

***Aflatoxin: Occurrence, Prevention, and Gaps
in Both Food and Feed Safety in
North Carolina***

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Background

- Aflatoxin is a naturally occurring toxic metabolite produced by mold infestations that typically affects corn and peanuts, which are ingredients used in both food and feed products.
- Aflatoxin is a known carcinogen and has been associated with various diseases, such as aflatoxicosis.
- Consumption of aflatoxin contaminated products poses a health concern to both humans and animals.





Background (continued)

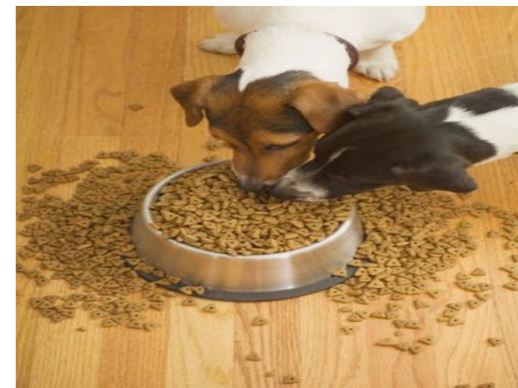
- Aflatoxin contamination is influenced by environmental factors such as geography, and agriculture/agronomic practices.
- Several countries try to limit exposure to aflatoxin by regulating and monitoring its presence on commodities intended for use as food and feed.
- FDA has established action levels for poisonous/deleterious substances to control levels of contaminants in human food and animal feed.





Background (continued)

- Products that are deemed adulterated by food industry or by regulation may be allowable as a product in the feed industry.
- Current testing consists of laboratory, commercial test kits, and black light.
- Product testing is ultimately up to the discretion of the industry.



Problem Statement

The presence of aflatoxin in significant quantities can cause illness to both humans and animals. Regulatory agencies lack information pertaining to industries' knowledge of the cause and effect of aflatoxin in common agriculture products and the strategies that industries employ to prevent aflatoxin contamination.

Research Questions

1. What is the level of aflatoxin knowledge in North Carolina industries of the cause, effect, and prevention of aflatoxin in food/feed safety?
2. What is industry doing to help prevent aflatoxin contamination in food/feed?

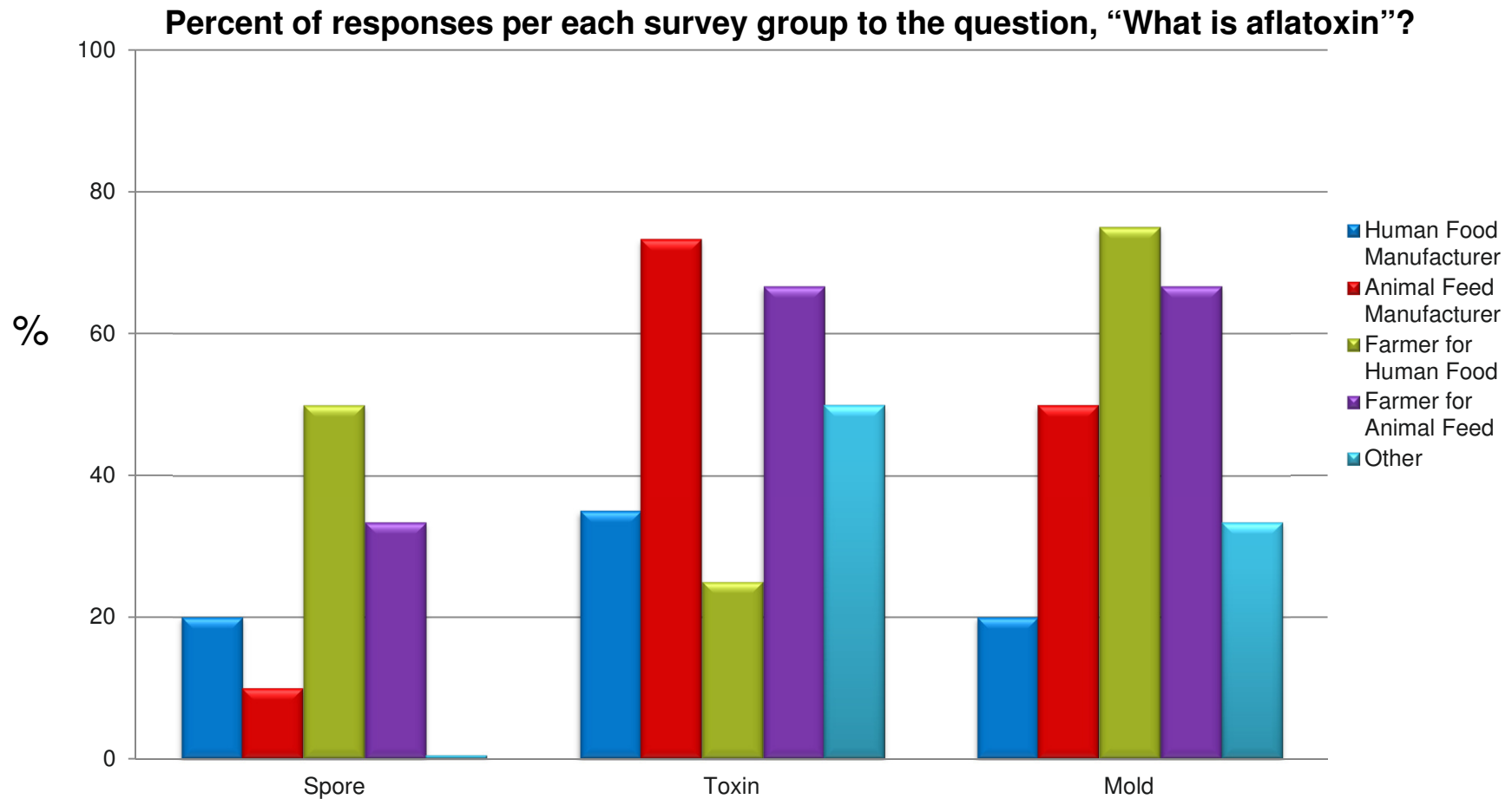
Methodology

- Quantitative study
 - Survey study
 - Twenty (20) questions
 - Multiple choice items
- Data Collection
 - On-line survey (Survey Monkey)
 - Response rate 32% of 200 responded
- Analysis
- Frequency rate

Study Population

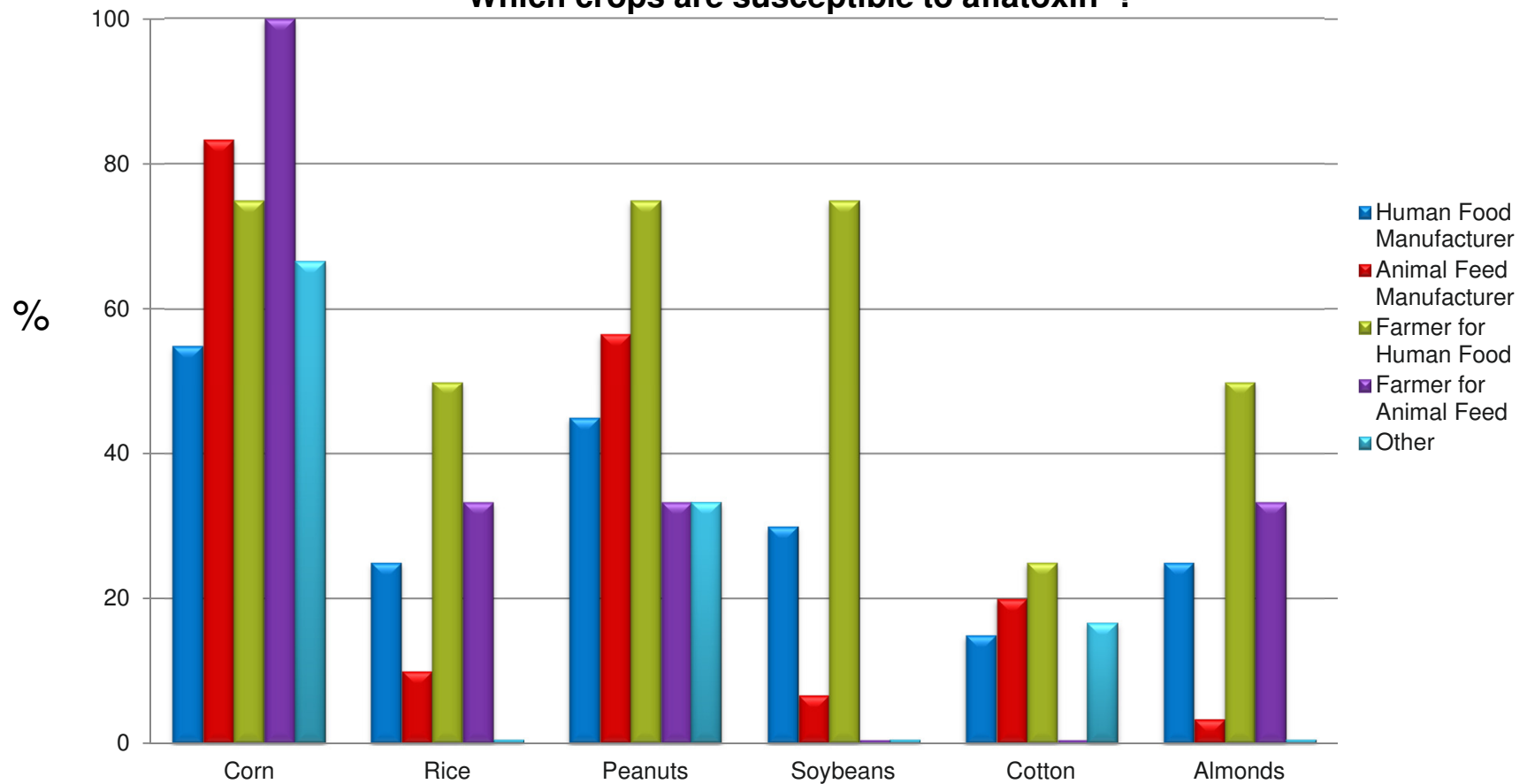
- Information was collected from North Carolina food and feed industries, including farms, concerning the level of aflatoxin knowledge and prevention.
- Firms were selected using the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) food and feed firms database.

Research Question #1—Knowledge



Research Question #1—Knowledge (continued)

Percent of responses per each survey group to the question,
“Which crops are susceptible to aflatoxin”?



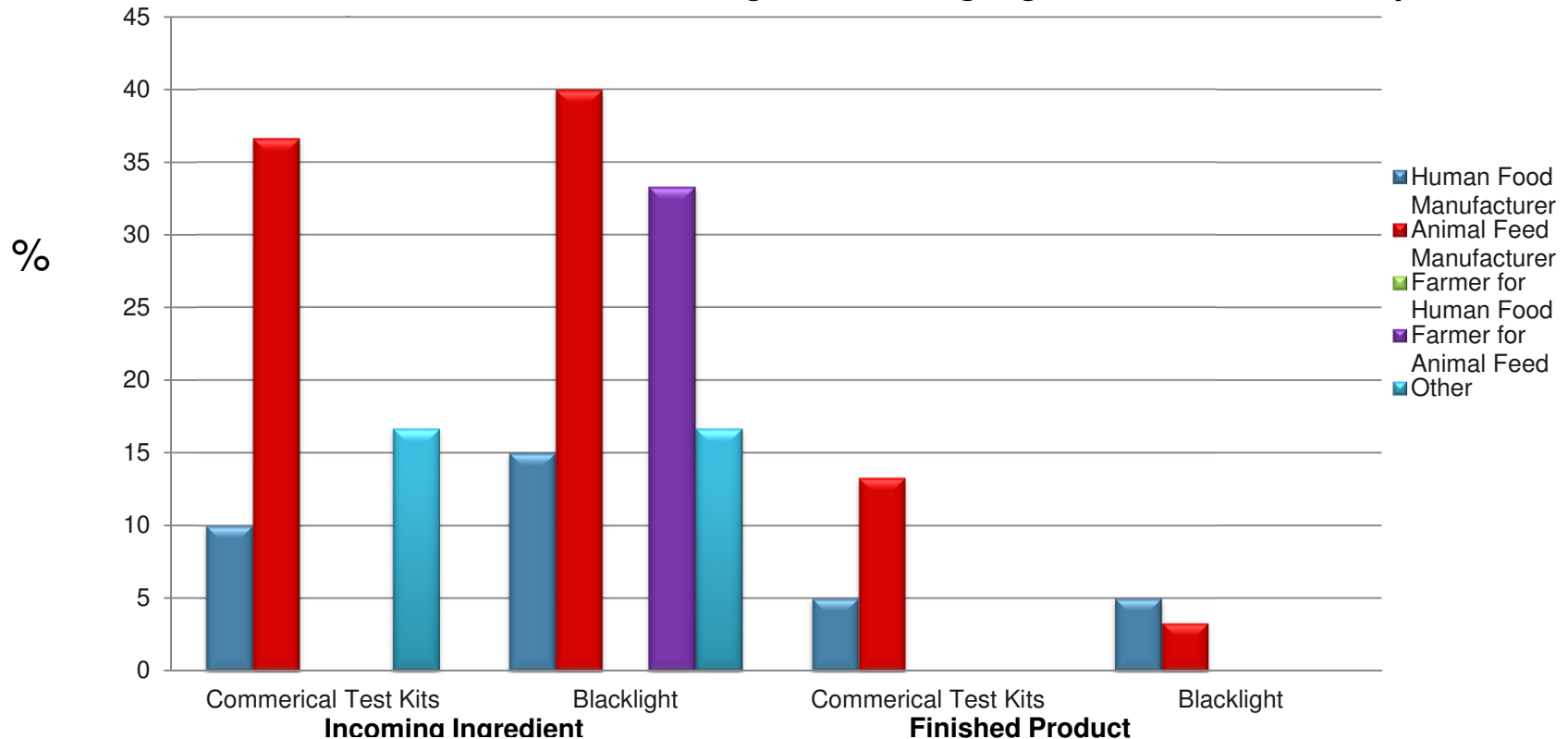
Research Question #1—Knowledge (continued)

Percent of responses per each survey group to the question, “What is the action level FDA has established for aflatoxin present in food in order to protect human and animal health”?

	Human (%)	Animal (%)					
		20 ppb	100 ppb	200 ppb	300 ppb	None	Unsure
Human Food Manufacturer	35	20	10	20	10	0	35
Animal Feed Manufacturer	43	67	33	27	23	0	10
Farmer for Human Food	0	25	0	0	0	50	0
Farmer for Animal Feed	33	67	67	67	33	0	0
Other	67	67	33	33	33	0	0

Research Question #2—Prevention

Percent of responses per each survey group to the question, “What method is used for aflatoxin testing on incoming ingredients and finished products”?



Conclusions

- The results showed that industry is knowledgeable about the following:
 - Aflatoxin is a toxin – 56%
 - Affects corn and peanuts – 73%
 - FDA has an established action level – ~50%
- The results showed that industry implements the following aflatoxin testing policies:
 - Testing on the incoming ingredient – 48%
 - Testing on the finished product – 21%
 - Use the black light method – 27%
 - Use a commercial test kit method – 22%

Recommendations

- Education and Outreach
 - Testing methods
 - GAPs
 - GMPs
 - HACCP
 - Preharvest
 - Harvest
 - Postharvest (storage, processing/manufacturing)
 - Animal feeding

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Questions?