

# DEER REPELLENT FOR 1080 BAIT

Reducing the impact of aerial 1080 possum control operations on deer targeted by hunters.

## WHY WE CONTROL PESTS

OSPRI's TBfree programme controls pests (mainly possums) to protect cattle and deer herds from bovine TB. The disease in cattle and deer herds can impact meat and dairy production which affects farmers' income and the willingness of export markets to buy New Zealand products.

Possums are responsible for around half of all new herd infections, with the others due to stock movement. If we reduce possum numbers to below two possums per ten hectares for a number of years, the disease will eventually die out. Pest control has dramatically reduced the number of infected herds in New Zealand.

Depending on the area, OSPRI's TBfree programme targets possums through ground-based control with traps and baits or aerial control using sodium fluoroacetate (1080). The same pest control techniques are also used by the Department of Conservation and regional councils.

## THE IMPACT ON DEER

Wild deer are highly valued by hunters and some landowners. While 1080 baits are designed to target possums, wild deer are also attracted to them



*Green possum control 1080-pellets coated with EDR look significantly different to the brown prefeed baits, right.*

so there is potential for by-kill when an aerial operation is carried out.

Possum-control contractor Epro worked with Landcare Research in 2001 to make 1080 baits less palatable to deer. They identified a repellent that can be added to 1080 baits without affecting their palatability to possums. It is used with both carrot and cereal baits and has been widely used in aerial control operations over the past decade.

In high use areas, OSPRI actively engages hunters in consultation over the use of deer repellent during possum operations.

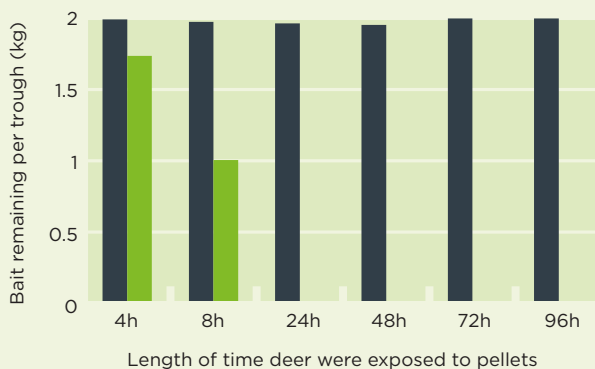
Repellent-coated 1080 baits are most commonly used on private land where landowners want to minimise deer by-kill, and on recreational hunting areas. We work with affected parties to determine areas where the use of deer repellent may be appropriate. The use of deer repellent is expensive and can add significantly to the cost of individual operations, so it's not used in every aerial 1080 operation.

## DEVELOPMENT OF DEER REPELLENT

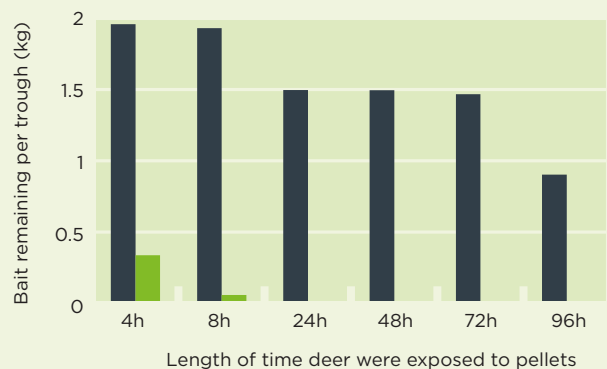
During development of the repellent, animals' responses to pellets coated with repellent and untreated pellets

# AMOUNT OF BAIT LEFT UNEATEN

## RED DEER HINDS & FAWNS



## RED DEER STAGS



■ Untreated 1080 baits   ■ Repellent-coated 1080 baits

were compared. Farmed deer were far more willing to consume bait that wasn't coated with repellent.

During the first trials testing cereal baits in 2003, hinds completely ignored bait types that were surface-coated with the repellent. Stags, however, gradually consumed about half of the total amount of bait that was surface-coated with repellent, but only after all untreated bait was gone.

When larger groups of deer were placed in a bigger paddock, hinds did not eat any bait, and stags ate only a quarter of non-repellent bait and 5% of repellent bait, suggesting that deer will eat significantly less bait in the wild than they do in lab trials.

## HOW WELL DOES DEER REPELLENT WORK?

Field studies confirmed that deer repellent significantly reduces deer by-kill.

In trials comparing areas treated with standard 1080 bait or repellent-coated 1080 bait, significantly less deer were found dead in the areas using bait coated in repellent.

Overall, the evidence indicates that deer repellent substantially reduces, but may not completely eliminate, deer by-kill in aerial 1080 possum control operations.

## DO SIZE AND SPECIES MATTER?

Smaller deer should be more susceptible to 1080 by-kill because one 12-gram possum bait may contain enough toxin to kill a 40kg animal whereas a lethal dose for a deer over 120kg is three or more pellets. There are indications that, when using untreated 1080 bait, by-kill tends to be greater for smaller-bodied deer (such as fawns and females) but there is currently no clear evidence that this is true for repellent-coated 1080 bait. In captivity, smaller deer have been observed to avoid repellent-coated bait more than larger males do.

OSPRI have recently commissioned Landcare Research to assist with an investigation into how effective deer repellent is on Sika deer following interest from hunting groups. This research is underway with an initial outcome expected before Christmas with a field trial to validate initial findings planned for the 2017 aerial season.

*This information was developed in partnership with Landcare Research.*



**Landcare Research**  
**Manaaki Whenua**



## FURTHER INFORMATION

**LANDCARE RESEARCH**  
landcareresearch.co.nz

**GAME ANIMAL COUNCIL**  
nzgameanimalcouncil.org.nz

**NEW ZEALAND DEERSTALKERS' ASSOCIATION**  
deerstalkers.org.nz

**WHY 1080 IS USED IN NEW ZEALAND**  
1080facts.co.nz

## REFERENCES

G Nugent, KW Fraser, GW Asher & KG Tustin (2001) Advances in New Zealand mammalogy 1990–2000: Deer. *Journal of the Royal Society of New Zealand*, 31:1, 263-298.

C Speedy (2005) Field trials and operational results of a deer repellent for 1080 possum baits. *New Zealand Journal of Forestry*, 27-30.

G Morriss (2007) EPRO deer repellent baits for possum control: Review of development and use 2001-2007. *Landcare Research Contract Report*.