

Efficient ground control of possums and rats

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Contracted by TBFreeNZ

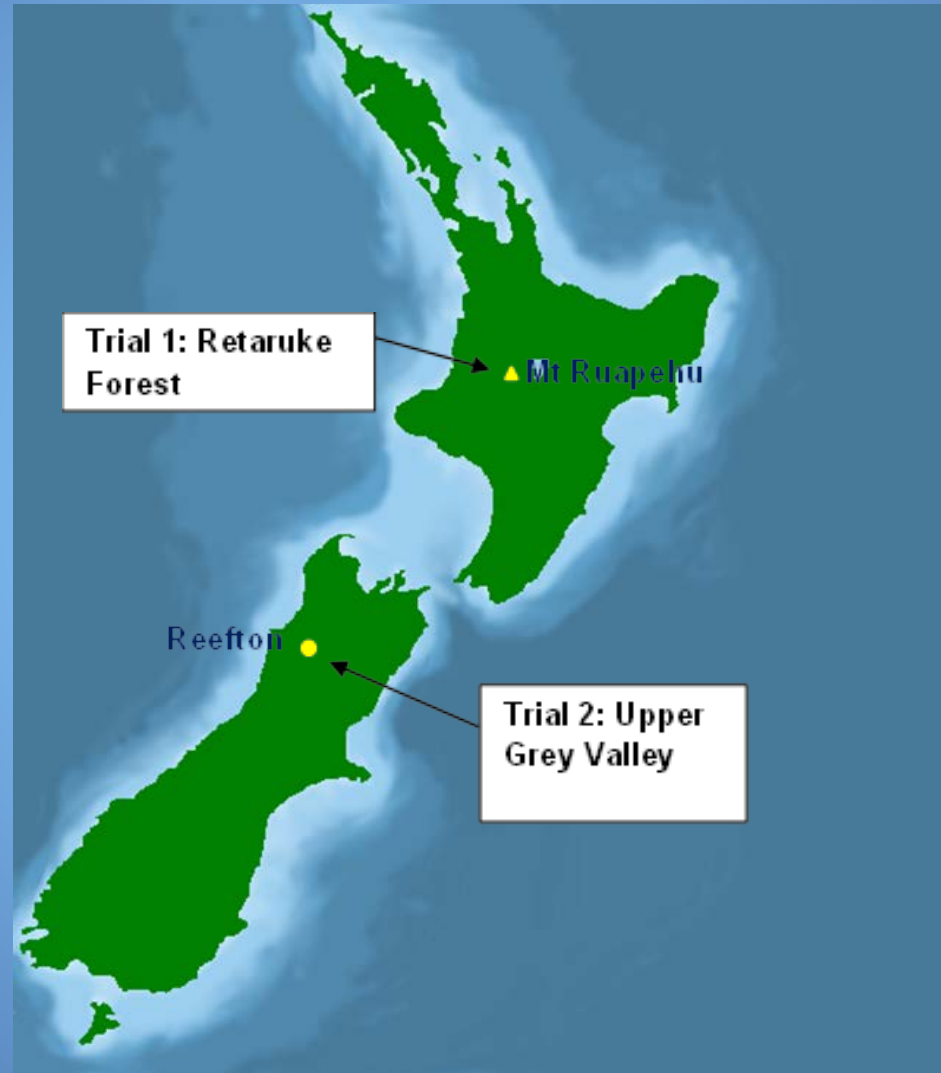
Background

- Ground control of possums will cost > \$0.5 billion over next 30 years
- More costly than aerial (up to \$80/ha v \$14/ha) - includes contingency
- 'Input' contracts reduce risk for contractors
- Can specs. for input contracts be designed to improve efficiency?
- Need alternatives to 1080 in 'front' country

Aims

- To compare possum and rat kills and cost using:
 1. Aerial prefeed + aerial 1080
 2. Aerial prefeed + ground-laid 1080
 3. Aerial prefeed and cholecalciferol baits
- Can contractors follow aerial prefeeding swaths accurately?
- What rate of coverage can be achieved by ground control contractors ?
- How efficient will it be under different scenarios?

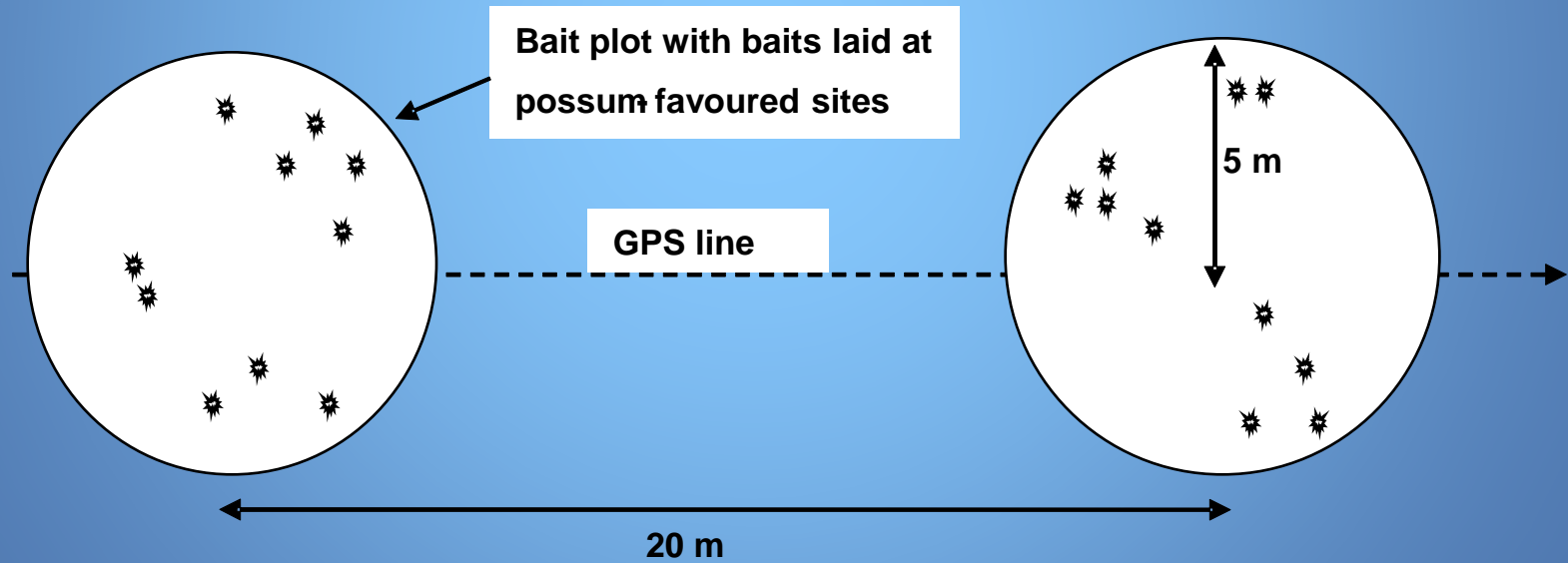
Trial sites



Treatment specs

Trial block	Prefeed				Toxic			
	Bait	Diam. (mm)	Rate (kg/ha)	FPS (m)	Bait	Diam. (mm)	Rate (kg/ha)	FPS
Aerial 1080	RS5	16	2	180 (broadcast)	RS5 0.15%	16	2	180 (broadcast)
Ground 1080	RS5	10	1 Aerial	100 (60m swath)	RS5 0.15%	20	0.5	100 (clusters)
Ground Kolee	RS5	10	1 Aerial	100 (60m swath)	Kolee 0.8%	20	0.5 (trial 1) 1.0 (trial 2)	100 (clusters)

Specs. for hand-laying 1080 and Kolee



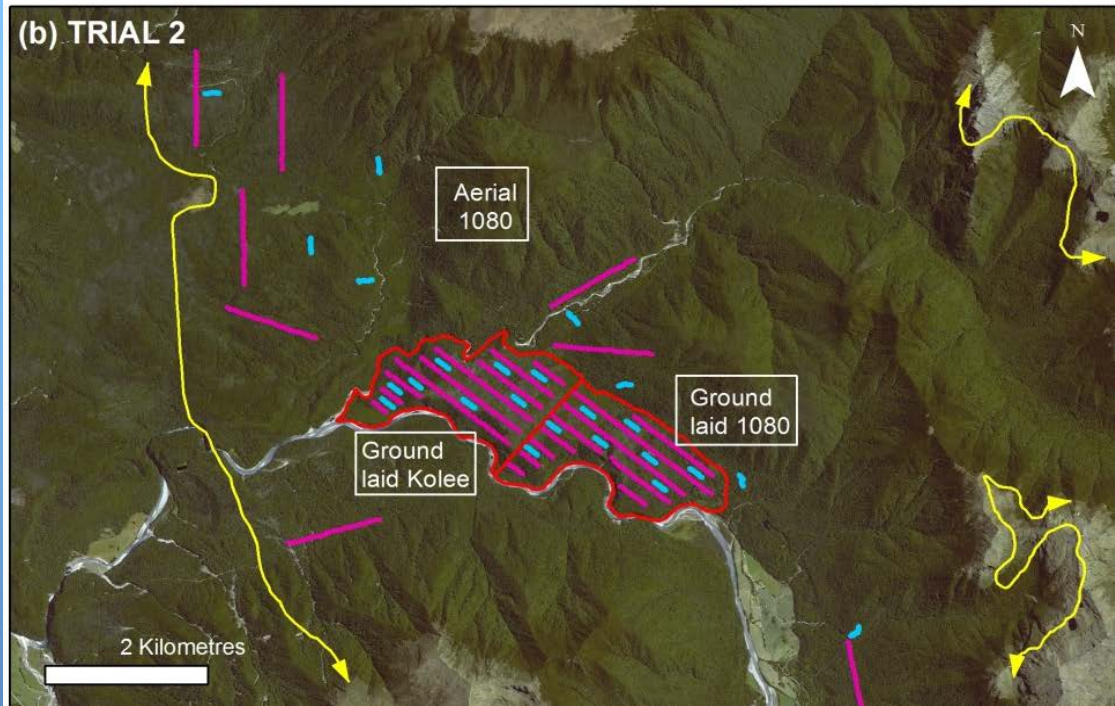
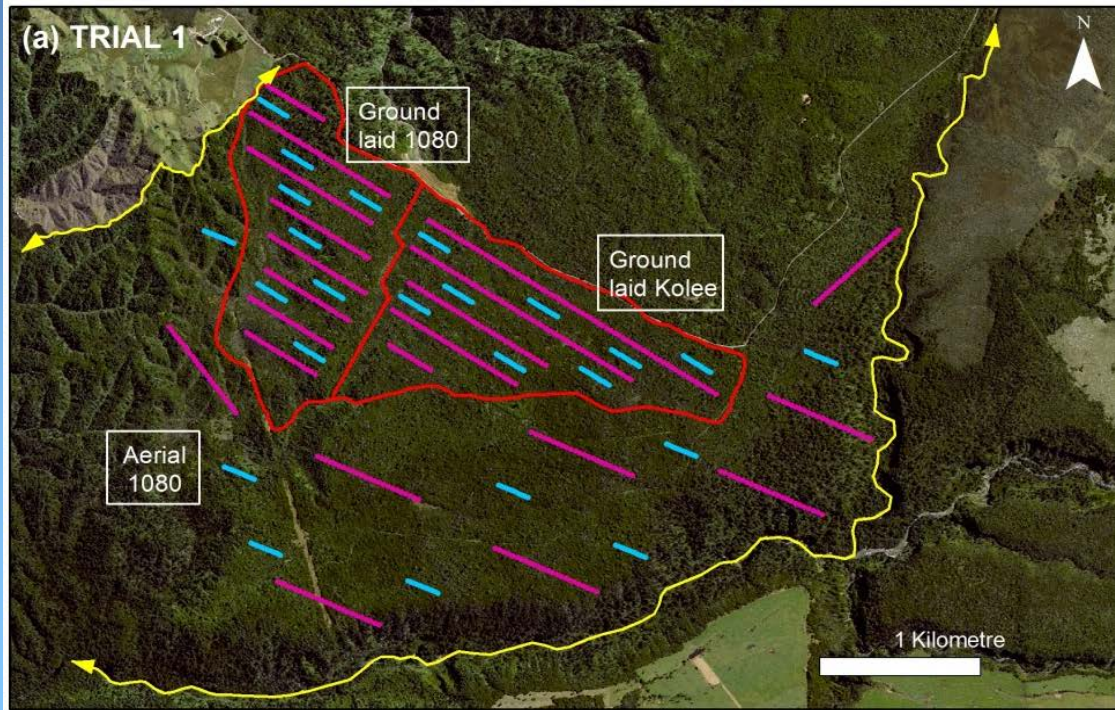
- Lines 100 m apart
- Less than 4% of area treated

Monitoring

Purple – Chew cards



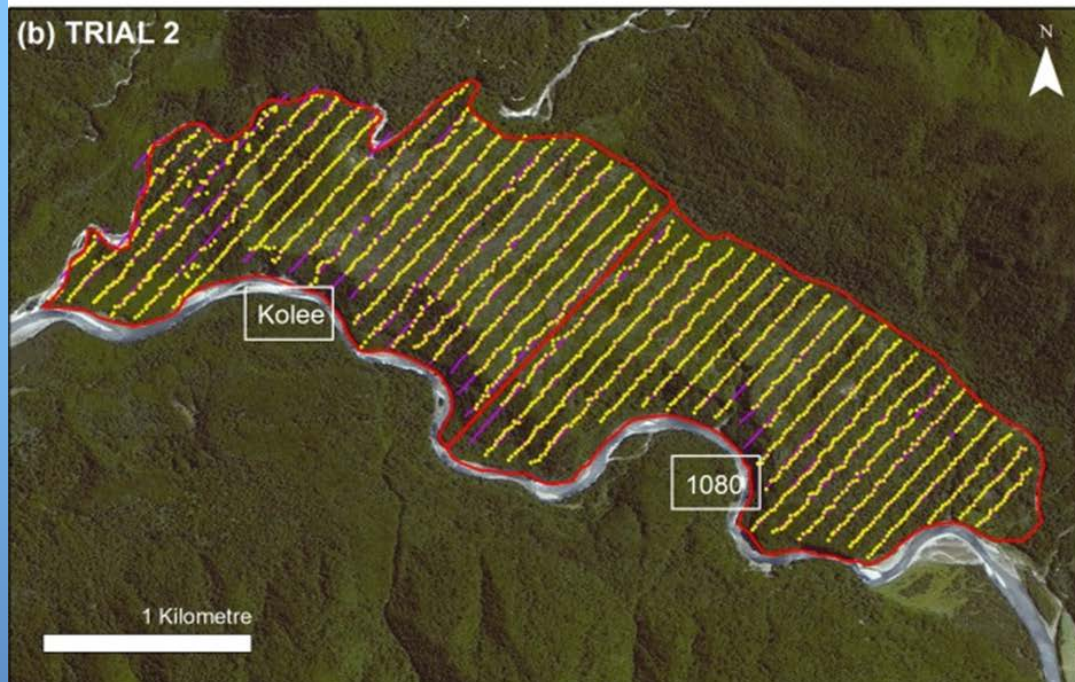
Blue - Traps



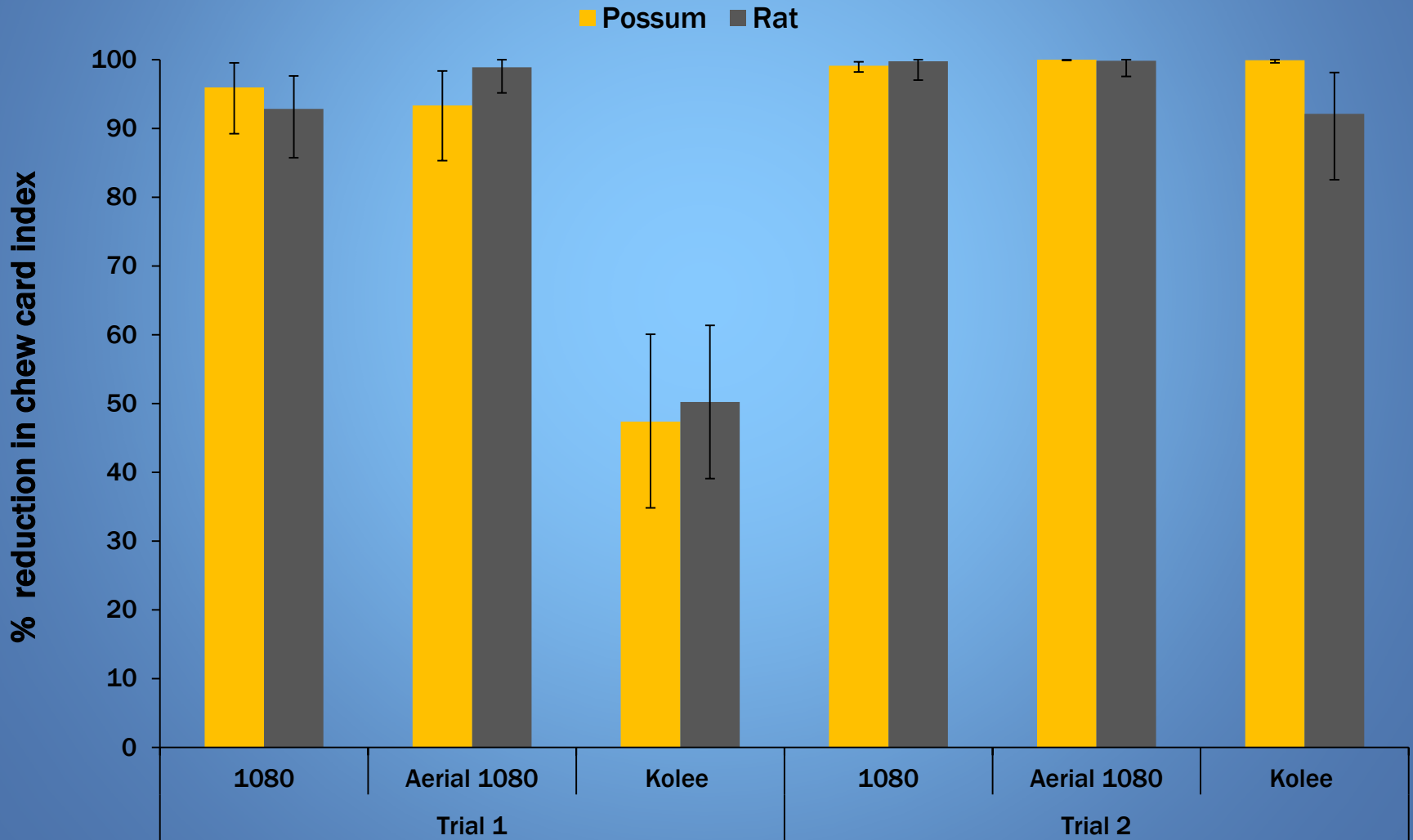
RESULTS

Coverage

- Purple – aerial prefeed flight lines
- Yellow – contractor's waypoints for bait plots



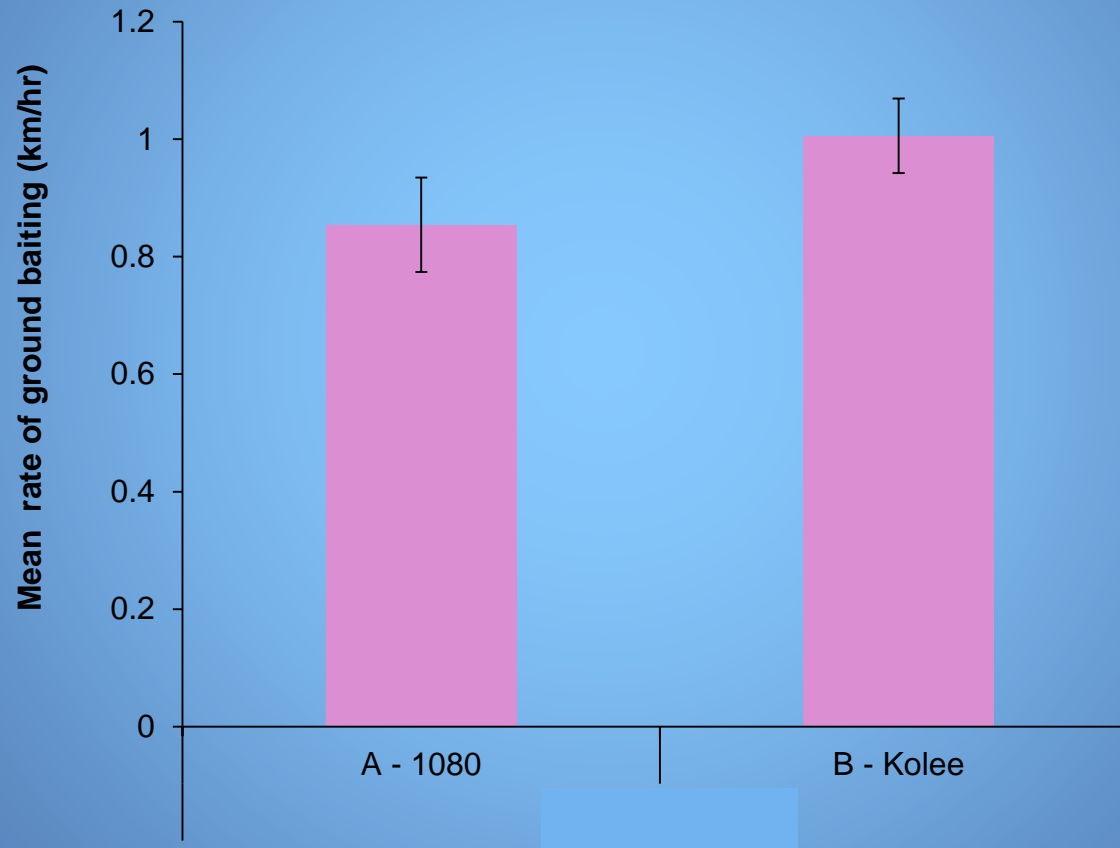
% kill of possums and rats (\pm SE)



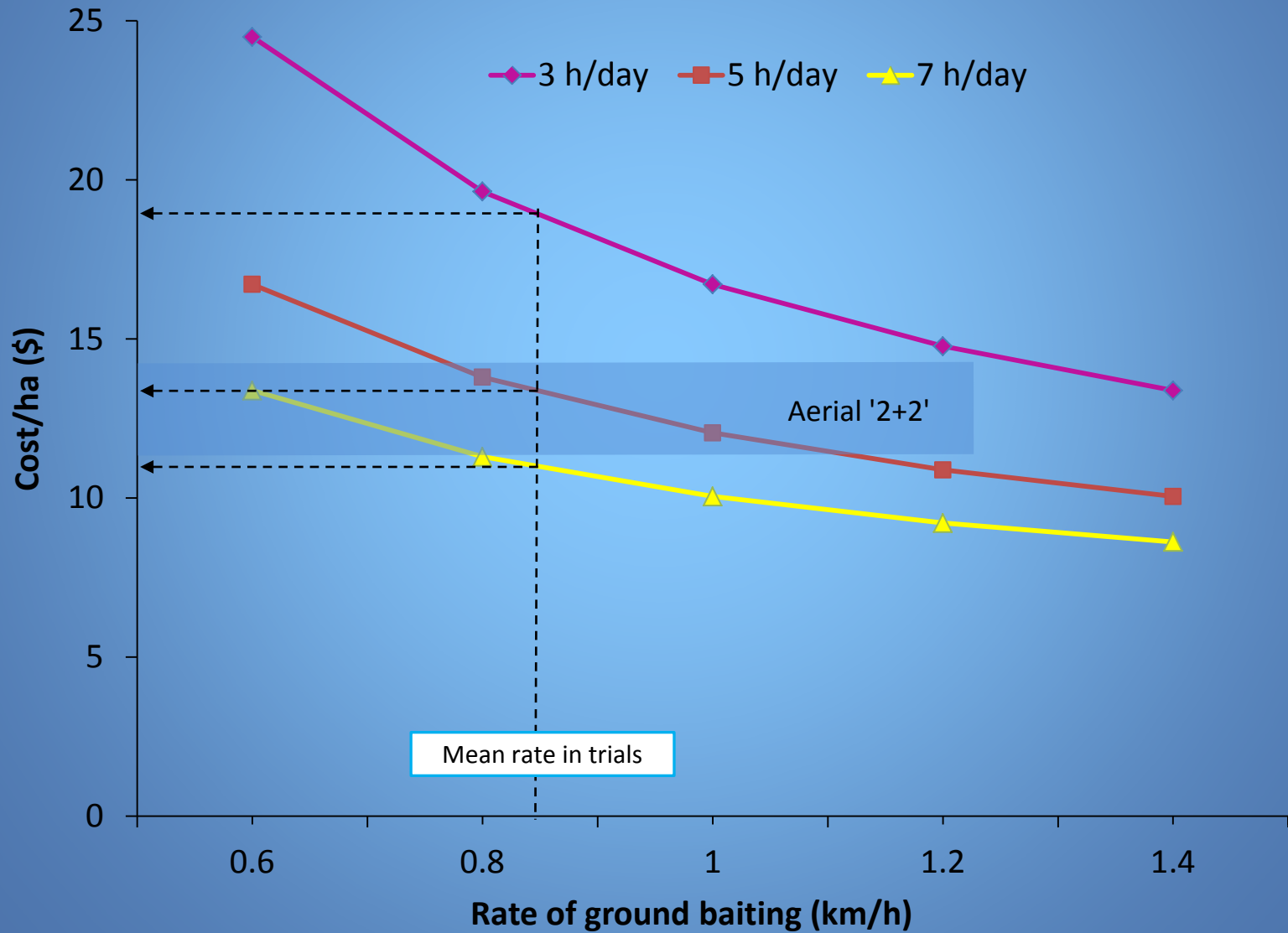
Trap catch after control: RTCI values (\pm 95% CI)

Treatment	Trial 1	Trial 2
Aerial 1080	0.4 (1.0)	0
Ground-laid 1080	0	0
Ground-laid Kolee	3.8 (3.1)	0

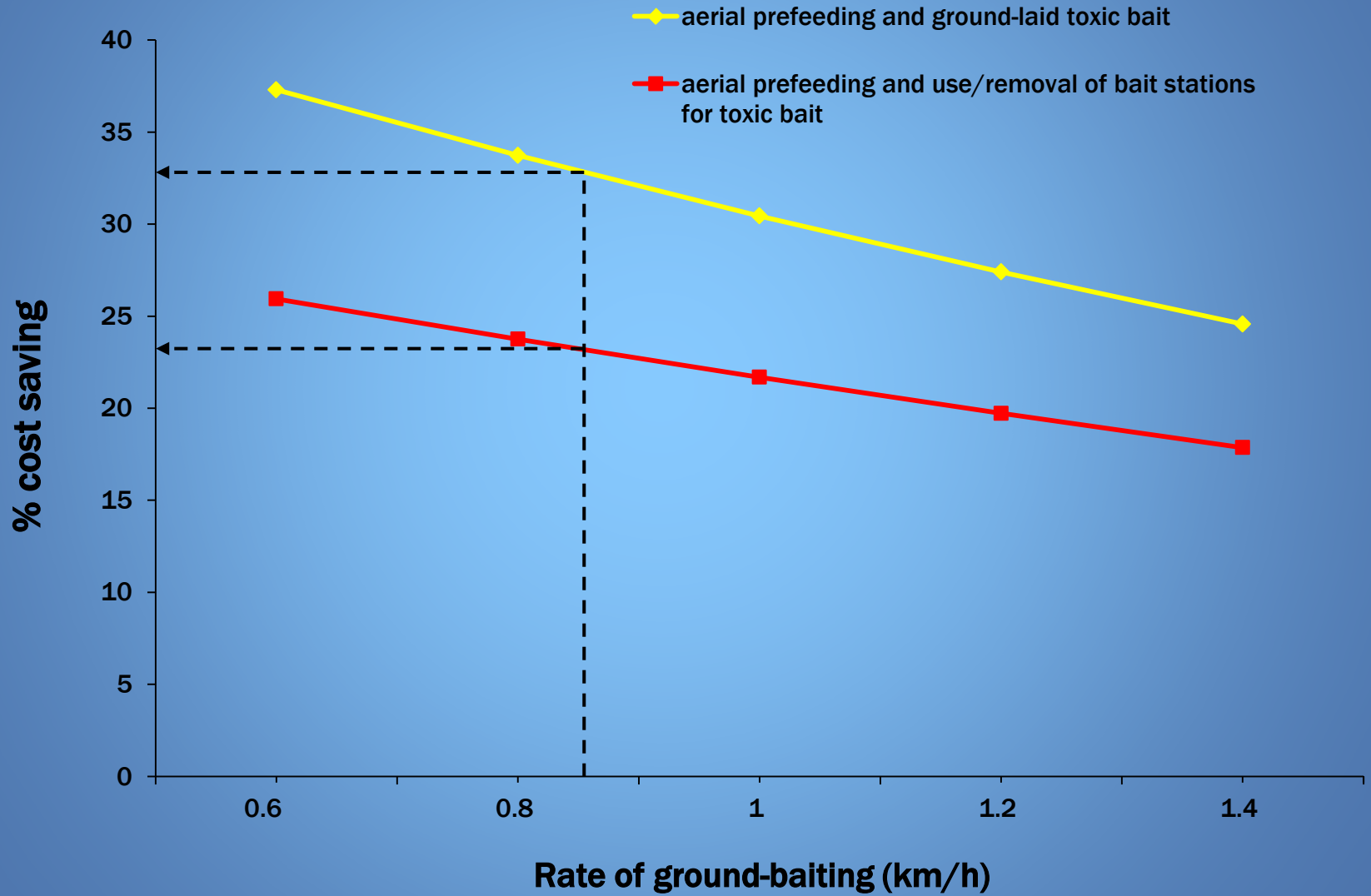
Mean rate of coverage (\pm SE)



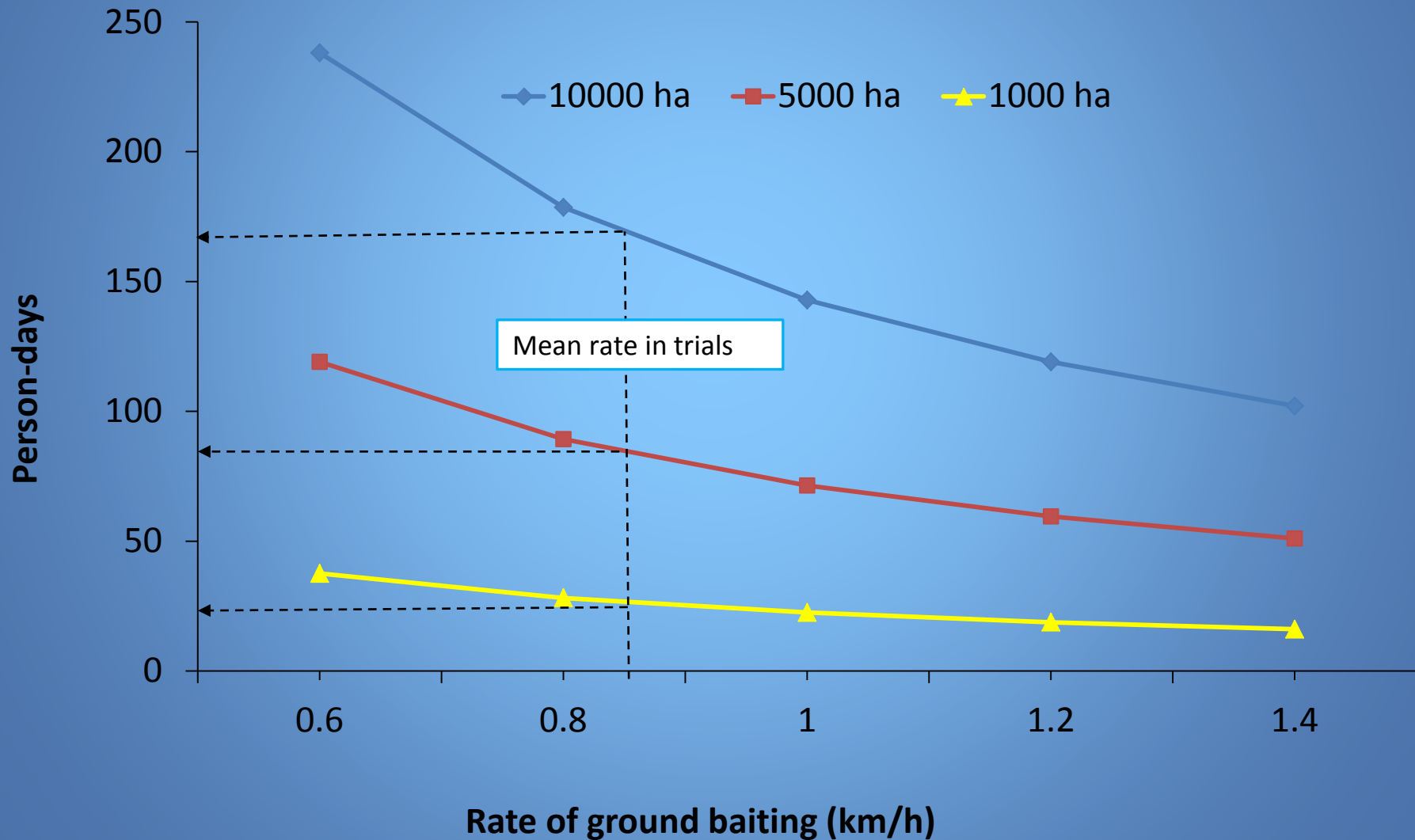
Predicted cost



% saving by prefeeding aerially



Time to completion



CONCLUSIONS

- Ground-1080 and Kolee as effective as aerial 1080 against possums and rats
- Savings from cheaper (aerial) prefeeding and less bait used
- At 5 h/day, aerially-prefed-ground-laid 1080 similar cost to aerial
- Potential for further improvement with wider (180 m) spacing
- Limited by terrain and the time taken for completion
- Particularly suitable for 'easy' front country (esp. Kolee)

Win-Win!

Agency - gets work done

- effectively
- lower cost
- more quickly
- consistently



Contractors

- less risk
- fewer (no?) reworks
- workflow planning more certain
- cashflow more predictable
- get through jobs quicker
- competitive with aerial 1080