International Poultry Production's
Poultryhealth BYTES
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054 – Mycotoxins I

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Introduction

Mycotoxins are substances produced by fungi that can have toxic or sometimes carcinogenic effects on livestock. The fungi that produce mycotoxins are capable of growing on various feedstuffs such as grains and cereals.

The common mycotoxins of importance in livestock production are aflatoxins, fumonisins, ochratoxin A, deoxynivalenol, patulin and zearalenone. These are typically produced by Aspergillus, Fusarium and Penicillium fungi and are found in a wide range of ingredients in many parts of the world.

Contamination of feeds

Feed ingredients can be contaminated pre- or post-harvest, in the field or in storage, and various strategies such as crop rotation, irrigation, pesticide usage and good storage practices are used to prevent or minimise crop contamination.

Legal levels

Because of the risks to human and animal health associated with mycotoxins, many countries have regulations for the maximum levels allowed in feeds. As aflatoxin is the most toxic of the mycotoxins it is the one most frequently referred to in regulations. The levels cited in regulations range from 10-20ppb with the tightest standards in countries like Egypt and South Africa.

Effects of mycotoxins

The effects of mycotoxins range from direct pathological effects on a particular organ in the body, such as in Turkey X Disease in which aflatoxins produce fatal hepatic damage, to mild, vague effects on the immune system that interfere with the bird's ability to counter infections and respond to vaccinations.

Typical signs suggestive of mycotoxin related problems in poultry include poor growth, poor FCR, elevated mortality, depressed egg production, leg problems and increased conditions. Many of these changes can also have other causes so there is often a tangled diagnostic web for the veterinarian to unravel.

In addition, one has to consider the effects of combinations of mycotoxins.

There is also the issue of mycotoxin residues in foods destined for human consumption.

Control of mycotoxins

A whole range of strategies are available, such as using mycotoxin absorbents in poultry diets, chemical detoxification, use of mineral clays and nutritional modifications (methionine, selenium, vitamins, herbal extracts) to help the animal better withstand the effects of mycotoxins.

In forthcoming Poultryhealth BYTES we will consider various aspects of mycotoxins and their control in poultry.