



Ask the Expert...

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1. In Europe in 2008 we got plenty of rain coming down. What could be the effect of this regarding mold and mycotoxin formation?

Large parts of Europe got very wet summers in 2004, 2007 and now 2008. As well as a carbohydrate source, molds require warmth (between 10-25°C, 30-77°F) and moisture (generally more than 14% in grain, 8% in bedding) so these wet harvests have increased the possibility of mycotoxins in both food and bedding.

Drying grain down to 15% at least in such conditions is expensive but desirable (essential when grain moisture is in the higher teens) and further protective measures are advisable even when this is done, due to the tiny amounts of some damaging mycotoxins slipping through this first line of defence.

If wet summers continue due to `global warming`, great vigilance and discipline in taking countermeasures to detect and control mold growth will be needed, even to the point of discarding damaged fodder and bedding.

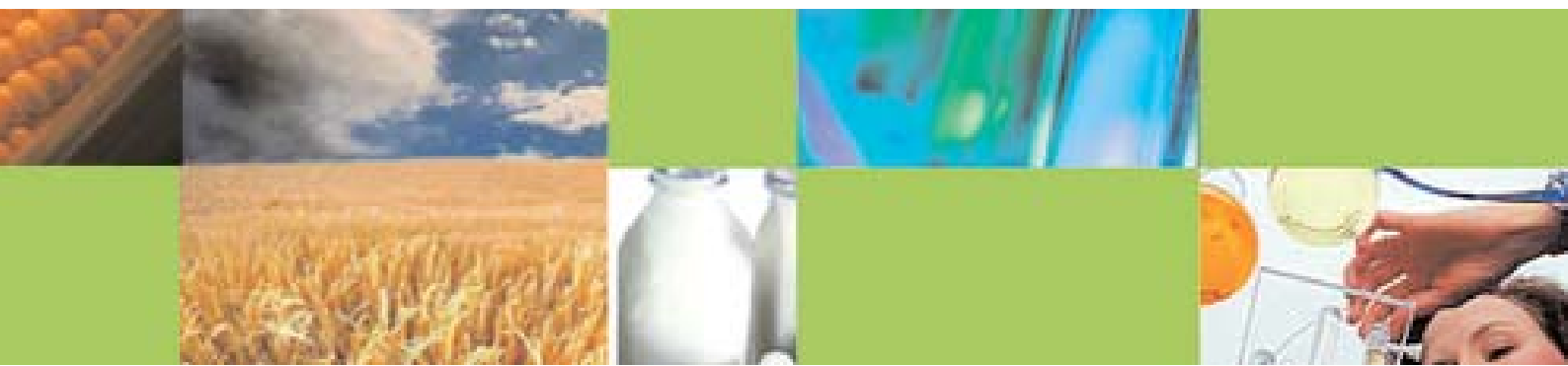
2. Which mycotoxins are the most dangerous for swine regarding reproduction?

Zearalenone, DON and T-2 toxin. Symptoms are irregular heats, especially in replacement gilts, abortions, pseudo-pregnancy, low conception rate `storms`, embryo loss, cystic ovaries - and to my surprise I have noticed this year several cases of extreme sexual behaviour (nymphomania) in very young gilts which may be due to mycotoxins, although this is as yet unproven.

3. What have been the experiences with mycotoxins in the field during your career and how much of a chronic challenge do you think we see on a regular basis?

I was first alerted to the danger of mycotoxicoses when working with certain pig veterinary practices in the 1960s and started writing about mycotoxins in the 1970s , indeed I was the first to write about what we called then in our ignorance `won't go away `diseases. These are quite common disorders like E coli scour, oedema, strep suis meningitis, swine dysentery etc which were soon controlled parentally or by feed medication, but which after a month or two of freedom from them kept on coming back in a repetitive way. When we cleaned the bulk bins twice a year they virtually stayed away for good. This led us to suspect that something was accumulating in the bins and interfering with the pigs immune protection against these disorders. At first we thought they were bacteria, but now we know mycotoxins are responsible .

Since then I have been acutely aware of the problems mycotoxins can bring and have specialized in the cost-effectiveness of the various measures we can take against them. While there is a huge amount of valuable research results available on the damage they do and how they might cause it, there is very little published on the cost of mycotoxin damage and what it costs to employ the protective measures we can take. I have published two surveys from farm and veterinary practice evidence which rate these on a payback basis and show their clear economic value. See Pig Progress 21. 3. p.19 (2005), and Pig Progress 23 2 p.3 (2008).



4. I am curious to know what sort of unofficial /private testing is done in the supply chain..... but I can't find what testing is required or done on a voluntary basis.

I can only speak for Europe, but I guess very little - although some of my larger clients got tests done in the late 1990s. These sometimes gave disappointing results as the tests which suggested `safe` levels nevertheless occurred when our veterinarians diagnosed various direct mycotoxicoses, and the word got around that perhaps the tests, which were quite expensive, were unreliable.

I suspect a more likely reason was what we now know as `mycotoxin synergism` where, say, two mycotoxins, both of which are present individually below the published safe levels but somehow work together to cause problems. This phenomenon is being researched at present.

5. I have difficulty in justifying the inclusion of a mycotoxin binder into my pig feeds. Are you able to provide me with some economic calculations?

Yes certainly. I have published surveys (the information taken from the published literature and reinforced with results from both my own clients and those veterinary practices who have kindly provided data) and matched these costs against two options. The first is the `ideal` set of 7 actions we are advised to take so as to reduce mycotoxicoses to a minimum, where the payback varied from 1.8 to 7.3 to 1. Because the range and variability was so wide I narrowed this down to the cost of using just a mycotoxin-binder, in this case `Mycosorb` (Alltech), at current UK prices per tonne, and set this expense against the average reduction in performance from 23 carefully measured results in my files. These gave paybacks of around 18 to 1 for nursery pigs, 9.6 to 1 for gilts and a range of 4.4 -14 to 1 for sows. (The detailed figures are given in the two references in the reply to question 3).

The extremely high return for the baby pigs is due to two positive influences and one negative one. The negative one being that if a mycotoxin like DON/ vomitoxin gets in then the damage to future performance can be very high.

The two positive effects are first, that the nursery pig eats relatively small amounts of food so a little Mycosorb per tonne of feed goes a very long way, thus minimizing the input cost compared to older pigs. Second, we sell slaughter pigs, not end-of-nursery pigs and very often the performance improvement at the end of the nursery stage is doubled or even trebled by slaughterweight. The figure of 18:1 payback takes this into account and is a hard-headed business-like way of looking at the benefit from using Mycosorb in the nursery especially.

6. I own a feed mill and am concerned that if I incorporate a mycotoxin binder in as standard into my feeds that my customers will believe that I am using poor quality ingredients. What is your opinion on this?

A very good question which takes me straight back to my days as technical director of a pig feed mill! In those days modern binders were not invented - only clays, which we refused to use because of slurry complaints, but we did use propionic acid and got the same consumer suspicion, so I know your problem.

1. Our approach was to stress that we only used raw materials which we could trust as we had confidence in their sources. For example we only bought grain from reliable sources and would reveal the origin if requested. We never bought groundnut and wherever possible demanded mycotoxin assurance from soya brokers. If pressed we were even willing to reveal formulae to certain customers. Our food was fairly expensive and we used this extra cost as proof of, and to justify, our attempts to restrict raw materials to a high standard. Over the years this `open house` policy including visits to the mill and the farm, caught on and in the end was copied by the larger feed compounders.

Of course it helped that we were then Britain`s largest pig farm (Taymix) with 1200 sows, huge in those days, and could justify our policy by quoting our own results.

2. Another approach was to educate customers as to how such tiny amounts of certain dangerous mycotoxins can slip through any protective net and still cause mayhem, so that every infeed assistance was a wise insurance especially as the paybacks were so good. This is even more relevant today when margins are so tight, viral disease so commonplace and the growing suspicion of the immunosuppressive effect in operation.

