

Effects of cypermethrin residues in cattle dung on the reproduction of *Copris tripartitus* Waterhouse (Coleoptera: Scarabaeidae)

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Cypermethrin is commonly used as a veterinary ectoparasiticide to control ticks, lice, biting and nuisance flies. Following treatment, the drug is excreted into the faeces where it can have a harmful effect on dung-dependent arthropods. There is a lack of information on the effect of this compound on non-target dung insects. Fresh dung was collected from untreated cattle and cattle dosed with a spray-on formulation of cypermethrin (2.1g /cow) on days 1, 3, 5 and 7 post-treatment. The dung was bioassayed using the dung beetle *Copris tripartitus* Waterhouse. Residues of cypermethrin were sufficient to inhibit oviposition by *C. tripartitus* in treatment after 1 and 3 days in second generation. Although there was no significant effect on egg laying in dung collected at days 3-7 post-treatment in first breeding but, in second breeding, toxic effect reveal in 3 and 5 days dung treatments. In the field experiment, we tested the effects of different cypermethrin dosage in three farms. On the farm with the highest dose rate, the population of *Onthophagus lenzii* increased compared with that recorded on the farm with the lowest dosage. However, the abundance of *Copris* spp. showed the reverse trend. From this experiment, we conclude that dung voided by cattle treated with a spray-on formulation of cypermethrin reveal in dung at 1, 3, 5 days post-treatment in terms of long terms. The potential ecotoxic effects of these compounds will be discussed in terms of dung beetle activity and strategies for parasite control of cattle in Korea.