

1. Chemical: Glyphosate, S# 103601
2. Test Material: Technical--96.7% ai
3. Study Type: Acute Fish 98-hour LC₅₀-Bluegill Sunfish
4. Study ID: Morrill, L. (1973) Acute Toxicity of Roundup to Bluegill (Lepomis macrochirus). (Unpublished study received July 21, 1974, under 5F1536; prepared by Bionomics, Inc., submitted by Monsanto Co., Washington, DC; CDL:094171-N)

Date: 8-25-85

Signature: *Raymond M. Matheny*
Date: *8-30-85*

This study can be used for hazard assessment purposes. Also, it does not meet the guideline requirements. Using the toxicity categories of Brooks et al. (1973) the acute LC₅₀ of > 24 ppm would place technical glyphosate--96.7 percent ai into the slightly toxic category.

N/A

Previously reviewed by EEB under ES-Vll-F-1.

N/A

NOT entered

11. Materials and Methods:

- A. Test animals were bluegill acquired from a commercial fish hatchery in Nebraska; mean weight = 2.0 g.; mean length of 57 mm; no age given.

Test system: a continuous, flow proportional dilution apparatus (Mount and Brungs). Flow rate was 5 l/hour for each 30-liter test vessel.

- B. Dose: Nominal concentrations; no solvent used.

- C. Design: 30 fish per level; 7 dose levels plus control (4.2, 5.6, 7.5, 10.0, 14.0, 18.0, and 24.0 mg/l)

- D. Statistics: No statistical interpretation was necessary since no fish died.

12. Reported Results: (Excerpted from the study)

Table 1--Acute toxicity of Roundup CP67573 (Technical) to bluegill^{a/} (*Lepomis macrochirus*), under dynamic conditions. The data are based on bioassays conducted at the aquatic toxicology laboratory of Bionomics, Inc. Wareham, Massachusetts.

TL ₅₀ - milligram active ingredient/liter			
24 hour	96 hour	Incipient ^{b/}	No-Effect level (mg/l)
> 24.00	> 24.00	> 24.00	24.00

^{a/} Assay conducted at 21C (+ 1.0), mean weight of bluegill 2.0 g.

^{b/} Incipient TL₅₀ estimated over 240 hours for bluegill.

13. Study Author's Conclusions/Q.A. Measures: (Excerpted from study)

Test procedures for the dynamic bioassay are those described for the Fish Bioassay Procedures in the 1970 edition of Standard Methods (APHA).

14. Reviewer's Discussion and Interpretation of the Study:

A. Test procedures:

The following items were not reported or did not meet the guideline requirements:

- 1) Pretest fasting period was not reported.
- 2) The composition of the test vessel was not reported.
- 3) Dissolved oxygen content at the end of the test was not reported.
- 4) pH of test solution was not reported at the beginning or end of test.
- 5) Only one water chemistry parameter-hardness- was reported. Alkalinity and the following salts should be reported Na HCO₃, CaSO₄-2H₂O, MgSO₄, and KCl.
- 6) No solvent control or solvent was mentioned.
- 7) Dose levels used 75 percent spacing rather than 60 percent.

B. Statistical Analysis:

The lack of mortality negated the need for any statistical interpretation.

C. Discussion/Results:

The study failed to produce an LC₅₀ value. In addition, parameters such as pH, dissolved oxygen, and pH were not provided at the end of the test. Based on this, the study is incomplete and did not establish an LC₅₀ value.

D. Adequacy of Study:

- 1) Classification: Supplemental
- 2) Rationale: An LC₅₀ value was not established and many items were not reported.
- 3) Repairability: To determine an LC₅₀, higher levels have to be tested. Thus, a new study would be required.

15. Completion of One-Liner for Study:

Yes

16. CBI Appendix:

N/A

DATA REVIEW NUMBER: ES-V11-F-1
TEST: Acute fish 96 hr. LC₅₀, dynamic bioassay.
SPECIES: Bluegill sunfish
RESULTS: 96 hr. LC₅₀ = Greater than 24 ppm
CHEMICAL: Glyphosate, CP67573 (96.7% active)
TITLE: Acute toxicity of roundup to bluegill
(Lepomis macrochirus).
ACCESSION NO.: 112797
STUDY DATE: September, 1973
RESEARCHER: Bionomics, Inc.
REGISTRANT: Monsanto
VALIDATION CATEGORY: Supplemental
CATEGORY REPAIRABILITY: No

DATA REVIEW NUMBER: ES-V11-F-1

Additional Test Data

1. Protocol-1970 Standard Methods (APHA), dynamic (flow thru) bioassay.
2. Additional Test Results:

Seven concentrations between 4.2 and 24 ppm were tested and no mortality was observed after 240 hours of exposure to Glyphosate.

B Category Validation

Study is classified supplemental because no LC₅₀ value was developed.

Morrill (1973)
MCLP 00108112