

# CONNOVATION RESEARCH

## CONNOVATION RESEARCH QUARTERLY UPDATE- June 2008

**HIGHLIGHTS AND ACHIEVEMENTS: - in May-June we continued advancing cyanide as a humane alternative to 1080 for wallaby control and submitted registration dossiers for zinc phosphide with the NZFSA. In addition there was an intense focus on international profiling of our new product development for low residue, safer and humane pest control products. DPIW Tasmania and the American Chemistry Society are thanked for funding to attend and present at key conferences.**

1. Given that cyanide has proven humaneness and other poisons fare less well we are now increasing the intensity of our efforts and focusing on the development of Feratox® for wallabies and ferrets. We have completed experiments to test cyanide pellets in Dama and Bennett's wallabies and preliminary trials in ferrets – logically exploring the potential of cyanide for humane culling of pest species other than possums. Connovation is investing in this research with co-funding from the Department of Conservation (DoC) for the development of Feratox for Dama wallabies. DPIW, Tasmania are co-funding research on Bennett's wallabies. The Animal Health Board is supporting the development of Feratox for ferrets.
2. We completed testing Feratox® in 16 Bennett's wallaby pen trials with unconsciousness and death similar to that previously reported in possum, consolidating results obtained with Dama wallabies. On the first day of these studies AEC veterinarians Dr Alex Familton and Dr Julie Brown were present alongside the research team. All observers were pleased when we achieved the same high welfare standard set by Feratox pellets in possums, and this was sustained in all subsequent testing in June. Field trials are now being scheduled.
3. A Dama wallaby Feratox pen study completed in May with the 17/18 wallabies humanely culled in a pen trial.
4. We have been working with Pest-Tech in Lincoln for the last 12 months to help complete Chemistry and Manufacturing, Toxicology, Efficacy, Residue and Welfare registration dossiers for Zinc Phosphide. Dossiers were completed in June and submitted to the regulatory authorities early in July.
5. Zinc phosphide was first used as a rodenticide in 1911 in Italy and was the most widely used rodenticide worldwide until the introduction of anticoagulant compounds. It is used as a rodenticide in the USA and Europe as well as in Australia. It will now undergo assessment by the NZ registration authorities. It has found favour internationally because of the comparatively low risk of secondary poisoning of dogs following its field use when compared with strychnine or 1080.
6. Plans for the first large scale field trials of para-aminopropiophenone (PAPP) for stoat control at Waitutu advanced significantly in June. ERMA containment applications were filed for field work. A presentation was given to Ngai Tahu HSNO committee on PAPP and on-going consultation is planned.
7. Significant progress has been made in a FRST funded programme led by Lincoln University developing with Pest-Tech improved highly palatable baits for possum, rats and mice. This will be consolidated with field trials in the next quarter.
8. Dr Eason from our research team was an invited speaker at the 4th Pan Specific Conference on Pesticide Science June 1-5 in Hawaii and presenting on the pharmacokinetics of vertebrate pesticides.
9. A presentation was given at an "International Workshop on Anticoagulant Rodenticides" in Hawaii on optimising use of toxins for conservation. We learnt that the EPA plans to withdraw brodifacoum from the US consumer market in May 2008. But aerial application of brodifacoum and diphacinone as a low residue option will be permitted on remote islands for conservation purposes.
10. Presentations were given at the 14<sup>th</sup> Australian Vertebrate Pest Conference in Darwin on the advancement of cyanide and para-aminopropiophenone for humane low residue control.

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11. A DEFRA UK grant with Profession Neville Gregory for new rodenticide research has successfully got through the first round and a full proposal has been requested.
12. The Animal Health Board has agreed to support research focused on alternative humane toxins and safer toxic baits for possum control in 2008/09.
13. Research has been initiated to further clarify the rapid clearance of diphacinone in cattle and pigs. Diphacinone is the key ingredient in RatAbate®.
14. Connovation research contributed to an Invasive Animals-Cooperative Research Centre Review on management options for camels in Australia led by Dr Steven Lapidge that was completed in June.

## Conference presentations in June involving the Connovation Research team:-

### 14<sup>th</sup> Australasian Vertebrate Pest Conference – Darwin 2008

Charles Eason, Mick Statham, Lee Shapiro, Steve Hix, Duncan MacMorran, Penny Fisher, Steve Boot, John McIlroy, Helen Statham, John Dawson. *1080 Alternatives for Tasmania.*

Elaine Murphy, Charles Eason, Steve Hix, Lee Shapiro, Duncan MacMorran. *Developing a New Toxin for the Control of Feral Cats and Stoats in New Zealand*

Charles Eason, Elaine Murphy, Steve Hix, Lee Shapiro, Duncan MacMorran. *New Approaches to Developing Humane Toxins: Our Rationale, Questions and Answers*

Shaun Ogilvie, Aroha Miller, Charlie Eason. *Minimising the Impacts of Vertebrate Pesticides on Non-Target Species*

These ABSTRACTS and others can now be downloaded on the web:

<http://www.invasiveanimals.com/downloads/Final-proceedings-with-cover.pdf>

### 4<sup>th</sup> Pan Pacific Conference on Pesticide Science – Honolulu 2008

Penny Fisher, Shaun Ogilvie, Charles Eason. *Sublethal Exposure, Residual Tissue Concentrations and Elimination of Brodifacoum and Diphacinone: Evaluating Secondary 4<sup>th</sup> Hazard of Anticoagulant Rodenticides to Non-Target Species*

Charles Eason. *Diphacinone Persistence in Rodents and Livestock and its Implications for Bioaccumulation*

Charles Eason. *The Comparative Pharmacokinetics of Rodenticides and Vertebrate Pesticides and the Link between Metabolism and Excretion and Non-Target Impacts*

Penny Fisher, Charles Eason, Shaun Ogilvie, Adrian Paterson. *Residual Brodifacoum Concentrations in Chicken Tissues following Sublethal Oral Exposure*

### Recent Publications and Reports

Murphy, E.C.; Eason, C.T.; Hix, S.; MacMorran, D.B. 2007 Developing a new toxin for potential control of feral cats, stoats and wild dogs in New Zealand. In *Managing Vertebrate Invasive Species: Proceedings of an International Symposium (G.W.Witmer, W.C.Pitt, K.A.Fagerstone, Eds)*. USDA/APHIS/WS, National Wildlife Research centre, Fort Collins, CO pp 469-473

Gooneratne S. R., Eason C.T., Milne L., Arthur D.G., Cook C., Wickstrom M. (2008) Acute and long-term effects of exposure to sodium monofluoroacetate (1080) in sheep. *Onderstepoort Journal of Veterinary Research*, 75:127–139 (2008)

Shapiro L, Hix S, MacMorran D B, Eason C. T. (2008). Bait delivery cage trials on Dama wallabies. *Connovation Research Report* pp 6.

Hix S., Henderson R.J., Eason C.T. MacMorran D.B. (2008) Cage testing PAPP paste for non-target effects in weka. *Connovation Research Report* pp 9.