



2019 Annual Corn Survey Results

Between November 2019 and February 2020 CDFA obtained 37 official samples of whole corn received by feed manufacturers via rail as a part of our annual Corn Survey. The program obtained samples of corn originating from 4 States (Nebraska, Iowa, Kansas, and Minnesota). The Crude Protein averaged 7.1%, ranging from 6.1% to 7.9%.

Of the 370 analyses completed (37 samples with 10 mycotoxin analyses) by the CDFA Center for Analytical Chemistry, 70% resulted in no detectable levels of mycotoxins (minimum detection level ranges from 0.001-0.025 ppm). There were no detectable levels of aflatoxins in any of the samples (Figure 1), with a minimum detection limit of 1 ppb (0.001 ppm). Levels of zearalenone (F-2 Toxin), H-T2, T-2, and ochratoxin were either undetectable or below 1 ppm in all samples. Deoxynivalenol (vomitoxin, DON) levels ranged from 0.17 to 4.7 ppm, with 3 samples over 2 ppm. Fumonisin B1 levels ranged from no detection to 5.1 ppm with only 1 sample above 4 ppm.

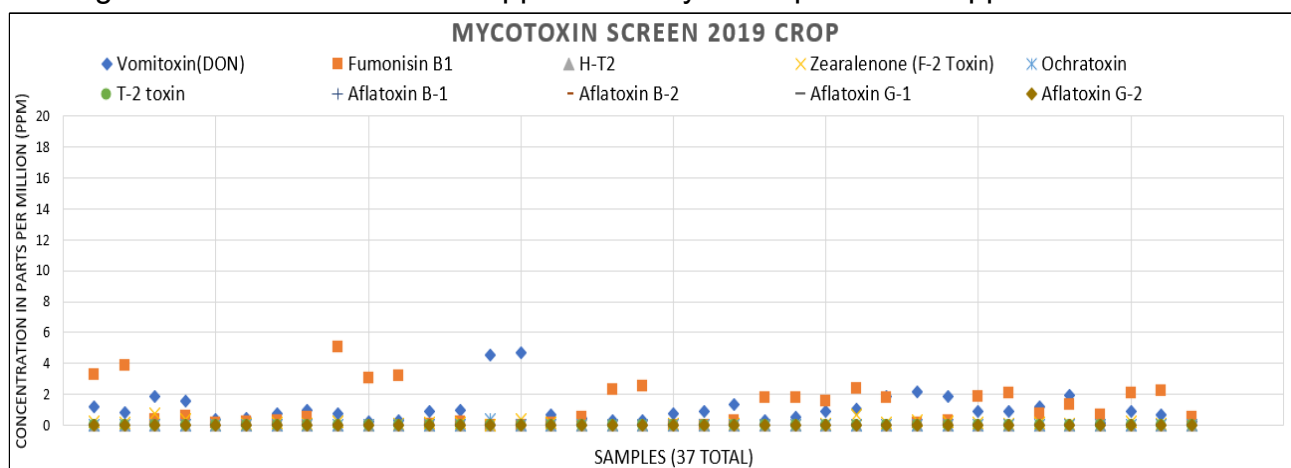


Figure 1. Results of mycotoxin screen (ppm) for 37 individual whole corn samples from the 2019 crop year.

The program did not identify any corn products from the 2019 crop year with concerning levels of mycotoxins, or any trends by state of origin. FDA has established tolerance levels for aflatoxin, fumonisin and vomitoxin by species and class of livestock¹. The tolerance level for aflatoxins varies by species from 300 ppb for finishing beef cattle to 20 ppb in dairy cattle. Equids and rabbits are the most sensitive to Fumonisin, with federal tolerance of 5 ppm in corn products. Although 1 sample did contain 5.1 ppm Fumonisin B1, several other samples from the same origin did not reach that threshold. Vomitoxin tolerance levels in feed ingredients range from 5 ppm for swine to 30 ppm for beef cattle. FDA has not established guidance for the other mycotoxins tested, however all results were below 1 ppm and the majority were undetectable.

In October 2019 there was an incident in which whole corn was quarantined under suspicion to be high in aflatoxin. This was not part of the corn study since it was inconclusive if the product was 2019 or 2018 crop year, and therefore not included in Figure 1. Under CDFA investigation it was determined that the corn was misrepresented at origin when it was sent to the firm. Two samples were found at destination above 20 ppb so the corn was quarantined as adulterated with aflatoxin. Since the aflatoxin levels were under 40 ppb and not high enough to warrant concern for beef cattle, which have a federal tolerance of 300 ppb, all of the corn was transferred under quarantine to be fed to beef cattle only.

1: FDA CVM (2016). CVM Annual Report on Mycotoxins in Animal Food Report for Fiscal Year 2016. <https://www.fda.gov/media/130526/download>