



Bayer

Managing the pest risk in stored grain

Farmers and grain store managers are being advised not to jeopardise stored grain by closing the door and forgetting about it. Expert advice is to stay vigilant against damage from insect and rodent pests.

“Following such a healthy harvest, it is more important than ever that stored grain is monitored,” urges Bayer’s Manager for Rural Hygiene, Ken Black. “Regular inspections of stores are vital to prevent significant reductions to the crop’s farm gate value.”

Ken notes that at present there is still plenty of food sources outside for rats, but advises that now is the ideal time to get prepared and also to defend against mice infestations. “Not only is it important to get prepared for when rats do venture inside, but also to consider that mice and insect pests are likely to be a problem in stored grain now.”

Insect management

Early detection of insect pests is key to prevent rising populations and limit damage to grain. Ken advises monitoring for changes in temperature and identifying ‘hotspots’. “More activity means more heat, and more heat means more damage; high numbers of primary insects subsequently leads to mould and fungi, and encourages secondary pests.”

He explains that primary store pests, including the grain weevil and the lesser grain borer, are capable of infesting whole grain, leaving it vulnerable to attack from secondary pests. “They attack and contaminate the stored crop and leave hollowed out grains.

“Secondary insects, such as the rust-red flour beetle, gain entry and then live on the damage caused by the primary insects. The insect activity raises the store temperature and creates moisture, which leads to the development of mould and fungi, and a snowball effect of grain damage is created,” he says.

Ken suggests that the presence of insect pests should be continually monitored using a combination of floor and pit fall traps as these give a good indication of potential insect populations within the store.

“They should be placed at regular intervals within the building, both on ledges and walls and on the surface of the grain to target different pest species. Check them weekly until the grain reaches the target temperature of 50C,



Bayer

and providing the grain remains at this temperature, monitor on a monthly basis. In the spring, when temperatures rise and insects become active once again, revert to weekly monitoring.”

In some situations where insect activity is detected early, a combination of techniques such as cooling, cleaning or drying can be used. In other situations it may be advisable to consider a treatment with an insecticide, such as K-Obiol® (deltamethrin), or fumigation where necessary.

Rodent control

“Rodents present a big challenge to arable farms because they can multiply so quickly, access small spaces and eat large amounts of stored grain. In a six month period, one mouse can eat over 1kg of food and contaminate a further 20kg, leading to significant waste,” warns Ken. “Mice can live up to two years, during which time one mouse can produce over 60,000 droppings and 150 litres of urine, presenting a real risk of contamination.

“An infestation of 200 rats could consume nearly 1.1 tonnes per year. Alongside the threat they pose to stored grain, they also carry infectious diseases, such as Leptospirosis which is spread through infected rat urine, so it is very important that they are managed.”

A common misconception is that mice and rats behave in the same way, but in fact they have very different characteristics, “Understanding the difference between the behaviour of rats and mice is critical to ensuring successful control,” advises Ken.

“Rats don’t usually move great distances and tend to spend most of their lives on the ground. They prefer areas close to buildings which have good cover, so they can use well established routes to move between burrows and feeding sites, making it important to ensure boundary areas are clear and tidy,” explains Ken. “They’re neophobic, meaning they do not like anything new in their environment. So, rats will avoid new bait stations until they are confident of their safety, which can take more than ten days.

Conversely, Ken explains that mice spend up to 70% of their time off the ground, which is an important consideration when placing bait. “They will actively investigate objects and feed in many different sites, up to 20-30 per night, so it is important to bait over a large number of points.”



Bayer

Ken urges that farmers and grain store managers are vigilant and apply an integrated rodent management strategy in the defence against rats and mice. This includes ensuring habitat management has been considered before turning to rodenticides, as baiting alone will not be sufficient. "It is important to remove all food and water sources and harbourage where possible. If these are removed an environment will appear less attractive to rodents.

"Once this has been done it is important to maintain an environment which is unattractive to mice and rats. General housekeeping measures are important, such as clearing spilt grain and cutting back vegetation, to ensure areas are clean and tidy all year round."

Rats can fit through a gap the width of a thumb and mice the width of a pencil, so it is important to apply proofing measures to the grain stores to help prevent rodents gaining access. "Regularly check the building for signs of entry and fill in any holes or fix any damage. Other methods such as a covered grain pit and proofing rainwater downpipes can also help deter rodents."

Ken advises that after these measures have been applied, and if a rodenticide is still needed, the correct choice of formulation for each baiting situation is very important.

Ken concludes that an integrated strategy of good-housekeeping, monitoring and a robust insecticide or rodenticide treatment, where necessary, alongside regular building checks throughout the storage period are key to managing the challenge presented by storage pests.

