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ASE FM

CHEM CARBARYL MRID:

BRANCH DISC TOPIC MRID: ~~TOUCARO5~~

FORMULATION TOUCARO5 40644801

FICHE/MASTER ID CONTENT CAT

CARLSON, A. R. (1972) EFFECTS OF LONG-TERM EXPOSURE TO CARBARYL (SEVIN) ON SURVIVAL, GROWTH AND REPRODUCTION OF THE FATHEAD MINNOW (PIMEPHALES PROMELAS). J. FISH. RES. BD. CANADA. 29:583-587

SUBST. CLASS =

OTHER SUBJECT DESCRIPTORS

DIRECT RVW TIME = START-DATE END DATE

REVIEWED BY: LEO TOUART
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SIGNATURE: DATE:

CORE study (B. Montague 1989)

THE STUDY IS CONSIDERED SCIENTIFICALLY SOUND AND FULFILLS THE REQUIREMENT FOR AN ACCEPTABLE CHRONIC FISH STUDY WITH TECHNICAL MATERIAL. THE STUDY WAS PERFORMED AT THE DULUTH LABORATORY OF EPA. THE MATC FOR FATHEAD MINNOWS WAS DETERMINED TO LIE BETWEEN 0.21 AND 0.68 mg/LITER.

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TABLE 3. Survival, growth, and reproduction data for fathead minnows after 9 months exposure, in duplicate tanks, to various concentrations of carbaryl.

	Concentration (*mg/liter*)					
	0.68	0.21	0.062	0.017	0.008	0.0 (Control)
Survival[a] (%)	50;40	65;60	80;70	80;65	65;55	70;75
No. mature males	3;3	5;2	5;4	9;6	9;6	7;6
No. mature females	6;5	8;9	9;6	4;7	4;3	7;6
No. immature fish	0;0	0;2	1;1	1;0	0;1	0;2
Avg total length and weight						
Male (*mm, g*)	54,2.2	59,2.6	57,2.3	64,3.0	55,2.0	58,2.5
Female (*mm, g*)	57,2.2 51,1.7 51,1.6	53,2.2 52,1.4 52,1.6	61,2.7 49,1.2 50,1.2	60,2.6 51,1.2 51,1.3	60,2.8 50,1.6 50,1.2	59,2.7 50,1.2 49,1.2
Eggs/mature female	20.9	569.1	313.1	545.2	1390	790.3
Eggs/spawning (avg)	0 19	876.8 134	217.3 69	702.1 121	751 113	574.9 113
Hatchability (%)	0 0(8)[b]	121 48(27)	87 59(15)	117 50(12)	73 53(17)	138 64(21)
Range (%)	– 0	16(21) 10–90	68(8) 0–90	66(22) 0–88	47(11) 0–92	65(13) 34–96
	–	0–70	32–90	18–98	0–90	0–100

[a]Survival of original fish to approximately 6 months of age. Mature males in excess of number of spawning tiles were removed at this time.
[b]Number of samples in parentheses.

TABLE 4. Growth and survival (means and, in parentheses, ranges) of fathead minnow offspring, in duplicate tanks, after 30 and 60 days of exposure to various concentrations of carbaryl.

	Carbaryl concentration (*mg/liter*)					
	0.68	0.21	0.062	0.017	0.008	0.0 (control)
	50 offspring after 30 days					
Survival (%)	30[a]; 50[a]	88; 86	74; 58	84; 80	46; 46	88; 96
Length (*mm*)	14.6; 11.6 (10–17; 7–18)	11.8; 10.6 (6–20; 6–19)	11.9; 17.1 (8–20; 11–25)	14.4; 11.8 (9–19; 8–18)	11.0; 18.6 (9–19; 10–20)	12.0; –[b] (7–21; –)
	15 offspring after 60 days					
Survival (%)	93[a]; 100[a]	100; 93	100; 100	100; 87	93; 100	100; 93
Length (*mm*)	22.8; 17.7 (15–29; 10–30)	22.4; 21.4 (18–28; 17–34)	21.6; 26.6 (16–34; 21–36)	21.9; 21.6 (15–27; 15–29)	23.3; 24.5 (14–32; 17–38)	20.0; 22.1 (12–36; 11–32)

[a]Larvae produced in control.
[b]Data lost as film did not turn out.