Let's get physical!

Whilst there may be plenty of new products about, there are very few new active substances on the horizon. At the same time regulatory authorities are introducing increasingly stringent standards for existing actives. Put all this together and, as Richard Strand of the Pest Information Consultancy explains, it may be time to take a fresh look at physical methods of pest control.

We can expect lots of new products on the market in the immediate future…but this is not necessarily the good news for pest controllers that it would seem. Most of the actives that we use have been around for many years and patents are expiring, presenting opportunities for companies perhaps not familiar to us, to join the ‘formulation game’ developing lots of new generic products formulated from those actives.

On the downside, the stark reality is that there are few new actives on the horizon and the regulatory authorities are insisting on ever more stringent operating standards for existing actives to remain on the market.

It has been a long time coming and may not happen tomorrow, but we also seem to be moving towards some form of regulation in the use of biocides by professionals and the removal of certain types of product from the amateur market.

Concerns about pesticides range from uninformed but embedded opinions about the risks associated with chemicals among the general public, to a very clear understanding of the commercial impact resulting from product contamination by pesticides amongst food processors and pharmaceutical companies.

So what are the alternatives?

There is, of course, a huge catalogue of physical traps for both vertebrates and invertebrates. These generally fall into two categories – those that are designed to kill the target animal and those that are designed to catch it without necessarily killing it.

In each case legislation rears its head in the interests of target, as well as non-target pests. Traps that kill (at least those for vertebrates)
must do so quickly. They must also, by design or by use, discriminate in the animals that they target, with little chance of trapping something unintended.

Gone are the days of ‘gin-trap’ style spring traps that were set on animal runs, trapping anything that happened to pass by – more than likely, trapping, injuring and holding the animal rather than killing it. This left the animal in agony, probably slowly bleeding to death and conscious that it was vulnerable to predation with no means of defence or escape.

The truism ‘Build a better mousetrap and the world will beat a path to your door’ is attributed to the American essayist, Ralph Waldo Emerson who died in 1882. Curiously this was some seven years before the invention of the familiar break-back trap!

**Live trapping needs thought**

Likewise, thought has to be given to the live trapping of animals. The traps should be inspected regularly – at least once a day, they may need to be equipped with food and water for the captured target animal and set in locations where the trapped animals are not going to be subject to extremes of heat and cold or the possibility of drowning as a result of the trap being flooded.

The trap setter must also have a plan for disposing of animals caught in traps. It is simple to think in terms of just releasing the trapped animals somewhere else but where the animal is classified as ‘non-native’ (mink and even grey squirrels for example) this would be illegal. Even if it is legal to release the trapped animal – where? It could be both antisocial and inhumane.

Quite simply the pest controller may just be foisting the problem caused by the animal onto someone else or, if the animal is released at an unsuitable site it may not be able to survive.

...And then there are glue-boards! Perhaps the main problem with these is that they work! The principal issue is that trapped rodents are unlikely die immediately. Their humaneness is therefore questionable.

Cruelty can be reduced significantly if glue-boards are applied with thought and care, hence the industry coming together through its trade associations to promote a ‘code of best practice’ for their use.

Unfortunately glue-boards are so ‘low tech’ that anyone with a pot of glue and a piece of cardboard can fashion one, making it very difficult to prevent their frequent ‘re-invention’ and supply to the bottom end of the retailing sector.

Notwithstanding the discipline that may be observed by professionals, untrained or unconcerned householders are unlikely to use them humanely. Should glue boards be ‘let go’? With a question mark hanging over practically every other technique, the industry will hang on to these as tenaciously as a terrier with a rat! We need to protect every weapon in the locker.

**Physical controls for insects**

The most widely used physical control for insects is the EFK. Those that incorporate glue-boards also provide useful identification data.

Some insect traps also offer control but most are used for identification and monitoring.

someone, sometime will try to advance the point that ‘what is sauce for the goose is sauce for the gander’!

The problem with insects of course is that control comes down to a numbers game and that whilst many, many insects may be caught in traps, it makes little impact on the population as a whole. Insect trapping therefore is much more to do with identification and analysis of where the insects are coming from and why, than about eradicating the problem.

Where do physical methods end and chemical methods start? This is not as clear-cut as it would seem. Whilst looking for alternatives when methyl bromide was being phased out, both nitrogen and carbon dioxide were explored as potential fumigants. Nitrogen, it was argued, was a physical means of control – it did not poison the animal, depriving it of oxygen and the animal suffocated.

The reader might think that the same argument could be applied to the use of carbon dioxide as a fumigant. However an animal subject to high levels of carbon dioxide suffers from narcosis and so carbon dioxide cannot be considered to kill by physical means alone.
One online pest control products trader has 170 products on its range, only eight of them contain pesticides!

Diatomaceous earth kills insects by abrading their cuticles and absorbing lipids and fluids causing the insects to desiccate. In the UK this is considered as a ‘physical’ technique, but not so in some other European countries.

Hygiene & proofing

An important part of every pest control report is the section covering ‘hygiene and proofing’. In a sense both are physical methods of control and together make up what is usually referred to these days as ‘environment management’.

If you remove potential food sources, prevent access to the site, hinder movement around the site or leave pests nowhere to hide from predators, then it will be unlikely that pests will ever establish themselves at a site.

This may seem idealistic but pests are there for what they can get – deny it and they will move on.

Whether you are talking about installing fly screens; anti-roosting devices for birds; bristle strip and wire wool to keep mice out or cleaning up spillages in kitchens or bars so as not to attract cockroaches or fruit flies, the principle is the same. And with such a universal principle, why start anywhere else when addressing a pest problem?

One development of ‘environment management’ has been the manipulation of temperature. Back in the 1970s and 1980s work was being done on the development of heat treatment techniques for wood boring beetles and in the USA for carpenter ants and termites.

Bed bugs are not only tolerant to many insecticides but are also masters of deception, capable of secreting themselves away in places where sprays cannot reach.

So their recent infestation explosion has seen the rapid rise of both deep-freezing and high temperature treatments.

Plenty of possibilities

Even with the legal constraints applying to trapping techniques there is plenty of scope for development. As far as proofing is concerned the gloves are off! There are all sorts of possibilities.

It is hard to countenance, but bird proofing as a business did not truly take off (pardon the pun) until the 1990s.

Prior to that you could get anti-perch gels easily enough, but netting or spring and wire systems had to be put together by sourcing the individual components separately to your own design.

By the 21st century distributors carried every conceivable product necessary to build out roosting sites on buildings. The last few years has also seen the development of electric shock systems for deterring birds roosting on buildings. Such systems would have been considered unacceptable just a decade ago. And, more recently, the latest introduction for bird management is ‘fake fire’ optical repellent gel.

Much the same has happened with fly-screening and is beginning to happen with rodent exclusion with the advent of such products as Mousemesh. For larger mammals the internet has opened up possibilities with a number of websites offering ‘bespoke’ electric fence systems. The purchaser indicates the nature of the problem and the size of the area to be protected and the fence distributor puts together a kit with the correct length of wire, numbers of posts etc – the user may have to supply his/her own car battery!

Whilst we are a long way from seeing the end of pesticides as important tools for the pest controller and we may yet see a proliferation of pesticide products, the underlying trend is still downwards for the list of actives from which proprietary products will be formulated and upwards for the price!

Bright future predicted

Particularly for vertebrate control, as we are pressurised to drive-down the impact of pesticides on non-target animals and the environment, we are likely to see increasing demands on pest controllers to demonstrate both their professionalism and their ingenuity to resolve infestation problems, often using a combination of techniques.

For the enthusiastic (and I don’t think enthusiasm is something we are short of in this industry) the future looks bright!
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