Impact of Mycotoxin Exposure in the Livestock Industry

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Outline

A survey based review carried out as part of a collaborative AHDB funded project, to determine the impact of mycotoxin exposure in the livestock industry. The aim was to gather information on the experiences of vets and farmers relating to mycotoxin exposure. They were asked about clinical presentations seen, the uptake of diagnostic services, and methods of mitigating mycotoxin exposure; including the use and response of mitigating products and alternative control measures.

Method (Survey Work Package)

Electronic and paper based surveys developed targeting vets and farmers

Surveys distributed from Oct–Dec 2015 through:
BCVA, PVS, SVS, BPEX, XLVets Network
Bishopton Veterinary Group and Synergy Farm Health

Designed to gather information on:
Potential effects of mycotoxin exposure
Use and response to mitigation practices
Opinions on level of knowledge and knowledge transfer

Collaborators involved:
Fera Science Limited
Queen's University Belfast
Harper Adams University

AHDB AGRICULTURE & HORTICULTURE DEVELOPMENT BOARD

Results

Clinical experiences

- Responses from vets demonstrated a greater experience with mycotoxin exposure at an individual and herd level than farmers.
- The same clinical presentations were reported by vets and famers and at an individual and herd level.
- The clinical presentations reported were vague and non-specific.

Mycotoxin	Source	Potential clinical presentation
Aflatoxin	Maize Protein feed	• Weight loss • Increased disease susceptibility • Reduced milk yield • Depression • Haemorrhages
Fumonisin	Maize	• Reduced growth rates • Reduced milk yield • Ill thrift
Ochratoxin A	Cereals/By-products	• Ill thrift
Deoxynivalenol	Maize Cereals/By-products Straw	• Increased disease susceptibility • Reduced food intake • Reduced milk yield
T-2/HT-2	Maize Cereals/by-products Straw	• Increased disease susceptibility • Reduced fertility • Reduced semen quality
Zearalenone	Maize Cereals/By-products Straw	• Reduced fertility

- The uptake of diagnostic testing services was limited (20%).
- Respondents reported testing; forage/feed samples, blood, bile, tissue samples (lung/liver), gut contents and water.
- Samples were sent through commercial diagnostic laboratories as well as through feed companies and university laboratories.

Mitigating methods

- A large proportion of vet's clients (72%) and farmers (49%) were including binder products in rations to mitigate the effects of mycotoxin exposure.
- The most common reasons for inclusion were; during housing/winter (36%) or based on clinical presentation (15%).
- Resolution of clinical signs was the most commonly reported method used to monitor a response to binder inclusion.
- A large proportion of respondents (40%) reported seeing no response to binder inclusion. The most common rationale (60%) for the lack of response was that mycotoxins were not the underlying problem.
- Hygiene of feed storage environments and control and monitoring of environmental conditions, to limit mycotoxin development, were the most widely recommended alternative control measures

Knowledge transfer

Do you think mycotoxins are having a significant impact?
VETS: neither agree nor disagree (36%)
FARMERS: neither agree nor disagree (48%)

Do you think there is adequate scientific evidence available?
VETS: No (68%)
FARMERS: No (63%)

Where do you/your clients get their information from?
VETS: Feed companies (54%)
FARMERS: Vets (33%)

How do you rate your knowledge of mycotoxins?
VETS: Poor (47%)
FARMERS: Average (54%)

Conclusions

- Clinical presentations seen by vets and farmers are very similar, vary by mycotoxin type but are vague and non-specific.
- Inclusion of mitigating products appears common, but inclusion is often with little clinical or diagnostic evidence and limited positive responses were reported.
- Insufficient evidence base utilised by the veterinary profession combined with a farmer reliance on knowledge transfer through their vets, means that currently there is an overall lack of information available.
- An improved evidence base would enable better informed decisions to be made and appropriate cost benefit analysis.

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