

Appendix 4. Application References

- AgResearch (2010). Managing parasite resistance to anthelmintic drugs. Science Review. <http://www.agresearch.co.nz/publications/sciencereview/parasite-resistance.pdf>. Retrieved 25 August, 2010.
- Bang HS, Lee J-H, Kwon OS, Na YE, Jang YS, Kim WH. (2005). Effects of paracoprid dung beetles (Coleoptera: Scarabaeidae) on the growth of pasture herbage and on the underlying soil. *Applied Soil Ecology* 29: 165–171.
- Bishop DM. (1998). Parasitic Hymenoptera reared from dung-breeding Diptera in New Zealand. *New Zealand Entomologist* 21: 99- 106.
- Bishop DM, Heath ACG. (1995). *Aphaereta aotea*, a hymenopteran parasitoid with the potential to act as a biological control agent against flystrike. *New Zealand Journal of Zoology* 22: 187 (Abstract).
- Bishop DM, Heath ACG, Haack NA. (1996). Distribution, prevalence and host associations of hymenoptera parasitic on Calliphoridae occurring in flystrike in New Zealand. *Medical and Veterinary Entomology* 10: 365-370.
- Bornemissza GF. (1960). Could dung eating insects improve our pastures? *Journal of the Australian Institute of Agricultural Science* 26: 54-56.
- Bornemissza GF. (1970). Insectary studies on the control of dung breeding flies by the activity of the dung beetle, *Onthophagus gazella* F. (Coleoptera: Scarabaeinae). *Journal of the Australian Entomological Society* 9: 31-41.
- Bornemissza GF. (1976). The Australian dung beetle project 1965-1975. *Australian Meat Research Committee Review* 30: 32pp.
- Bornemissza GF, Williams CH. (1970). An effect of dung beetle activity on plant yield. *Pedobiologia* 10: 1-7.
- Blume RR, Matter JJ, Eschle JL. (1973). *Onthophagus gazella*: effect on survival of horn flies in the laboratory. *Environmental Entomology* 2: 811-813.
- Bryan RP. (1973). The effects of dung beetle activity on the numbers of parasitic gastrointestinal helminth larvae recovered from pasture samples. *Australian Journal of Agricultural Research* 24: 161-168.
- Bryan RP. (1976). The effect of the dung beetle, *Onthophagus gazella*, on the ecology of the infective larvae of gastrointestinal nematodes of cattle. *Australian Journal of Agricultural Research* 27: 567-574.
- Cambefort Y. (1991). From saprophagy to coprophagy. Pp. 22-35. In: Hanski I. & Cambefort Y. (Eds), *Dung Beetle Ecology*. Princeton University Press, Princeton, New Jersey.
- Cambefort Y, Hanski I. (1991). Dung beetle population biology. Pp. 36-50. In: Hanski I. & Cambefort Y. (Eds), *Dung Beetle Ecology*. Princeton University Press, Princeton, New Jersey.
- Cameron PJ, Butcher CF. (1979). Pitfall trapping and soil sampling for Scarabaeidae (Coleoptera) and possible predators in some Northland and Auckland pastures. Pp. 113-117. In: Crosby TK, Pottinger RP (Eds). Proceedings of the 2nd Australasian Conference on Grassland Invertebrate Ecology, Government Printer, Wellington.
- Cameron PJ, Thomas WP. (1989). *Heteronychus arator* (F.), black beetle (Coleoptera: Scarabaeidae). Pp. 17-21. In: Cameron PJ, Hill RJ, Bain J, Thomas WP (Eds) *A review of biological control of invertebrate pests and weeds in New Zealand 1874-1987*. Technical Bulletin No. 10, DSIR Entomology Division, Publ. by CAB International Wallingford, Oxford, UK.

- Cameron PJ, Wigley PJ. (1989). *Costelytra Zealandica* (White), grass grub (Coleoptera: Scarabaeidae). Pp. 9-16. In: Cameron PJ, Hill RJ, Bain J, Thomas WP (Eds) *A review of biological control of invertebrate pests and weeds in New Zealand 1874-1987*. Technical Bulletin No. 10, DSIR Entomology Division, Publ. by CAB International Wallingford, Oxford, UK.
- Chan KY, Barchia I. (2007). Soil compaction controls the abundance, biomass and distribution of earthworms in a single dairy farm in south-eastern Australia. *Soil and Tillage Research* 94: 75–82.
- Chirico J, Wiktelius S, Waller PJ (2003). Dung beetle activity and the development of trichostrongylid eggs into infective larvae in cattle faeces. *Veterinary Parasitology* 118(1-2): 157-163.
- Davis ALV. (1987). Geographical distribution of dung beetles (Coleoptera: Scarabaeidae) and their seasonal activity in south-western Cape Province. *Journal of the Entomological Society of Southern Africa* 50(2): 275-285.
- Davis ALV. (1996a). Seasonal dung beetle activity and dung dispersal in selected South African habitats: Implications for pasture improvement in Australia. *Agriculture Ecosystems & Environment* 58(2-3): 157-169.
- Davis ALV. (1996b). Community organization of dung beetles (Coleoptera: Scarabaeidae): Differences in body size and functional group structure between habitats. *African Journal of Ecology* 34(3): 258-275.
- Davis ALV, Scholtz CH. (2001). Historical versus ecological factors influencing global patterns of scarabaeine dung beetle diversity. *Diversity and Distributions* 7: 161-174.
- de Klein CAM, Sherlock RR, Cameron KC, van der Weerden TJ. (2001). Nitrous oxide emissions from agricultural soils in New Zealand—a review of current knowledge and directions for future research. *Journal of the Royal Society of New Zealand* 31: 543-574.
- Doubé BM. (1983). The habitat preference of some bovine dung beetles (Coleoptera: Scarabaeidae) in Hluhluwe Game Reserve, South Africa. *Bulletin of Entomological Research* 73: 357-371.
- Doubé BM. (1990). A functional classification for analysis of the structure of dung beetle assemblages. *Ecological Entomology* 15: 371-383.
- Doubé BM. (2004). Dung beetle–Cryptosporidium research: review and a pilot study on the recovery of *C. parvum* oocysts from dung buried by the dung beetle *Bubas bison*. Prepared for Watershed Protection office, June: 29pp.
- Doubé BM. (2005a). Optimal release sites for the dung beetle *Bubas bison* in the water catchments of the Central Highlands, Victoria. Report prepared for Central Highlands Water: 17pp.
- Doubé BM. (2005b). Dung burial by the winter-active beetle *Bubas bison* and its impact on soil properties in the Barham River Water Catchment, Apollo Bay, Victoria. Final report for phase 1: 31pp.
- Doubé BM. (2005c). The impact of the activity of the late summer/autumn-active dung beetle *Geotrupes spiniger* on soil and water properties in the field. Final Report. Dairy SA, February: 23pp.
- Doubé BM. (2006a). The impact of dung burial by *Bubas bison* and *Geotrupes spiniger* on earthworm populations in the Central Highlands of Victoria. Final Report, Central Catchments Water: 23pp.
- Doubé BM. (2006b). Adding value to a Dairy SA dung beetle project: Evaluation of pasture growth due to the late summer/autumn-active dung beetle *Geotrupes spiniger* at Flaxley SA. Final report, Dairy South Australia: 9pp.

- Doube BM. (2007). Pasture growth benefits of the dung beetle *Bubas bison* in the Margaret River region of Western Australia. Interim report for June 2007: Assessing pasture growth in the field trial at Margaret River. WA Water Corporation, September: 11pp.
- Doube BM. (2008a). The pasture growth and environmental benefits of dung beetles to the southern Australian cattle industry. Meat & Livestock Industry, North Sydney, NSW. ISBN: 9781741912814: 192pp.
- Doube BM. (2008b). Appendix3: Subsoil Chemical analysis, August and November 2006, May and September 2007. Pp. 71-104. In: *The pasture growth and environmental benefits of dung beetles to the southern Australian cattle industry*. Meat & Livestock Industry, North Sydney, NSW.
- Doube BM. (2008c). Appendix 5: The effect of the dung beetle I on earthworm abundance and distribution. Pp. 129-158. In: *The pasture growth and environmental benefits of dung beetles to the southern Australian cattle industry*. Meat & Livestock Industry, North Sydney, NSW.
- Duraes R, Martins WP, Vaz-De-Mello FZ (2005). Dung beetle (Coleoptera : Scarabaeidae) assemblages across a natural forest-cerrado ecotone in Minas Gerais, Brazil. *Neotropical Entomology* 34(5): 721-73.
- Dymock JJ. (1993). A case for the introduction of additional dung burying beetles (Coleoptera: Scarabaeidae) into New Zealand. *New Zealand Journal of Agricultural Research* 36: 163-171.
- Dymock JJ. (1989). *Listronotus bonariensis* (Kuschel), Argentine stem weevil (Coleoptera: Curculionidae). Pp. 23-26, In: Cameron PJ, Hill RJ, Bain J, Thomas WP (Eds) *A review of biological control of invertebrate pests and weeds in New Zealand 1874-1987*. Technical Bulletin No. 10. DSIR Entomology Division, Publ. by CAB International Wallingford, Oxford, UK.
- Edwards CA. (2004). The importance of earthworms as key representatives of the soil fauna. Pp 3-11. In: CA Edwards (Ed.) *Earthworm Ecology*, 2nd Edition. CRC Press, Boca Raton, Florida: 441pp.
- Edwards P. (2003). Improving sustainable land management systems in Queensland using Beetles: Final report of the 2001-2002 Queensland Dung Beetle Project: 55pp (pg 3).
- Edwards P. (2007). Introduced Dung Beetles in Australia 1967-2007: current status and future directions, Landcare Australia: 82pp.
- Edwards P. (2010). Biological Control of Pastoral Dung in New Zealand. A report on the climatic suitability of exotic dung beetle species for introduction to New Zealand: 39pp.
- Fay HAC, Macqueen A, Doube BM, Kerr JD. (1990). Impact of fauna on mortality and size of *Haematobia* spp. (Diptera: Muscidae) in dung pads in Australia and South Africa. *Bulletin of Entomological Research* 80: 385-392.
- Fincher GT. (1973). Dung beetles as biological control agents for gastrointestinal parasites of livestock. *Journal of Parasitology* 59 (2): 396-399.
- Fincher G T. (1975). Effects of dung beetle activity on the number of nematode parasites acquired by grazing cattle. *Journal of Parasitology* 61: 759-762.
- Fincher GT. (1981). The potential value of dung beetles in pasture ecosystems. *Journal of the Georgia Entomological Society* 16(1): 316-333.
- Fincher GT, Stewart TB. (1979). Vertical migration by nematode larvae of cattle parasites through soil. *Proceedings of the Helminthological Society*, Washington 46: 43-46.
- Fincher GT, Monson WG, Burton GW. (1981). Effects of cattle feces rapidly buried by dung beetles on yield and quality of coastal Bermuda grass. *Agronomy Journal* 73: 775-779.

- Forgie SA. (2009). Reproductive activity of *Onthophagus granulatus* Boheman (Coleoptera: Scarabaeinae) in New Zealand: Implications for its effectiveness in the control of pastoral dung. *New Zealand Entomologist* 32: 76-84.
- Funasaki GY, Lai P-Y, Nakahara LM, Beardsley JW, Ota AK. (1988). A Review of Biological Control Introductions in Hawaii: 1890 to 1985. *Proceedings, Hawaiian Entomological Society* 28: 105-160.
- Gillard P. (1967). Coprophagous beetles in pasture ecosystems. *The Journal of the Australian Institute of Agricultural Science*, March: 30-34.
- Hanski I. (1991). The dung insect community. Pp. 5-21. In: Hanski I. & Cambefort Y. (Eds), *Dung Beetle Ecology*. Princeton University Press, Princeton, New Jersey.
- Haynes RJ, Williams PH. (1993). Nutrient cycling and soil fertility in the grazed pasture ecosystem. *Advances in Agronomy* 49: 119-199.
- Holter P. (1997). Methane emissions from Danish cattle dung pats in the field. *Soil Biology and Biochemistry* 29(1): 31-37.
- Holter P, Scholtz CH, Wardaugh KG. (2002). Dung feeding in adult scarabaeines (tunnellers and endocoprids): even large dung beetles eat small particles. *Ecological Entomology* 27: 169-176.
- Howden HF, Nealis VG. (1975). Effects of clearing in tropical rain forest on the composition of the coprophagous scarab beetle fauna (Coleoptera). *Biotropica* 7(2): 77-83.
- Jarvis SC, Lovell RD, Panayides R. (1995). Patterns of methane emission from excreta of grazing animals. *Soil Biology and Biochemistry* 27(12): 1581-1588.
- Klein BC. (1989). Effects of forest fragmentation on dung and carrion beetle communities in central Amazonia. *Ecology* 70(6): 1715-1725.
- Krell F-T. (2000). The fossil record of Mesozoic and Tertiary Scarabaeoidea (Coleoptera: Polyphaga). *Invertebrate Taxonomy* 14, 871-905.
- Le Jambre LF. (2009). Dung beetles and internal parasites of sheep. Final Report prepared for Meat and Livestock Australia (SUPER PIRD ref.: S2005/NO3). Granite Borders Landcare Committee, Tenterfield, NSW, Australia: 21pp.
- Losey JE, Vaughan M. (2006). The Economic Value of Ecological Services Provided by Insects. *BioScience* 56(4), 311-323.
- MAF, no date. Livestock statistics. Ministry of Agriculture and Forestry. <http://www.maf.govt.nz/statistics/pastoral/livestock-numbers/>. Retrieved 26 August, 2010.
- Macqueen A, Beirne BP. (1975). Effects of cattle dung and dung beetle activity on growth of beardless wheatgrass in British Columbia. *Canadian Journal of Plant Science* 55: 961-967.
- Magura T, Tóthmérész B, Molnár T. (2001). Forest edge and diversity: carabids along forest-grassland transects. *Biodiversity and Conservation* 10: 287-300.
- Marten GC, Donker JD. (1966). Animal excrement as a factor influencing acceptability of grazed forage. In: Proceedings of the 10th International Grassland Congress, Helsinki: 359-363.
- Martin NA, Charles JC. (1979). Lumbricid earthworms and cattle dung in New Zealand pastures. In: Proceedings of the 2nd Australasian Conference on Grassland Invertebrate Ecology: 52-54.
- Mathison BA, Ditrich O. (1999). The fate of *Cryptosporidium parvum* oocysts ingested by dung beetles and their possible role in the dissemination of cryptosporidiosis. *Journal of Parasitology* 85: 678-681.

- MfE. (2010). Climate change information, New Zealand. Ministry for the Environment. <http://www.climatechange.govt.nz/emissions-trading-scheme/participating/agriculture.html> Retrieved 26 August, 2010. No Article (pdf) available.
- Miller A. (1961). The mouthparts and digestive tract of adult dung beetles (Coleoptera: Scarabaeidae) with reference to the ingestion of helminth eggs. *Journal of Parasitology* 47:735–744.
- Miller A, Chi-Rodriguez E, Nichols RL. (1961). The fate of helminth eggs and protozoan cysts in human feces ingested by dung beetles (Coleoptera: Scarabaeidae). *American Journal of Tropical Medicine and Hygiene* 10: 748–754.
- Nelson W, Harris B. (2006). Flies, fingers, fomites, and food. Campylobacteriosis in New Zealand_ food-associated rather than food-borne. *The New Zealand Medical Journal* 119 (1240): 1-7.
- Nichols E, Spector S, Louzada J, Larsen T, Amezcua S, Favila ME. (2008). Ecological functions and ecosystem services provided by Scarabaeinae dung beetles. *Biological Conservation* 141: 1461-1474.
- Norman R. (2010). Time for Governments to regulate dairy pollution. Press Release. Green Party of Aotearoa New Zealand. <http://www.greens.org.nz/press-releases/time-government-regulate-dairy-pollution>. Retrieved 24 August, 2010.
- Osberg DC, Hanrahan SA, Doube BM. (1992). The spatial distribution of *Allogymnopleurus thalassinus* Klug and *A. consocius* Peringuey (Coleoptera: Scarabaeidae) in an area of mixed soil types in South Africa. *Journal of the Entomological Society of Southern Africa* 55(1): 85-92.
- Pawson SM, Brockerhoff EG, Meenken ED, Didham RK. (2008). Non-native plantation forests as alternative habitat for native forest beetles in a heavily modified landscape. *Biodiversity and Conservation* 17:1127–1148.
- Popay A, Marshall S. (1996). The effect of the dung beetles *Onthophagus posticus* and *Onthophagus granulatus* on survival of parasitic nematodes in sheep dung. AgResearch report for MRDC Project, number 96PR 36/1.1: 5pp.
- Rattray PV. (2003). Internal parasite report. Meat and Wool Innovation Ltd, contract to Merino New Zealand Inc, Christchurch. October: 187pp.
- Richardson P, Richardson R. (2000). Dung beetles and their effects on soil. *Ecological Restoration* 18:116-117. URL: managingwholes.com/dung-beetles.htm. Site last visited: 28 July, 2010.
- Ridsdill-Smith TJ, Edwards PB. Biological control: ecosystem functions provided by dung beetles Chapter 12. In: Simmons LW, Ridsdill-Smith TJ (Eds), *Ecology and evolution of dung beetles*. Wiley Blackwell due to be published in April 2011. Chapter currently not available.
- Ridsdill-Smith TJ, Matthiessen JN. (1988). Bush fly, *Musca vetustissima* Walker (Diptera, Muscidae), control in relation to seasonal abundance of scarabaeinae dung beetle affix (Coleoptera: Scarabaeidae) in south-western Australia. *Bulletin of Entomological Research* 78: 633-639.
- Römbke J, Jänsch S, Didden W. (2005). The use of earthworms in ecological soil classification and assessment concepts. *Ecotoxicology and Environmental Safety* 62: 249–265.
- Rougon D, Rougon C, Levieux J, Trichet J. (1990). Variations in the amino-acid content in zebu dung in the Sahel during nesting by dung beetles (Coleoptera: Scarabaeidae). *Soil Biology and Biochemistry* 22(2): 717-723.
- Scholtz CH, Chown SL. (1995). The evolution of habitat use and diet in the Scarabaeoidea: A phylogenetic approach. Pp. 354-374. In: Pakaluk J, Slipinski SA (Eds), *Biology, Phylogeny and Classification of Coleoptera: Papers celebrating the 80th birthday of Roy A. Crowson*. Museum I Instytut Zoologii PAN, Warszawa.

- Seldon DS. (2002). A comparison of ground insect distributions from several New Zealand fragmented forest habitats. BSc(Hons) Dissertation, University of Auckland: 60pp.
- Spector S, Ayzama S (2003). Rapid turnover and edge effects in dung beetle assemblages (Scarabaeidae) at a Bolivian Neotropical forest-savanna ecotone. *Biotropica* 35(3): 394-404.
- Strong L. (1992). Avermectins: A review of their impact on insects of cattle dung. *Bulletin of Entomological Research* 82: 265-274.
- Stufkens MW, Farrell JA. (1989). *Sitona discoideus* Gyllenhal, sitona weevil (Coleoptera: Curculionidae). Pp. 27-28. In: Cameron PJ, Hill RJ, Bain J, Thomas WP (Eds) *A review of biological control of invertebrate pests and weeds in New Zealand 1874-1987*. Technical Bulletin No. 10, DSIR Entomology Division, Publ. by CAB International Wallingford, Oxford, UK.
- Waghorn TS, Leathwick DM, Chen L-Y, Gray RAJ, Skipp RA. (2002). Influence of nematophagous fungi, earthworms and dung burial on development of the free-living stages of *Ostertagia* (*Teladorsagia*) *circumcincta* in New Zealand. *Veterinary Parasitology* 104: 119-129.
- Wardhaugh K.G. (2005). Insecticidal activity of synthetic pyrethroids, organophosphates, insect growth regulators, and other livestock parasiticides: an Australian perspective. *Environmental Toxicology and Chemistry* 24 (4): 789-796.
- Waterhouse DF. (1974). The biological control of dung. *Scientific American* 230: 100-109.
- Whitehead D. (2009). A dairy farm is not greenhouse gas neutral. Landcare Research article prepared for Dairy NZ Ltd, http://www.carbonzero.co.nz/publications/dairyNZ_mar09.pdf: 4 pp.
- Williams PH, Haynes RJ. (1995). Effect of sheep, deer and cattle dung on herbage production and soil nutrient content. *Grass and Forage Science* 50: 263-271.
- Yokoyama K, Kai H, Tsuchiyama H. (1991). Paracoprid dung beetles and gaseous loss of nitrogen from cow dung. *Soil Biology and Biochemistry* 23: 643-647.