FORUM

Watching the clock

How soon is it safe to go back to your house after it's been treated for woodworm, asks Jeff Howell

PERMETHRIN is an insecticide widely used to control household pests. It is also a nerve poison. Britain's Health and Safety Executive (HSE) has given a water-based version an "eight-hour re-entry time approval" for treating timber. In other words, people can return to their homes eight hours after spraying. Health authorities in Germany, however, consider permethrin to be a health hazard up to two years after application.

Damp-proofing and timber treatment products have been the focus of my research for six years and I have increasingly come to feel that in Britain pesticides tend to be overused. Here, the timber treatment industry has always been irked by regulations requiring premises to be evacuated and sealed off before they are sprayed against woodworm or dry rot. In the 1960s and 1970s, the re-entry time after treatment with organochlorines in white spirit was 48 hours. Telling people their home needs spraying for woodworm is one thing, but suggesting they stayed away for 48 hours was quite another.

Since the 1970s, the Building Research Establishment (BRE) at Garston, in Hertfordshire, has measured aerial concentrations of pesticides to determine how soon householders can return after a particular pesticide has been sprayed. Tests back in the early days revealed high concentrations of solvents and pesticides lingering in the air for the first day or so after application. By the 1990s, timber treaters were using water-based permethrin formulations. With the backing of the HSE, this formulation of permethrin is now promoted as the latest "safe" insecticide, and the eight-hour re-entry time vital to its marketing appeal.

The BRE tests involve lining a chamber about 9 cubic metres in volume with treated plywood panels and periodically sampling the air inside. Given that the pesticides are water-based and hence less volatile, and that the ventilation rate is 0·5 air changes per hour, it is not surprising that after eight hours the level of permethrin in the air is less than 20 micrograms per cubic metre—well below the limit of 125 micrograms per cubic metre set by the HSE. Thanks to such tests and consequent eight-hour approval by the HSE, water-based permethrin formulations are widely used in Britain and elsewhere.

The Germans, meanwhile, are taking a lead in questioning the unrestricted use in people's homes of what is in effect a nerve poison. Alerted by growing reports of suspected cases of permethrin poisoning—there were some 250 in Germany in 1997—the German Federal Health Agency commissioned the Fraunhofer Institute of Toxicology and Aerosol Research in Hannover to investigate. The institute bases its tests on actual living conditions—rooms furnished with carpets, sofas, tables and chairs—and uses electric fans to keep a known quantity of house dust circulating within the rooms. The floors are sprayed with permethrin, and as well as measuring airborne concentrations, the scientists analyse dust on the furniture. Wipe tests show that circulating dust picks up permethrin from the floor and deposits it on surrounding surfaces. Significant levels of permethrin are detectable on tables in test rooms for up to two years after the initial application.

As a consequence, the German health agency now recommends that permethrin be applied in homes as cautiously as possible, and only on structural timbers subject to active insect attack. It is not recommended for nonstructural timbers such as floorboards. Moreover, homes treated with it must be decontaminated by careful vacuuming and scrubbing with household cleaners before they are reoccupied.

I am perplexed that scientists in two countries should look at the same problem and come up with such different answers. It leaves me wondering whether they are on the same planet, let alone part of the same European Union. Sadly, neither party was aware of the other's work. If harmonisation of pesticide testing and approval is to be achieved in the EU, then some form of consultation between member states is long overdue. □

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