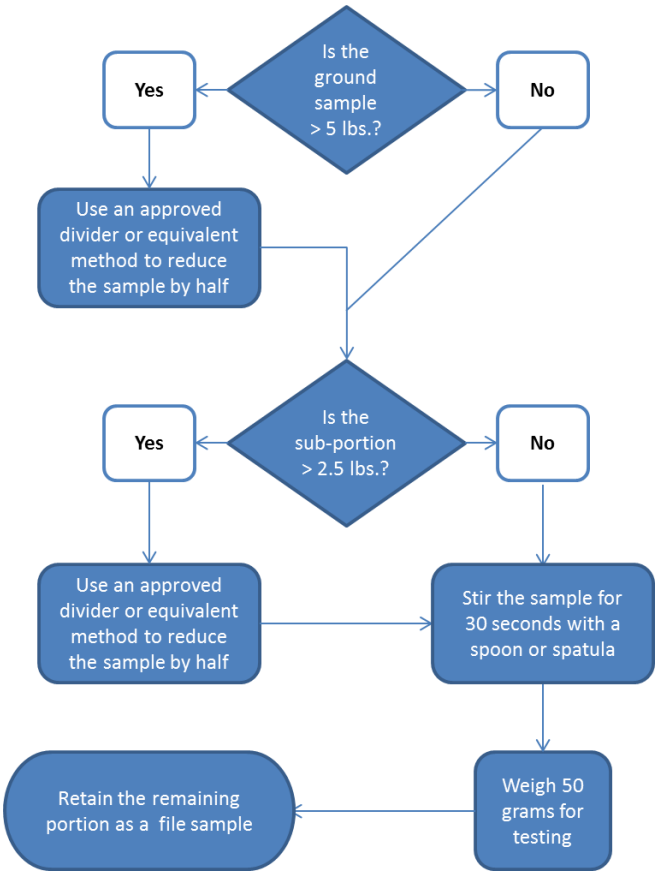



Figure1. Subsampling decision tree

**Method:**

1. Choose an appropriate method to subdivide:

   *A. If the mill subdivides and the sub-portions are **<2.5 lbs. (<1,135 grams)**:*
   - i. *No further subdivision is necessary;*
   - ii. *Keep one portion for the official test and file sample. Discard the unused portion(s).*

   *B. If the mill subdivides and the sub-portions are **>2.5 lbs. (>1,135 grams)**:*
   - i. Use an approved divider or equivalent method to reduce one of the portions by half.
   - ii. *Keep one portion for the official test and file sample. Discard the unused portion(s).*

   C. *If the mill does <u>not</u> subdivide and the sample is **>5 lbs. (>2,267 grams)***
   - i. Use an approved divider (aka riffler) or equivalent method (as described in the Sampling & Testing plan) to reduce the sample by half; and
   - ii. Repeat the process to reduce the sub-portion by half again.
   - iii. Keep one portion for the official test and file sample. Discard the unused portion(s).

2. Stir the subdivided sample portion for 30 seconds to produce a homogenous blend
3. Weigh 50 grams of the blended sample on the scale
4. Retain the remaining portion as a file sample **(Appendix N)**

# APPENDIX J: OFFICIAL SAMPLE ANALYSIS

**Purpose:** Accurately measure the mycotoxin concentration of a sample using the USDA/Association of Analytical Communities (AOACI)-approved testing instructions posted at: http://www.ams.usda.gov/sites/default/files/media/FGISApprovedMycotoxinRapidTestKits.pdf. Note: A minimum of 5 lbs. is required for whole corn samples submitted by crop insurance adjusters.

**Objective:** Ensure that the reported sample test results are timely, accurate, and reproducible.

**Frequency:** Refer to the approved Sampling and Testing Plan for your firm.

**Equipment & Materials:**

- Test kit reader, printer, and calibration set
- Rapid test kit and accessories
- Office of the Texas State Chemist (OTSC) aflatoxin and/or fumonisin reference material (50 grams)
- Calibrated lab scale with minimum division of 0.1 gram

**Records:**

- Scale ticket (or tickets for composite sample analysis)
- Sample log (to record the date, producer information, test result, analyst, etc.)

**References:**

- FGIS Official Instructions
- Manufacturer's product inserts
- GIPSA Mycotoxin Handbook, Chapter 2, Laboratory Safety

**Method:**

*Note: Calibrate the test kit reader according to the manufacturer's instructions.*

1. Weigh 50 grams of the sample on the lab scale
2. Follow the official GIPSA instructions for your test kit

   Note: If the initial test results are above the range of the test kit, follow the official GIPSA instructions for supplemental analysis. Supplemental analysis is not required for Romer Fluoroquant® Afla (GIPSA Memorandum #249, 8/2/12) and Vicam AflaTest® (GIPSA Memorandum #257, 7/30/2013), available at https://www.rma.usda.gov/bulletins/managers.
3. Enter sample information in the sample log; and
4. Complete the sample ticket (to record the date, producer information, county of origin, weight, etc.)

**Constraints:**

- Under no circumstances may the truck be re-sampled and tested a second time by the same establishment or company (if there are multiple locations).
- Before unloading, the producer may request that a second 50 gram sample (obtained from the file sample) be analyzed and the average of the first and second analysis will be reported as the official result.
- Refer to Texas Commercial Feed Act §141.104. Independent Analysis

## APPENDIX K: GRINDER PERFORMANCE PREVENTIVE CONTROL

**Purpose:** Maintain and monitor mill performance

**Objective:** Ensure that ≥70% of the ground particles (% fines) pass through a 20 mesh sieve.

**Frequency:** Perform grinder check each day prior to official testing, and after repair or electrical outage.

**Equipment & Materials:**

- Whole corn (~100 grams with ≤14% moisture)
- Mill
- No. 20 wire woven mesh sieve
- Lab scale

**Records:**

- Particle Size Record
- Appendix Q: Monitoring and Corrective Actions Report

**References:**

- GIPSA Mycotoxin Handbook, Chapter 4.7: Checking Particle Size
- GIPSA Mycotoxin Handbook, Chapter 4.6: Cleaning Grinders
- GIPSA Mycotoxin Handbook, Chapter 2: Laboratory Safety

**Method:**

1. Clean and dry grinding equipment
2. Grind corn in the mill
3. Weigh 100 grams of ground sample on the scale (record weight)
4. Place the 100 grams of ground sample in the top of the sieve
5. Cover the sieve with the lid (if available)
6. Shake the ground sample into the bottom pan
7. Weigh the portion that passed through the sieve (record weight)
8. Calculate the percent (%) fines:

$$\frac{\text{Portion passed through sieve (grams)}}{\text{Entire ground portion (grams)}} \times 100 = \%\ \text{fines}$$

9. Complete the Particle Size Record
10. Take corrective action if the % fines are <70%
11. Properly dispose of the ground material
12. Clean and dry the grinding equipment

**Corrective Actions:**

- Adjust mill;
- Notify your supervisor to request equipment repair or replacement, and post a repair note on the mill; and/or Grind samples as many times as necessary to achieve ≥70% fines.

## APPENDIX L: LAB SCALE CALIBRATION PREVENTIVE CONTROL

**Purpose:** Maintain and monitor scale (balance) performance

**Objective:** Ensure that the scale is calibrated to weigh a 50 gram weight standard within ± 0.5 grams (49.5 - 50.5 grams)

**Frequency:** Each day prior to official testing, and after repair or electrical outage

**Equipment & Materials:**

- 50 gram weight standard
- Filter paper or tongs
- Lab scale with minimum division of 0.1 gram

**Records:**

- Lab Scale Calibration Record
- Appendix Q: Monitoring and Corrective Actions Report

**References:**

- GIPSA Equipment Handbook, Chapter 2.4: Testing

**Method:**

*Note: Keep the weight standard clean of particles or fingerprints.*
*Handle the weight with filter paper or forceps.*
*Store the weight in a clean and dry container.*

1. 'Zero out' the balance with nothing on the scale
2. Pick up the 50 gram weight standard with filter paper or tongs
3. Place the 50 gram weight standard on the scale
4. Complete the Laboratory Calibration Record
5. Return the 50 gram weight standard to the storage box using the filter paper or tongs
6. Take corrective actions if the scale is not calibrated within an acceptable range (49.5 - 50.5 grams)

**Corrective Actions:**

- Clean the weight standard and scale before recalibrating
- Notify your supervisor to request equipment repair or replacement and post a repair note on the scale

# APPENDIX M: CONTROL SAMPLE ANALYSIS PREVENTIVE CONTROL

**Purpose:** Follow USDA/Association of Analytical Communities (AOACI)-approved testing instructions posted at http://www.ams.usda.gov/sites/default/files/media/FGISApprovedMycotoxinRapidTestKits.pdf to maintain and monitor analytical performance by accurately measuring the level of aflatoxin or fumonisin within a sample of OTSC reference material produced by OTSC's Agricultural Analytical Service (AAS) under the ISO/IEC 17034:2016 standard.

**Objective:** Ensure that aflatoxin or fumonisin control sample test results are within an acceptable range of duplication (Tables 3 & 4)

**Table 3. Aflatoxin Duplication Limits for control sample analysis.**

| **If the Aflatoxin control is:** | ≤ 25 ppb | > 25 to ≤ 50 ppb | > 50 to ≤ 100 ppb | > 100 ppb |
|---|---|---|---|---|
| **The Acceptable Duplication limit is:** | ± 40 % | ± 34 % | ± 25 % | ± 20 % |

**Table 4. Fumonisin Duplication Limits for control sample analysis.**

| **If the Fumonisin control is:** | ≥ 5 ppm |
|---|---|
| **The Acceptable Duplication limit is:** | ± 30 % |

**Frequency:**

Firms that intend to issue reports of analysis for crop insurance purposes:

Run control twice daily, after changing to a new lot of test kits, or after an electrical outage.

Firms that do not issue reports of analysis for crop insurance purposes:

Run control twice on the first operating day of the week (AM and PM), after changing to a new lot of test kits, or after an electrical outage.

**Equipment & Materials:**

- Test kit reader, printer, and calibration set
- Rapid test kit and accessories
- Office of the Texas State Chemist reference material (50 grams)
- Calibrated lab scale with minimum division of 0.1 gram

**Records:**

- Control Sample Record
- Appendix Q: Monitoring and Corrective Actions Report

**References:**

- FGIS Official Instructions
- Manufacturer's product inserts
- GIPSA Mycotoxin Handbook, Chapter 2, Laboratory Safety

**Method:**

*Note: Calibrate the test kit reader according to the manufacturer's instructions.*

1. Weigh 50 grams of the control sample on the lab scale
2. Follow the official GIPSA instructions for your test kit
3. Complete the Control Sample Record
4. Take corrective actions if the control sample result exceeds duplication limits (Table 1 or 2)

**Corrective Actions:**

- Check expiration dates on reagents and test kit; power off/on test kit reader and recalibrate; check pipettes, etc.
- Notify your supervisor to request assistance from OTSC's Quality Assurance Manager

## APPENDIX N: FILE SAMPLE VERIFICATION PREVENTIVE CONTROL

**Purpose:** Retain and label a representative file sample for verification analysis by OTSC Agricultural Analytical Service (AAS).

**Objective:** Ensure that the file sample is properly labeled and stored.

**Frequency:** Retain a file sample for each official sample analysis.

**Equipment & Materials:**

- Retained corn sample (approximately 500-700 grams)
- File sample bag
- Spoon (to transfer the ground corn)
- File sample bag label (provided by OTSC)
- Marker (to label the file sample bag)

**Records:**

- Scale ticket (to identify the sample)
- Appendix Q: Monitoring and Corrective Actions Report

**References:**

- GIPSA Mycotoxin Handbook, Chapter 4, Sample Preparation

**Method:**

1. Clearly label the file sample bag with the following information:
    - Date of analysis;
    - Producer's name/farm #;
    - County of origin - *If the county of origin is unknown, record the county where the sample was tested*;
    - Scale ticket number(s) - *For composite samples, only list the first number in the sequence;*
    - Aflatoxin and/or fumonisin level; and
    - Analyst initials.
2. Place the retained portion in a file sample bag
3. Store file sample bag in a manner that will maintain the integrity of the sample
4. Retain the file sample for a minimum of 4 weeks if:
    - ≥ 20 parts per billion (ppb) aflatoxin; or
    - ≥ 2 ppm fumonisin.

    *Please note that:*
    - *Samples < 20 ppb aflatoxin or < 2 ppm fumonisin may be retained voluntarily or discarded*
    - *Feed mills and elevators with blending plans may be required to retain file samples for longer time periods.*
4. Firm management reviews file samples to ensure proper retention and labeling during monitoring.
5. FFCS field Investigators collect file samples for verification analysis by AAS.
6. Reports will be available online at http://otscweb.tamu.edu/risk/OneSample (Figure 1). Active One Sample Strategy participants will receive a username and temporary password by email. For technical assistance, please email oss@otsc.tamu.edu or contact your area Investigator.

| Facility ID | Analyte | SampleNumber | Date Analyzed | OTSC Result | Facility Result |
|---|---|---|---|---|---|
| 1 | AFLATOXIN | -6358 | 08/15/2017 | < 1 ppb | 4 ppb |
| 1 | AFLATOXIN | -6364 | 08/15/2017 | < 1 ppb | 5 ppb |
| 1 | AFLATOXIN | -6371 | 08/15/2017 | < 1 ppb | 7 ppb |
| 1 | FUMONISIN | -6358 | 08/15/2017 | < 1 ppm | |
| 1 | FUMONISIN | -6364 | 08/15/2017 | < 1 ppm | |
| 1 | FUMONISIN | -6371 | 08/15/2017 | 2 ppm | |

Figure 2. Example mycotoxin verification report.

# APPENDIX O: RECORDS

**Purpose:** Maintain program records to document preventive controls and official sample results.

**Objective:** Document program conformance using the following records:

**A. Example Sample Log:** *Record every official sample*

| Date Collected | Scale/Log Number | Farmer Name | Farm Number | Bushel Weight | Moisture | Analyst Initials | Run 1 Result | Run 2 Result | Final Result *(Avg. Run 1&2)* |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

**B. Particle Size Record (Provided by OTSC):** *Record every grinder check (daily)*

| Date | Grinder Initials | Initial Result | If the initial Result is outside of the acceptable range, describe your corrective actions & enter the result after adjustment |
|---|---|---|---|
| | | | |

**C. Lab Scale Calibration Record (Provided by OTSC):** *Record every calibration (daily and after repair or power outage)*

| Date | Analyst Initials | Initial Calibration Result | If the initial Calibration Result is outside of the acceptable range, describe your corrective actions & enter the result after adjustment |
|---|---|---|---|
| | | | |

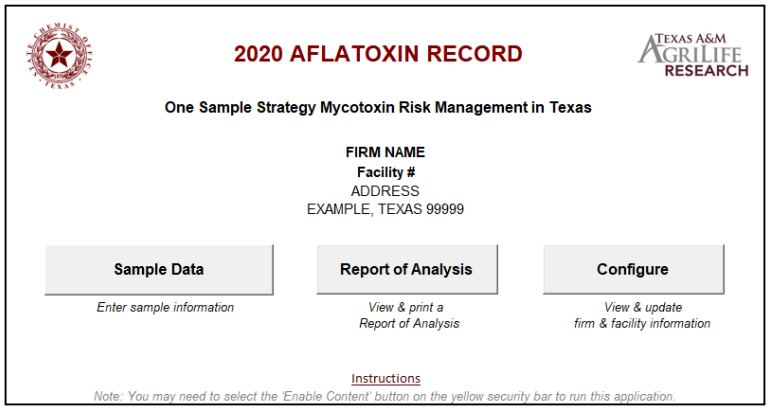
**D. Control Sample Record (Provided by OTSC):**

i. Firms that intend to issue reports of analysis for crop insurance purposes:
*Run control twice daily, after changing to a new lot of test kits, or after an electrical outage.*

ii. Firms that **do not** issue reports of analysis for crop insurance purposes:
*Run control twice on the first operating day of the week (AM and PM), after changing to a new lot of test kits, or after an electrical outage.*

| Date | Time | Analyst | Control Sample (ppb)* | Initial Test Result (ppb) | If the Initial Result is outside of the acceptable duplication range*, describe your corrective actions & enter the result after adjustment. |
|---|---|---|---|---|---|
| | | | | | |

**E. Official Sample Report of Analysis Record (Provided by OTSC):** Enter sample data into customized Report of Analysis Record (MS Excel spreadsheet) to generate an Official Sample Report of Analysis. Send mycotoxin crop insurance data with Office of the Texas State Chemist (OTSC) and the USDA Risk Management Agency (RMA).




## APPENDIX P: CORN EXEMPTION

As part of the One Sample Strategy, OTSC verifies the proficiency of grain elevator employees to accurately measure mycotoxins in corn. Since mycotoxin measurements reported by OTSC designees are recognized as official OTSC results, corn distributed by One Sample Strategy facilities may be exempt from OTSC regulatory sampling and seizure.

The following information is intended to describe the criteria used by FFCS to determine if corn is exempt from regulatory sampling and aflatoxin testing; and describe the use and limitations of the OTSC One Sample Strategy stamp/sticker (Fig. 1) by participating firms.

Each One Sample Strategy facility receives a stamp (or equivalent stickers) from OTSC. The imprint of the stamp/sticker is placed on shipping documentation for outbound truckloads of corn and/or sewn-on deer corn tags. FFCS field investigators accept the imprint as evidence that the corn has been tested according to the One Sample Strategy criteria and methods. OTSC will not collect a regulatory sample for aflatoxin or fumonisin testing when One Sample Strategy corn is encountered in the market.


Figure 1. Example OTSC One Sample Strategy stamps for: (left) firms that have tested all loads inbound and segregated by mycotoxin level; and (right) firms that test individual truckloads outbound.

***Corn Exemption Eligibility Criteria***

Corn is exempt from regulatory sampling, testing, and/or seizure when FFCS field staff determine, through review of records, that:

a) A participating One Sample Strategy facility tests every incoming truckload of corn, segregates corn by mycotoxin level, and directs corn to the appropriate market channels; and/or

b) The outbound documentation for an individual truckload of corn from a One Sample Strategy participant includes an imprint of the OTSC One Sample Strategy stamp or sticker; or

c) Records indicate that all incoming corn purchased by an end user has been supplied by, or tested at, an eligible One Sample Strategy participant(s).

End users who purchase all corn from, or test all corn at, a One Sample Strategy location(s), should be aware that the benefit of the corn exemption (i.e., reduced regulatory surveillance) depends upon the availability of complete purchase records for FFCS review, and extends only so long as the One Sample Strategy supplier remains an eligible participant in the program.

***Use of the OTSC One Sample Strategy stamp/sticker***

One Sample Strategy firms may use the OTSC One Sample Strategy stamp/sticker to:

a) Imprint outbound shipping documents; and/or

b) Imprint sewn-on deer corn tags (not bags) or make copies of an imprinted tag; and/or

c) Imprint sewn-on deer corn tags (not bags) with the following text:
'One Sample Strategy- Firm's OTSC license number' (e.g., One Sample Strategy-012345).

***Limitations***

One Sample Strategy participants must conform to OTSC Feed Industry Memorandum 5-12 and/or 5-20, all aspects of the Texas Commercial Feed Rules, and the One Sample Strategy criteria and methods. In addition:

a) OTSC One Sample Strategy stamps/stickers remain property of OTSC and may be recalled by OTSC if the facility withdraws from the program or is suspended or removed; and

b) Sewn-on deer corn tags with the OTSC-issued stamp imprint may not be distributed in the marketplace if the facility withdraws from the program or is suspended or removed.

## APPENDIX Q: MONITORING & CORRECTIVE ACTIONS CHECKLIST

Firm Name: Date:

Firm Location: Manager Name:

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*Grain elevators review records and procedures weekly during harvest. Feed mills and bagging-only facilities review records and procedures every 2 weeks. Document corrective actions and/or contact an OTSC field investigator if results or records are out of conformance.*

***Yes No N/A***

☐ ☐ ☐ **File Samples:** Are file samples retained, properly labeled and ≥ 500 grams? (Appendix N)

- Date of analysis;
- Producer's name;
- County of origin - *If the county of origin is unknown, record the county where the sample was tested*;
- Scale ticket number(s) - *For composite samples, list the first number in the sequence;*
- Aflatoxin and/or fumonisin level; and
- Analyst initials.

☐ ☐ ☐ **Sampling & Sample Size:** Do designees use approved equipment and follow the sampling pattern described in the approved Sampling &Testing Plan to collect at least the minimum sample size? (Appendices F & G)

☐ ☐ ☐ **Grinder Check:** Has the grinder been checked, are results entered in the record and are fines ≥ 70%? (Appendix K) List the 3 most recent results:

_____ _____ _____

☐ ☐ ☐ **Lab Scale Check:** Has the lab scale been checked, are results entered in the record and are results within the acceptable range (49.5 - 50.5 grams)? (Appendix L)

☐ ☐ ☐ **Control Samples:** Are control sample results entered in the record and within the acceptable range? (Appendix M) Attach Control Sample Record (exclude previously submitted pages).

☐ ☐ ☐ **Crop Insurance:** If your firm issues Reports of Analysis for crop insurance, has the insurance information been sent to oss@otsc.tamu.edu? (Appendix O)

**Comments & Corrective Actions:**

**Date Range**: _____ *to* _____

**Total # Loads of Corn Tested:** _____

| | *Minimum Level Tested* | *Maximum Level Tested* |
|---|---|---|
| *Aflatoxin* | *ppb* | *ppb* |
| *Fumonisin* | *ppm* | *ppm* |

## APPENDIX R: AFLATOXIN PROFICIENCY TESTING (PT)

OTSC's Agricultural Analytical Service (AAS) is an accredited Proficiency Testing Provider under ISO/IEC 17043:2010. As an extension of the One Sample Strategy, firms that analyze for aflatoxin are provided with a free 100g packet of Aflatoxin Proficiency Testing (PT) sample once each year (July). This sample is different from the daily control material – it isn't labeled with the level of aflatoxin, and everyone in the program gets the same ground material. Each lab runs the sample twice, submits their results through the program Website, and then views an Aflatoxin PT report that compares all results anonymously. Plans are underway to offer Fumonisin Proficiency Testing.

**A. Watch for a PT sample and unique lab number assignment to arrive by mail in mid-July**

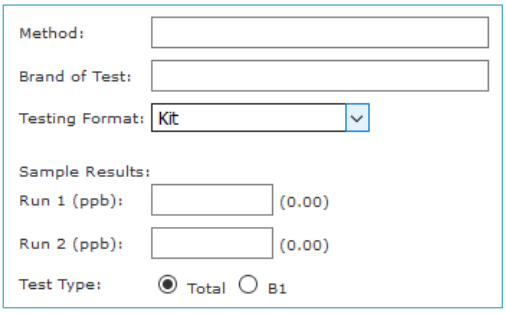
**B. Setup your account (or login with an existing account)**

1. Go to http://pt.tamu.edu
2. Select 'Setup your Account (First Time User)'
3. Enter your assigned Aflatoxin PT Lab number
4. Enter your email address
5. Select 'Reset Password' to receive an email with your password

**C. Weigh, extract and analyze two 50 g samples and document the results of both analyses**
*Note: Any OTSC designee may run the analyses but the same designee must run both tests on the same day.*

**D. Submit your results through the Laboratory Data Reporting system during the submission period**

1. Go to http://pt.tamu.edu and select 'Laboratory Login'
2. Login with your Aflatoxin PT Lab Number & password
3. Select '**Enter Sample Data'** (Figure 1) and follow the on-screen instructions
   *Note: The system allows only one total aflatoxin entry per lab. Please contact technical support to request corrections/resubmission.*




**E. Verify that your data has been entered correctly (optional)**

4. Go to http://pt.tamu.edu and select 'Laboratory Login'
5. Login with your Aflatoxin PT Lab Number & password
6. Select '**Verify Entered Data**'
7. If no data has been submitted: Select 'Enter Sample Data' as described above
8. If two results have already been submitted, the page will display your entry as follows:

We have received the follow results for lab 1000:
Total aflatoxin: 43.43 35.64

**F. Review your Aflatoxin PT Report (Available in early October)**

1. Go to http://pt.tamu.edu and select 'Laboratory Login'
2. Select '**View Reports'**
3. Login with your Aflatoxin PT Lab Number & password
4. Select options to 'Download Report' for your files

## APPENDIX S: AFLATOXIN PLAN TO BLEND

Firms participating in the One Sample Strategy have the option to submit a pre-season aflatoxin blending plan as a supplement to their annual Sampling and Testing Plan. Firms with an approved blending plan receive an aflatoxin blending permit from the Office of the Texas State Chemist (OTSC). A blending permit allows the facility to label and distribute unprocessed whole corn originally containing aflatoxin after blending with similar corn, so that the final blended product is below the appropriate maximum levels in corn used in animal feed. Steps toward an approved blending plan are described below and detailed in the following Feed Industry Memorandum 5-12: Distribution of Aflatoxin-Containing Whole Grain and Oilseed in Commercial Channels and Their Use in Mixed Feeds, which is available at http://otscweb.tamu.edu.

**Aflatoxin Blending Plan Steps:**

**A.** Submit your plan to blend as a supplement to your Sampling and Testing Plan and include:

1. Which bin(s) have been identified to store segregated corn prior to blending;
2. Outbound testing frequency (e.g., all loads, every X load, composite sampling scheme);
3. A disposition plan for any corn that may test >500 ppb aflatoxin;
4. A procedure to further blend when a load of blended corn tests above the maximum level; and
5. A 'Blended Corn' label for the appropriate species (Fig. 1).

**BLENDED CORN**

This product contains between ____ and ____ ppb aflatoxin determined on (date). To be fed **only** to finishing cattle in confinement.

Net weight ____ or may appear on invoice.

**WARNINGS:** May not be fed to lactating dairy cattle or lactating dairy goats. Not for human use.

Manufactured By:
Name of Manufacturer
Address of Manufacturer
City/State/Zip of Manufacturer
Net Wt. ___ lb. (___ kg)

**Figure 1.** Example blended corn label for aflatoxin

**B.** Receive your approved Blending Plan Permit from OTSC

**C.** Segregate and blend corn >300 ppb aflatoxin with other corn >20 ppb to a level under 200 ppb aflatoxin

**D.** Sample, test and label outbound loads according to your blend plan and One Sample Strategy methods, and store blended corn file samples separately from official file samples.

**E.** Do not ship blended corn or rations containing blended corn out of state

**F.** Keep records for two years

## APPENDIX T: OTSC REPORT

☐ One Sample Strategy ☐ Blending Plan

Firm Name: Date:

Firm Location: Investigator #:

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*Monitor grain elevators weekly during harvest. Monitor feed mills and bagging-only facilities every 4-6 weeks. Document file sample collection, discussion with management and corrective actions.*

| File Samples | | | | | |
|---|---|---|---|---|---|
| # | Scale Ticket/Log Number | TX County of Origin | Aflatoxin (ppb) | Fumonisin (ppm) | Analyst Name/Initials |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

| *Yes* | *No* | *N/A* | |
|---|---|---|---|
| ☐ | ☐ | ☐ | **Monitoring & Corrective Actions:** Has the firm management completed regular monitoring and documented corrective actions? (Appendix Q) |
| ☐ | ☐ | ☐ | **File Samples:** Are file samples retained, properly labeled and ≥ 500 grams? (Appendix N) |
| ☐ | ☐ | ☐ | **Control Sample Record:** Are control sample results recorded and within the acceptable range (Appendix M)? Attach Control Sample Record (exclude previously submitted pages). |

**Comments & Corrective Actions:**