

ENVIRONMENT

Environmental pollution from pet parasiticides

THERE is an array of drugs available for the treatment of endo- and ectoparasites in dogs and cats. These come in a plethora of different combinations and formulations for oral and spot-on use, and in the form of collars. This cornucopia of products is evidence that this is a highly lucrative market.

One active ingredient used in these products – the neonicotinoid imidacloprid – is believed to have contributed to the decline of insect populations due to its use as a pesticide.^{1,2} Recent findings have shown that the use of neonicotinoids resulted in the collapse of commercial fisheries at a lake in Japan by killing plankton and disrupting the aquatic food web.³ It is becoming clear that neonicotinoids are, at the least, extremely potent and persistent chemicals which are inflicting severe damage on the environment.

As part of the marketing authorisation process for veterinary products, the European Medicines Agency requires that the impact of active ingredients is assessed. For livestock and aquaculture treatments, this involves extensive environmental safety testing. However, for medicines used on companion animals, testing is not required; presumably the assumption is that the products pose little risk. Given that there are around

21 million dogs and cats in the UK, and the potent toxicity of these molecules is high, we believe this assumption is incorrect and that companion animal medicines may be negatively impacting our waterways.

An estimated calculation shows that the 250 mg dose of imidacloprid delivered to a large breed dog is equivalent to 50 million LD₅₀s for honeybees based on a LD₅₀ of 5 ng/bee.¹ LD₅₀ is the dose at which 50 per cent of all test animals die.

Neonicotinoids may not be the only issue. Selamectin (an avermectin) has a 48-hour LC₅₀ in aquatic invertebrates of 26 ng/l.⁴ If a giant breed dog, such as a Newfoundland, was treated with the recommended dose of 350 mg and then jumped into a large pond the size of four Olympic swimming pools where all of the active ingredient leached from its coat, 50 per cent of the invertebrates in the pond would be dead within 48 hours. Given that a cousin of selamectin, ivermectin, is known to have chronic, sublethal effects at concentrations three orders of magnitude lower than the 48-hour LC₅₀,⁵ it would require a much larger lake to determine the long-term effects. These potential impacts on invertebrates could have a knock-on effect, harming fish populations, as well as birds and mammals along the food chain.

We believe that the products used to treat endo- and ectoparasites in dogs and cats require urgent attention. The first step we must take is to stop the blanket prophylactic use of antiparasitic drugs. Until recently, the veterinary profession used drugs to treat parasites in a strategic fashion, which would minimise environmental exposure. The indiscriminate prophylactic use of antiparasitic drugs in companion animals is irrational, wanton, unnecessary, irresponsible and ecologically dangerous. It should not be condoned as good clinical practice.

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doi: 10.1136/vr.m110