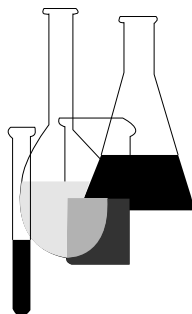




# Microbial Pesticide Test Guidelines

## OPPTS 885.4150 Wild Mammal Testing, Tier I



## INTRODUCTION

This guideline is one of a series of test guidelines that have been developed by the Office of Prevention, Pesticides and Toxic Substances, United States Environmental Protection Agency for use in the testing of pesticides and toxic substances, and the development of test data that must be submitted to the Agency for review under Federal regulations.

The Office of Prevention, Pesticides and Toxic Substances (OPPTS) has developed this guideline through a process of harmonization that blended the testing guidance and requirements that existed in the Office of Pollution Prevention and Toxics (OPPT) and appeared in Title 40, Chapter I, Subchapter R of the Code of Federal Regulations (CFR), the Office of Pesticide Programs (OPP) which appeared in publications of the National Technical Information Service (NTIS) and the guidelines published by the Organization for Economic Cooperation and Development (OECD).

The purpose of harmonizing these guidelines into a single set of OPPTS guidelines is to minimize variations among the testing procedures that must be performed to meet the data requirements of the U. S. Environmental Protection Agency under the Toxic Substances Control Act (15 U.S.C. 2601) and the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136, *et seq.*).

**Final Guideline Release:** This guideline is available from the U.S. Government Printing Office, Washington, DC 20402 on *The Federal Bulletin Board*. By modem dial 202-512-1387, telnet and ftp: fedbbs.access.gpo.gov (IP 162.140.64.19), internet: <http://fedbbs.access.gpo.gov>, or call 202-512-0132 for disks or paper copies. This guideline is also available electronically in ASCII and PDF (portable document format) from the EPA Public Access Gopher ([gopher.epa.gov](http://gopher.epa.gov)) under the heading "Environmental Test Methods and Guidelines."

**OPPTS 885.4150 Wild mammal testing, Tier I.**

(a) **Scope**—(1) **Applicability.** This guideline is intended to meet testing requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 136, *et seq.*).

(2) **Background.** The source material used in developing this harmonized OPPTS test guideline is OPP guideline 154A–18. The toxicity and pathogenicity data required for evaluating hazard to humans and domestic animals are normally adequate to indicate potential hazard to wild mammals. Under certain conditions, however, these data are not sufficient to assess the potential hazard to wild mammals likely to be exposed to a microbial pest control agent (MPCA). An example of one circumstance when such additional testing may be required is the situation in which data indicate that there is considerable variation in sensitivity of different mammalian species to the effects of an MPCA agent, and there is evidence that wild mammals will be heavily exposed to an MPCA. See 40 CFR 158.50 and 158.740(e) to determine whether these data must be submitted.

(b) **Test standards.** Data must be derived from tests that satisfy the general test standards in OPPTS 885.0001 and the following:

(1) **Test substance.** The actual form of the material to be regarded as the test substance is described in section OPPTS 885.0001. In addition, any substances used to enhance virulence or toxicity should be tested along with the test substance.

(2) **Species.** Testing shall be performed on a mammalian species representative or indicative of those found in areas likely to be affected by the proposed use patterns. Test animals may be reared in pens or captured in the wild, and must be phenotypically indistinguishable from wild mammals. Endangered or threatened animals shall not be used.

(3) **Controls.** (i) A negative control group is required.

(ii) A concurrent control group is required and shall be treated, when possible, with the pure active ingredient that has been inactivated in such a way as to preserve cellular integrity.

(4) **Route of exposure.** The test material should be administered by gavage (acute oral dose) or by intranasal instillation. The method of dosing should reflect the expected exposure route and shall be determined after consultation with the Agency.

(5) **Maximum hazard dosage level.** The standards for maximum hazard dosage level, determination of an LD50 or ID50, and duration of test that are found in the avian oral pathogenicity/toxicity test OPPTS 885.4050 and the avian inhalation pathogenicity test OPPTS 885.4100.

(c) **Reporting and evaluation of data.** In addition to the information specified in OPPTS 885.0001, test reports shall contain the same informa-

tion required for the avian oral pathogenicity/toxicity test OPPTS 885.4050 and the avian inhalation pathogenicity test OPPTS 885.4100, adapted appropriately for mammalian test procedures.

(d) **Tier progression.** (1) If any toxic or pathogenic effects on mammalian species are observed at the maximum hazard dosage level in this study, testing at Tier II (OPPTS 885.5000, 885.5200, 885.5300, and 885.5400—environmental expression testing) is required as specified in 40 CFR 158.740(e). In some cases, a subchronic test may serve to better understanding of the the effects observed at the Tier I level and alleviate the need for Tier II testing.

(2) If toxic or pathogenic effects are not observed in this study, additional testing at higher tiers ordinarily is not required. The Agency may require additional testing, however, if it determines that there is a potential risk to mammals despite negative Tier I results.

(e) **References.** The following references are provided for use in the development of test protocols for conducting wild mammal toxicity and pathogenicity tests with microbial pest control agents:

(1) Barnes, R.W. et al. Long-term feeding and other toxicity/pathogenicity studies on rats using a commercial preparation of the nuclear polyhedrosis virus of *Heliothis zea*. *Journal of Invertebrate Pathology* 16:112–115 (1970).

(2) Fisher, R. and L. Rosner. Toxicology of the microbial insecticide, Thuricide. *Agricultural and Food Chemistry* 7:686–688 (1959).

(3) Ignoffo, C.M. and A.M. Heimpel. The nuclear polyhedrosis virus of *Heliothis zea* (Boddie) and *Heliothis virescens* (Fabricius) Part V. Toxicity-pathogenicity of virus to white mice and guinea pigs. *Journal of Invertebrate Pathology* 7:329–340 (1965).

(4) Ignoffo, C.M. Intraperitoneal injection of white mice with nucleopolyhedrosis virus of the beet armyworm, *Spodoptera exigua*. *Journal of Invertebrate Pathology* 17:453–454 (1971).

(5) Ignoffo, C.M. Effects of entomopathogens on vertebrates. *Annals N.Y. Academy of Science* 217:141–164 (1973).

(6) Ignoffo, C.M. et al. Lack of susceptibility of mice and rats to the mosquito nematode, *Reesimermis nielsenii*, Tsai and Grundmann. *Mosquito News* 34:425–428 (1974).

(7) Ignoffo, C.M. et al. An evaluation of the risks to mammals of the use of an entomopathogenic fungus, *Nomuraea rileyi*, as a microbial insecticide. In: *Baculoviruses for Insect Pest Control: Safety Considerations*. Selected papers from EPA/USDA Working Symposium, American Society of Microbiologists, Washington, DC (1975).

(8) Lamanna, C. and L. Jones. Lethality for mice of vegetative and spore forms of *Bacillus cereus* and *Bacillus cereus*-like insect pathogens injected intraperitoneally and subcutaneously. *Journal of Bacteriology* 85:532–535 (1963).

(9) Lautenschlager, R.A. et al. Effect of nucleopolyhedrosis virus on selected mammalian predators of the gypsy moth. USDA Forest Service Research Papers, NE-377, 6p. (1977).

(10) Lautenschlager, R.A. and J.D. Podgwaite. Passage of nucleopolyhedrosis virus by avian and mammalian predators of the gypsy moth, *Lymantria dispar*. *Environmental Entomology* 8:210–214 (1979).

(11) Lautenschlager, R.A. and J.D. Podgwaite. Passage of infectious nuclear-polyhedrosis virus through the alimentary tracts of two small mammal predators of the gypsy moth, *Lymantria dispar*. *Environmental Entomology* 6:737–738 (1977).

(12) Meinacke, C.F. et al. Toxicity-pathogenicity studies of a nuclear-polyhedrosis virus of *Heliothis zea* in white mice. *Journal of Invertebrate Pathology* 15:10–14 (1970).

(13) Summers, M., R. Engler, L.A. Falcon, and P. Vail, eds. Pp.179–184 In: *Guidelines for Safety Testing of Baculoviruses Baculoviruses for Insect Pest Control: Safety Considerations*. American Society for Microbiology Washington, DC (1975).

(14) Watts, D.M. et al. Experimental infection of vertebrates of the Pocomoke Cypress Swamp, Maryland with Keystone and Jamestown Canyon viruses. *American Journal of Tropical Medicine and Hygiene* 28:344–350 (1979).

(15) Wolf, K. Evaluation of the exposure of fish and wildlife to nuclear polyhedrosis and granulosis viruses. Pp. 109–111 In: *Baculoviruses for Insect Pest Control: Safety Considerations*. American Society for Microbiology, Washington, DC (1975).