

## **Mycotoxins and moulds in grain and pig fodder in Poland Summary**

A total of 643 analyses were performed on grain and fodder from Poland in the years 2010/2011 (July-December 2010 and January-July 2011) to determine the concentrations of mycotoxins, and 111 fodder samples were tested for fungal colonies (CFU). The HPLC technique and the method recommended by the company Vicam were used in the analyses. Concentrations of zearalenone (ZEN), deoxynivalenone (DON), ochratoxin A (OTA), total aflatoxin (AFT), fumonisin (FUM), and toxin T-2 were determined. 37.4% of samples were free of mycotoxins, 4.9% contained one mycotoxin, and 57.7% contained from two to five toxins. The additive and interactive effects of some mycotoxins can have a significant detrimental effect on health and productivity in livestock. In the case of DON and ZEN, 4% and 7% of samples had concentrations exceeding EU standards, which allow 800 and 100 mg/kg, respectively. Moreover, 11.7% of samples contained moulds exceeding the standard limits of  $200 \times 10^3$  CFU/g. The concentrations of all mycotoxins were low in the first few months after harvest (August-October), and highest – except for ZEN – after 9-12 months of storage. In the case of ZEN the highest concentration was noted in the winter months (on average 64 mg/kg; Sd 223.3). This phenomenon had been observed in earlier years as well. It was surprising that the concentration of ZEN was lower (by 50%) after 6-12 months of grain storage. The maize had the most contaminated grain, with DON and ZEN concentrations of 578 and 81.8 mg/kg, respectively (Sd 654.5 and 129.8). The feed mixtures had significantly lower mycotoxin content than the grain, probably because grain contaminated by fungi or mycotoxins was not purchased or was used for other applications. Climate differences in various regions of Poland significantly affected the concentration of mycotoxins and moulds. The highest concentrations were noted in the north-eastern region of the country (with lower temperatures) and the lowest in the south-western region. Large farms and fodder production plants had higher-quality fodder than small farms.

**KEY WORDS:** mycotoxins, pig fodder, moulds, seasons, regions, production scale