Grant for greener pest control

An Exosect-led consortium has been awarded a £250,000 grant from the Technology Strategy Board to develop pioneering biotechnology for the control of grain store pests.

The consortium, which also includes CABI, the Food and Environment Research Agency (FERA), Sylvan Bio and Connaught Pest Prevention, has worked together for more than four years to identify an effective fungal pathogen for the control of key grain insect pests.

The new funding, under the Technology Strategy Board’s ‘New Approaches to Crop Protection’, will allow the consortium to complete product development, create data for the regulatory authorities and so bring a product to market.

The product is a formulation of the fungus, Beauvaria bassiana, that grows naturally in soils throughout the world and acts as a parasite on various insect species, and Exosect’s Entostat powder. It will be used in grain storage and processing structures, which are coming under increasing consumer and legislative pressure to reduce their use of traditional pesticides.

In addition some species have developed resistance to some of the more commonly used insecticides. Exosect’s Entostat powder is already used in a range of products. It develops electrostatic properties just like insects do when they move. This means that the powder adheres to the insects and can be passed from one insect to another by direct contact.

Martin Brown, managing director at Exsect comments: “This grant is invaluable as it means that the extensive work carried out to date can continue so that a product can be commercialised.”

“The development work so far shows that this technology could easily be adapted to protect other commodities, such as rice, dried fruit, nuts and pulses,” he adds.

As well as the obvious benefit of insecticide residue reduction for consumers, the new product will also replace energy hungry fumigation techniques thereby reducing the carbon footprint of users and will decrease pest control operator exposure to pesticides.

Tackling the grain store rodent challenge

For less predictable rodent infestations brought on by warmer and much more variable winter weather, make it vital to keep on top of rats and mice in and around grain stores from as soon as harvest is possible. Well-planned and managed treatment programmes will be needed to prevent a serious build-up of problems over the coming winter.

“Large amounts of stored grain in highly accessible barns are a magnet for rats and mice,” points out rural hygiene specialist, Adrian Gray of BASF Pest Control Solutions.

“This is especially so as external food sources become depleted and once the disturbance of harvest subsides, leaving stores undisturbed.

Sudden surges

In the past we knew we’d see a steady rise in rodent problems as the winter came on. But infestation patterns are definitely changing with the climate. Sometimes rats and mice are all over the place and we can’t seem to get them under control. And at other times there don’t seem to be enough to bother baiting. Then we get a sudden surge and we’re up to our necks in problems again.

“Generally warmer and very much more variable winter weather is partly to blame, allowing rats to stay outside until population pressures or sudden weather changes force them to move inside in hoards.

“At the same time, it’s easy to assume rodents don’t need controlling just because they aren’t that obvious. Yet because they feed almost exclusively at night, numbers can easily be underestimated until they reach very high levels.”

Under these circumstances, and with over-tight food quality assurance needs, Adrian Gray stresses that farmers need to replace their traditional fire-brigade approach to control with carefully structured professional treatment programmes that take the greatest possible advantage of rodents’ natural behaviour.

He insists that early control is vital to stop populations getting established near buildings, advising a routine cycle of baiting as soon as the harvest is over to restrict rodent activity from the start. This will do much to prevent the sudden upsurges that increasingly seem to characterise modern rodent infestations.

He also recommends siting bait containers down the outsides of buildings where rats tend to concentrate their travel, installing them well before putting down the bait to help overcome neophobia. At the same time, secure bait points should be placed strategically inside stores to intercept both rats and mice.

“We should use a rodenticide that can be removed by competition and stimulate levels of immediate intake that maximise bait intake.”

“With such a ready source of food on hand, it’s vital to use especially palatable and effective baits to ensure sufficiently early uptake and rapid and effective control,” he argues.

BASF Recommendations

BASF recommends Neosorexa Gold Pro or Neosok Gold Pro with their Fortec technology for external rat baiting, saying that these advanced foraging baits, with over-tighter food quality assurance needs, are designed to overcome rodent shyness and stimulate levels of immediate intake that can make multi-feed difenacoum deadly in a day. They also have the advantage of familiarity to rodents feeding on grain.

“I’d recommend specialist paste, contry seed or gel baits based on difenacoum for mouse control too given the rodenticide’s particular potency against mice. And where populations prove particularly challenging, BASF Storm Secure blocks based on flucoumarin can be a useful last resort – although legislation means these can only be used indoors.”

With all multi-feed rodenticides, Adrian Gray adds that it’s vital to check and top-up bait containers every two or three days until all signs of rodent activity cease.

Failing to provide sufficient bait over a long enough period is, he notes, one of the most common reasons for poor control on farm. And breeding rates mean populations can completely re-establish themselves in little more than a month, even with 80% control, leading to a rapid resurgence of problems.

Clear evidence of rodent activity

Rats will find a way around most building defences