

# Update on Mycotoxin Programs



**Grain Inspection Advisory  
Committee Meeting**

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United States Department of Agriculture

# Mycotoxin Test Kit Performance Criteria



- April 2015 Resolution
  - The Advisory Committee recommends FGIS move forward with expanding the mycotoxin concentration ranges to the following:
    - ✦ Aflatoxin to 5 – 300 ppb
    - ✦ DON to 0.5 – 30 ppm
    - ✦ Fumonisin to 0.5 – 30 ppm
  - At the manufacturer's request, FGIS will verify the supplemental analysis performance at the maximum range as established by the manufacturer.



# Mycotoxin Test Kit Performance Criteria



- Issued revised test kit criteria
  - Expanded minimum range of conformance
    - ✦ Aflatoxins 5 – 300 ppb
    - ✦ Deoxynivalenol (DON) and fumonisins 5 – 30 ppm
  - Established criteria for extended upper limit of conformance
  - Required additional data for multiple ranges of quantitation
  - Incorporated commodity grouping base on similarity
- Effective dates
  - Aflatoxins – January 1, 2016
  - DON, fumonisins, ochratoxin A, and zearalenone – March 1, 2016
  - One aflatoxin test kit evaluated under new criteria – failed



# Phase-Out of Qualitative Test Kits



- **October 2015 Resolution**
  - The Advisory Committee recommends that Qualitative Mycotoxin Tests be phased out as the current supply meets their expiration date.

# Phase-Out of Qualitative Test Kits



- Test generates positive or negative result
- Need quantitative test for positives
- Quantitative test kits nearly as fast
- Evaluation program eliminated February 1, 2016



# Mycotoxin Certification Procedure



- **October 2015 Resolution**

- The Advisory Committee recommends FGIS move forward to certify testing results to a minimum of 2 significant figures as a default for mycotoxins. However, FGIS will allow the results on the certificate to be shown as either a whole number or the nearest tenth at the request of the applicant using current FGIS rounding rules.



# Current Mycotoxin Certification



- Default certification procedure
  - Certify to nearest whole number
- Optional certification at request of applicant
  - Certify to nearest tenth (DON and fumonisins)



# Current Mycotoxin Certification



- Excessive rounding error → inflated bias
- More precision should be used

Detector Reading (ppm)	Certified Value (ppm)	Rounding Error (%)
0.55	1	82
1.43	1	-30
2.25	2	-11
4.45	4	-10

# Recommended Mycotoxin Certification



- Round to two significant figures as default
  - Consistent with international standards
  - Use same procedure for all mycotoxins
- Option to request certification to whole number

	Current			Recommended	
Reading (ppm)	Certified Value (ppm)	Err (%)		Certified Value (ppm)	Err (%)
0.55	1	82		0.55	0
1.43	1	-30		1.4	-2
2.25	2	-11		2.3	2
4.45	4	-10		4.5	1

# Questions?

