

Impact of the use of bait manufactured by Bell Labs Inc, rather than by Animal Control Products Ltd, during Phase 1 of the South Georgia Habitat Restoration Project

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Two manufacturers dominate the world market for aerially-spread rodenticide bait pellets - Animal Control Products Ltd (NZ) and Bell Laboratories (USA). Both produce a cereal bait with the 2nd generation anti-coagulant toxin Brodifacoum as the active ingredient.

Both baits have been successfully used in large-scale sub-polar and other environments, and both were considered for use on South Georgia. By virtue of the fact that the ACP product has been more commonly used, is more familiar to the majority of rodent eradication specialists (who are New Zealanders) and is nominally cheaper, a decision was made in the early planning stages of the SGHR Project to nominate ACP as 'preferred suppliers'.

Since that time, circumstances have changed in two important ways. Firstly, Rat Island in the Aleutian chain has been declared rat free after being treated with the Bell Labs bait (an operation flown by the SGHR Project pilots), demonstrating that this product is as effective as the ACP equivalent on a substantial sub-polar seabird island. Secondly, Bell Labs has made an extremely generous offer to SGHT such that that its product is now greatly cheaper than that of ACP. On this basis, the choice of supplier for the South Georgia project has to be reviewed.

The characteristics of the two products are summarised in the Table below.

Supplier	Pellet characteristic				
	Colour	Diameter	Mean length	Mass	Brodifacoum density (nominal mean)
ACP	Green	10mm	25mm	c. 2g	20ppm
Bell Labs	Blue/green	13mm	22mm	c. 3g	25ppm

In selecting a bait, four key characteristics must be considered - effectiveness of killing the target species, impact on non-target flora and fauna, impact on human health and sowing characteristics. These four factors are discussed below.

1. Effectiveness of killing the target species.

No differences are known to practitioners. The two baits are considered to be equally effective, though the sample size of deployments of the Bell Labs bait is a lot smaller.

2. Impact on non-target flora and fauna.

None known, though this is difficult to test. The reason for this is that the difference in toxin density between the two products (20%) is swamped by differences in bait density (mass of pellets or Brodifacoum per unit land area) between eradication operations. For example, typical bait densities vary between 6 and 25 kg/Ha - a difference of more than 400%. Needless to say, the density of Brodifacoum on the ground at South Georgia could be maintained at exactly the same level between the two baits by simply reducing the mass of Bell Labs pellets per Ha by 20%.

In terms of size, the Bell Labs bait is of larger diameter and marginally shorter. Each pellet is on average some 50% greater in volume and mass (at my request). The blue colour of the American bait was selected because trials indicated that this reduced its attractiveness to non-target wildlife, and the claim is plausible because far fewer natural foodstuffs are blue than green. It is unknown whether the colour difference will make it more or less palatable to wild birds on South Georgia such as sheathbills or ducks, but the greater size should certainly make it less easy to eat. I am currently conducting trials of the Bell Labs bait to establish whether it is attractive to captive South Georgia pintails, in the same way that I did previously with the ACP bait.

3. Impact on human health.

None known or likely. Brodifacoum is not soluble in water, so the slightly higher density of this product in the Bell Labs bait can have no significant impact on water supplies, the only plausible means of humans ingesting Brodifacoum unless someone deliberately eats bait pellets.

4. Sowing characteristics.

The larger pellet size should increase the distance that they travel from the hopper, and thereby increase the swath width. In turn, this will reduce flying time, fuel use and disturbance.

Conclusion.

There are considerable benefits to using the Bell Labs bait on South Georgia, and no obvious disadvantages except that the product has not been as widely used as the ACP bait hitherto. The technicians at Bell have been extremely responsive to my requests to change the size and consistency of the bait to suit our needs (much more so than was the case with ACP), and have offered to look after all aspects of the packing and shipment of the bait to Stanley (shipping at our cost). On balance I am convinced that the Bell Labs bait is more suitable for the SGHR Project's needs, and recommend that Bell Labs is contracted to supply the bait for Phase 1.