

PM
1-26-76

EEE BRANCH REVIEW

DATE: IN _____ OUT _____ IN _____ OUT _____ IN 8/8/75 OUT 1/26/76
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 524-308

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED 3/26/75

DATE OF SUBMISSION 3/20/75

DATE SUBMISSION ACCEPTED _____

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

PRODUCT MGR. NO. _____

PRODUCT NAME(S) Roundup (GLYPHOSATE)

COMPANY NAME Monsanto Agriculture Products Co.

SUBMISSION PURPOSE Label Modification Non-Crop Sites

CHEMICAL & FORMULATION Isopropylamine Salt of N-phosphonomethyl glycine
Water Sol. Conc. 3 lb/gal. acid equivalent

200.0 Introduction

This review is concerned with the Monsanto request of March 20, 1975 to make certain changes in their presently approved Roundup label. Specifically these changes are:

1. Addition of a second sentence to the explanatory statement regarding the active ingredient, and
2. The highlighting of certain weeds in the currently approved list by describing rates and application details so that optimum efficacy may be achieved.

200.1 Proposed Changes

Addition of a second sentence to the explanatory statement (*) regarding the active ingredient as follows: "Equivalent to 359 grams per liter or 3 pounds per U. S. Gallon of the acid, glyphosate." See current and proposed labels, attachments 1 and 2.

The second change involves the addition of six short paragraphs to the Control of Perennial Weeds section of the label as detailed in Table 1 (*USE SHEETS*).

201.0 Data Summary

Results of efficacy studies at numerous locations as given by Registrant are contained in Attachments 3 - 7. Entries specifically covering the recommended usage rates indicated on the proposed label or rates that bracket these recommendations have been summarized in Table 1.

202.0 Conclusions

Requested label changes improve use section clarity and should result in more efficient use of the herbicide. Expansion of the weed control section to include paragraphs on selected species is justified by both the current efficacy data as well as that previously submitted by registrant to support the currently approved label.

Failure of the registrant to include efficacy data for the selected weed species on all currently registered sites does not constitute sufficient cause to disallow the proposed label changes.

The expanded label will provide the applicator with information necessary to control the selected weed species and accordingly should reduce or eliminate ineffective or excessive applications of the herbicide. From an efficacy viewpoint, the label changes discussed in this review are supported by data submissions and the request to amend the Roundup label should be granted.

202.1 Claims supported by the data submitted

Claims in the current label for Perennial Weed control of Bermuda grass, Canada thistle, Field bindweed, Johnsongrass, Quackgrass and other perennials are supported by data submitted.

202.2 Claims not supported by the data submitted

Only 6 of the 16 industrial and non-agricultural uses on approved label were tested by registrant. No data in support of requested label changes for the following uses were submitted: pipeline, highway, power and telephone rights of way, petroleum tank farms and pumping installations, storage areas, lumberyards, parking areas, schools, parks, and golf courses.

202.3 Data Not Appropriate

Data on weed control in sugarcane, corn, orange, cotton, grape, etc. is not appropriate to current petition.

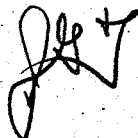
203.0 Recommendation

The proposed changes are acceptable since they coincide with labeling accepted December 23, 1975.

Bernard C. Smale
Herbicide Efficacy
EEE

1/27/76

WSW



ISOPROPYLAMINE SALT OF N-(PHOSPHONOMETHYL)GLYCINE* 41%

ROUNDUP

7

USE	TOLERANCE P.P.M.	RATE		APPLICATION	LIMITATIONS AND REMARKS
		acid equiv. less/acre	formulation 3 lb acid equiv. per gal.		
ROP AREAS					
S CONTROLLED					
ROL OF ANNUAL WEEDS					
Use rate and application instructions will precede listing of annual weeds.		0.75 lb	1 qt/A	to actively growing grasses and broadleaf weeds less than 6 inches tall	Allow 3 days after treatment before tillage
ROL OF PERENNIAL WEEDS		1.125 lb	1.5 qt/A	to grasses and weeds over 6 inches tall	See "directions for use" for specific volumes of water
Bermudagrass		3.75 lbs.	5 qts/A	Apply when actively growing and when seed heads first appear. See "directions for use" for specific volumes of water.	Do not treat until regrowth has reached recommended stages. Allow 7 days or more before tillage.
Canada Thistle		1.5 to 2.25 2.25 lbs.	2-3 qts/A	Spray when most thistles are at least 10 inches or more in height or are approaching early seed stage ^{stage} . Ref. 70 "Directions" for water volume.	Allow 3 days or more before tillage.
Field Bindweed		2.25 to 3.75 lbs.	3-5 qts/A	When Bindweed starts to bud or flower.	Same as for Canada thistle.

hosate **HERBICIDE**

5
APPLICATION: Glyphosate (cont)

USE	TOLERANCE P.P.M.	RATE		APPLICATION	LIMITATIONS AND REMARKS
		acid equiv. lbs/acre	formulation qts/A		
Johnsongrass		1.5 to 2.25 lbs	2-3 qts.	Spray when grass 12 inches or more in height. Delay application until approaches early head stage. Apply before Johnsongrass turns brown in fall.	Allow 7 days or more before tillage. Spray volumes in "Directions for use".
Quackgrass		1.5 to 2.25 lbs	2-3 qts	When most grass is at least 8 inches in height (3 to 4 leaf stage) and actively growing.	Allow 3 days or more before tillage.
Other perennials		2.5 to 3.75	3-5 qts	Apply when most have reached early head or early bud stage	Allow 7 days after application before tillage.

Attachment 2

NON-BEATING CIRCUMSTANCES
When a person is found dead, it is important to determine if the death was a result of a beating or if it was a natural death. The following are some of the circumstances that may indicate a non-beating death:

- 1. The body is found in a location where a beating would be unlikely to occur.
- 2. The body shows no signs of trauma or injury.
- 3. The body is found in a location where a beating would be unlikely to occur.
- 4. The body shows no signs of trauma or injury.

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ATTENTION

CAUTION!
Do not use this product in areas where it may be in contact with food or feed. Do not use this product in areas where it may be in contact with water. Do not use this product in areas where it may be in contact with other animals.

GENERAL INFORMATION

This product is a... It is used for... It is not to be used in... It is not to be used in... It is not to be used in...

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ROUNDUP
POSTERIOR VENEER CODE BY
Monsanto

CAUTION!
Do not use this product in areas where it may be in contact with food or feed. Do not use this product in areas where it may be in contact with water. Do not use this product in areas where it may be in contact with other animals.

CAUTION! Keep out of reach of children.
READ PRECAUTIONS ON BACK OF CAN.
NET WEIGHT 5 U.S. GALL.
NET 5 U.S. GALL.

Proposed Label Text
changes, 3/20/75

CONTROL OF BERMUDAGRASS WITH ROUNDUP

Location	Exp. No.	Page	Formulation	Rate		Gal./Acre Spray Vol.	Rating Interval Days	% Weed Control Bermudagrass
				Lbs. Glypho- sate/Acre	Qts. Roundup/ Acre			
California	2360	1-5	Roundup (MON 2139)	2	2-2/3	65	52	95
				3	4	65	52	100
				6	8	65	52	100
				2	2-2/3	50	91	35
				2.5	3-1/3	50	91	45
				3	4	50	91	70
				6	8	50	91	94
California	2465	11-12	Roundup (MON 2139)	1	1-1/3	-	70	40
				2	2-2/3	-	70	50
				* 4X	5-1/3	-	70	55
				3	4	100	62	100
				4	5-1/3	100	62	100
California	2492	13-15	Roundup (MON 2139)	4	5-1/3	100	62	100
Florida	893	16-19	Roundup (MON 2139)	0.5	2/3	44	69	13
				1	1-1/3	44	69	72
				2	2-2/3	44	69	95
				4	5-1/3	44	69	100
				2	2-2/3	38	93	70
				3	4	38	93	93
				4	5-1/3	38	93	93
				6	8	38	93	98
				3	4	20	58	100
				4	5-1/3	20	58	95
				1	1-1/3	38	42	55
				2	2-2/3	38	42	66
				3	4	38	42	78
				4	5-1/3	38	42	82
				1	1-1/3	25	92	42
				1.5	2	25	92	75
				2	2-2/3	25	92	88
				3	4	25	92	87
				4	5-1/3	25	92	87

* INDICATES UNSATISFACTORY CONTROL AT PREPARED LBS PER ACRE RATES - MAY CAUSE
 AGRASS & NOTED IN TABLE.

CONTROL OF CANADA THISTLE WITH ROUNDUP

Location	Exp. No.	Page	Formulation	Rate		Gal./Acre Spray Vol.	Rating Interval Days	% Weed Control Canada Thistle
				Lbs. Glypho- sate/Acre	Qts. Roundup/ Acre			
Colorado (Helkes)	1504	1-5	Roundup (MON 2139)	2.1	2-2/3	40	90	90
				4	5-1/3	40	90	100
Illinois	1504	6-7	Roundup (MON 2139)	0.8	1-1/4	20	45	51
				1	1-1/3	20	45	75
				1.3	1-3/4	20	45	96
				1.5	2	20	45	98
				2	2-2/3	20	45	98
Iowa	968	8-9	Roundup (MON 2139)	1	1-1/3	20	50	47
				1.5	2	20	50	87
			(Thistle 10-24 inches tall)	2	2-2/3	20	50	90
				2.5	3-1/3	20	50	97
				3	4	20	50	97
				1	1-1/3	20	55	0
				1.5	2	20	55	10
				2	2-2/3	20	55	22
				2.5	3-1/3	20	55	50
				3	4	20	55	47
				1	1-1/3	20	42	87
				1.5	2	20	42	92
				2	2-2/3	20	42	100
				2.5	3-1/3	20	42	100
				3	4	20	42	100
				1	1-1/3	20	79	5
				1.5	2	20	79	17
				2	2-2/3	20	79	27
Iowa	923	12-13	Roundup (MON 2139)	1	1-1/3	20	42	87
				1.5	2	20	42	92
				2	2-2/3	20	42	100
				2.5	3-1/3	20	42	100
				3	4	20	42	100
				1	1-1/3	20	79	5
				1.5	2	20	79	17
				2	2-2/3	20	79	27
Iowa	921	14-15	Roundup (MON 2139)	1	1-1/3	20	79	5
				1.5	2	20	79	17
				2	2-2/3	20	79	27
				2.5	3-1/3	20	42	100
				3	4	20	42	100
				1	1-1/3	20	79	5
				1.5	2	20	79	17
				2	2-2/3	20	79	27
Michigan (Sprinkle)	16-18	Roundup (MON 2139)		1	1-1/3	-	72	93
				2	2-2/3	-	72	93

(Thistle Bud Stage)

(Thistle 4-8 inches tall) → *

(Thistle Full Bloom)

(Thistle 2-6 inches tall) *

(Thistle 10-24 inches tall)

ATTACHMENT 5

CONTROL OF FIELD BINDWEED WITH ROUNDUP

Page 1 of 2

Location	Exp. No.	Page	Formulation	Rate		Gal./Acre Spray Vol.	Rating Internal Days	% Weed Control Bindweed
				Lbs. Glypho- sate/Acre	Qts. Roundup/ Acre			
California	2498	1-2	Roundup (MON 2139)	3	4	100	47	100
	2497	3-4	Roundup (MON 2139)	3	4	100	45	100
	2487	5-6	Roundup (MON 2139)	3	4	100	89	100
Iowa	2160	7-9	Roundup (MON 2139)	6	8	100	89	100
				1	1-1/3	100	53	50
				1.5	2	100	53	50
New York	2091	10-12	Roundup (MON 2139)	2	2-2/3	100	53	70
				1	1-1/3	19	78	95
				2	2-2/3	19	78	95
New York	2092	13-14	Roundup (MON 2139)	4	5-1/3	19	78	85
				1	1-1/3	19	78	85
				2	2-2/3	19	78	90
New York	2093	15-19	Roundup (MON 2139)	4	5-1/3	19	78	85
				1	1-1/3	19	78	65
				2	2-2/3	19	78	70
New York	2094	20-24	Roundup (MON 2139)	4	5-1/3	19	78	77
				1	1-1/3	19	78	77
				2	2-2/3	19	78	95
New York	2096	25-27	Roundup (MON 2139)	4	5-1/3	19	78	97
				1	1-1/3	19	78	70
				2	2-2/3	19	78	20
New York	2097	28-30	Roundup (MON 2139)	4	5-1/3	19	78	70
				1	1-1/3	19	78	70 (HC*)
				2	2-2/3	19	78	95 (HC*)
New York	2098	31-37	Roundup (MON 2139)	4	5-1/3	19	78	95 (HC*)
				1	1-1/3	19	78	70
				2	2-2/3	19	78	93
				4	5-1/3	19	78	96

CONTROL OF JOHNSONGRASS WITH ROUNDUP

Location	Exp. No.	Page	Formulation	Rate		Gal./Acre Spray Vol.	Rating Interval Days	% Weed Control Johnsongrass
				Ibs. Glypho- sate/Acre	Qts. Roundup/ Acre			
Alabama	311	1-3	Roundup (MON 2139)	1 1.5	1-1/3 2	38 38	27 27	97 100
Alabama	219	4-8	Roundup (MON 2139)	2 4 1 1.5	2-2/3 5-1/3 1-1/3 2	38 38 38 38	27 27 87 87	100 100 100 100
Arkansas	66	9-31	Roundup (MON 2139)	2 4	2-2/3 5-1/3	38 38	87 87	100 100
Arkansas	67	32-33	Roundup (MON 2139)	2	2-2/3	20	33	98
Illinois	1508	34-35	Roundup (MON 2139)	1.5	2	50	36	95
Kansas	1163	36-39	Roundup (MON 2139)	0.5 1 1.5	2/3 1-1/3 2	30 30 30	207 207 207	90 95 98
Kansas	1164	40-44	Roundup (MON 2139)	0.5 1 1.5	2/3 1-1/3 2	30 30 30	268 268 268	99 99 99
Kentucky	618	45-46	Roundup (MON 2139)	1 1.5 2 2.5	1-1/3 2 2-2/3 3-1/3	20 20 20 20	22 22 22 22	75 90 95 98
Kentucky	616	47-48	Roundup (MON 2139)	1 2 3 4	1-1/3 2-2/3 4 5-1/3	20 20 20 20	16 16 16 16	92 100 100 97

CONTROL OF QUACKGRASS WITH ROUNDUP

Location	Exp. No.	Page	Formulation	Rate		Gal./Acre Spray Vol.	Rating Interval Days	% Weed Control Quackgrass
				Lbs./Glypho- sate/Acre	Qts. Roundup/ Acre			
Iowa	2149	1-4	Roundup (MON 2139)	1	1-1/3	20	283	99
				1.5	2	20	283	99
Iowa	2150	5-8	Roundup (MON 2139)	2	2-2/3	20	283	99
				1	1-1/3	20	279	99
				1.5	2	20	279	99
Iowa	2153	9-11	Roundup (MON 2139)	2	2-2/3	20	279	99
				1	1-1/3	20	173	92
				1.5	2	20	173	90
Iowa	2155	12-14	Roundup (MON 2139)	2	2-2/3	20	173	93
				1	1-1/3	20	313	96
				1.5	2	20	313	99
Iowa	2156	15-17	Roundup (MON 2139)	2	2-2/3	20	313	99
				1	1-1/3	20	313	99
				1.5	2	20	313	99
				2	2-2/3	20	313	99
Michigan	3001	18-25	Roundup (MON 2139)	1	1-1/3	20	383	78
				1.5	2	20	383	95
Michigan	3002	26-33	Roundup (MON 2139)	2	2-2/3	20	383	91
				1	1-1/3	20	174	86
				1.5	2	20	174	93
Michigan	3003	34-41	Roundup (MON 2139)	2	2-2/3	20	174	97
				1	1-1/3	19	360	97
				1.5	2	19	360	91
Michigan	3004	42-47	Roundup (MON 2139)	2	2-2/3	19	360	98
				0.5	2/3	20	156	73
				1	1-1/3	20	156	66
				1.5	2	20	156	86
				2	2-2/3	20	156	92