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EEE BRANCH REVIEW

DATE: IN 6/8/77 OUT 11/14/77 IN OUT

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 241-243

PETITION OR EXP. PERMIT NO.

DATE DIV. RECEIVED 4-8-77

DATE OF SUBMISSION 4-6-77

DATE SUBMISSION ACCEPTED

TYPE PRODUCTS (S): I, D, (H), F, N, R, S

DATA ACCESSION NO(S) .

PRODUCT MGR. NO. , Taylor

PRODUCT NAME(S) Prowl

COMPANY NAME . American Cyanamid Company

SUBMISSION PURPOSE Amendment (tank mix or sequential application with Lorox or
Amiben

CHEMICAL & FORMULATION [N-(1-ethylpropyl)-3,4-dimethyl-2-6-dinitrobenzenamine]
43.8%

Environmental Safety

- (a) Prowl plus Lorox PE tank mixture
- (b) Prowl PPI plus Lorox PE
- (c) Prowl plus Amiben PE tank mixture
- (d) Prowl PPI plus Amiben PE

100.0 Pesticidal Use

Control of most annual grasses and certain broadleaf weeds in soybeans. This application for amended registration is for use of Prowl alone as a preplant incorporated treatment followed by a preemergence application of either Lorox or Amiben; or tank mixtures of Prowl and Lorox or Prowl and Amiben applied as a preemergent treatment.

100.1 Application methods/rates/directions

(a) Prowl + Lorox

Soybeans - Preemergence Application of PROWL plus LOROX Mixtures

The seed bed should be firm and free of clods and trash. Uniformly apply preemergence tank-mixtures of PROWL plus LOROX in 10 or more gallons of water per acre by ground equipment. When using PROWL preplant incorporated followed by a preemergence application of LOROX, PROWL is to be incorporated into the soil within 7 days after application prior to planting. For best results for preplant incorporation of PROWL see leaflet on top of container for specific information.

When applied as directed, tank mixtures of PROWL plus LOROX, or PROWL preplant incorporated plus LOROX preemergence, will control these broadleaf weeds in addition to those controlled with PROWL alone:

Velvetleaf (Buttonweed) (Abutilon theophrasti)
Smartweed (Polygonum pensylvanicum)
Mustards (Brassica spp.)

Recommended tank-mixes of PROWL plus LOROX, or PROWL preplant incorporated plus LOROX preemergence, will aid in the control of and reduce competition from:

Common ragweed (Ambrosia artemisiifolia)

Preemergence Broadcast Rate Per Acre in Soybeans for PROWL Plus LOROX
Tank-Mixes or PROWL Preplant Incorporated plus LOROX Preemergence

Soil Texture	PROWL + LOROX 50W	PROWL + LOROX 50W
	1 to 3% Organic Matter	More than 3% Organic Matter
COARSE sandy loams	1.0 to 1.5 pints + 1.0 lb.	1.5 pints + 1.0 to 1.5 lbs.
MEDIUM loams, silt loams, silts, sandy clays, sandy clay loams	1.5 to 2.0 pints + 1.0 to 1.5 lbs.	1.5 to 2.0 pints + 1.5 to 2.0 lbs.
FINE silty clays, silty clay loams clay loams, clays	1.5 to 2.0 pints + 1.5 to 2.0 lbs.	2.0 to 2.5 pints + 2.0 to 2.5 lbs.

The high rates for each soil texture above, where listed, should be used if heavy weed populations are anticipated.

If moisture is insufficient to activate the herbicides, a shallow cultivation (preferably with a rotary hoe) should be made after emergence of soybeans but while weeds are small enough to be controlled by mechanical cultivation.

DO NOT USE on peat or muck soils. DO NOT USE on sands or gravelly soils, or on soils containing less than 1.0% organic matter.

NOTE: Livestock may graze or be fed forage from PROWL + LOROX-treated soybean fields. If soybean crop loss occurs due to weather conditions, soybeans may be replanted. If replanting is necessary, thoroughly rework the soil before replanting. PROWL + LOROX-treated land may be replanted to other crops in the following year.

(b) PROWL + AMIBEN

PROWL + AMIBEN preemergence tankmixtures or PROWL preplant incorporated plus AMIBEN preemergence may be used in soybeans grown in the Northeastern and North Central States only (Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Nebraska, New York, North Dakota, Ohio, Pennsylvania, South Dakota, Wisconsin, Missouri (except the "Bootheel Region"). Refer to the leaflet on top of container for specific directions for PROWL incorporation, spraying and application.

Soybeans - Preemergence Applications of
PROWL plus AMIBEN Mixtures

The seed bed should be firm and free of clods and trash. Uniformly apply preemergence tank-mixtures of PROWL plus AMIBEN in 10 or more gallons of water per acre by ground equipment. When using PROWL preplant incorporated followed by a preemergence application of AMIBEN, PROWL is to be incorporated into the soil within 7 days after application prior to planting. For best results for preplant incorporation of PROWL see leaflet on top of container for specific information.

When applied as directed, tank mixtures of PROWL plus AMIBEN or PROWL preplant incorporated plus AMIBEN preemergence will control these broadleaf weeds in addition to those controlled with PROWL alone:

Velvetleaf (Buttonweed) (Abutilon theophrasti)
Smartweed (Polygonum pensylvanicum)

Recommended tank-mixes of PROWL plus AMIBEN or PROWL preplant incorporated plus AMIBEN preemergence will aid in the control of and reduce competition from:

Common ragweed (Ambrosia artemisiifolia)

NORTHEASTERN AND NORTH CENTRAL STATES ONLY
(see above listing of states)

Preemergence Broadcast Rate Per Acre in Soybeans for PROWL Plus AMIBEN
Tank-Mixes or PROWL Preplant Incorporated plus AMIBEN Preemergence

Soil Texture	PROWL + AMIBEN	PROWL + AMIBEN
	Up to 3% Organic Matter	More than 3% Organic Matter
COARSE loamy sands, sandy loams	DO NOT USE	DO NOT USE
MEDIUM loams, silt loams, silts, sandy clays, sandy clay loams	1.5 to 2.0 pints + 1.0 gallon	1.5 to 2.0 pints + 1.0 gallon
FINE silty clays, silty clay loams clay loams, clays	1.5 to 2.0 pints + 1.0 gallon	2.0 to 2.5 pints + 1.0 gallon

The high rate of PROWL for each soil texture above should be used if heavy weed populations are anticipated.

If sufficient rain does not fall within 7 days after applying PROWL plus AMIBEN but there is enough soil moisture to germinate broadleaf and grass weeds, a shallow cultivation with a rotary hoe or similar equipment will be required.

DO NOT USE on peat or muck soils.

NOTE: Livestock can graze or be fed forage from PROWL + AMIBEN-treated soybean fields. If soybean crop loss occurs due to weather conditions, soybeans can be replanted. If replanting is necessary, DO NOT rework the soil. PROWL + AMIBEN-treated land can be planted to other crops the following year.

101.1 Chemical Name

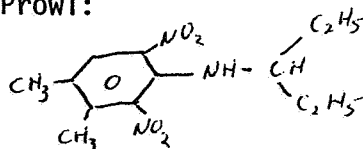
- (1) Prowl: [N-(1-ethylpropyl)-3-4-dimethyl-2,6-dinitrobenzenamine]
- (2) Amiben: Ammonium salt of choramben (3-amino-2,5-dichlorobenzoic acid) + Ammonium salts of related aminodichlorobenzoic acids
- (3) Lorox: [3-(3,4-dichlorophenyl)-1-methoxy-1-methylurea]

101.2 Common Name

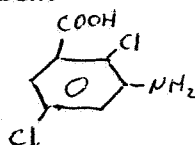
- (1) Prowl: Penoxalin
- (2) Amiben: Choramben
- (3) Lorox: Linuron

101.3 Structural Formula

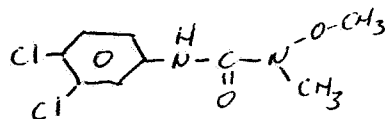
- (1) Prowl:



- (2) Amiben:



- (3) Lorox:



101.4 Molecular Weight

- (1) Prowl: 281.3
- (2) Amiben: 205
- (3) Lorox: 249.1

101.5 Physical State

No data available.

101.6 Solubility

No data available.

102.0 Behavior in the environment

This information was not reviewed since all three active ingredients are already registered for use on soybeans.

103.0 Toxicological properties

See previous reviews, esp. by L. A. Windberg (22 Sept 1977).

104.0 Hazard Assessment

104.1 Discussion

Combinations of Prowl and Lorox or Prowl and Amiben should be no more harmful than when used alone. All three chemicals have been registered for use on soybeans.

104.1.1 Adequacy of toxicity data

- (1) Prowl - see review by L. A. Windberg (22 Sept 1977).
- (2) Lorox - Rainbow and bluegill LC₅₀5 and Japanese Quail, pheasant, and mallard LC₅₀5 cited in review by R. W. Felthousen (24 June 1976).
- (3) Amiben - Bobwhite LD₅₀, mallard LC₅₀, and Fathead minnow LC₅₀ cited in review by N. J. Cook (2 July 1976).

104.1.3 Likelihood of exposure of non-target organisms

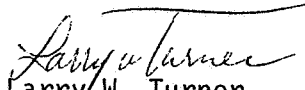
Use of preemergent tank mixtures or sequential application of Prowl + Lorox or Prowl + Amiben would be expected to result in minimal hazard to non-target organisms. Utilization of soybean fields by wildlife during the planting and early growing season is not substantial. Because ground application is used and runoff potential is low, hazard to aquatic habitats should not occur if label directions are followed.

105.0 Conclusions

- (1) The environmental safety staff does not object to the application for amended use of Prowl applied as a preplant

incorporated treatment followed by sequential preemergence application of Lorox or Amiben, and for use of Prowl + Lorox or Prowl + Amiben tank mixtures in treatment of soybeans.

- (2) The registrant has submitted acceptable toxicity tests on Prowl for (a) avian acute oral LD₅₀, (b) avian 8-day dietary LC₅₀ for mallard and bobwhite quail, and (c) acute 48-hour LC₅₀ for daphnia. The fish acute 96-hour tests (warmwater and coldwater fish) with Prowl were unacceptable because the registrant did not report the number of fish tested and failed to identify the test material.
- (3) This submission is reviewed in light of the Johnson-Campt memos of May 1977.
- (4) Include in the precautionary labelling on Prowl the statement: "Follow the label directions and observe precautions on Lorox and Amiben labels."


Larry W. Turner
Environmental Safety Section
EEEEB-RD
14 November 1977 