Proficiency Testing Committee Report

2022 AAFCO Annual Meeting
August 4, 2022, 1:30 pm, St. Louis, Missouri

Committee Recommendations
Increase Scheme prices by 20% effective for the 2023 Proficiency Testing Program Year. Prices of each Scheme:

a. Animal Feed - $540.00/year
b. Pet Food Ingredients - $540.00/year
c. Minerals - $540.00/year
d. Mycotoxin Contaminants - $800.00/year

Board Recommendations
NONE

Committee Participants
Members Present: Heidi Phillips (PTP QA Manager), AAFCO; Josh Arbaugh, West Virginia Department of Agriculture; Kristi McCallum, Colorado Department of Agriculture; Mary Koestner (Vice-Chair), Missouri Department of Agriculture; Patty Lucas, Florida Department of Agriculture & Consumer Services; Sharon Webb, University of Kentucky Division of Regulatory Services; Sally Flowers (Chair), Kansas Department of Agriculture; Tai Ha, Nebraska Department of Agriculture; Teresa Rygiel (Vice-Chair), Florida Department of Agriculture & Consumer Services

Advisors Present: Frank Sikora, Magruder PT Program; Ken Riter, PFI; Lars Reimann, AFIA

Virtual Attendees: Ametra Berry, Georgia Department of Agriculture; Brenda Snodgrass (AAFCO PTP Program Manager), AAFCO, AAFCO Life Member; Deepika Curole, Louisiana Department of Agriculture and Forestry; Gail Swinford, FDA; Nancy Thiex, AAFCO Life Member; Sue Humphries, FDA; Tom Phillips, Maryland Department of Agriculture; Andy Crawford (PTP Statistician), Crawford Consulting Services; Bob Kieffer (PTP), Able Laboratories

Committee Report
Mary Koestner (MO) was introduced as a second Vice Chair to the PTP Committee. In an update of a recent internal audit of the program, Heidi Phillips reported that the quality management system is a well-oiled machine and that Able Laboratories is in good shape. There will be an ANAB audit this December. The committee discussed the possibility of moving heavy metals from the Animal Feed Scheme to the Mineral Scheme; however, it was decided to leave both schemes as is because the Animal Feed Scheme better represents minerals that are naturally occurring in feeds.

There was discussion of the need to increase the annual subscription price and its impact on subscribing laboratories. The last price increase took effect in January 2018 at 25%. Reasons for the current increase include: end of the 5-year FDA grant that provided start-up funds; transition of the QA Manager position from voluntary to paid; higher costs for shipping and materials; plus an expansion of FASS administrative operations to serve PTP subscribers. The committee agreed on a 20% cost increase effective January 2023.

Trilogy Labs gave a presentation on the impact of mycotoxins on the feed industry and ways to manage testing for 2022 harvest season. Lastly, there was no AV workgroup activity to report at the time of the committee meeting as additional guidance was forthcoming from the Board.

Committee Activities
ACTION: Increase Scheme Prices by 20% effective for the 2023 Proficiency Testing Program year
MOTION: N. Thiex/Second: J. Arbaugh –-passes

Subcommittee Activities
NONE

Committee Minutes

1. Meeting was called to order by Committee Chair, S Flowers
   Meeting agenda was reviewed and approved
2. Program Leadership and Administrative Update
   a. Mary Koestner was welcomed as the second Committee Vice-chair. She joins Teresa Rygiel in her role as Committee Vice-chair.
   b. Heidi Phillips provided an update on the Program's ISO 17043 Quality Management System
      i. As the new Quality Manager, Heidi finds the existing documentation is impressive.
      ii. An Internal Audit of the PT materials preparation process (SOP and record review) was completed. Both Able Labs and Trilogy met with Heidi by phone. No deficiencies were noted. One form used for reviewing the bag labels for PT Samples (Test Items) did not note who was performing which parts of the review, although the reviewers were noted. The Form was revised to capture this information and the old form was archived.
      iii. Heidi plans to complete the Internal Audit of the remaining components of the System in the next two months
      iv. ANAB, the Program's Accrediting Body, will do a remote assessment at the end of this year. Tentatively the assessment is set for early December 2022. The assessment includes a document review and virtual meetings with the Program personnel. Heidi is coordinating the meeting dates and submitting documents to ANAB for the Assessor's review.

3. January 2023 Items for Consideration:
   a. Program Manager, B. Snodgrass, lead a discussion on moving all the heavy metals testing from the Animal Feed Scheme to the Minerals Scheme. While this may increase participation in the Minerals Scheme, no attendee was in favor of removing the heavy metals for the Animal Feed Scheme, and some people were strongly opposed to doing so.

      Brenda said that enrollment/participation in the Minerals Scheme has steadily improved since its inception. The advantage of retaining the heavy metals in the Animal Feed Scheme is the amounts present are incurred (naturally present) whereas those in the Minerals Scheme are spiked (artificially added). Since its introduction in 2012, the Minerals Scheme has also expanded the list of analytes to include speciation of the particularly hazardous analytes (Arsenic, Chromium, and Selenium species).

      Statistician, Andy Crawford, stated that the Minerals Scheme statistical analysis is different than that used for the same analytes in the Animal Feed Scheme. Animal Feed uses robust assigned means for the assigned value and robust standard deviations when a sufficient number of results are reported, otherwise simple means and standard deviations are used. Minerals uses robust means for the assigned value, but the standard deviations are calculated using the assigned value and the corresponding published "Horowitz" predicted standard deviations. More information on the statistics used for each may be found on the Program's webpage, https://pt.aafco.org

      The attendees were all in agreement to continue including the heavy metal analytes in the Animal Feed Scheme.
   b. Drug Concentrates for PT Materials Preparation: B. Snodgrass let the Committee, Advisors, and guests know that she is trying to find several medicated articles of higher concentration for the inclusion of medications subject to the Veterinary Feed Directive regulations, and some medications that can still be purchased over-the-counter, but do cost more than non-medicated feed. In particular, the Program needs Oxytetracycline, Lasalocid, and Monensin. Sharon Webb said that she can likely provide some medicated articles to the Program since the University of Kentucky does manufacture some of these medicated feeds. With the help of Tom Phillips, the Program has a good stock of Chlortetracycline and Amprolium. Eric Brady (TN) was also mentioned as a potential contact, but he has not been able to find a source willing to donate medicated articles.
   c. Price increase for PT Schemes: B. Snodgrass presented the Committee with a proposed price increase of 15% (rounded to the nearest $10) for all Schemes in order to keep the Program on secure financial footing. In addition, Brenda also showed possible price increases of 10% and 20% for the Schemes. The last price increase was in 2018 and was a 25% increase. That increase was due to the end of a 5-year

FDA Cooperative Agreement that paid for accrediting the PT Program to ISO 17043 and addition of two of the four Schemes (Minerals and Mycotoxin Contaminants).

ACTION: Increase Scheme Prices by 15% effective for the 2023 Proficiency Testing Program year. MOTION: N. Thiex, Second: J. Arbaugh

Discussion was had about increasing prices by 20% and how this increase would give the Program an estimated five years of stability. Members felt it would be best to increase prices by 20% at this meeting, so the Committee would not need to consider another price increase in three years or less. It was noted by Advisor L. Reimann that AAFCO's PT Program was much less expensive than similar PT Programs located overseas. Brenda also stated the AAFCO PT Schemes are far lower than US based Accredited Human Food PT Programs.

AMMENDED: Increase Scheme Prices by 20% beginning in the 2023 Program Year.
MOTION: N. Thiex, Second: J. Arbaugh. MOTION PASSES unanimously.

See PT Program Manager Updates 2022 Annual Meeting Presentation

4. Program Budget Review:

B. Snodgrass presented the Program's budget for the last several years and noted that to cost of doing business in increasing each year. This includes freight and courier costs (>20% overall); cost of PT Materials (inflation); wages for the Quality Manager (H. Phillips) and Program Manager (B. Snodgrass) who is no longer a state lab volunteer; fees for on-site assessments (travel & hotel are higher, although accreditation fees are relatively stable); travel costs for Program personnel; calibration of reference weights and analytical balance; and a modest price increase for the Mycotoxin Contaminants that the Program purchases from Trilogy Labs, our contract provider. It was noted that while participating labs do pay the shipping costs for their PT Samples, but the Program pays for shipping PT Materials to Able Labs (Prep Lab) in Tennessee, for reshipping lost or damaged shipments to participants. As of January 2022, FASS provides an assistant to the PT Program who is the first point-of-contact for participant enrollment, invoicing and triaging customer requests. It has been more than 3 years since FASS has done this for the PT Program and Brenda gave her personal thank you to Tammy Plank for doing such excellent work for the Program. The PT Program pays FASS for the hours worked by FASS staff, whether that be for enrollments, invoicing, or IT needs. Brenda projected those cost to be around $10,000-$15,000 per year.

AAFCO PT Program Budget Overview

	FY 2023 (July 2022 -June 2023)		FY 2022 (July 2021 -June 2022)		FY 2021 (July 2020 -June 2021)		FY 2020 (July 2019 -June 2020)	
	To Date	Approved	*Actual*	Approved	*Actual*	Approved	*Actual*	Approved
Total PT Program Revenue		$ 347,000.00	*$ 338,373.44*	$ 318,500.00	*$ 286,076.76*	$ 301,700.00	*$ 259,923.34*	$ 251,500.00
Total PT Program Expenses		$ 269,000.00	*$ 213,215.65*	$ 239,306.80	*$ 198,291.44*	$ 205,306.80	*$ 170,779.87*	$ 202,400.00
(Revenue - Expenses)		$ 78,000.00	*$ 125,157.79*	$ 79,193.20	*$ 87,785.32*	$ 96,393.20	*$ 89,143.47*	$ 49,100.00
Percent Actual of Approved = 100 X (Actual/Approved)			158%		91%		182%	

5. Scheme Discussion
   a. 2022 Subscription Status – B. Snodgrass

AAFCO PT Program Schemes				
4-Year Program Participation Comparison				
# of Labs (# Ordered)				
SCHEME NAME	**2019**	**2020**	**2021**	**2022**
Animal Feed	261 (270)	234 (234)	181 (181)	235 (243)
Pet Food Ingredients	74 (87)	69 (79)	42 (42)	95 (108)
Minerals	40 (40)	42 (42)	30 (30)	52 (52)
Mycotoxin	74 (74)	72 (74)	64 (64)	91 (91)

b. Customer Feedback – B. Snodgrass

Labs were asked if any of them routinely test Urea and/or NPN. Two labs are and there is interest among some of the international labs. Brenda said it is difficult to get good data for the statistical analysis because results show some labs report both of them as the Crude Protein Equivalent (CPE) rather than reporting % Urea and % Nitrogen for NPN. Brenda will contact the labs reporting CPE directly to let them know they need not use a CPE conversion factor (typically 6.25 for blended/complete rations.)

Program received an email from laboratory testing Vitamin E. They wanted to know if they should report out all isomers. Attendees agreed only the alpha-isomer should be reported. AOAC 970.11 has conversion factors for all isomers, however, it was noted that in complete rations, Vitamin E is the synthetic version which is the alpha-isomer. Brenda also let the attendees know that Vitamin E (Fat Soluble Vitamins) Methods Needs Statement for Vitamin E from the Laboratory Methods & Services Committee needs to be reviewed as it appears the Vitamin E acetate form conversion factor is different than the Vitamin E tocopherol form conversion factor. Laboratory Methods & Services Committee Chairs noted they would review the Method Needs Statement & update as needed.

6. Mycotoxins Presentation – Jordon Bierbaum, Trilogy Labs *(See The Mycotoxin Challenge AAFCO 2022 Presentation attachment)*

7. Lab and Enforcement Issues Committee (EIC) AV Working Group (WG) Update - B. Snodgrass

Brenda revisited the change that was proposed to the Analytical Variance Tables in the AAFCO Official Publication (OP) during the January 2022 Committee Meeting in Mobile. The change would have impacted many stakeholders, including state and federal regulatory program officials, regulatory labs, and industry. That change was never published in any OP. Brenda thanked the Committee Members that were present for that meeting for taking the change to the Enforcement Issues Committee. She also thanked the Committee Advisors for their input on the discussion.

Brenda stated that the Joint EIC-Lab AV Recommendations WG has been paused by the AAFCO Board of Directors since the last Committee Meeting. Brenda spoke with the AAFCO President-Elect who assured her that the WG was of high importance to all of AAFCO. The Board plans to reactivate the WG in the coming months which will include a charge from the Board on the specific work to be accomplished.

8. Other Business

a. Dancia Wu was asked to discuss the stability of Bacitracin in ground feed samples. Significant degradation follows grinding, especially if the material is in warm environments. Dancia stated that recovery of Bacitracin drops to ~50% upon grinding and that participating labs should expect recoveries as low as 30% of the estimated analysis when a sample is stored without freezing. Bacitracin is a molecule of small peptides and easily degraded and is stable for at least 6 weeks if unground, or 6 months unground in a refrigerator (~4^0 C). Bob Kieffer From Able Labs blends materials before they are ground for packaging.

b. Sharon Webb mentioned that amprolium is used mostly in the spring, so it doesn't need to be included year-round for US participants. Many labs may not test it in a PT Sample during other times of the year.

9. Round Table
    a. New York asked if another unground sample could be sent to participants, like was done several years ago. Test Item Homogeneity is a requirement of ISO 17043, so if done, it would not be covered by the Program's ISO 17043 Accreditation (out of scope). The previous time this was done the Program was not accredited. Nancy and Bob believe it was a Meat and Bone Meal matrix, which will not pass through the grinders without significant alteration of the grinding process. While it may be feasible for individual labs to grind small amounts of such materials using dry ice, Able Labs is grinding 200 pounds of material at a time. Able Labs is now using a jaw crusher type grinder for difficult matrices (like Tortoise Feed, which is very hard) and high fat matrices, like some pet foods. Further, the statistical analysis for between lab variability is meaningless unless all PT samples sent to participants are reasonably homogenous. If the PT Program must do random testing of unground material for homogeneity, it would cost on the order of $20,000 for each PT Sample (round).
    b. The AAFCO Website is being redesigned. Committee Chairs have been asked to review the information and documents on their parts of the website. There was consensus that the PT Statistical Reports should all be retained on the PT Program's part of the website, along with the Guidebooks, Manuals, and Statistical Evaluation References. Sally will relay that to the group working on the redesign. This information should not be placed in the FeedBIN since most laboratories do not have a FeedBIN account. It would also prevent customers from viewing older reports that are needed for the Quality Reference Materials (QRMs).
    c. The attendees were asked if there was any interest in purchasing the Canned Dog Food QRM. There was interest, so Bob & Brenda will work on a plan for labs to order them. They will be priced at $80.00 per case of 12 cans (~5.5 oz. per can), plus shipping. They will only be sold to US labs.
    d. J. Arbaugh asked if the Program knows what type of QRMs are the best sellers. Although we don't have an exact count, Bob said most are from the Animal Feed Scheme. Bob can provide the information to Brenda to report back to the Committee at a future date.

10. The meeting was adjourned.

Action Items

Responsible	Item	Action	Timing / Status
Program Manager Able Labs, and FASS IT	2023 Program Year Subscriptions	Set up 2023 Program Schemes with new prices and Sept 2023 (current) postal rates; Open enrollment to begin on or about November 1, 2022	Mid-October 2022
Program Manager, Able Labs, and FASS	Canned Dog Food QRM Sales	Create order form and place on QRM ordering webpage for customer to use when ordering	November 2022
Committee Chair, Committee Board Liaison & Program Manager	Joint EIC-Lab AV Recommendations Working Group (WG)	Small WG awaiting Board confirmation of WG Charge (direction, goals & tasks)	Pending, but expected to have Board charge in ~ December 2022
Committee Chair, Vice Chairs, Program Manager	Website Redesign	Continue working with Current Issues & Outreach Committee (CIOC) & website designer (Philosophy) to review proposed changes to new website, including what information to remain	Ongoing

		on AAFCO website	
Program personnel	ANAB Remote Assessment for 2023	Complete assessment for continued accreditation of PT Program	November-December 2022

Appendix: Attachments

PT Program Manager Updates 2022 Annual Meeting (PowerPoint Presentation)
The Mycotoxin Challenge AAFCO 2022 (PowerPoint Presentation)

AAFCO Proficiency Testing Program

Program Manager Updates

2022 Annual Meeting

August 4, 2022

Saint Louis, MO

CONSIDERATION OF PRICE INCREASE

- Last Price Increase was in January 2018 (5 Years)
  - All Schemes were increased ~25%
  - Increase was primarily driven by the conclusion of the FDA CoAg 5-year agreement that was used to accredit the Program and expand the Program to include a Minerals Scheme
  - Quality Manager was no longer a volunteer, but rather a paid position

- Brief History
  - Mycotoxins Contaminants Scheme was added to the Program in 2014
  - Minerals Scheme was added to the Program in 2015
  - All Schemes were fully accredited to ISO 17043 by ANAB in February 2018

- Mycotoxins Scheme absorbed a modest price increase from our contract lab this year (effective January 2022)

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CONSIDERATION OF PRICE INCREASE

- Other 3 Schemes have steadily seen expenses climb in the last 5 years
  - Cost of PT Materials is increasing for Animal Feeds, Pet Foods, Ingredients, Supplements, and Medications
  - Primary driver of increasing expenses seems to be inflation from supply chain disruptions, labor costs, and energy costs
  - Currently price inflation is at the highest level it has been since 1981
  - In the last two years:
    - Freight costs have increased ~20-25 %
    - Courier delivery costs have increased ~10%
    - Postal delivery rates (1st Class Packages) have increased ~12%
  - While customers do pay for their own shipping, the Program pays for shipping and delivery to Able Labs in Tennessee

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CONSIDERATION OF PRICE INCREASE

- Beginning January 2021 both the Program Manager and Quality Manager are paid hourly for running the Program and maintaining our ISO 17043 accreditation
- Starting with the current year (2022), FASS has again started assisting the Program with participant enrollment, billing & invoicing, and triaging customer emails and phone calls
- Our primary assistant is Tammy Plank. She has done an excellent job coming up to speed & learning more and more about the PT Program
- The Program personnel extends our personal thank you to Tammy for her can-do attitude and learning many aspects of our Program so quickly

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AAFCO PT Program Schemes
Current Prices & Proposed 15% Increase

Scheme Name	Current Price	15% of Current Price	Price plus 15%	Price Starting January 2023 (rounded to nearest $10)
Animal Feed	$ 450.00	$ 67.50	$ 517.50	$ 520.00
Pet Food Ingredients	$ 450.00	$ 67.50	$ 517.50	$ 520.00
Minerals	$ 450.00	$ 67.50	$ 517.50	$ 520.00
Mycotoxin Contaminants	$ 660.00	$ 99.00	$ 759.00	$ 760.00

	Number of PT Samples	Price per PT Sample
The dry pet food for Animal Feed is also shipped to Pet Food Ingredients participants	13	$ 40.00
	5	$ 104.00
	4	$ 130.00
	4	$ 190.00

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AAFCO PT Program Schemes

Current Prices & Proposed 10% Increase

Scheme Name	Current Price	10% of Current Price	Price plus 10%	Price Starting January 2023 (rounded to nearest $10)
Animal Feed	$ 450.00	$ 45.00	$ 495.00	$ 500.00
Pet Food Ingredients	$ 450.00	$ 45.00	$ 495.00	$ 500.00
Minerals	$ 450.00	$ 45.00	$ 495.00	$ 500.00
Mycotoxin Contaminants	$ 660.00	$ 66.00	$ 726.00	$ 725.00

	Number of PT Samples	Price per PT Sample
The dry pet food for Animal Feed is also shipped to Pet Food Ingredients participants	13	$ 38.46
	5	$ 100.00
	4	$ 125.00
	4	$ 181.25

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AAFCO PT Program Schemes
Current Prices & Proposed 20% Increase

Scheme Name	Current Price	20% of Current Price	Price plus 20%	Price Starting January 2023 (rounded to nearest $10)
Animal Feed	$ 450.00	$ 90.00	$ 540.00	$ 540.00
Pet Food Ingredients	$ 450.00	$ 90.00	$ 540.00	$ 540.00
Minerals	$ 450.00	$ 90.00	$ 540.00	$ 540.00
Mycotoxin Contaminants	$ 660.00	$ 132.00	$ 792.00	$ 800.00

	Number of PT Samples	Price per PT Sample
The dry pet food for Animal Feed is also shipped to Pet Food Ingredients participants	13	$ 41.54
	5	$ 108.00
	4	$ 135.00
	4	$ 200.00

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AAFCO PT Program Budget Overview

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Scheme Subscription Status

AAFCO PT Program Schemes				
4-Year Program Participation Comparison				
# of Labs (# Ordered)				
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Animal Feed	261 (270)	234 (234)	181 (181)	235 (243)
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Thank you for your time!

We hope to see you in January in San Antonio!

Contact us:
Brenda Snodgrass
AAFCO PT Program Manager

pt@aafco.org
Ph: 217-356-4221

https://pt.aafco.org

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AAFCO Proficiency Testing Program

ANAB ACCREDITED ISO/IEC 17043 PROFICIENCY TESTING PROVIDER

AAFCO PTP Animal Feed Scheme

Animal Feed Scheme

Beef feed, Medicated

Test Material Code # 202131

Analyte Proficiency Testing Report

Labs Reporting: 166

Analytes Reported 110

Issue Date : 12/31/2021

Method Group	Analyte Group (Units)	Lab Code	Lab Data		Method Values				AAFCO PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Robust SD	R-bar	# Tests			
000	Urea (%)	2302	1.660	0.0200	3.225	1.884	0.1060	5		000.99	0
000	Urea (%)	0674	2.040	0.0000	3.225	1.884	0.1060	5		000.02	0
000	Urea (%)	0619	2.160	0.0400	3.225	1.884	0.1060	5		000.99	0
000	Urea (%)	0278	4.150	0.3000	3.225	1.884	0.1060	5		000.02	0
000	Urea (%)	0171	6.115	0.1700	3.225	1.884	0.1060	5		000.02	0
001	Loss on Drying (%)	2155	9.405	0.0300	11.09	0.3996	0.0976	65	-4.21	001.99	0
001	Loss on Drying (%)	0345	9.605	0.0100	11.09	0.3996	0.0976	65	-3.71	001.07	0
001	Loss on Drying (%)	2081	9.910	0.3600	11.09	0.3996	0.0976	65	-2.95	001.99	0
001	Loss on Drying (%)	0019	9.950	0.1000	11.09	0.3996	0.0976	65	-2.84	001.07	0
001	Loss on Drying (%)	0035	10.10	0.1400	11.09	0.3996	0.0976	65	-2.47	001.07	0
001	Loss on Drying (%)	0682	10.24	0.0000	11.09	0.3996	0.0976	65	-2.12	001.07	0
001	Loss on Drying (%)	0571	10.31	0.0100	11.09	0.3996	0.0976	65	-1.96	001.07	0
001	Loss on Drying (%)	2339	10.44	0.0030	11.09	0.3996	0.0976	65	-1.61	001.07	0
001	Loss on Drying (%)	0038	10.56	0.0700	11.09	0.3996	0.0976	65	-1.33	001.07	0
001	Loss on Drying (%)	0889	10.60	0.0600	11.09	0.3996	0.0976	65	-1.22	001.99	0
001	Loss on Drying (%)	0226	10.63	0.0100	11.09	0.3996	0.0976	65	-1.16	001.07	0
001	Loss on Drying (%)	0643	10.65	0.0200	11.09	0.3996	0.0976	65	-1.09	001.07	0
001	Loss on Drying (%)	0675	10.75	0.3800	11.09	0.3996	0.0976	65	-0.84	001.07	0
001	Loss on Drying (%)	2146	10.76	0.0300	11.09	0.3996	0.0976	65	-0.83	001.07	0
001	Loss on Drying (%)	0171	10.77	0.1300	11.09	0.3996	0.0976	65	-0.81	001.07	0
001	Loss on Drying (%)	0010	10.85	0.1000	11.09	0.3996	0.0976	65	-0.59	001.07	0
001	Loss on Drying (%)	2268	10.89	0.1200	11.09	0.3996	0.0976	65	-0.49	001.99	0
001	Loss on Drying (%)	0689	10.90	0.0000	11.09	0.3996	0.0976	65	-0.47	001.07	0
001	Loss on Drying (%)	0034	10.92	0.1200	11.09	0.3996	0.0976	65	-0.42	001.07	0
001	Loss on Drying (%)	2144	10.92	0.0200	11.09	0.3996	0.0976	65	-0.42	001.07	0
001	Loss on Drying (%)	0948	10.94	0.0300	11.09	0.3996	0.0976	65	-0.38	001.99	0
001	Loss on Drying (%)	0074	10.95	0.1100	11.09	0.3996	0.0976	65	-0.36	001.07	0
001	Loss on Drying (%)	0918	10.95	0.0100	11.09	0.3996	0.0976	65	-0.36	001.99	0
001	Loss on Drying (%)	0027	10.95	0.0840	11.09	0.3996	0.0976	65	-0.34	001.07	0
001	Loss on Drying (%)	0581	11.00	0.0000	11.09	0.3996	0.0976	65	-0.22	001.07	0
001	Loss on Drying (%)	2190	11.01	0.2900	11.09	0.3996	0.0976	65	-0.20	001.07	0
001	Loss on Drying (%)	2345	11.02	0.3100	11.09	0.3996	0.0976	65	-0.18	001.07	0
001	Loss on Drying (%)	0610	11.04	0.1100	11.09	0.3996	0.0976	65	-0.13	001.99	0

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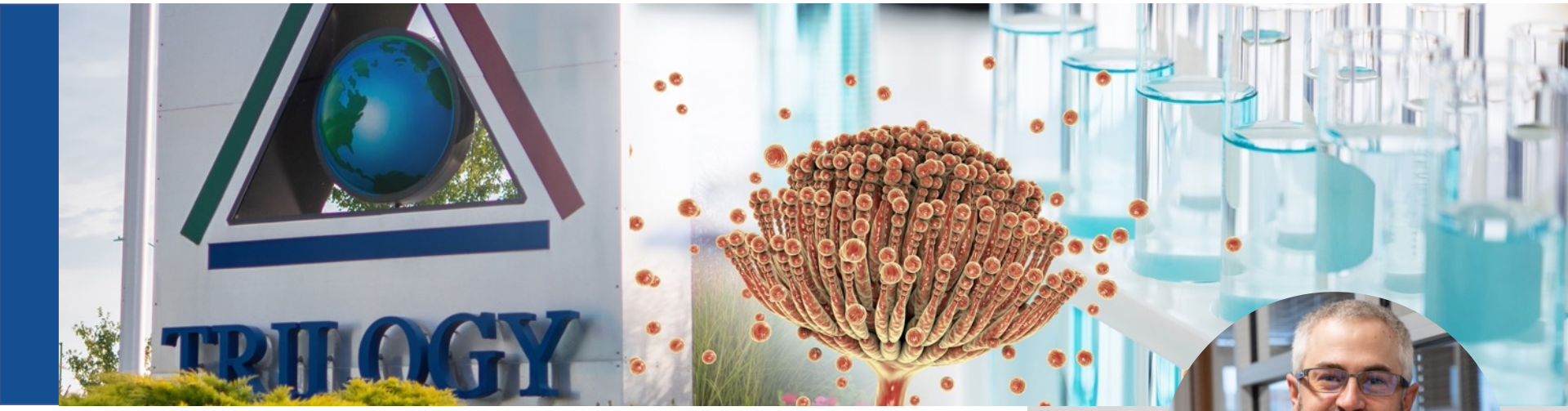
Test Material Code # 202131

Analyte Proficiency Testing Report

Issue Date : 12/31/2021

Method Group	Analyte Group (Units)	Lab Code	Lab Data Value	Lab Data Range	Method Values Rob Mean	Method Values Robust SD	Method Values R-bar	Method Values # Tests	AAFCO PT Z Score	Your Method	Flag
106	Vitamin A (KU / kg)	0563	48.13	3.670	44.27	13.01	4.190	13	0.30	106.02	0
106	Vitamin A (KU / kg)	0010	49.95	1.500	44.27	13.01	4.190	13	0.44	106.02	0
106	Vitamin A (KU / kg)	0098	56.00	8.000	44.27	13.01	4.190	13	0.90	106.01	0
106	Vitamin A (KU / kg)	0038	62.60	10.60	44.27	13.01	4.190	13	1.41	106.02	0
106	Vitamin A (KU / kg)	2302	114.1	6.320	44.27	13.01	4.190	13	5.37	106.01	0
107	Vitamin B12 (ppb)	0227	4.570	0.1600				1		107.00	0
108	Vitamin D3 (KU / kg)	0610	5.150	1.500				2		108.02	0
108	Vitamin D3 (KU / kg)	0227	5.355	0.2900				2		108.02	0
109	Vitamin E (IU / kg)	0638	88.00	0.0000	129.1	28.86	10.76	9	-1.42	109.02	0
109	Vitamin E (IU / kg)	0619	97.50	13.00	129.1	28.86	10.76	9	-1.09	109.02	0
109	Vitamin E (IU / kg)	0098	118.5	11.00	129.1	28.86	10.76	9	-0.37	109.02	0
109	Vitamin E (IU / kg)	0208	118.9	0.9110	129.1	28.86	10.76	9	-0.35	109.02	0
109	Vitamin E (IU / kg)	0563	127.9	26.05	129.1	28.86	10.76	9	-0.04	109.02	0
109	Vitamin E (IU / kg)	2319	149.1	3.300	129.1	28.86	10.76	9	0.69	109.02	0
109	Vitamin E (IU / kg)	2193	149.5	17.08	129.1	28.86	10.76	9	0.71	109.02	0
109	Vitamin E (IU / kg)	0610	155.8	22.50	129.1	28.86	10.76	9	0.92	109.02	0
109	Vitamin E (IU / kg)	0227	156.5	3.000	129.1	28.86	10.76	9	0.95	109.02	0
109	Vitamin E (IU / kg)	2302	< 15500		129.1	28.86	10.76	9		109.99	5
111	Vitamin C, Phosphorylated (ppm)	0227	< 4.4					0		111.00	5
112	Pyridoxine (µg / g)	0227	2.695	0.0100				1		112.01	0
113	Folic Acid (ppm)	0227	0.7585	0.0690				1		113.01	0
114	Biotin (ppm)	0227	0.2385	0.0210				1		114.01	0
115	Non Protein N (NPN) (%)	0674	0.0400	0.0000	0.8995	0.6903	0.0130	7	-1.25	115.01	0
115	Non Protein N (NPN) (%)	0619	0.3000	0.0120	0.8995	0.6903	0.0130	7	-0.87	115.99	0
115	Non Protein N (NPN) (%)	0505	0.9550	0.0100	0.8995	0.6903	0.0130	7	0.08	115.99	0
115	Non Protein N (NPN) (%)	0001	0.9765	0.0090	0.8995	0.6903	0.0130	7	0.11	115.00	0
115	Non Protein N (NPN) (%)	0035	1.015	0.0100	0.8995	0.6903	0.0130	7	0.17	115.00	0
115	Non Protein N (NPN) (%)	0904	1.075	0.0100	0.8995	0.6903	0.0130	7	0.25	115.99	0
115	Non Protein N (NPN) (%)	0098	6.670	0.0400	0.8995	0.6903	0.0130	7	8.36	115.00	0
118	Peroxide value (meq/kg)	2081	1.905	0.2500				2		118.99	0
118	Peroxide value (meq/kg)	0853	4.800	0.2000				2		118.99	0
120	Alanine (%)	0353	0.5750	0.0100	0.6386	0.0406	0.0110	25	-1.57	120.00	0
120	Alanine (%)	0684	0.5750	0.0300	0.6386	0.0406	0.0110	25	-1.57	120.00	0
120	Alanine (%)	0870	0.5799	0.0234	0.6386	0.0406	0.0110	25	-1.44	120.00	0
120	Alanine (%)	0968	0.5900	0.0000	0.6386	0.0406	0.0110	25	-1.20	120.00	0
120	Alanine (%)	2319	0.5950	0.0100	0.6386	0.0406	0.0110	25	-1.07	120.05	0
120	Alanine (%)	0682	0.6140	0.0000	0.6386	0.0406	0.0110	25	-0.61	120.00	0
120	Alanine (%)	0941	0.6150	0.0000	0.6386	0.0406	0.0110	25	-0.58	120.00	0
120	Alanine (%)	0948	0.6175	0.0330	0.6386	0.0406	0.0110	25	-0.52	120.01	0
120	Alanine (%)	2193	0.6280	0.0040	0.6386	0.0406	0.0110	25	-0.26	120.05	0
120	Alanine (%)	0148	0.6325	0.0550	0.6386	0.0406	0.0110	25	-0.15	120.05	0
120	Alanine (%)	0652	0.6400	0.0200	0.6386	0.0406	0.0110	25	0.03	120.00	0

TRILOGY



Protecting Your Brand

The Mycotoxin Challenge

Prepared for:
AAFCO 2022

Presented By:
Jordon Bierbaum
Vice President of Operations

The Mycotoxin Challenge:

Knowing Your Consumer

Today's pet food options are vast…

- Grain, Grain-Free, Refrigerated, Freeze-dried, GMO, Non-GMO, Indoor, Hair-ball free, Premium, Puppy, Adult… *and the list of options goes on.*
- Brightly colored bags are meant to attract the consumer.
- Pet Foods are sometimes prepared so that both the owner and pet can share the food

The Mycotoxin Challenge:

Meet Jordon & Misa

It gets even more personal…

Pet food suppliers know more about you than you may think…

Who is Jordon?

- Single male in his mid-30s
- Millennial
- Loves sports and outdoor activities
- Will overspend on a “better” petfood because he loves his Corgi
- Doesn’t typically spend on himself
- Drives a Truck
- Tries to save money in a tough economy
- Loyal to particular brands
- Small house in a good community
- Prefers online shopping

Who is Misa?

- 19-pound female corgi
- 5 years old
- Very energetic
- Has an attitude
- Plays nice with other dogs (some of the time)
- Potty Trained

A large amount of money is spent tailoring to each individual consumer, no matter the industry.

The Mycotoxin Challenge:

The Big Picture

TRILOGY

Mycotoxin testing, whether by rapid or analytical analysis, is a critical point in global trade.

While many countries have mycotoxin regulations, they are not uniform in toxin concentration levels or commodities. Scheduled or regular testing aids countries from importing shipments that do not meet their regulatory standards as well as exporting contaminated commodities that do not meet other countries regulatory standards as well.

The following presentation will be a general overview of mycotoxins as well as practical and readily implemented tools and plans to consider when introducing a mycotoxin testing program.

The Mycotoxin Challenge:

The Basics

- Mycotoxins are toxic chemical compounds produced by various strains of molds.
- There are hundreds of Mycotoxins.
  (Penicillin is a commonly known Mycotoxin)
- Mycotoxins are compounds that can not be “killed” once they are produced. The mold is able to be treated but the toxin cannot.
- Mycotoxin have been around since molds began growing – one of the plagues was thought to have been a mold problem.

Penicillin is a commonly known Mycotoxin

The Mycotoxin Challenge:

Where Do They Come From?

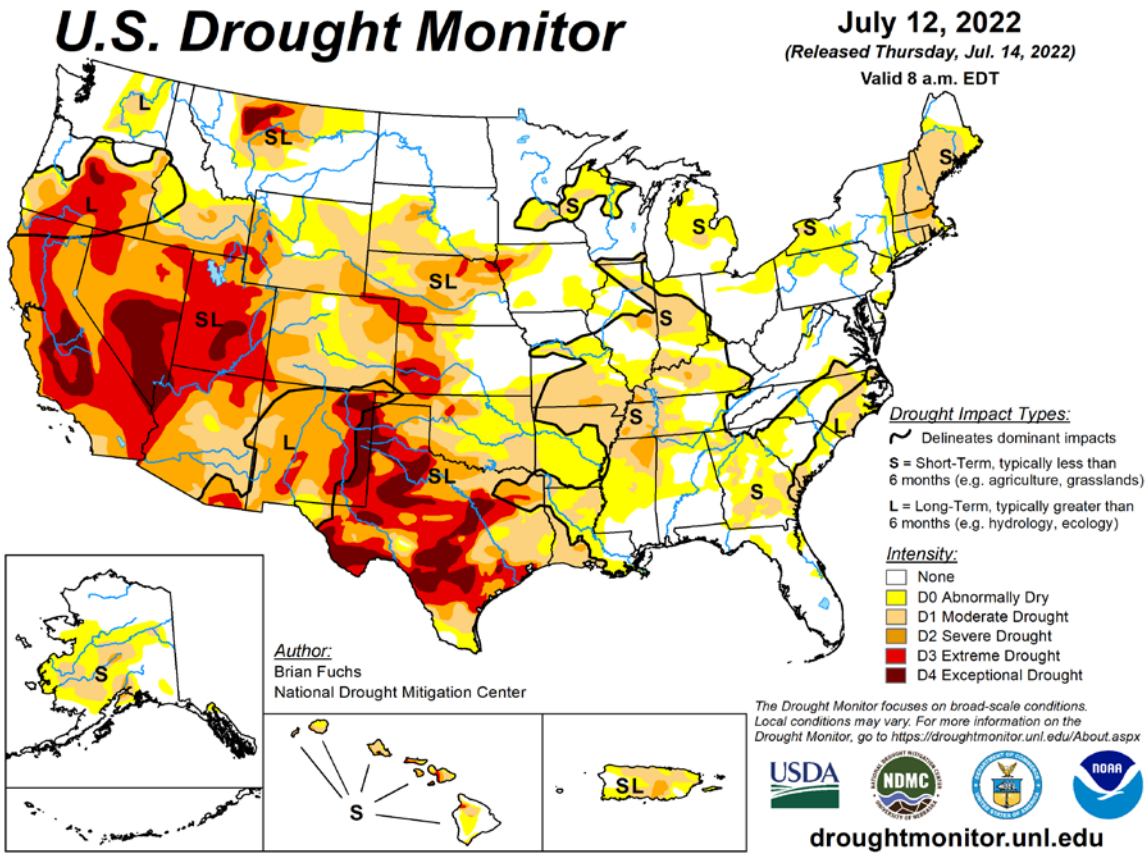
- Different weather conditions produce different molds-hence different mycotoxins.
- Plants are more susceptible at during varying stages of growth and to different weather conditions at those stages.
- Insect damage and broken kernels are entryways for molds
- Mycotoxins and related problems are worldwide issues.
- Storage and transportation conditions hav the potential to increase toxin concentrations.
- Mycotoxins enter the food chain both pre-harvest and post harvest. Managing both points of the process is essential for risk management.

The Mycotoxin Challenge:

U.S. Drought Monitor

Mycotoxins tend to be spotty at best!

- Look at North and South of the Platte River in Eastern Nebraska…
- A county north of the Platte river may be more susceptible to Aflatoxin, but South may not…
- This could happen only a few miles apart



Map Provided by **USDA**

The Mycotoxin Challenge:

Common Mycotoxins & Commodities of Concern

- **Aflatoxins (B1, B2, G1, G2)**
  typically hot and dry conditions at risk, but irrigated corn is susceptible
- **Deoxynivalenol (DON, Vomitoxin)**
  typically cool and wet conditions at risk
- **Fumonisin (B1, B2, B3)**
  typically warmer and wet conditions at risk
- **Ochratoxin A**
  Varies a bit with region, generally cooler and wetter conditions at risk
- **Zearalenone**
  typically cool and wet conditions at risk
- **T-2 Toxin and HT-2 Toxin**
  typically cool and wet conditions at risk

Wheat, Barley, Oats & Soybeans

Commonly have issues with:

- DON
- Ochratoxin
- Zearalenone
- T-2 Toxin
- HT-2 Toxin

Corn and Corn Products

Commonly have issues with:

- Aflatoxin
- DON
- Fumonisin
- Ochratoxin
- Zearalenone
- H-2 Toxin
- HT-2 Toxin

Critical Factor for Grain Millers

When you process your products the toxins will vary from fraction to fraction – you may be concentrating the toxins

The Mycotoxin Challenge:

Physical Damage of Grains

DON 7.0 ppm
ZONE 0.0 ppm

DON 0.6 ppm
ZONE 0.6 ppm

Normal Kernels | **Slightly Damaged Kernels** | **Highly Damaged Kernels**

You still need to grind your unknown samples well!

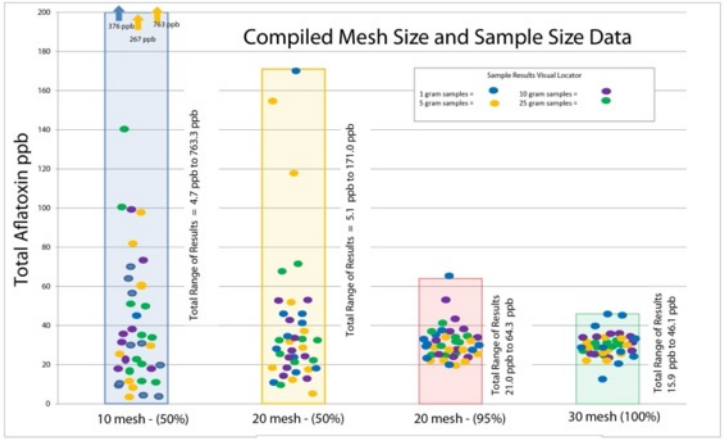
TRILOGY

Why is grind size important?

Samples ground to a finer mesh size exhibit reduced variability.

Conversely, as sample particle size increases result variability increases.

A larger sample size improves variability. Generally, a finer mesh size improves variability.



In general, mycotoxins are extremely inhomogeneous.

Ensuring proper grinding of samples is the first step in accurate results

The Mycotoxin Challenge:

Result Accuracy

3.2 ppm DON

What goes into an accurate result?

- Sampling & Sub-Sampling Techniques
- Sample Preparation
- Purchasing Parameters
- Quantification Limits
- Sample Submittal
- Confirmation of Results
- Equipment Performance
- Employee Education
- Manufacturing Process
- Storage Conditions
- Technician Training
- Weather Conditions
- Outside Lab Competence
- Commodity Selection
- Testing Frequency
- Lot Size
- Analytical Variability
- Extraction Efficiency
- Extraction Size
- Method Suitability
- Particle Size of Analytical Sample

The Mycotoxin Challenge:

Mitigating Risk & Establishing a Testing Program

What steps are available to mitigate risk and introduce a robust testing program?

- **Evaluate** and control parameters that you can.
  Including: Suppliers, testing and sampling programs, purchasing specifications, method selection
- **Educate** yourself about parameters out of your control.
  Including: weather conditions, toxin contamination probability, insect damage
- **Focus** on the critical but simple elements.
  Including: storage conditions, sampling procedures, result validation and interpretation

The Mycotoxin Challenge:

Performance Testing Provides Validation

TRILOGY

Part of the testing plan in your facility should include “blind” PT rounds.

- Provides a consensus result from multiple laboratories.
- Great for Auditing
- AAFCO provides a mycotoxin PT program with a wide variety of different feeds and ingredients.

The Mycotoxin Challenge:

Every Run is Important

Daily Quality Control Materials

- Provide immediate feedback on your testing.
- These samples touch every part of the process.
- Trilogy Offers multiple commodities.

The Mycotoxin Challenge:

Third-Party Verification

- Samples that are difficult to test, or your facility is not confident in the results…
- Third-party testing with ISO 17025 laboratories that have the toxin of interest on the scope are the best option.

The Mycotoxin Challenge:

How can Trilogy help you reach your quality goals?

QualiT Products

Trilogy Analytical Laboratory has the expertise to help you establish your quality control program and to keep up with industry regulations. Using our years of knowledge and experience, we can offer you a comprehensive line of quality products to meet the ever-changing needs of the mycotoxin industry.

- Certified Reference Standards
- Analytical Standards, incl. customized standards
- Certified Reference Materials
- Quality Control Materials also custom materials
- Rock-It 360
- Purification Columns
- Proficiency testing

Analytical Services

Trilogy Analytical Laboratory has the expertise to help you establish your quality control program and to keep up with industry regulations. Using our years of knowledge and experience, we can offer you a comprehensive line of quality products to meet the ever-changing needs of the mycotoxin industry.

- Mycotoxin Analysis
- Mycotoxin Binder Analysis
- Biogenic Amines
- Drug Residues

Contact

For information regarding any analytical services, products, or proficiency programs, we encourage you to contact us directly or speak with your sales representative.

Jordon Bierbaum

Vice President,
Trilogy Analytical Laboratory