

Identifying and quantifying mycotoxins on Irish farm silages (RMIS 6087)

Mycotoxins are produced by moulds, and when found in animal feedstuffs are of concern due to the potential challenges they pose to public health, animal health and wellbeing, and farm profitability. Previous research has shown that mould growth can be widespread on grass silage in Ireland, particularly on baled silage. *Penicillium* was identified as the dominant mould, many species within which are capable of mycotoxin production. Furthermore, with increased interest in other moist ensiled feeds such as whole-crop forage maize, whole crop small-grain cereal and high moisture grain, the opportunity for mould growth and thus mycotoxin accumulation is considerable. Anecdotal evidence already suggests that some animal productivity disorders on farms are being attributed to mycotoxins.

This project aims to

1. Commission the appropriate methodologies for sampling, storing and processing silages, and for quantifying the most important mycotoxins present.
2. Quantify the distribution of mycotoxins within pit and baled silages, and relate to fermentation quality.
3. Quantify the main mycotoxins in various types of silage on Irish farms. Relate these to the silage making, storing and feedout practices prevailing, and to fermentation characteristics.

Initially, a preliminary survey of Irish silages was conducted to identify the main mycotoxins for which we need to develop assays. The appropriate assays for quantifying these mycotoxins on a more routine basis were identified and commissioned. The next step is to develop appropriate procedures for sampling, storing and processing silage samples prior to analysis. A component of the study will describe the distribution pattern of mycotoxins within silages, plus the associated fermentation characteristics. The major part of the project is a comprehensive farm survey of baled and bunker silages to identify the types and amounts of the major mycotoxins present, and to relate these to the silage making, storing and feedout practices prevailing, and to the fermentation product profile.

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