Agrarian® SOLUTIONS

May - September 2020

Mycotoxin Report

SECURITY. ECONOMY. CONVENIENCE.

A Dairy Farmer's Dream.

Welcome

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Letter From Our Vice President of Operations

For many years Agrarian Solutions® has been a leader in the distribution of information pertaining to environmental challenges present in livestock feed. We are now very pleased to offer you precise data that can provide even greater insight to guide your decisions and improve the health and performance of your livestock. Activation Laboratories, a global leader in analytical lab services, is providing us with independent and state of the art results. In the pages ahead, you will find extremely helpful information to assist in discerning the best course of action to optimize your animals' performance. The following report has an almost total dairy feeds focus.

Mark Lantz
Vice President Operations
Agrarian Solutions®

Actlabs
41 Bittern Street,
Ancaster, ON, L9G 4V5

actlabs.com

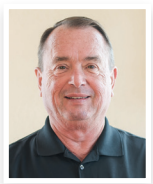
Actlabs, in Ancaster, Ontario, Canada, is our partner in providing technologically advanced mycotoxin analyses. Actlabs is a global enterprise certified under ISO 9001 and 9002 specifications. They are credentialed under various Canadian agencies and are FDA approved. Analyses are done with high-performance liquid chromatography/tandem mass spectroscopy (LC-MS/MS). And no result is released until a trained technician carefully reviews each chromatogram for various parameters. This method gives excellent sensitivity and accuracy and permits determination of chemically related toxins within the sample. In each sample, 17 mycotoxins are analyzed and reports are optimized for best use by the client, including estimates of the degree of severity of the concentration(s) found.

Agrarian Solutions is delighted to release its third mycotoxin report for 2020. This has been an exciting new experience for us since our launch of this service in March. While our mycotoxin analysis database has been in existence for more than 20 years, the ability to search has only been created in the past 18 months. Our goal from the start has been to focus on dairy rations in the US as a means of providing dairymen, nutritionists, and veterinarians with the chance to see both the historical record for their areas, and also have some basis of predicting likelihood of exposure and risks for their dairy clients in the months to come. As we wrap up this year's crop/ration data reporting, I am hoping that in 2021 we will be able to add a new feature or two to the reports. Of course, those reports will begin in January, 2021, and will include last quarter of 2020 to capture the impact of new crop corn.

As for the past five months, as given in this report, I would like to be able to say that the mycotoxin challenge arena has been relatively calm; however, that just isn't the case. When I scan the data for high and low averages by state, the DON values range from 200 to 1,960 ppb. That may give one a false sense of security. Searching by Select Sires Cooperative regions reveals that two reported "0" DON. Sound pretty good? One of those coops submitted no samples during the period; and the other, only a small number. You won't find it if you don't look. The two highest cooperatives were submitting samples fairly regularly. So, do keep in mind that as you read through this report, the values you see will be averages for submitting unit and since some samples actually do come in negative for DON (!) those averages may be on the low side. For example, looking at just the five highest values on submitted sample, four coops averaged 5, 950 ppb DON, 3-10 times the high-risk threshold. From top to bottom they were 10,610, 6,630, 5,180, 3,780, and 3,500 ppb. Submissions ran from end of June through mid-September, and they spanned geographic sources from the Southeast to the upper mid-West. In short while some farms were able to breathe a sigh of relief, others were hit very hard.

Fall is a time when trade journals typically run articles on scabs, rusts, and rots associated with fungal toxins produced in the crops in the field. But I do want to point out that much corn never reveals its potential mycotoxin contamination visually. Some of the best-looking corn may have extreme levels of these poisons; conversely, some very bad looking corn might be completely negative for the top 10-15 mycotoxins generally associated with production losses in dairy. My bottom-line message today is that while the constraints imposed by the COVID virus may have reduced total submissions this year, testing is the single best method for keeping abreast of real risk on the farm. Some of the harvest forecasts suggest some bumper crops of high quality. Please, do not fall into the trap of presuming this is universal, nor that an apparently good crop is free of mycotoxins. Test!

Enjoy the report and keep it handy. While I have my own ideas about the next features to incorporate, you are the users; give me your suggestions about what would make this reporting more efficient and useful to you. And since some of you may not understand that our test service does not cost you or your client anything (!), get in touch if you'd like details on our 17-mycotoxin analysis and how you can access it.



John Doerr, Ph.D., PAS, Dpl. ACAP
Vice President, Science and Technology
Agrarian Solutions®

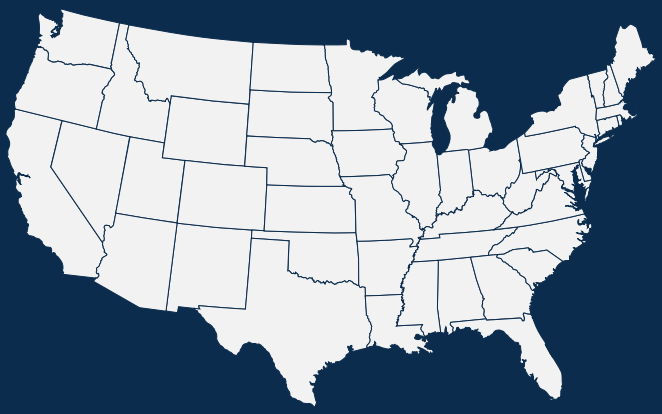
State	Ochratoxin A	Zearalenone	Combined AFL Average	Combined DON Average	Combined FUM Average	Combined T2 Average	No. of Samples
CO	nd	nd	nd	438	nd	nd	4
FL	nd	nd	nd	nd	nd	nd	3
GA	nd	nd	nd	nd	200	nd	1
IL	nd	113	nd	1478	352	9	12
IN	nd	176	nd	1830	371	9	8
IA	nd	157	nd	1086	200	nd	15
KS	nd	110	nd	680	2900	nd	1
MD	nd	115	nd	673	250	nd	6
MI	nd	215	nd	1369	140	nd	20
MN	nd	162	nd	1079	nd	810	32
MO	nd	75	nd	655	150	nd	2
NY	nd	nd	nd	1960	nd	230	3
NC	nd	nd	nd	530	500	nd	3
OH	nd	96	nd	585	100	140	58
PA	nd	94	3	789	527	55	57
SC	nd	70	13	367	250	nd	3
SD	nd	60	nd	708	nd	nd	5
TN	nd	125	nd	773	920	nd	6
VT	nd	nd	nd	200	nd	60	1
VA	nd	96	nd	1223	437	10	26
WA	nd	50	nd	1240	100	nd	2
WI	nd	184	nd	1316	219	82	73

nd = none detected
= low
= medium
= high

START DATE **May 1, 2020** | END DATE **September 30, 2020**

NO. OF SAMPLES **342**

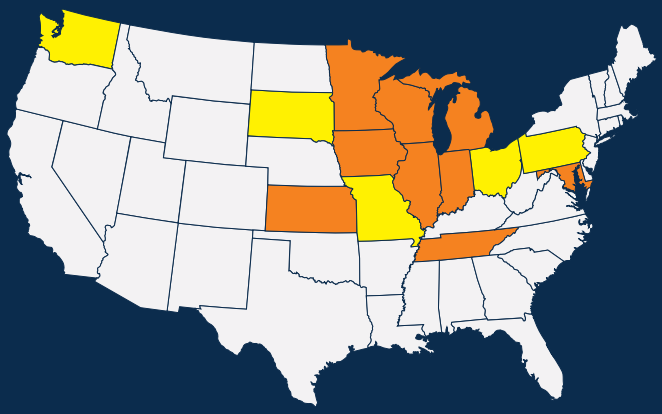
Ochratoxin A



PPB (Parts per billion)

nd <10

Zearalenone



PPB (Parts per billion)

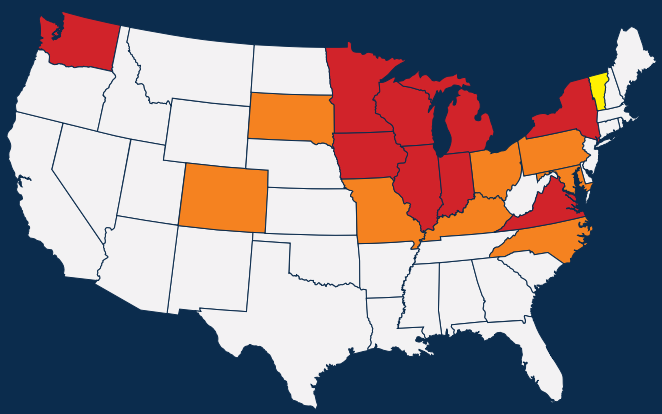
nd <100 100-299 300+

Combined AFL Average

PPB (Parts per billion)

nd <10 10-29 30+

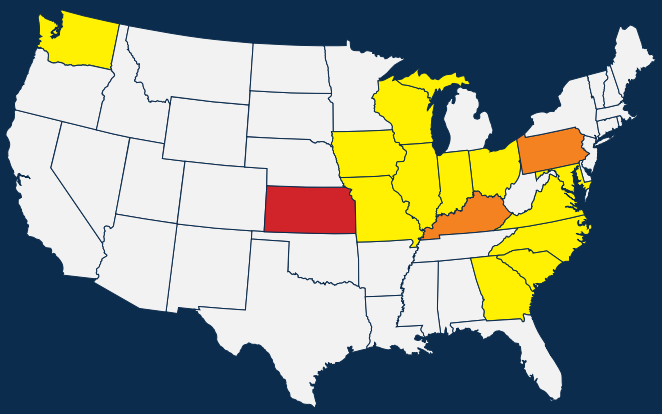
Combined DON Average



PPB (Parts per billion)

nd <300 300-999 1000+

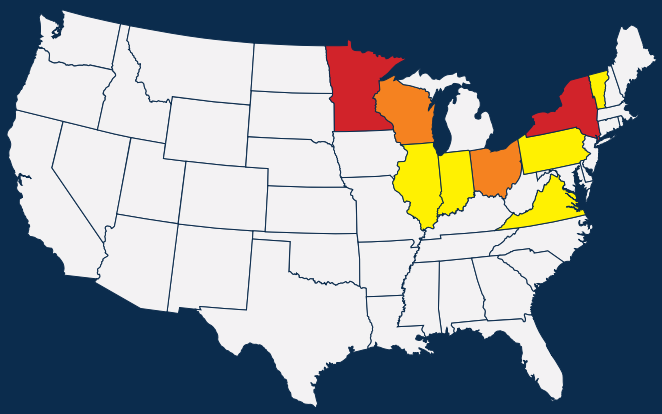
Combined FUM Average



PPB (Parts per billion)

nd <500 501-1499 1500+

Combined T2 Average



PPB (Parts per billion)

nd <75 75-199 200+

APPROXIMATE RANGE FOR POTENTIAL REACTION			
MYCOTOXINS	**LOW**	**MEDIUM**	**HIGH**
DON (vomitoxin)	< 300 ppb	300-1,000 ppb	> 1,000 ppb
Zearalenone	< 100 ppb	100-300 ppb	> 300 ppb
Aflatoxin	< 10 ppb	10-30 ppb	> 30 ppb
T-2 toxin	< 75 ppb	75-150 ppb	> 150 ppb
Fumonisin	< 600 ppb	600-1,500 ppb	> 1,500 ppb

Revised 01/2019

Qualifiers

- Multiple mycotoxins will compound potential effects.
- Toxic effect may be increased by body condition, health challenges, or stress.
- Mycotoxins are not uniformly distributed in feedstuffs.
- Small samples yield high test errors and underestimate mycotoxin contamination rate.
- Low-level test results may still be cause for pro-active response.

Representative Symptoms

DON (vomitoxin)

Reduced feed intake / feed refusal

Reduced milk production; reduced milk fat

Poor reproductive performances

Elevated SCC

Impaired immune function

Loose, inconsistent manure

Zearalenone

Hyper-estrogenism

Poor reproductive performance

- Short cycle heats
- Cystic cows; follicular cysts
- Twinning cows; multiple ovulations
- Vaginitis
- Enlarged mammary glands in virgin heifers

Aflatoxin

Liver damage; altered protein synthesis

Decreased appetite/off feed

Lower milk protein

Impaired immune function

Increased disease rates

Highly interactive

Rough hair coat

T-2 toxin

Reduced feed intake

Intestinal hemorrhages

Frequent defecation

Bloody diarrhea

Absence of estrous

Impaired immune function

Increased disease rates

Fumonisin

Reduced feed intake

Reduced milk production

GI tract ulceration

Impaired immune function

Front Row (left to right): John Doerr, Ph.D., PAS, Dpl. ACAP - Vice President, Science & Technology and **Ruth Carlson** - Office Manager
Back Row (left to right): Dan Hoying - Regional Sales Manager Midwest Region, **Chad Christensen** - Regional Sales Manager Midwest Plains Region,
Rob Hamaker - Vice President, Sales & Marketing, **Mark Lantz** - Vice President Operations, **Greg Muchmore** - Regional Sales Representative Eastern Region, **Nic Bradley** - Director of Operations

The Agrarian Advantage
Are You Making the Right Choice?

Unique Technology

The Agrarian proprietary technology works within the intestinal cell wall to improve immune function, reduce the burden of pathogens, and combat feed-borne toxins that effect the performance and health of the animal.

State-Of-The-Art Testing Program

Agrarian Solutions is committed to offering mycotoxin testing at no charge as a service. Mycotoxins can wreak havoc on the dairy. We believe mycotoxin testing should be implemented on every dairy. Ask your local Agrarian Solutions representative how to take advantage of this special offer.

Professional Product Support System

Agrarian Solutions has a team ready to serve you. Our Agrarian Representatives are equipped to help provide outstanding product support. Whatever questions you may have we are here to help. Passion, Integrity, and Industry Expertise are all a part of what you will get from your local Agrarian Representative.

Customer's Economic Advantages

If your dairy is experiencing any environmental challenges it can have a huge impact on the overall herd health as well as the farms bottom line. Having sick cows, reproduction problems, and even death will ultimately place a big strain on the farm's bottom line. Our products will help prevent many of these common issues from happening, helping drive the dairies profits.

Notes

GLOBAL SOLUTIONS FOCUSED ON
Livestock Health & Performance

Agrarian® SOLUTIONS

801-7 West Wayne St. Middlebury, IN 46540 • (574) 825-1224
office@agrsol.com • agrariansolutions.com