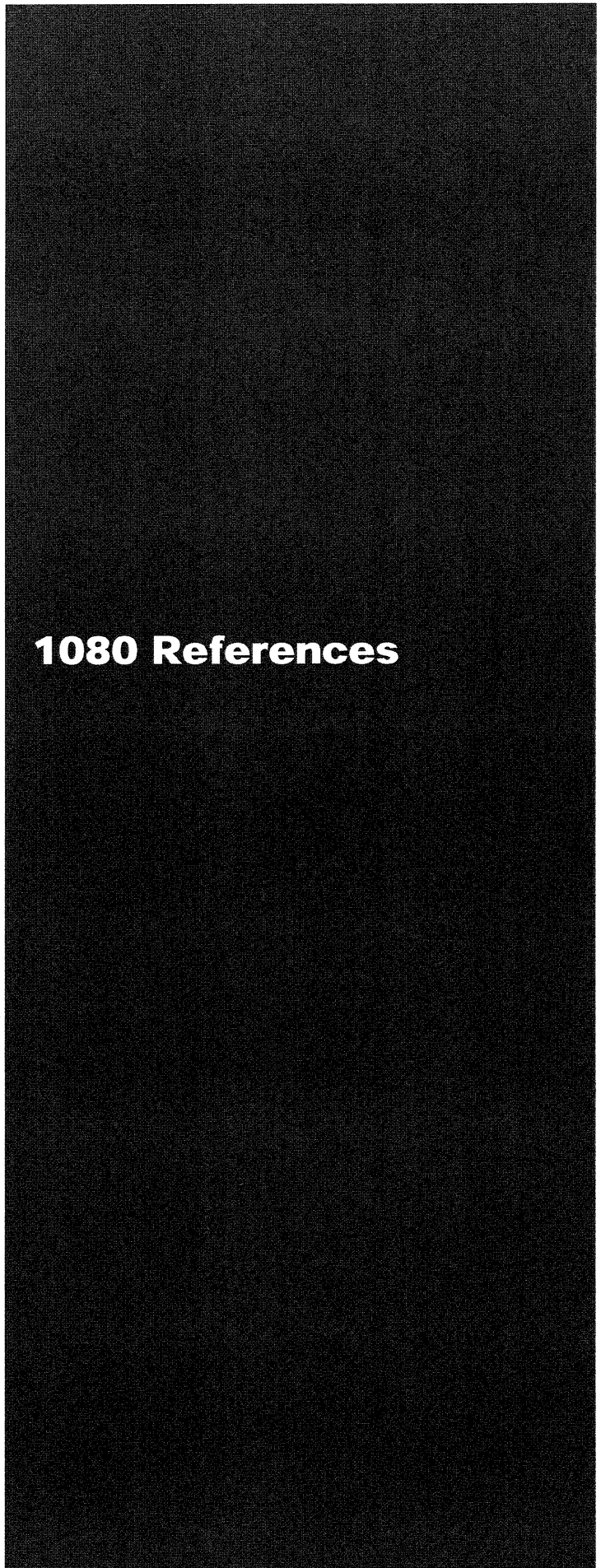


Appendix C

1080 References



This Appendix contains a list of papers, articles and reports on 1080. The database was compiled and is held by Landcare Research. Some of the papers have been referenced in specific sections of the reassessment application.

NOTE: Size of the printed document (>200 pages); refer to CD for electronic copy.

Sampling commenced in advance of the aerial operation of 1080 and extended throughout the operational period with one site sampled more intensively to monitor any immediate impacts of the aerial poisoning application within the National Park and adjacent bush. The monitoring confirmed 1993 results, with no detectable concentrations of 1080 measured, in natural or treated water supplies, before, during or within one month following the possum control operation. No measurable impacts of this operation were found from the monitoring of fluoride concentrations and longer term biological indicators (benthic macroinvertebrate fauna) in the representative catchments draining the operational area. The results of both water quality programmes (all three stages of the Mount Taranaki/Egmont possum control operation) have combined to provide the most intensive monitoring of a 1080 poisoning operation to date in New Zealand, and may contribute to the establishment of appropriate monitoring of future possum control operations of this nature.

(1995). Pesticide poisoning. (U.K. Department of Health:
Keywords: poisoning/acute toxicity/treatment

The use of genetically modified rumen bacteria to protect livestock from fluoroacetate poisoning. [29 March 2000], 1-24. 2000. Murdoch University, Western Australia.

Ref Type: Conference Proceeding

Keywords: bacteria/livestock/fluoroacetate/poisoning/GMO

Abstract: The workshop consisted of oral presentations and discussion among attendees who are involved in various aspects of the Fluoroacetate Detoxification Project and those who have raised concerns on the possible environmental and conservation outcomes of the use of GMOs to protect ruminant livestock from fluoroacetate poisoning. The aim of the workshop was to establish the precautions required for safe testing of the GMOs and to define those factors that should be established before general use of the GMOs can be considered.

Factors discussed included the producer-driven origins of the project, the technology employed, and the outcome of animal toxicity tests to prove the efficacy of the GMOs. This was balanced by discussion of potential risks to pest control with Compound 1080, and environmental effects of the GMOs through possible alterations to browsing behaviour of domestic and feral ruminants and native animals with fermentative digestive systems.

Aggarwal, A., Kaur, G., and Mehrotra, R. S. (1986). Effect of certain metabolic inhibitors on growth and respiration of *Phytophthora colocasiae* Racib. *Indian Bot.Reptr.* **5**, 119-122.

Keywords: fungus/sodium fluoroacetate/fluoroacetate/poisoning/aconitase/enzyme/inhibition/fluoride

Abstract: In the present investigation all the six metabolic inhibitors tested showed the inhibitory effects on respiration and mycelial growth. Sodium fluoroacetate which is known to inhibit TCA cycle by poisoning aconitase enzyme activity also showed inhibition. Sodium fluoride which also showed inhibition and is known to inactivate enolase enzyme of EM pathway.

Agricultural Compounds and Veterinary Medicines Group. Controlled pesticides. Sodium fluoroacetate (1080) in pest control. VPC - 1080 03/00, -5. 2000.

Ref Type: Report

Keywords: sodium fluoroacetate/fluoroacetate/1080

Agricultural Pests Destruction Council. Use of 1080 poison for agricultural pest control. 1977. Wellington, Agricultural Pests Destruction Council.

Ref Type: Pamphlet

Keywords: 1080/poison/rabbits/possums

Agriculture Protection Board of Western Australia. The proposed use of 1080 to control feral goats in Western Australia. 752. 1993. Perth, Agriculture Protection Board of Western Australia. Public Environmental Review.

Ref Type: Report

Keywords: 1080/goats

Akao, S. and Kubota, S. (1978). Biosynthesis of organic acids in satsuma fruits. 3. Changes in ¹⁴C-labelled organic acids (citrate-1, 5-¹⁴C, malate-¹⁴C (U), succinate-2, 3-¹⁴C and pyruvate-3-¹⁴C) in juice vesicles. *Bulletin of the Shikoku Agricultural Experiment Station No. 32*, 43-48.

Keywords: biosynthesis/citrate/fluoroacetate

Abstract: When malate -¹⁴C was added to juice vesicles, labelled citrate and succinate were detected after 3 hours; when succinate-¹⁴C was added citrate, malate and fumarate were detected; when pyruvate-¹⁴C was added citrate, malate, fumarate and succinate were detected. Fluoroacetate and malonate had inhibitory effects. These findings indicate that the TCA cycle operates in juice vesicles. [For parts 1 and 2 see HcA 44, 5088 and 5089.]

al Juburi, A. Z., Clarkson, T. W., and Cockett, A. T. (1989). Vasocystostomy: a model for studying male reproductive toxicity in the rat. *Reproductive Toxicology* 3, 181-186.

Keywords: toxicity/testes/reproductive effects/rats/pathology/target organ

Alabaster, J. S. (1969). Survival of fish in 164 herbicides, insecticides, fungicides, wetting agents and miscellaneous substances. *International Pest Control* 11, 29-35.

Keywords: fluoroacetamide/fish/aquatic species/toxicity/lethal concentration

Alekseev, A. N. and Turov, I. S. (1967). A study of fluoracetamide as a poison to systemic activity. *Zhurnal Mikrobiologii* 44, 98-103.

Keywords: fluoroacetamide/invertebrates/rats/systemic toxicity/poison/lethal dose

Abstract: Fluoroacetamide (CH₂F CON H₂) was studied in the capacity of a poison with systemic effect. This preparation proved to be toxic for *Xenopsylla cheopis* Rotsch. and for *Ceratophyllus consimilis* Wagn. in feeding them through a biomembrane with the nutritional solution containing this poison. Toxemia in albino rats lasted for not less than 19 hours following fluoracetamide administration (the agent was introduced by feeding fleas of the mentioned species on rats). Almost all the fleas (fed on albino rats given the preparation in doses 1.5-2 times lower than the minimal lethal dose) gradually perished - on the 6th -10th day. An opinion is put forward on the expediency of field trial of fluoroacetamide not only as a rat poison, but also as a preparation with systemic effect.

Alekseev, A. N., Avdeeva, E. V., Turov, I. S., and Tokareva, T. G. (1971). The chemosterilising effect of fluoroorganic compounds on larvae and adults of fleas ectoparasitic on rodents Russian Incomplete.

1 Abstract: It was established in laboratory experiments that organic fluorine compounds, fluoroacetamide and sodium fluoroacetate at dosages sublethal for rodents and their ectoparasites inhibit reproduction in males and females of *Nosopsyllus* (*Ceratophyllus*) *consimilis* (Wagn.) and *Xenopsylla cheopis* (Roths.) if the compounds are imbibed, and also have some effect on adults developing from larvae that had eaten faeces of fleas that contained poisoned blood. This effect was more evident in *N. consimilis* than in *X. cheopis*, which is less sensitive to fluorine poisoning

Algar, D. and Kinnear, J. E. (1996). Secondary poisoning of foxes following a routine 1080 rabbit-baiting campaign in the Western Australian wheatbelt. *CALMScience* 2, 149-151.

Abstract: There is circumstantial evidence that foxes (*Vulpes vulpes*) feeding on rabbits (*Oryctolagus cuniculus*) poisoned with sodium monofluoroacetate (1080 poison) die from secondary poisoning. A rabbit-poisoning campaign that occurred during a fox research study provided direct evidence to support the above view

Allcroft, R., Peters, R. A., and Shorthouse, M. (1969). Fluoroacetamide poisoning : part II. Toxicity in dairy cattle : confirmation of diagnosis. *Veterinary record* 84, 403-409.

Keywords: acute toxicity/diagnosis/non-target species/persistence in animals/persistence in plants/persistence in water/fluoroacetamide/poisoning

Allcroft, R. and Jones, J. S. L. (1969). Fluoroacetamide poisoning : part I. Toxicity in dairy cattle : clinical history and preliminary investigations. *Veterinary record* 84, 399-402.

Keywords: acute toxicity/diagnosis/non-target species/fluoroacetamide/poisoning

Allender, W. J. (1990). Determination of sodium fluoroacetate (Compound 1080) in biological tissues. *Journal of Analytical Toxicology* 14, 45-49.

Keywords: sodium fluoroacetate/fluoroacetate/1080/sodium monofluoroacetate/baits/analysis

Abstract: A sensitive gas chromatographic method was developed for the determination of sodium

roughly 14% less testis weight development than controls but the difference was not statistically significant. This result suggests a substantial difference in the sensitivity between birds and mammals as testing with rats at a lower dosage for a shorter period resulted in significant reductions in testes weights and pronounced morphological lesions.

Ballard, C. L. and Hyde, P. M. (1967). Effect of insulin on blood glucose and corticosteroid levels in sodium fluoroacetate induced diabetes. *Proceedings of the Society for Experimental Biology and Medicine* **124**, 317-320.

Keywords: blood/sodium fluoroacetate/fluoroacetate/metabolism

Abstract: Sodium fluoroacetate (SFA) has been shown to produce hyperglycemia and ketonemia in the rat. Although this SFA-induced diabetes has been described as being partially insensitive to insulin by Engel et al., a significant insulin effect has been demonstrated. Karam and Grodsky reported that greater than normal amounts of insulin were present in the pancreatic tissue of the SFA-treated animal. The present study was designed to investigate the effect of exogenous insulin in reducing blood glucose levels in control and SFA-induced hyperglycemic rats. In addition, the effects of SFA and insulin on the levels of circulating corticosteroid were determined. The hyperglycemia produced by SFA can be significantly reduced by small amounts of insulin. The very levels of plasma corticosteroid found to occur following treatment with SFA can be transiently increased by the administration of insulin. These high levels are thought to be due to a SFA induced decrease in the hepatic inactivation of the adrenal hormone.

Bamford, J. (1970). Evaluating opossum poisoning operations by interference with non-toxic bait. *Proceedings of the New Zealand Ecological Society* **17**, 118-125.

Keywords: poisoning

Abstract: From eight trials made during 1967-69 a technique was developed for estimating the reduction, by poisoning, of opossums (*Trichosurus vulpecula*) from the extent of interference with non-toxic flour-paste baits. The model assumes that opossums do not, through experience and learning, search for other baits close by.

The trial data showed that contagion, an increase in levels of bait interference from night to night and very high acceptance levels were a consequence of baits having been preferentially placed on open ridges and spaced too closely.

Manipulation of baits on randomly-located lines showed that if baits were spaced 40 yards apart and lines were at least 200 yards apart there was little evidence of contagion.

Procedures are given for using interference levels from poisoned areas and untreated control areas to estimate kills.

Banat, I. M., Lindstrom, E. B., Nedwell, D. B., and Balba, M. T. (1981). Evidence for coexistence of two distinct functional groups of sulfate-reducing bacteria in salt marsh sediment. *Applied and environmental microbiology* **42**, 985-992.

Keywords: bacteria/acetate/fluoroacetate/metabolism/inhibition/toxicity

Abstract: Oxidation of acetate in salt marsh sediment was inhibited by the addition of fluoroacetate, and also by the addition of molybdate, an inhibitor of sulfate-reducing bacteria. Molybdate had no effect upon the metabolism of acetate in a freshwater sediment in the absence of sulfate. The inhibitory effect of molybdate on acetate turnover in the marine sediment was attributed to inhibition of sulfate-reducing bacteria which oxidized acetate to carbon dioxide. Sulfide was not recovered from sediment in the presence of molybdate, but sulfide was recovered quantitatively even in the presence of molybdate by the addition of the strong reducing agent titanium chloride before acidification of the sediment. Reduction of sulfate to sulfide by the sulfate-reducing bacteria in the sediment was only partially inhibited by fluoroacetate, but was completely inhibited by molybdate addition. This was interpreted as showing the presence of two functional groups of sulfate-reducing bacteria - one group oxidizing acetate, and another group probably oxidizing hydrogen

Barasa, A., Godina, G., Buffa, P., and Pasquali-Rochetti, I. (1973). Biochemical lesions of respiratory enzymes and configurational changes of mitochondria in vivo. I. The effect of fluoroacetate: a study by phase-contrast microscopy and time-lapse cinemicrography. *Zeitschrift fuer Zellforschung und Mikroskopische Anatomie* **138**, 187-210.

Keywords: mode of action/pathology/biochemistry/heart/fluoroacetate/inhibition