



# FDA Report of FY 21 Special Sampling Assignment for Aflatoxins: Kibbled Dog & Cat Food

This report summarizes the findings of a FY 2021 special nationwide assignment to collect and analyze kibbled (dry) dog and cat food samples that contain corn and/or corn by-products to test for aflatoxins.

The FDA initiated this assignment in response to incidents in 2020 and 2021 that led to hundreds of illnesses and deaths in pets that ate food contaminated with unsafe levels of aflatoxin, some of the levels reaching more than 500 ppb.

The FDA will continue to monitor the pet food supply for contaminants such as aflatoxins but does not have immediate plans to release future reports summarizing sampling assignments.

## **FDA Report of FY 21 Special Sampling Assignment for Aflatoxins: Kibbled Dog and Cat Food**

### **BACKGROUND**

FDA's Center for Veterinary Medicine has long considered aflatoxin-contaminated grains in dog and cat foods an animal food safety hazard and has established an action level of 20 ppb for aflatoxins in dog and cat foods.<sup>1</sup> Dog and cat foods contaminated with aflatoxins above the action level are considered adulterated. The presence of aflatoxins in these products below the action level has not been associated with any illnesses or injuries in dogs and cats.

Acute and chronic aflatoxicosis in dogs and cats are characterized by anorexia, lethargy, jaundice, intravascular coagulation, and death. The typical pathology of dogs and cats suffering from aflatoxicosis are enlarged livers, disseminated intravascular coagulation and internal hemorrhaging.<sup>2</sup> Due to the health hazards associated with the presence of aflatoxins above the action level in animal foods, including pet foods and ingredients, FDA has a longstanding animal food contaminant program under which animal food and ingredient samples are routinely collected and analyzed for aflatoxin content.

Corn and corn by-products are major ingredients in domestic animal food and were identified as the source of aflatoxins in domestically produced dog food that was recalled because it was associated with reported illnesses and deaths in dogs in 2020-2021.<sup>3,4</sup>

In response to these pet food recalls due to elevated aflatoxin levels, FDA issued a special nationwide assignment to collect and analyze kibbled dog and cat food for the presence of aflatoxins. The goals of this assignment were to determine the prevalence and levels of aflatoxins in kibbled dog and cat foods containing corn and corn-by-products (i.e., ground corn, corn meal, corn gluten, corn flour, etc.) and to take appropriate regulatory actions on products found to be adulterated with aflatoxins.

### **RESULTS**

The assignment was issued under the FDA Feed Contaminant Program and requested FDA investigators collect 200 samples at retail locations and analyze for aflatoxins. The investigators collected these samples in 36 States and Puerto Rico and sent the samples to FDA laboratories for analysis between March 15, 2021, and September 30, 2021, under the assignment. These 200 samples consisted of 127 dog foods and 73 cat foods.

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<sup>1</sup> [FDA Compliance Policy Guide 683.100 Action Levels for Aflatoxins in Animal Food](#)

<sup>2</sup> Michelle S. Mostrom, Aflatoxicosis in Animals, Merck Veterinary Manual (<https://www.merckvetmanual.com/toxicology/mycotoxicoses/aflatoxicosis-in-animals>)

<sup>3</sup> [FDA Alert: Certain Lots of Pet Food from Multiple Brands Recalled for Aflatoxin](#)

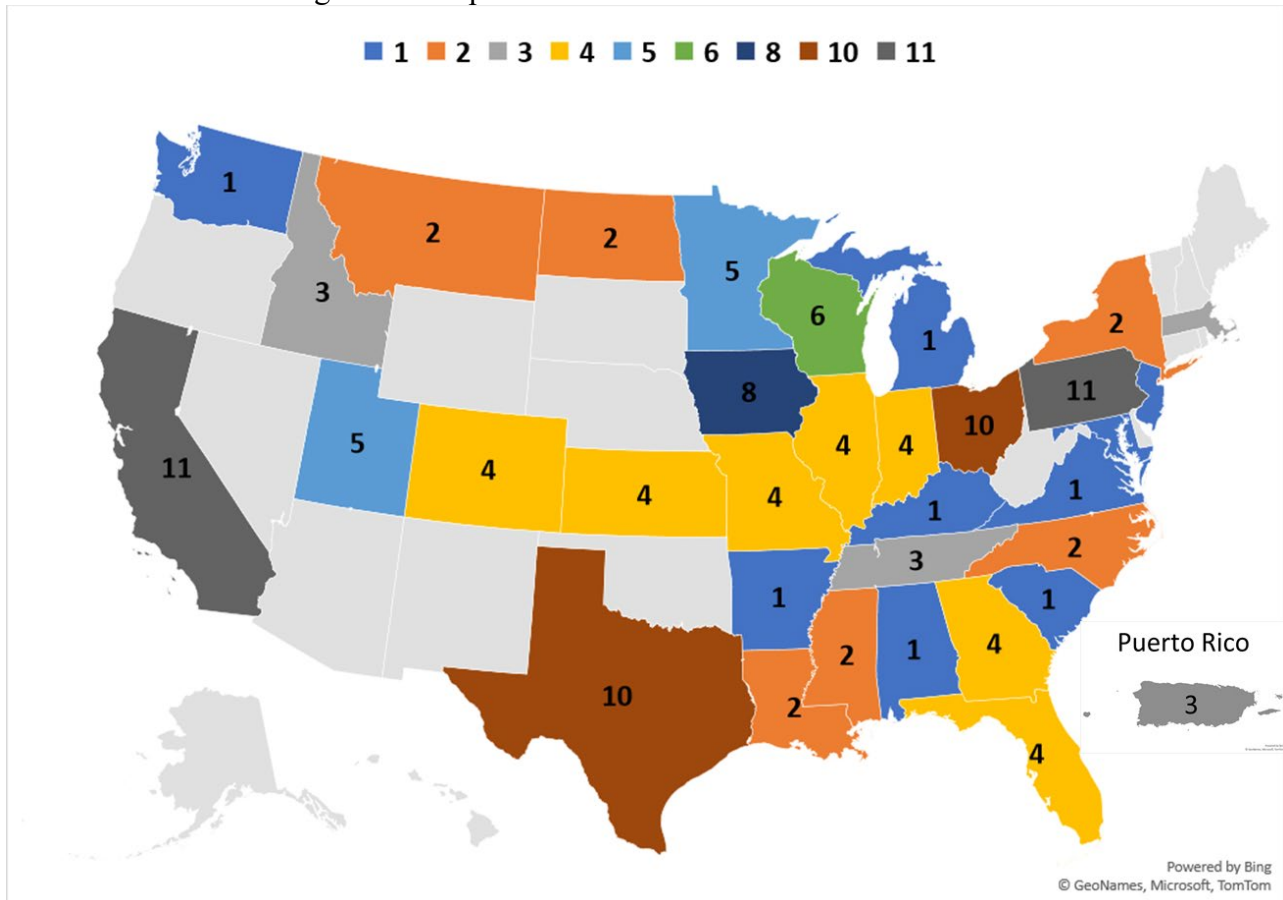
<sup>4</sup> [FDA Alert: Certain Lots of Sportmix Pet Food Recalled for Potentially Fatal Levels of Aflatoxin](#)

Dog Foods

The 127 dog food samples collected were from retailers in 34 States (Chart 1). Dog food samples collected in the survey covered 24 different brands and included food for multiple life stages. Table 1 shows the breakdown of the types of kibbled dog foods collected, the number of positive samples, and the level of aflatoxins found in the positive samples. Of the 127 samples of dog food collected, corn was listed as the primary ingredient in 65% (83/127) of the samples and as the second ingredient in 13% (16/127) of the samples (Table 2). While aflatoxins were detected in five samples at 0.50, 0.54, 1.23, 1.50, and 6.52 ppb, the aflatoxin levels were below FDA’s action level of 20 ppb for pet foods.

Four of the dog foods found positive for aflatoxins listed corn as the primary grain ingredient. The ingredient list for one of the aflatoxin-positive dog foods was not available. Table 2 is a summary of the predominance of grains in the kibbled dog foods collected for aflatoxin analysis based on the ingredient list.

**Chart 1.** Number of Dog Food Samples Collected in Each State and Puerto Rico.



Dog food samples were collected in: CA (11); PA (11); OH (10); TX (10); IA (8); WI (6); MN and UT (5 each); CO, FL, GA, MO, IL, IN, KS (4 each); ID, MA, TN, Puerto Rico (3 each); LA, MS, MT, NC, ND, NY (2 each); and AL, AR, KY, MD, MI, NJ, SC, VA, WA (1 each).

**Table 1.** Kibbled dog foods collected and analyzed for aflatoxins

| Description                           | Samples | Comments  |
|---------------------------------------|---------|---|
| Food for adult dogs                   | 58      | Aflatoxin detected in 2 samples (1.50, 6.52 ppb; corn predominant)  |
| Food for puppies (under 24 months)    | 23      | No aflatoxin detected   |
| Food for breeding dogs/puppies        | 3       | No aflatoxin detected   |
| Food for all dogs                     | 5       | No aflatoxin detected   |
| Intended life stage of dog not listed | 38      | Aflatoxin detected in 3 samples [(0.54 ppb, predominant grain unknown), (0.50, 1.23 ppb; corn predominant)] |
| Total                                 | 127     | All kibbled   |

**Table 2.** Predominance of grains in ingredient lists of kibbled dog foods collected for aflatoxin analysis

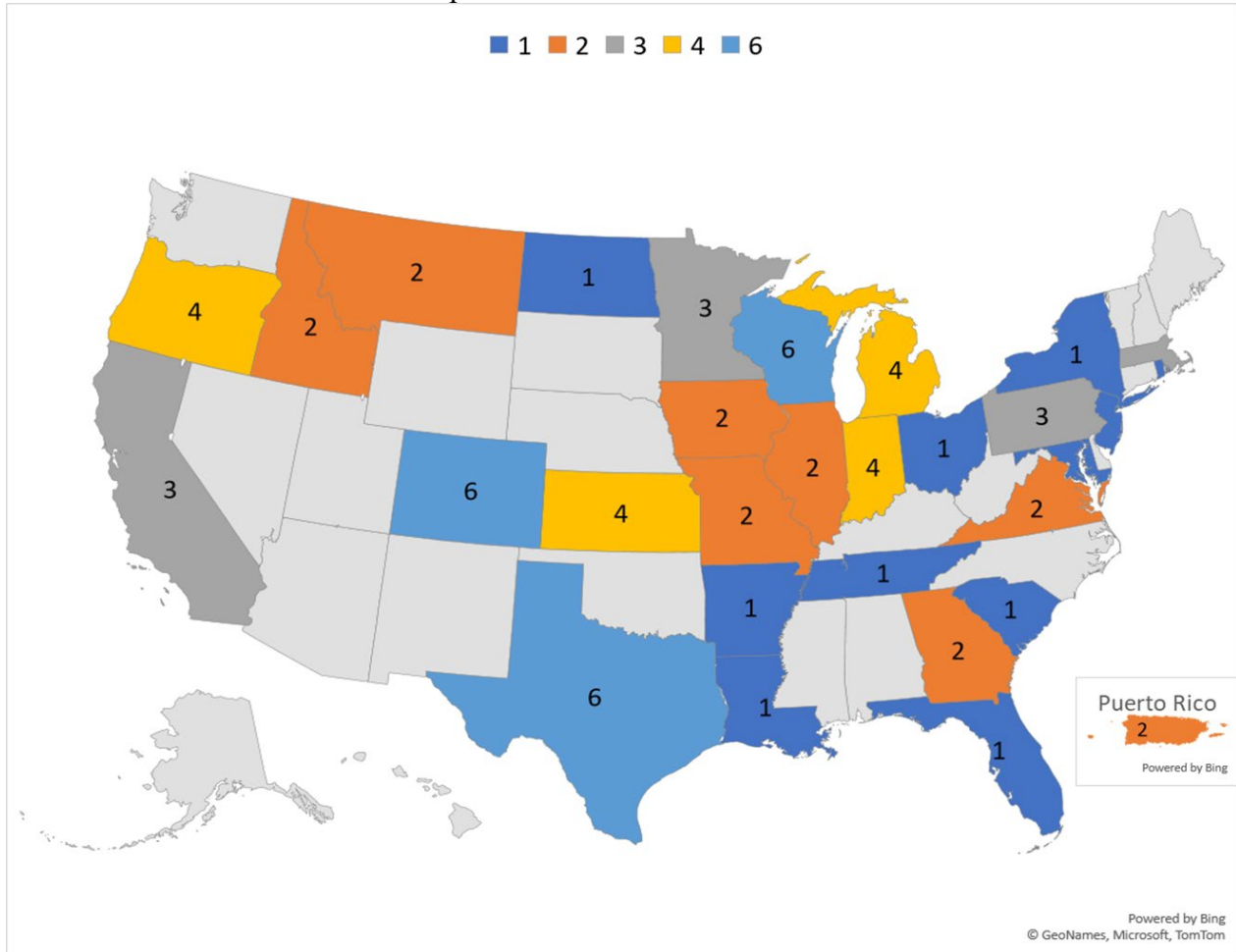
| Ingredients (grains)                | First in ingredient list | Second in ingredient list | Third in ingredient list | Number of Positive Samples |
|-------------------------------------|--------------------------|---------------------------|--------------------------|----------------------------|
| Barley products                     | 6                        | 6                         | 0                        | 0                          |
| Corn products                       | 83                       | 16                        | 5                        | 4                          |
| Oat products                        | 0                        | 1                         | 2                        | 0                          |
| Rice products                       | 18                       | 2                         | 5                        | 0                          |
| Sorghum products                    | 0                        | 5                         | 0                        | 0                          |
| Wheat products                      | 1                        | 17                        | 5                        | 0                          |
| Not identified in collection report | 19                       |                           |                          | 1                          |

### Cat Food

The 73 cat food samples were collected from 30 States (Chart 2). Cat food samples collected in the survey covered 21 different brands and included food for multiple life stages (Table 3). Of the 73 samples of cat food collected, corn was listed as the primary ingredient in 73% (53/73) of the samples and as the second ingredient in 11% (8/73) of the samples (Table 4).

While aflatoxins were detected in three samples at 0.70, 1.56, and 2.02 ppb, the aflatoxin levels were well below FDA's action level of 20 ppb for pet foods. Corn was the primary grain listed in the three positive cat food samples. Table 3 is a breakdown of the number of cat foods collected, the number of positive samples, and the level of aflatoxins found in the positive samples. Table 4 is a summary of the predominance of grains in the kibbled cat foods collected for aflatoxin analysis based on the ingredient list.

**Chart 2.** Number of Cat Food Samples Collected in Each State and Puerto Rico



Cat food samples were collected in: CO, TX and WI (6, each); IN, KS, MI, and OR (4, each); CA, MA, MN, and PA (3, each); GA, IA, ID, IL, MO, MT, VA, and Puerto Rico (2, each); and AR, FL, LA, MD, ND, NJ, NY, OH, RI, SC, and TN (1 each).

**Table 3.** Kibbled cat foods collected and analyzed for aflatoxins

| Description                     | Samples | Comments   |
|---------------------------------|---------|--|
| Food for adult cats             | 34      | No aflatoxin detected  |
| Food for kittens                | 5       | No aflatoxin detected  |
| Food for all cats               | 2       | No aflatoxin detected  |
| Life stage of cat not indicated | 32      | Aflatoxin detected in 3 samples (0.70, 1.56, 2.02 ppb; corn) |
| Total                           | 73      | 72 kibbled and 1 wet pouched                                 |

**Table 4.** Predominance of grains in ingredient lists of cat foods sampled for aflatoxin survey

| <b>Ingredients (grains)</b>         | <b>First in ingredient list</b> | <b>Second in ingredient list</b> | <b>Third in ingredient list</b> | <b>Number of Positive Samples</b> |
|-------------------------------------|---------------------------------|----------------------------------|---------------------------------|-----------------------------------|
| Corn                                | 53                              | 8                                | 0                               | 3                                 |
| Rice                                | 8                               | 2                                | 3                               | 0                                 |
| Sorghum                             | 0                               | 1                                | 0                               | 0                                 |
| Wheat                               | 2                               | 10                               | 0                               | 0                                 |
| Not identified in collection report | 10                              |                                  |                                 | 0                                 |

## **DISCUSSION**

In this FY 21 special sampling assignment, no sample of kibbled dog and cat food collected at retail locations in the U.S. was found to contain aflatoxins above 20 ppb, the action level established by FDA for aflatoxins in dog and cat food. The level of aflatoxins found in the sampled pet foods (0.54 - 6.52 ppb) have not been associated with any reports to FDA of illnesses or injuries in dogs and cats.

All the kibbled dog and cat food samples in the survey that tested positive for aflatoxins had corn as the first grain on the ingredient list, except for one kibbled dog food sample where the grain was not identified in the product's ingredient list. Additionally, for the pet food recalls in 2020-2021, the source of the aflatoxins in each recalled pet food was traced back to the corn used in the food. These findings coupled with the many illnesses and deaths reported to FDA in connection with the 2020-2021 recalls leads FDA to strongly recommend that the animal food industry evaluate their food safety plans, consider how they monitor for aflatoxins in corn used in dog and cat foods, and take measures to prevent the use of aflatoxin-contaminated corn.

This sampling assignment took a snapshot of aflatoxin prevalence only in kibbled dog and cat foods containing corn and corn by-products and only during FY 2021. FDA will continue routine surveillance sampling of animal food (including dog and cat food) and animal food ingredients because the occurrence and prevalence of aflatoxins can be highly variable depending on the climatic conditions during the growing season and the storage conditions of the corn. FDA also continues to recommend that the animal food industry evaluate their food safety plans and consider how they monitor for aflatoxins in dog and cat foods.