

## ECOTOX eligibility criteria

Papers acquired using the ECOTOX literature searching and acquisition protocols must meet five minimum data requirements to be considered eligible for inclusion in the database. The paper is eligible for ECOTOX database if it reports (1) toxic effects related to a single chemical exposure; (2) toxic effects on an aquatic or terrestrial plant or animal species; (3) a biological effect on live, whole organisms; (4) a concurrent environmental chemical concentration/dose or application rate; and (5) an explicit duration of exposure.

Table A. Acute Effects from Aldicarb Technical to Terrestrial Organisms

Species	Duration	Concentration	% Purity	Endpoint	Effect	Measured	Ref #	Why not used
Nematode	3 d	A	100	LOAEL = 1 mg/kg soil	MOR	HTCH	Dutt & Bhatti, 1986	not assessed for RLF
Earthworm	15 d	A	100	LC25 = 0.79 mg/kg soil	MORT	MORT	Mosleh et al., 2003	not assessed for RLF
Earthworm	15 d	A	100	LC10 = 0.35 mg/kg soil	MOR	MORT	Mosleh et al., 2002	not assessed for RLF
Earthworm	15 d	A	100	LC50 = 1.5 mg/kg soil	MOR	MORT	Mosleh et al., 2002	not assessed for RLF
Champignon mushroom	21 d	A	100	NOAEL = 50,000 ppb	REP	PROG	Brar & Sandu, 1991	not assessed for RLF
White jute	57 d	A	100	NOAEL = 1.338 lb/acre	GRO	HGHT	Saikia & Phukan, 1985	endpoint higher
White jute	57 d	A	100	NOAEL = 1.338 lb/acre	GRO	WGHT	Saikia & Phukan, 1985	endpoint higher
White jute	60 d	A	100	NOAEL = 1.338 lb/acre	GRO	HGHT	Saikia & Phukan, 1985	endpoint higher
White jute	60 d	A	100	NOAEL = 1.338 lb/acre	GRO	WGHT	Saikia & Phukan, 1985	endpoint higher
Pea	60 d	A	100	NOAEL = 2.676 lb/acre	GRO	HGHT	Kaul <i>et al.</i> , 1986	endpoint higher
Pea	60 d	A	100	NOAEL = 2.676 lb/acre	REP	NPOD	Kaul <i>et al.</i> , 1986	endpoint higher
Peanut	62 d	A	100	NOAEL = 4.46 lb/acre	GRO	WDTH	Dickson & Hewlett, 1989	endpoint higher
Peanut	62 d	A	100	NOAEL = 8.92 lb/acre	GRO	WDTH	Dickson & Hewlett, 1989	endpoint higher
European red raspberry	91 d	A	100	NOAEL = 10 AI mg/eu	GRO	WGHT	Trudgill, 1983	endpoint higher
Sticky snakeroot	210 d	A	100	NOAEL = 0.3 AI g/eu	GRO	BMAS	Kluge, 1992	endpoint higher

Table B. Acute Effects from Aldicarb Technical to Terrestrial Organisms

Species	Duration	Concentration	% Purity	Endpoint	Effect	Measured	Ref #	Why not used
Water flea	21 d	A	100	LOAEL = 10,000 ppb	REP	GREP	Foran <i>et al.</i> , 1986	endpoint higher
Water flea	21 d	A	100	LOAEL = 10,000 ppb	MOR	MORT	Foran <i>et al.</i> , 1986	endpoint higher
Nematode	100 d	A	100	LOAEL = 2.68 ai lbs/A	REP	PROG	Shukla & Haseeb, 1996	not assessed for RLF
Nematode	57 d	A	100	NOAEL = 1.34 ai lb/A	REP	PROG	Saika & Phukan, 1985	not assessed for RLF
Nematode	60 d	A	100	NOAEL = 1.34 ai lb/A	REP	PROG	Saika & Phukan, 1985	not assessed for RLF
Earthworm	80 d	A	95	LC50 > 23.75 mg/ml	MORT	MORT	Stenersen, 1979	not assessed for RLF
Earthworm	80 d	A	95	LC50 > 2.945 mg/ml	MORT	MORT	Stenersen, 1979	not assessed for RLF
Earthworm	80 d	A	95	LC50 > 11.875 mg/ml	MORT	MORT	Stenersen, 1979	not assessed for RLF

Table C. Acute Sublethal Effects from Aldicarb Technical to Terrestrial Organisms

Species	Duration	Concentration	% Purity	Endpoint	Effect	Measured	Ref #	Why not used
Nematode	1 d	A	100	LOAEL = 1 mg/kg soil	BEH	BBBH	Dutt & Bhatti, 1986	not assessed for RLF
Earthworm	2 d	A	100	BCF = 2.08 mg/kg soil	ACC	RSDE	Mosleh et al., 2002	not assessed for RLF
Earthworm	2 d	A	100	NOAEL = 0.96 mg/kg soil	BCM	PRCO	Mosleh et al., 2002	not assessed for RLF
Earthworm	7 d	A	100	BCF = 0.81 mg/kg soil	ACC	RSDE	Mosleh et al., 2002	not assessed for RLF
Norway rat	7 d	A	98	LOAEL = 0.1 mg/kg/d	ENZ	ACHE	Gupta & Kadel, 1991	not assessed for RLF
Earthworm	7 d	A	100	LOAEL = 0.39 mg/kg soil	BCM	PRCO	Mosleh et al., 2002	not assessed for RLF
Tobacco thrip	8 d	A	100	LOAEL = 0.5 AI lb/acre	POP	CNTL	Roberts et al., 1992	not assessed for RLF
House mouse	14 d	A	98	NOAEL = 1000 ppb	CEL	AGGR	Olson et al., 1987	not assessed for RLF
Common Thrip	14 d	A	100	LOAEL = 1.05 ai lb/A	POP	ABND	Bauer & Roof, 2004	not assessed for RLF
Earthworm	15 d	A	100	BCF = 0.35 mg/kg soil	ACC	RSDE	Mosleh et al., 2002	not assessed for RLF
Earthworm	15 d	A	100	LOAEL = 0.35 mg/kg soil	BCM	PRCO	Mosleh et al., 2002	not assessed for RLF
Filamentous fungi	3d	A	100	EC100 = 250,000 ppb	GRO	LGTH	Singh & Dwivedi, 1988	not assessed for RLF
Champignon mushroom	21 d	A	100	NOAEL = 50,000 ppb	REP	PROG	Brar & Sandhu, 1991	not assessed for RLF
Fungi Kingdom	48 d	A	100	NOAEL = 0.892 lb/acre	POP	ABND	Kumar et al., 1984	not assessed for RLF
Fungi Kingdom	48 d	A	100	NOAEL = 0.892 lb/acre	POP	ABND	Kumar et al., 1984	not assessed for RLF
Fungi	110 d	A	100	LOAEL = 17.84 lb/acre	POP	CNTL	Champawat & Pathak, 1988	not assessed for RLF
Fungus	189 d	A	100	NOAEL = 13.5 AI mg/eu	POP	ABND	Walker & Morey, 1999	not assessed for RLF
Filamentous fungi	1095 d	A	100	NOAEL = 13.6476 lb/acre	POP	ABND	Rodriguez-Kabana et al., 1991	not assessed for RLF
Corn	14 d	A	100	NOAEL = 18 AI g/100 m	DVP	EMRG	Van Rensburg et al., 1991	endpoint higher
Potato	30 d	A	100	NOAEL = 2.23 lb/acre	MPH	AREA	Chandramani et al., 1993	endpoint higher
Cotton	31 d	A	100	LOAEL = 0.74928 lb/acre	PHY	GPHY	Chu et al., 1993	endpoint higher
Garlic	31 d	A	100	NOAEL = 2.24784 lb/acre	DVP	EMRG	Roberts & Greathead, 1986	endpoint higher
Soybean	35 d	A	100	NOAEL = 1000 ppb	MPH	WGHT	Barker et al., 1988	endpoint higher
Garlic	41 d	A	100	NOAEL = 1.49856 lb/acre	DVP	EMRG	Roberts & Greathead, 1986	endpoint higher
Peanut	42 d	A	100	NOAEL = 1.01688 lb/acre	MPH	WDTH	Shaikh, 2004	endpoint higher
Cotton	42 d	A	100	NOAEL = 8.4 AI g/100 m	INJ	DAMG	Mueller & Sullivan, 1988	endpoint higher
Cotton	42 d	A	100	NOAEL = 8.4 AI g/100 m	MPH	WGHT	Mueller & Sullivan, 1988	endpoint higher
Cotton	42 d	A	100	NOAEL = 8.4 AI g/100 m	POP	BMAS	Mueller & Sullivan, 1988	endpoint higher
Cotton	42 d	A	100	NOAEL = 5 AI g/100 m	POP	BMAS	Mueller & Sullivan, 1988	endpoint higher
Okra	50 d	A	100	NOAEL = 2.676 lb/acre	BCM	BCON	Singh et al., 1988	endpoint higher
Soybean	56 d	A	100	NOAEL = 1000 ppb	MPH	WGHT	Barker et al., 1988	endpoint higher
Cotton	60 d	A	100	LOAEL = 0.74928 lb/acre	PHY	GPHY	Chu et al., 1993	endpoint higher
Corn	60 d	A	100	NOAEL = 1.5 AI % w/w	MPH	LGTH	Sethi & Srivastava, 1986	endpoint higher
Pea	60 d	A	100	NOAEL = 2.676 lb/acre	MPH	WGHT	Kaul et al., 1986	endpoint higher
Black-eyed pea	60 d	A	100	NOAEL = 5 g	GRO	WGHT	Khan & Husain, 1988	endpoint higher
Peanut	60 d	A	100	NOAEL = 5.352 lb/acre	BCM	CACO	Singh et al., 1988	endpoint higher
Tomato	90 d	A	100	NOAEL = 2.23 lb/acre	MPH	WGHT	Verma et al., 1976	endpoint higher
Corn	110 d	A	100	NOAEL = 1.5 AI % w/w	MPH	WGHT	Sethi & Srivastava, 1986	endpoint higher
Sticky snakeroot	120 d	A	100	LOAEL = 0.3 AI g/eu	MPH	LGTH	Kluge, 1992	endpoint higher
Garlic	143 d	A	100	LOAEL = 4.49568 lb/acre	DVP	EMRG	Roberts & Greathead, 1986	endpoint higher
Garlic	143 d	A	100	LOAEL = 4.47784 lb/acre	INJ	DAMG	Roberts & Greathead, 1986	endpoint higher
Garlic	169 d	A	100	LOAEL = 0.74928 lb/acre	INJ	DAMG	Roberts & Greathead, 1986	endpoint higher
Garlic	175 d	A	100	NOAEL = 2.24784 lb/acre	INJ	DAMG	Roberts & Greathead, 1986	endpoint higher
Orange	189 d	A	100	NOAEL = 13.5 AI mg/eu	MPH	WGHT	Walker & Morey, 1999	endpoint higher
Orange	189 d	A	100	LOAEL = 13.5 AI mL/eu	INJ	CLRS	Walker & Morey, 1999	endpoint higher
Carrot	193 d	A	100	LOAEL = 43 AI mg/eu	MPH	DMTR	Green & Makin, 1985	endpoint higher
Carrot	193 d	A	100	NOAEL = 43 AI mg/eu	INJ	GINJ	Green & Makin, 1985	endpoint higher
Garlic	212 d	A	100	LOAEL = 0.74928 lb/acre	INJ	DAMG	Roberts & Greathead, 1986	endpoint higher
European red raspberry	730 d	A	100	NOAEL = 5.8872 lb/acre	MPH	GMPH	Trudgill, 1983	endpoint higher
European red raspberry	730 d	A	100	LOAEL = 5.8872 lb/acre	POP	CNTL	Trudgill, 1983	endpoint higher
European red raspberry	730 d	A	100	NOAEL = 5.8872 lb/acre	POP	BMAS	Trudgill, 1983	endpoint higher
Peanut	1095 d	A	100	NOAEL = 13.6476 lb/acre	POP	BMAS	Rodriguez-Kabana et al., 1991	endpoint higher
Peanut	1095 d	A	100	NOAEL = 13.6476 lb/acre	POP	BMAS	Rodriguez-Kabana et al., 1991	endpoint higher
Common onion	hv	A	100	NOAEL = 8.92 lb/acre	GRO	BMAS	Greco et al., 1986	test duration not specified
Beet	gs	A	100	LOAEL = 0.6764 lb/acre	GRO	GGRO	Asher & Dewar, 1994	test duration not specified
Beet	gs	A	100	LOAEL = 0.6764 lb/acre	GRO	GGRO	Asher & Dewar, 1994	test duration not specified
Beet	gs	A	100	LOAEL = 0.6764 lb/acre	GRO	GGRO	Asher & Dewar, 1994	test duration not specified
Deccan hemp	hv	A	100	NOAEL = 1.05256 lb/acre	INJ	DAMG	Mueller & Lewis, 1993	test duration not specified
Brown mustard	hv	A	100	NOAEL = 2.676 lb/acre	GRO	HGHT	Bhattacharya et al., 1989	test duration not specified
Peppermint	d	A	100	NOAEL = 2.676 lb/acre	GRO	WGHT	Shukla & Haseeb, 1996	test duration not specified
Peppermint	d	A	100	NOAEL = 2.676 lb/acre	GRO	WGHT	Shukla & Haseeb, 1996	test duration not specified
Potato	hv	A	100	NOAEL = 2.676 lb/acre	GRO	HGHT	Bhattacharya et al., 1988	test duration not specified
Spearmint	d	A	100	NOAEL = 2.676 lb/acre	GRO	WGHT	Shukla & Haseeb, 1996	test duration not specified
Ceylon Spinach	hv	A	100	LOAEL = 3.568 lb/acre	GRO	WGHT	Srivastava & De SK, 1985	test duration not specified
European red raspberry	2 gs	A	100	NOAEL = 5.8872 lb/acre	GRO	LGTH	Trudgill & Brown, 1992	test duration not specified
European red raspberry	3 gs	A	100	NOAEL = 5.8872 lb/acre	GRO	LGTH	Trudgill & Brown, 1992	test duration not specified
European red raspberry	2 gs	A	100	NOAEL = 5.8872 lb/acre	GRO	LGTH	Trudgill & Brown, 1992	test duration not specified
European red raspberry	2 gs	A	100	NOAEL = 5.8872 lb/acre	GRO	LGTH	Trudgill & Brown, 1992	test duration not specified
European red raspberry	2 gs	A	100	NOAEL = 5.8872 lb/acre	GRO	LGTH	Trudgill & Brown, 1992	test duration not specified
European red raspberry	2 gs	A	100	NOAEL = 5.8872 lb/acre	GRO	LGTH	Trudgill & Brown, 1992	test duration not specified
European red raspberry	3 gs	A	100	NOAEL = 5.8872 lb/acre	GRO	LGTH	Trudgill & Brown, 1992	test duration not specified

Table D. Acute Effects from Aldicarb Formulation to Aquatic and Terrestrial Organisms

Species	Duration	Concentration	% Purity	Endpoint	Effect	Measured	Ref #	Why not used
"Medaka, high-eye	1 d	F	10	NR-ZERO = 1 mg/L	MOR	MORT	El-Alfy & Schlenk, 1998	endpoint higher
"Medaka, high-eye	1 d	F	10	NR-LETH = 1 mg/L	MOR	MORT	El-Alfy & Schlenk, 1998	endpoint higher
Earthworm	15 d	F	10	LC50 = 0.15 mg/kg soil	MOR	MORT	Mosleh et al., 2003	not assessed for RLF
Earthworm	15 d	F	10	LC25 = 0.079 mg/kg soil	MOR	MORT	Mosleh et al., 2003	not assessed for RLF
Worm	28 d	F	10	LC50 = 680 ppb	MORT	MORT	Mosleh et al., 2003	not assessed for RLF
Worm	28 d	F	10	LC25 = 140 ppb	MORT	MORT	Mosleh et al., 2003	not assessed for RLF
Earthworm	2 d	F	10	LOAEL = 0.096 mg/kg so	GRO	GRO	Mosleh et al., 2003	not assessed for RLF
Earthworm	7 d	F	10	LOAEL = 0.039 mg/kg so	GRO	GRO	Mosleh et al., 2003	not assessed for RLF
Earthworm	15 d	F	10	LOAEL = 0.035 mg/kg so	GRO	GRO	Mosleh et al., 2003	not assessed for RLF
Marine diatom	4 d	F	10	EC50 = >50,000 ppb	GRO	GRRT	US EPA, 1981	endpoint higher
Pearl millet	21 d	F	15	NOAEL = 2.05 lbs ai/A	GRO	WGHT	Kennedy, 2002	used for RQ calculations
Peanut	36 d	F	15	NOAEL = 0.19 AI lb/acre	REP	INFL	Mulder, 1999	not usable for quantitative purposes
Black-eyed pea	90 d	F	10	NOAEL = 1.338 lbs/acre	REP	HGHT	Sardana & Verma, 1988	not usable for quantitative purposes
Orange	1200 d	F	15	NOAEL = 40.149 lbs/acre	REP	FRUT	Kluge, 1992	endpoint higher
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Barley	hv	F	15	NOAEL = 1.99808 lb/acre	INJ	DAMG	Kimpinski & Johnston, 1995	test duration not specified
Barley	hv	F	15	NOAEL = 1.99808 lb/acre	MPH	WGHT	Kimpinski & Johnston, 1995	test duration not specified
Barley	hv	F	15	NOAEL = 1.99808 lb/acre	POP	BMAS	Kimpinski & Johnston, 1995	test duration not specified
Common onion	hv	F	10	NOAEL = 8 lb/ac	POP	BMAS	Whitehead & Tite, 1972	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Herbert, 1991	test duration not specified
Peanut	fi	F	15	NOAEL = 1 AI lb/acre	REP	INFL	Mulder, 1998	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Mulder, 1998	test duration not specified
Peanut	hv	F	15	NOAEL = 0.6 AI lb/acre	POP	BMAS	Mulder, 1998	test duration not specified
Peanut	fi	F	15	NOAEL = 0.6 AI lb/acre	REP	INFL	Mulder, 1998	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Herbert, 1991	test duration not specified
Cotton	hv	F	15	NOAEL = 0.1338 lb/acre	DVP	MATR	Jordan et al., 1993	test duration not specified
Grape	hv	F	10	NOAEL = 5.352 lb/acre	POP	BMAS	Darekar et al., 1985	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Mulder et al., 1999	test duration not specified
Tobacco	hv	F	15	NOAEL = 3.0328 lb/acre	POP	BMAS	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 3.0328 lb/acre	POP	BMAS	Parker & Powell, 1988	test duration not specified
Peanut	fi	F	15	NOAEL = 1 AI lb/acre	REP	INFL	Mulder et al., 1997	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Mulder et al., 1997	test duration not specified
Mungbean	d	F	10	NOAEL = 1.338 lb/acre	POP	ABND	Sardana & Verma, 1987	test duration not specified
Mungbean	d	F	10	NOAEL = 1.338 lb/acre	REP	NPOD	Sardana & Verma, 1987	test duration not specified
Mungbean	d	F	10	NOAEL = 1.338 lb/acre	MPH	AREA	Sardana & Verma, 1987	test duration not specified
Black-eyed pea	hv	F	10	NOAEL = 1.338 lb/acre	REP	BMAS	Sardana & Verma, 1988	test duration not specified
Tobacco	hv	F	50	NOAEL = 2.99712 lb/acre	POP	BMAS	Melton & Powell, 1991	test duration not specified
Tobacco	hv	F	50	LOAEL = 2.99712 lb/acre	POP	BMAS	Melton & Powell, 1991	test duration not specified
Peanut	hv	F	15	NOAEL = 1.5 AI lb/acre	POP	BMAS	Herbert, 1997	test duration not specified
Plant kingdom	hv	F	10	NOAEL = 9.812 lb/acre	POP	BMAS	Thompson & Willis, 1970	test duration not specified

Table E. Acute Sublethal Effects from Aldicarb Formulation to Terrestrial Organisms

Species	Duration	Concentration	% Purity	Endpoint	Effect	Measured	Ref #	Why not used
Earthworm	2 d	F	10	BCF = 0.208 mg/kg soil	ACC	RSDE	Mosleh et al., 2003	not assessed for RLF
Earthworm	2 d	F	10	NOAEL = 0.096 mg/kg soil	BCM	PRCO	Mosleh et al., 2003	not assessed for RLF
Worm	7 d	F	15	LOAEL = 140 ppb	BCM	GLUC	Mosleh et al., 2003	not assessed for RLF
Earthworm	7 d	F	10	LOAEL = 0.039 mg/kg soil	BCM	PRCO	Mosleh et al., 2003	not assessed for RLF
Nematode	420 d	F	10	LOAEL = 11 AI kg/ha	ABND	ABND	Thompson & Willis, 1970	not assessed for RLF
Citrus Root Nematode	1200 d	F	15	NOAEL = 4.5 AI g/m <sup>2</sup>	ABND	ABND	Rodriguez-Kabana et al., 1991	not assessed for RLF
Kidney-shaped nematod	113 d	F	50	NOAEL = 3.36 ai kg/ha	BMAS	BMAS	Melton & Powell, 1991	not assessed for RLF
Kidney-shaped nematod	65 d	F	50	LOAEL = 3.36 ai kg/ha	CNTL	CNTL	Melton & Powell, 1991	not assessed for RLF
Earthworm	15 d	F	10	BCF = 0.035 mg/kg soil	ACC	RSDE	Mosleh et al., 2003	not assessed for RLF
Earthworm	15 d	F	10	LOAEL = 0.035 mg/kg soil	BCM	PRCO	Mosleh et al., 2003	not assessed for RLF
Tobacco thrip	22 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1998	not assessed for RLF
Tobacco thrip	23 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1998	not assessed for RLF
Tobacco thrip	23 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1998	not assessed for RLF
Tobacco thrip	26 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1999	not assessed for RLF
Fungi	120 d	A	10	NOAEL = 9.812 lb/acre	POP	ABND	Thompson & Willis, 1970	endpoint higher
Fungus	1200 d	A	15	NOAEL = 40.149 lb/acre	POP	ABND	Jose et al., 1996	endpoint higher
Pearl millet	10 d	A	15	NOAEL = 20.7 AI mg/eu	DVP	EMRG	Kennedy, 2002	endpoint higher
Peanut	18 d	A	15	LOAEL = 1 AI lb/acre	POP	ABND	Herbert, 1997	endpoint higher
Peanut	26 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1998	endpoint higher
Peanut	30 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1999	endpoint higher
Peanut	31 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Herbert, 1997	endpoint higher
Peanut	37 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1998	endpoint higher
Peanut	37 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1997	endpoint higher
Peanut	41 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Herbert, 1997	endpoint higher
Peanut	58 d	A	15	NOAEL = 1.5 AI lb/acre	INJ	DAMG	Herbert, 1997	endpoint higher
Black-eyed pea	90 d	A	10	NOAEL = 1.338 lb/acre	MPH	AREA	Sardana & Verma, 1988	endpoint higher
Orange	600 d	A	15	NOAEL = 40.149 lb/acre	INJ	SYMP	Jose et al., 1996	endpoint higher
Orange	1200 d	A	15	NOAEL = 40.149 lb/acre	MPH	WGHT	Jose et al., 1996	endpoint higher
Orange	1200 d	A	15	NOAEL = 40.149 lb/acre	POP	CVER	Jose et al., 1996	endpoint higher
Tobacco	1095 d	A	15	NOAEL = 3.0328 lb/acre	POP	BMAS	Barker & Powell, 1988	endpoint higher
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 4.014 lb/acre	GRO	GGRO	Parker & Powell, 1988	test duration not specified
Barley	hv	F	15	NOAEL = 1.99808 lb/acre	INJ	DAMG	Kimpinski & Johnston, 1995	test duration not specified
Barley	hv	F	15	NOAEL = 1.99808 lb/acre	MPH	WGHT	Kimpinski & Johnston, 1995	test duration not specified
Barley	hv	F	15	NOAEL = 1.99808 lb/acre	POP	BMAS	Kimpinski & Johnston, 1995	test duration not specified
Common onion	hv	F	10	NOAEL = 8 lb/ac	POP	BMAS	Whitehead & Tite, 1972	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Herbert, 1991	test duration not specified
Peanut	fi	F	15	NOAEL = 1 AI lb/acre	REP	INFL	Mulder, 1998	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Mulder, 1998	test duration not specified
Peanut	hv	F	15	NOAEL = 0.6 AI lb/acre	POP	BMAS	Mulder, 1998	test duration not specified
Peanut	fi	F	15	NOAEL = 0.6 AI lb/acre	REP	INFL	Mulder, 1998	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Herbert, 1991	test duration not specified
Cotton	hv	F	15	NOAEL = 0.1338 lb/acre	DVP	MATR	Jordan et al., 1993	test duration not specified
Grape	hv	F	10	NOAEL = 5.352 lb/acre	POP	BMAS	Darekar et al., 1985	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Mulder et al., 1999	test duration not specified
Tobacco	hv	F	15	NOAEL = 3.0328 lb/acre	POP	BMAS	Parker & Powell, 1988	test duration not specified
Tobacco	hv	F	15	NOAEL = 3.0328 lb/acre	POP	BMAS	Parker & Powell, 1988	test duration not specified
Peanut	fi	F	15	NOAEL = 1 AI lb/acre	REP	INFL	Mulder et al., 1997	test duration not specified
Peanut	hv	F	15	NOAEL = 1 AI lb/acre	POP	BMAS	Mulder et al., 1997	test duration not specified
Mungbean	d	F	10	NOAEL = 1.338 lb/acre	POP	ABND	Sardana & Verma, 1987	test duration not specified
Mungbean	d	F	10	NOAEL = 1.338 lb/acre	REP	NPOD	Sardana & Verma, 1987	test duration not specified
Mungbean	d	F	10	NOAEL = 1.338 lb/acre	MPH	AREA	Sardana & Verma, 1987	test duration not specified
Black-eyed pea	hv	F	10	NOAEL = 1.338 lb/acre	REP	BMAS	Sardana & Verma, 1988	test duration not specified
Tobacco	hv	F	50	NOAEL = 2.99712 lb/acre	POP	BMAS	Melton & Powell, 1991	test duration not specified
Tobacco	hv	F	50	LOAEL = 2.99712 lb/acre	POP	BMAS	Melton & Powell, 1991	test duration not specified
Peanut	hv	F	15	NOAEL = 1.5 AI lb/acre	POP	BMAS	Herbert, 1997	test duration not specified
Plant kingdom	hv	F	10	NOAEL = 9.812 lb/acre	POP	BMAS	Thompson & Willis, 1970	test duration not specified

Table F. Sublethal Effects from Aldicarb Formulation to Terrestrial Organisms

Species	Duration	Concentration	% Purity	Endpoint	Effect	Measured	Ref #	Why not used
Earthworm	2 d	F	10	BCF = 0.208 mg/kg soil	ACC	RSDE	Mosleh et al., 2003	not assessed for RLF
Earthworm	2 d	F	10	NOAEL = 0.096 mg/kg soil	BCM	PRCO	Mosleh et al., 2003	not assessed for RLF
Worm	7 d	F	15	LOAEL = 140 ppb	BCM	GLUC	Mosleh et al., 2003	not assessed for RLF
Earthworm	7 d	F	10	LOAEL = 0.039 mg/kg soil	BCM	PRCO	Mosleh et al., 2003	not assessed for RLF
Nematode	420 d	F	10	LOAEL = 11 AI kg/ha	ABND	ABND	Thompson & Willis, 1970	not assessed for RLF
Citrus Root Nematode	1200 d	F	15	NOAEL = 4.5 AI g/m <sup>2</sup>	ABND	ABND	Rodriguez-Kabana et al., 1991	not assessed for RLF
Kidney-shaped nematod	113 d	F	50	NOAEL = 3.36 ai kg/ha	BMAS	BMAS	Melton & Powell, 1991	not assessed for RLF
Kidney-shaped nematod	65 d	F	50	LOAEL = 3.36 ai kg/ha	CNTL	CNTL	Melton & Powell, 1991	not assessed for RLF
Earthworm	15 d	F	10	BCF = 0.035 mg/kg soil	ACC	RSDE	Mosleh et al., 2003	not assessed for RLF
Earthworm	15 d	F	10	LOAEL = 0.035 mg/kg soil	BCM	PRCO	Mosleh et al., 2003	not assessed for RLF
Tobacco thrip	22 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1998	not assessed for RLF
Tobacco thrip	23 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1998	not assessed for RLF
Tobacco thrip	23 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1998	not assessed for RLF
Tobacco thrip	26 d	A	15	LOAEL = 0.6 AI lb/acre	CNTL	CNTL	Mulder, 1999	not assessed for RLF
Fungi	120 d	A	10	NOAEL = 9.812 lb/acre	POP	ABND	Thompson & Willis, 1970	endpoint higher
Fungus	1200 d	A	15	NOAEL = 40.149 lb/acre	POP	ABND	Jose et al., 1996	endpoint higher
Pearl millet	10 d	A	15	NOAEL = 20.7 AI mg/eu	DVP	EMRG	Kennedy, 2002	endpoint higher
Peanut	18 d	A	15	LOAEL = 1 AI lb/acre	POP	ABND	Herbert, 1997	endpoint higher
Peanut	26 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1998	endpoint higher
Peanut	30 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1999	endpoint higher
Peanut	31 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Herbert, 1997	endpoint higher
Peanut	37 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1998	endpoint higher
Peanut	37 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Mulder, 1997	endpoint higher
Peanut	41 d	A	15	NOAEL = 1 AI lb/acre	INJ	DAMG	Herbert, 1997	endpoint higher
Peanut	58 d	A	15	NOAEL = 1.5 AI lb/acre	INJ	DAMG	Herbert, 1997	endpoint higher
Black-eyed pea	90 d	A	10	NOAEL = 1.338 lb/acre	MPH	AREA	Sardana & Verma, 1988	endpoint higher
Orange	600 d	A	15	NOAEL = 40.149 lb/acre	INJ	SYMP	Jose et al., 1996	endpoint higher
Orange	1200 d	A	15	NOAEL = 40.149 lb/acre	MPH	WGHT	Jose et al., 1996	endpoint higher
Orange	1200 d	A	15	NOAEL = 40.149 lb/acre	POP	CVER	Jose et al., 1996	endpoint higher
Tobacco	1095 d	A	15	NOAEL = 3.0328 lb/acre	POP	BMAS	Barker & Powell, 1988	endpoint higher

### Open Literature Review Summary

**Chemical Name:** Aldicarb

**CAS No:** 000116-06-3

**ECOTOX Record Number and Citation:** 86668

Kennedy, CW. 2002. Phytotoxicity in Pearl Millet Varies Among In-Furrow Insecticides. 21(9):799-802

**Purpose of Review (DP Barcode or Litigation):** California Red Legged Frog Litigation

**Date of Review:** 3/22/2007

#### Summary of Study Findings:

Kennedy (2002) exposed 14 seeds of the pearl millet [*Pennisetum glaucum* (L.)] in a rectangular pot (20 x 30 x 10cm) to 15% Temik® at 2.05 lbs ai/A, 3.08 lbs ai/A, and 4.1 lbs ai/A in a randomized complete block experiment with three replications (repeated twice under greenhouse conditions) to determine effects of in-furrow insecticides on seedling emergence and growth of this grain crop. The seeds were watered once 7 days after sowing; emergence was determined at day 10; growth of seedlings was determined at day 21 (seedlings cut at soil level). In the first treatment (2.05 lbs ai/A), as compared to

the control, no effects on seedling emergence were observed. Reductions in seedling emergence were observed at 3.08 lbs ai/A (actual % reduction not reported), and 4.1 lbs ai/A (57% reduction in emergence). Growth of seedlings (shoot dry weight) in aldicarb treatments was ~~not~~ significantly reduced as compared to controls at 4 lb ai/A or greater.

The application rates are about 2 lb ai/A, 3 lb ai/A and 4 lb ai/A. The label on aldicarb goes up to max of 5 lb ai/A. Aldicarb has inhibitory effects on the reproduction of pearl millet at concentrations greater than 2.05 lbs ai/A. Biomass of pearl millet plants that survived passed seedling emergence appears to be significantly reduced by aldicarb at 4 lb ai/A or greater application rates.

**Description of Use in Document (QUAL, QUAN, INV):** Quantitatively

**Rationale for Use:** There are no Tier I studies for terrestrial plants submitted by the registrant (Bayer CropScience). The study by Kennedy (2002) is the only open literature study available for quantitative use in the aldicarb Red Legged Frog assessment. The study demonstrates sound science and satisfies many important aspects of a seedling emergence guideline study.

**Limitations of Study:** There are three treatment levels tested in the study. EPA recommends six treatment levels. The three levels of concentration in the study are 1X, 1.5X and 2X of the label. The EPA recommends that the minimum progression between the doses should be 2X.

The number of plant species tested in the study is limited. Only one species was used in the study. EPA recommends at least 10 species in plant studies.

**Primary Reviewer:**

Jeannette Martinez, OPP EFED, ERB2

**Secondary Reviewer (required if study results are used quantitatively):**

Michael Davy, OPP EFED ERB2