Approved February 22, 1989
Date

MINUTES OF THE Senate COMMITTEE ON Agriculture.

The meeting was called to order by Senator Allen at
Chairperson

10:09 a.m./~~p.~~m. on February 16, 19 89 in room 423-S of the Capitol.

All members were present ~~except~~

Committee staff present: Raney Gilliland, Legislative Research Department
Lynne Holt, Legislative Research Department
Jill Wolters, Revisor of Statutes Department

Conferees appearing before the committee: Susan Seltsan, Assistant State Treasurer
Donna Voth, Administrative Assistant to Senator Johnson
Thomas Mitchell, Parsons
Jerry Hope, Parsons
Margaret Ahrens, Kansas Chapter of Sierra Club and Kansas Natural Resource Council
Wayne Weatherly, Kansas Aerial Applicators Assoc.
Roy Patton, County Weed Directors Association of Kansas, Harvey County, Newton
Vernon McKinzie, Legislative Chairman, Kansas Termite and Pest Control Assoc.
Donald Tannahill, Professional Lawn Care Association of Mid-America, Olathe
Pat Hubbell, Kansas Railroad Association
Dale Lambley, Director, Plant Health Division, State Board of Agriculture

Senator Allen called the committee to order and called on Susan Seltson to request a committee bill.

Susan Seltson provided the committee with copies of the proposed bill (attachment 1).

The Chairman called for committee action. Senator Lee moved the committee accept the proposed legislation relating to the pooled money investment board and authorizing certain investments for the purpose of financing loans to certain farmers and small businesses in Kansas. Seconded by Senator Sallee; motion carried.

The Chairman turned committee attention to SB 162 and called on Donna Voth.

Donna Voth introduced Thomas Mitchell, who requested SB 162, and Jerry Hope from Parsons to testify as proponents.

Thomas Mitchell gave the committee copies of his testimony with information (attachment 2).

Jerry Hope explained that he had observed the careless application of chemicals numerous times; also that he was not against the use of chemicals. Mr. Hope stated that he just wanted the wreckless use of chemicals to be controlled. Mr. Hope explained that he was concerned for the health of people and the loss of trees and vegetation by improper application.

The Chairman called on Margaret Ahrens to testify as a proponent.

Margaret Ahrens gave the committee copies of her testimony (attachment 3) which contained suggested amendments and deletions.

MINUTES OF THE Senate COMMITTEE ON Agriculture,

room 423-S, Statehouse, at 10:09 a.m./~~p.m.~~ on February 16, 1989

The Chairman called on the following to testify as opponents to SB 162:

Wayne Weatherly stated that he felt SB 162, if passed, would be duplicate legislation. Mr. Weatherly explained that the notification requested in this bill would make the cost of application of chemicals prohibitive and that he would be put out of business if the bill becomes law. Mr. Weatherly stated that Kansas already has pesticide use law and if changes are needed that current laws should be amended. Mr. Weatherly explained that drift occurs when what you are working with moves away from the place of application to a place where damage is caused.

Roy Patton gave the committee copies of his testimony (attachment 4). During discussion Mr. Patton stated that vapor drift is another kind of drift that sometimes causes troubles. Mr. Patton also answered that if passed this bill would interfere with carrying out the enforcement of the noxious weed laws.

Vernon McKinzie gave the committee copies of his testimony (attachment 5).

Donald Tannahill provided copies of his testimony (attachment 6) for the committee.

Pat Hubbell gave the committee copies of his testimony and information concerning herbicides (attachment 7) used by railroads in Kansas to control weeds along railroad tracks.

Dale Lambley spoke as neither a proponent or opponent and gave copies of his testimony (attachment 8) and expressed concerns about SB 162.

The Chairman declared the hearing completed for SB 162 and called for action on committee minutes.

Senator Sallee moved the committee minutes of February 15 be approved; Senator Francisco seconded the motion; motion carried.

The Chairman adjourned the committee at 10:54 a.m.

GUEST LIST

COMMITTEE: Senate Agriculture DATE: February 16, 1989

NAME	ADDRESS	ORGANIZATION
Don Tannahill	Olathe, KS 66061 11490 Renner Rd	Professional Lawn Care Association of Mid-America
Randy Lewis	Hiawatha	KS Farm Bureau
Carroll Mogenson	Topeka	KDOT
Evan Swartz	Topeka	Weed D-OT
William T. Scott	Topeka	KSBA
Dale Lambley	Topeka	"
Alex Hawkins	Topeka	"
Riley Walters	Cassoday	County Weed Directors
Joyce Wolf	Lawrence	Ks. Audubon Council
Margaret Arms	Topeka	Ks Chapter Sierra Club
[illegible]	Greenville, Ks	SWC
Warren Dallas	Manhattan	Kansas Farm Bureau
Vernon McKinzie	Emporia	Ks. Pest Control Assn
Dean Garwood	Topeka	Ks Pest Control Assn
Pat Hatfull	Topeka	Kans. RR. Assn.
JOHN C. BOTTENBERG	TOPEKA	KS R.R. ASSN.
Bob W. Storey	Topeka	KS Transit Assn
Kenneth M. Wilke	"	KSBA
Dennis Evans	✓	N.E. Kansas
Jerry Hope	Altamont	Individual
Donald D. McNeill	Parsons	CONSULTANT
Wayne Weatherly	Ellsworth	KAAA
Kathy Weatherley	Ellsworth	KAAA

GUEST LIST

COMMITTEE: Senate Agriculture DATE: 2-16-89

NAME	ADDRESS	ORGANIZATION
Charlene Stevens	Topeka	Ks Natural Resource Council
Ron Patton	Newton, KS	County Weed Directors Assn
Lee Baden	Topeka	NACH
Lana Oleen		Senate

BILL NO. ____

AN ACT concerning economic development; relating to the pooled money investment board; authorizing certain investments for the purpose of financing loans to certain farmers and small businesses in Kansas; prescribing certain guidelines, powers, duties and functions; imposing certain limitations.

Be it enacted by the Legislature of the State of Kansas:

Section 1. As used in this act:

(a) "Small business" means a business organized for profit, maintaining or proposing to open operations in Kansas and having less than 100 employees working in Kansas at the time of application for a loan which is financed under this section;

(b) "eligible farmer" means a farmer who is principally involved in agriculture to the extent that the farmer receives at least 70% of gross annual income from the farmer's farming or ranching business operations which are located in Kansas; and

(c) "Kansas financial institution" means any bank, as defined by K.S.A. 75-4201 and amendments thereto, any savings and loan association which is located in Kansas and which is federally insured or any credit union which is located in Kansas and which is federally insured.

Sec. 2. (a) The pooled money investment board is hereby authorized to invest up to $50,000,000 in certificates of deposit in Kansas financial institutions for the purpose of financing loans to eligible farmers and small businesses. All such deposits shall be secured pursuant to K.S.A. 75-4218 and amendments thereto.

(b) In investing or reinvesting moneys in this program and in acquiring, retaining, managing and disposing of investments of this program, there shall be exercised by the pooled money

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attachment 1

investment board in making investments under this section the judgment and care under the circumstances then prevailing, which persons of prudence, discretion and intelligence exercise in the management of their own affairs, not in regard to speculation but in regard to the permanent disposition of their funds, considering the probable income as well as the probable safety of their capital.

(c) Under the program established by this section, a Kansas financial institution may loan a maximum amount of $200,000 for a qualifying loan to a small business and may loan a maximum amount of $50,000 for a qualifying loan to an eligible farmer.

Sec. 3. This act shall take effect and be in force from and after its publication in the statute book.

TO: Senate Agriculture Committee

FROM: Thomas A. Mitchell

DATE: February 16, 1989

SUBJECT: Right-of-Way Pesticide Spraying

RE: I ask you to accept and pass Senate Bill No. 162 because chemical spraying of right-of-ways is being done on a (1) Free-Wheel, (2) Reckless, and (3) Dangerous manner.

This bill is directed at Specific Operations; see page 3 Section 2-B line 94 of the bill.

This bill outlines operating procedures which will ensure the safety of spray workers and the public.

The complexity of chemical use can be emphasized by the attached list of Herbicides, and the number of products increases each month.

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attachment 2

CHEMICAL CLASSIFICATION OF HERBICIDES FOR 1986

CHEMICAL FAMILY	PRODUCTS
1. Amides	Alanap, Betasan, Devrinol, Enide, Kerb, Prefar, Presan, Propanex, Stam, Stampede, R-25788
2. Acetanillides	Antor, Dual, Harness, Lasso, Limit, Machette, Ontrack, Ramrod.
3. Benzoics	Amiben, Banvel, Fenatrol, Casoron, Norosac.
4. Benzonitriles	Buctril, Brominal.
5. Benzothiadiazole	Basagran.
6. Bipyridyllums	Diquat, Gramozone, Paraquat, Avenge.
7. Carbanilates	Asulox, Betamix, Betanal, Betanex, Carbyne, Chem Hoe, Furloe, Spin--Aid.
8. Chlorinated Aliphatic Acids	Dalapon 85, Dowpon, Revenge, Sodium TCA.
9. Dinitroanilines	Balan, Paarlan, Prowl, Sonalan, Surflan, Treflan, Cobex.
10. Dinitrophenols	Dinitro-3, Dinitro General, Dynamyte, Hel-Fire, Premerge-3.
11. Diphenyl Ethers	Blazer, Cobra, Goal, Modown, PPG-1013, Reflex, Tackle.
12. Imidazolinones	Arsenal, Assert, Scepter, AC 263, AC-499 (now Pursuit)
13. Organical Arsenicals	Bueno 6, Broadside, Checkmate, Daconate, DSMA, Dal-E-Rad, MSMA, Weed-E-Rad, Cacodylic Acid, Kack.
14. Oxy-phenoxy-acid Esters	Assure, Fusilade 2000, Hoelon, Verdict, Whip, Poast, BAS-517, Select.
15. Phenoxy Acids	Butoxone, Butyrac, Can-Trol, 2,4-D, Dacamine, Esteron, Emulsamine, MCPA, MCP Amine, Pennamine, Rhomene, Rhonox, Salvo, Shamrox, Thistrol, Weedar, Weed-B-Gone, WEEDone.
16. Phenylureas	Cotoran, Direx, Doxer, Dynex, Graslan, Linex, Lorox, Probe, Spike, Tenoran, Tupersan.
17. Pyridinoxy and Picolinic Acids	Garlon, Lontrel, Starane, Tordon.
18. Phosphono Amino Acids	Basta, Herbiace, Ignite, Rodeo, Roundup, Touchdown, Krenite, Deploy
19. Pyridazinones and Pyridinones	Pyramin, Racer, Solicam, Sonar, Zorial, Amitrole, Command, Ror

CHEMICAL CLASSIFICATION OF HERBICIDES FOR 1986

20. Sulfonyl Ureas : Ally, Classic, Glean, Harmony, Oust, Telar, Pinnacle.

21. Thiocarbamates : Bolero, Eradican, Eradicane Extra, Eptam, Genate Plus, Genep, Genep Plus, Ordram, Reward, Ro-Neet, Surpass, Sutan +, Tillam, Vernam, Avadex, Fargo.

22. Triazines; AAtrex, Aquazine, Atratol, Atrazine, Bladex, Caliber 90, Caparol, Evik, Griffex, Igran, Lexone, Maxx 90, Milogard, Milo-Pro, Pramitol, Princep, Sancap, Sencor, Simazine, Sim-Trol, Tycor, Velpar.

23.. Uracils : Hyvar-X, Sinbar.

SIERRA CLUB

Kansas Chapter

Testimony Before Senate Committee on Agriculture

SB 162: Procedures and Standards for the Outdoor Application of Pesticides

Margaret Post Ahrens
February 16, 1989

I am Margaret Ahrens, representative in the Kansas Legislature for the 2200 members of the Kansas Chapter of the Sierra Club. This morning I am also testifying on behalf of the Kansas Natural Resource Council. Our members have long-standing concerns about the misuse of pesticides. In testimony last week on proposed changes in the Kansas Pesticide Law Kansas Sierra recommended that Kansas" require training and certification of grounds keepers, maintenance personnel, custodians, and others who apply pesticides to public places such as schools, other institutions, apartment houses, and businesses."

Although SB 162 does not address the need for training of these personnel, it does demand that these persons follow certain procedures and meet certain standards that are designed to give some protection to those persons, wildlife, plants, and water supplies in the vicinity of an area sprayed by power equipment. We support SB 162 because power spraying for the outdoor application of pesticides by railroads, state agencies, boards departments and municipalities affects large numbers of people and large areas of land, and because it addresses matters not addressed in current Kansas law.

We do recommend that sections of SB 162 relating to pesticide "drift" be altered and/or deleted. Current Kansas Board of Agriculture policy disallows drift. Rather than establishing guidelines for allowing drift and variances for it we recommend that Section 4.(a) read as follows:

Pesticide applications subject to this act shall be undertaken in a manner which does not result in off-target direct discharge OR DRIFT of pesticides, unless prior authorization and consent is obtained from the owner or lessee of the land onto which such discharge OR DRIFT may occur.

We recommend the deletion of remaining portions of Section 4 and the total of Sections 5 and 7.

SB 162 is a step toward the protection of Kansas citizens and natural resources from the harmful affects of blanket applications of pesticides. With the exception of our recommendations, we strongly urge passage of this legislation.

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attachment 3

Opposition to Senate Bill No. 162

By: Roy Patton
Harvey County Noxious Weed Director
President, County Weed Directors Assn

TESTIMONY

Senate agriculture
2-16-89
attachment 4

I oppose this bill as a Noxious Weed Director and as a spokesman for the other 104 County Director's. I come before this committee to discourage the passage of this bill.

Pesticides being a topic on the bill, we feel it is used loosely. A pesticide is an agent used to destroy pest. We feel that pesticides are covered throughly under the Kansas Pesticide Law (2-2438A - 2-2468). We feel this bill if passed would be a duplication of the Kansas Pesticide Law.

Drift being another topic on the bill we feel it is important to define drift to this committee. Drift is the movement of a pesticide in the air to areas other than the intended area of application. Drift can occur in two forms. 1) Spray or particle drift that occurs at the time of application when small spray drops are carried by air movement from the target area and 2) vapor drift, which is the movement of fumes from the target area because of pesticide evaporation or volatilization.

We feel that drift of herbicides are covered by Common Law Rules. In addition to all the state and federal statues and regulations governing the use of pesticides, farmers and commerical pesticide applicators may be held liable for improper use of pesticides common law. For centuries, Anglo American law has held that you have the right to enjoy the use of your property without undue interference from your neighbors. This common law right has been reaffirmed by court actions throughout our history and is not based on specific acts of legislators or the Congress. However, statues within each state define and limit common law rights.

Under common law, you may protect your property from trespass by another. Trespass includes drift of a pesticide from a person's property to that of another. If a pesticide drifts onto another's property and causes damage he has cause for a suit and recovery of damages. If the drift is enhanced by your negligence, the other party case against you is strengthened. Any act or ommission that creates an unreasonable risk of harm to another constitutes negligence.

Under some circumstances, use of a pesticides may constitute a nuisance, even when no trespass can be established. Spraying a roadside may create a public nuisance if for expample, the odor drifts over an adjoining urban community. In such a case, only a public offical or a class action suit may seek an injunction against continued spraying. Or the spraying may constitute a private nuisance where only a neighbor may feel an invasion of his enjoyment of his land. Here he may seek an injunction against further spraying and perhaps seek damages as well.

We feel that a high degree of care requires one to exercise reasonable precautions given the nature and location of his business, to prevent his actions from harming others.

In summary, we feel that making it mandentory to post signs where pesticides are being used is inviting trouble. We feel this will make people panic, after all we have used pesticides for decades why start posting signs now, when

pesticide formulations are safer now than ever before. We feel we live in a society where litigation is an epedemic and when people panic they react. Therefore we discourage this committee to pass this bill as written.

Comments on Senate Bill 162
to Senate Committee on Agriculture
from
Vernon McKinzie, Legislative Chairman
Kansas Termite & Pest Control Association
February 16, 1989

Mr. Chairman & members of the committee: My name is Vernon McKinzie, I am a pest control businessman from Emporia. I am chairman of the Kansas Termite & Pest Control Association legislative committee. Thank you for the opportunity to appear and offer comments on Senate Bill 162.

I am here today to speak in opposition of Senate Bill 162. It is the position of our association that present laws currently exist in Kansas that will penalize careless use and misuse of pesticides.

The situation that precipated this bill, as we understand it, was a violation of the existing statute, specifically KSA2-2454 (d) & (m). according to records and comments I have been able to learn about, the incident was not ever reported to proper authorities at the time. There are three options available for relief and/or penalty after such an incident.

1). Filing with the local county attorney for a violation of KSA 2-2454.

2). Filing with the Kansas State Board of agriculture for a pesticide misuse.

3). Filing with the federal EPA for pesticide misuse.

More laws in our opinion, are simply not necessary. Not to mention the unreasonable restraints that could be placed upon pesticide applicators who use power equipment. The costs of compliance of such laws and regulations would result in higher cost to the consumer.

We believe the current pesticide use law is adequate to penalize those who misuse or misapply pesticides in such a manner they reach beyond the target pest site and the present laws can do a good job of protecting the public and the environment if properly enforced.

Those persons who are presently employed by the state to enforce the pesticide use law are dedicated and hard working. In our opinion there is simply an insufficient number of field inspectors to cover the state. Even when violations are cited, funds are limited or non-existent to pursue punitive action. We believe if adequate funding were requested by the regulatory agency, and granted by the legislature, penalties could be assessed and violators prosecuted when applications are made carelessly and unsafely.

May I respond to questions?

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February 16, 1989

Honorable Chairperson and members of the Senate Agriculture Committee.

The following testimony is submitted against Senate Bill No. 162 as currently written.

Testimony is presented by Donald R. Tannahill, 11690 Renner Road, Olathe, Kansas 66061 (913) 782-2561. I am co-owner of TRIDON Lawn Service, Inc, and am currently a member of the Board of Directors, Professional Lawn Care Association of Mid-America. for whom I am also representing.

SPECIFIC OBJECTIONS/QUESTIONS REFERENCE SENATE BILL No. 162

Line 85 - "Powered equipment" does not include hand pumped sprayers.

Line 91 - Establishes precedures and standards for powered equipment only to minimize spray drift. It fails to include non-powered sprayers and spreaders.

Line 94 - Does not include any commercial complex who utilizes their own employed personnel to apply pesticides, ie. apartments, home associations, etc.

Line 103- Act does not apply to non-powered equipment - fails to cover applications by hand sprayer or drop/cyclone spreaders.

Line 104- Fails to include Pesticides applied in granular or pelletized form.

Line 116- Currently covered by Kansas Pesticide Use Law

Line 124- Currently covered by Kansas Pesticide Use Law

Line 128- Frequently equipment is designed and constructed "in house" plus purchased equipment is often modified thus their "Specifications" normally associated with a purchased manufacture sprayer is not available or applicable.

Line 136- Is in conflict with Kansas Pesticide Use Law with reference to maintenance of records.

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attachment 6

Line 136 - Does not allow treatment with pesticides to the extent of saturation, runoff or puddling as recommended by pesticide labels.

Line 158 - Depending on the pesticide - 10 miles an hour may be too high or not high enough.

Line 161 - Country vs Urban vs City as spray sites will have different wind speed readings.

Line 166 - The reference to any sensitive area located within 500 feet of target area is not applicable to all applications of pesticide in all areas identified in Lines 39-81.

Line 169 - There is no need for mentioning of residential lawn and ornamental tree and plant applications if this is in reference to Licensed Commercial Applicators as same are covered by the Kansas Pesticide Use Law.

Line 178 - How does this apply to apartment complex, home associations, golf courses and/or commercial properties.

Line 182 - Records required are in conflict with Kansas Pesticide Use Law

Line 194 - Is in direct conflict with Kansas Pesticide Use Law as it currently states 3 years not 2 years.

Line 196 - The manner in which this written in Lines 196-240 would include Commercial Licensed Applicators which the Professional Lawn Care Association of Mid-America is strongly opposed.

Line 198 - Is inconsistent and could be interpeted as containing hidden meaning.

Line 199 - How many signs are to be posted ie, in an apartment complex, a park, a golf course?

Line 208 - How is sing to be posted (installed)? A sign this large and being elevated one foot above soil line would require a sturdy post if a post is allowed.

Line 223- Why plural "persons"? Does this mean more than one person must approve?

Line 225- Paragraph (b) is misnumbered or else there are paragraphs missing.

Line 234- Paragraph (c) is misnumbered.

Line 241- Many trees/shrubs along a property line overhang or grow together. How do you spray one and not the other?

Line 252- An adjacent property owner can file a complaint based solely on circumstantial evidence. What if such property owner has likewise recently sprayed a herbicide which ie, caused "Tomato Kill"?

Line 271- Paragraph (3) is mis-numbered or there are paragraphs missing.

Line 275- Paragraph (c)(1) is mis-numbered.

Line 275- Needs further clarification ie. you send letter and the owner says they didn't receive same or you notify by telephone but they say they were not.

Line 281- Expects ZERO drift. The regulations implementing the Kansas Pesticide Use Law refers to measurement by parts per million (ppm).

Line 285- Fails to allow acceptable drift quantities (see comments refence Line 281) There is considerable difference in potential hazard between insecticides for tree foliar spray and even more between them and herbicides.

Line 319- What is meaning of "Any person wishing to operate under a drift management plan". Does one have a choice?

Line 322- Paragraph (c) implies that plan is for "crops" only. What constitutes "crops"?

Line 322 - Notification to the board implies a plan would be for more than one application of a pesticide with a year or two year period. What if only one application is to be or has been applied according to the original agreement?

Line 345- It could take months to develop a plan but the conditions could be changing regularly, ie. urban development.

Line 363- Challenge the terms " least obstrusive and least burdensome manner possible." To comply with this bill as written it would be less obtrusive or less burdensome.

Line 368- Recommend this be changed to read "Persons of a sensitive area desiring to be notified be required to register (at a cost to them) with the state. The state would publish a list of such persons and prove a copy of same to each Licensed Business on license is annually renewed.

Line 381- What is "effective".

Line 397- Request for additional information should read "copy of the Label and/or Material Safety Date Sheet (MSDS).

Line 403- Why have paragraph (3)? IT is not deemed necessary.

Line 444- If this act is enacted in its present form it would take considerable number of months if not years to implement.

It is considered that this bill is in direct conflict with the Kansas Pesticide Use Law which became effective January 1, 1989.

It is agreed that there are certain areas that need to be further incorporated in the Kansas Pesticide Use Law but not covered by passing another law.

This bill furthers use of pesticides by persons not covered by the Kansas Pesticide Use Law thus such application can be performed by persons not required to be Certified or for that matter required to be trained as are Certified Applicators or Registered Technicans Examples of such applicators could be Apartment Complexes or Home Associations who have their on staff personnel apply such pesticides.

It is my contention that any applications of pesticides at any location (other than homeowner) should be covered by the Kansas Pesticide Use law and be required to comply with all provisions therein.

Donald R. Tannahill

DONALD R. TANNAHILL

KANSAS RAILROAD ASSOCIATION

920 S.E. QUINCY
P.O. BOX 1738
TOPEKA, KANSAS 66628

PATRICK R. HUBBELL
DIRECTOR-PUBLIC AFFAIRS

913-357-3392

Statement of the
Kansas Railroad Association

Presented to the Senate Agriculture Committee
The Honorable Jim Allen, Chairman

Statehouse
Topeka, Kansas
February 16, 1989

* * * * * * * * *

Mr. Chairman and Members of the Committee:

My name is Pat Hubbell. I am Director-Public Affairs for the Kansas Railroad Association. I appear here today in opposition to Senate Bill 162 and in particular the notification requirements of this bill.

Members of the Kansas Railroad Association operate over 7,000 miles of railroad right-of-way in Kansas, 6,200 miles of which are operated by Class I railroads, the remaining being operated by short line railroad companies.

Weed and brush control is critical to railroad operations. If uncontrolled, weeds and brush can

- be ignited by sparks from passings trains;
- interfere with the vision of train crews;
- interfere with the vision of motorists at grade crossings;
- undermine ballast and roadbed, thereby producing unstable track foundations;
- interfere with communications and signal systems; and
- create hazards for railroad work crews.

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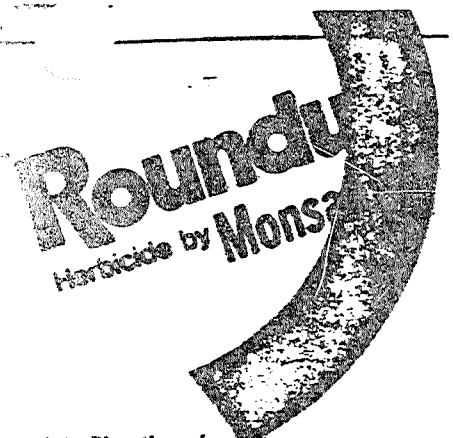
attachment 7

Most railroad right-of-way in Kansas is sprayed for weeds and brush once a year. Some right-of-way, especially in Western Kansas, is sprayed twice a year. In some cases the railroads have agreements with the counties to share in the cost of spraying on a 50-50 basis where county roads parallel railroad right-of-way. In most cases the railroad sprays its own property with non-restricted use herbicides and only in a few cases is the spraying independently contracted. I have attached to this statement a copy of the most often used herbicides by railroads in Kansas.

In conclusion since 1984 on the Santa Fe Railroad, which operates approximately 40% of the tracks in Kansas, $3,471 was paid over 8 claims for herbicide damage off the railroad property. I urge the Committee to report Senate Bill 162 adversely.



Complete Directions for Use

EPA Reg. No. 524-308-AA

For use of this product in California see page 79

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

1982-2 897.10-002.02/53

Read each of these sections of this label for essential product performance information.

Read the entire label.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

LIMIT OF WARRANTY AND LIABILITY

...s company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this company, including but not limited to incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather (i. weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied with the normal range being determined on the basis of the average range for the prior 40 years computed from the best available information, and ii. weather perils, including but not limited to hurricanes, tornadoes and floods) as well as weather considerations set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

The buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

PRECAUTIONARY STATEMENTS

Hazard to Humans and Domestic Animals

Keep out of reach of children.

WARNING!

CAUSES EYE IRRITATION.

HARMFUL IF SWALLOWED.

Do not get in eyes, on skin or on clothing.

FIRST AID: IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Call a physician. IF ON SKIN, flush with water. Wash clothing before reuse.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Environmental Hazards

Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment.

Storage and Disposal

Avoid contamination of seed, feed, and foodstuffs.

Do not reuse container, destroy when empty.

ACTIVE INGREDIENT	
*Isopropylamine salt of glyphosate	41.0%
INERT INGREDIENTS	59.0%
	100.0%

*Contains ... grams per liter or 4 pounds of the active ingredient isopropylamine salt of N-(phosphonomethyl) glycine per U.S. gallon. Equivalent to 356 grams per liter or 3 pounds per U.S. gallon of the acid, glyphosate.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167 U.S.A.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

Roundup* herbicide, a water soluble liquid, mixes readily with water to be applied as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Unless otherwise specified on this label delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "Weeds Controlled" section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow for the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or

7-3

Roundup CODE # - 03

DUPONT

REG. U.S. PAT. & TM. OFF.

Oust® HERBICIDE

ACTIVE INGREDIENT: Sulfometuron methyl
Methyl 2-[[[[(4,6-dimethyl-2-pyrimidinyl)amino]carbonyl]amino]sulfonyl]benzoate 75%

INERT INGREDIENTS 25%

U.S. Pat. 4,394,506

EPA Reg. No. 352-401

KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENTS — HAZARDS TO HUMANS

CAUTION! MAY IRRITATE EYES, NOSE, THROAT AND SKIN.

Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing.

If in eyes, immediately flush with plenty of water and get medical attention. If on skin, immediately flush with plenty of water and get medical attention if irritation persists.

For medical emergencies involving this product, call toll free 1-800-441-3637.

ENVIRONMENTAL HAZARDS

Do not apply directly to wetlands or any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only, away from other pesticides, fertilizer, food or feed.

DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

NOTICE OF WARRANTY

Du Pont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Du Pont. In no case shall Du Pont be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. DU PONT MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

IMPORTANT

Do not use on food or feed crops. Injury to or loss of desirable trees or other plants may result from failure to observe the following: Do not apply (except as recommended), or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not apply where runoff water may flow onto agricultural land or into surface water being used for irrigation, as injury to crops may result. In addition, do not apply directly to any body of water. Powdery, dry soil and light, sandy soils should not be treated when there is little likelihood of rainfall after treatment. Treated soils should be left undisturbed to reduce the potential for "Oust" movement by soil erosion due to wind or water. Injury to crops may occur when treated soil is blown or moved onto land used to produce crops. Do not use on lawns, walks, driveways, tennis courts or similar areas. Prevent drift of spray to desirable plants. Keep from contact with fertilizers, insecticides, fungicides and seeds.

Following an "Oust" application, the spray tank used should not be used for other than noncrop applications. This is extremely important, as low rates of "Oust" can kill or severely injure most crops.

GENERAL INFORMATION

Du Pont "Oust" Herbicide is a dispersible granule to be mixed in water and applied as a spray for control of many annual and perennial grasses and broadleaf weeds on noncropland areas.

"Oust" may be applied preemergence or postemergence to the weeds; best results are obtained if application is made before or during early stages of weed growth. "Oust" may be used at any time of the year except when ground is frozen, provided adequate moisture is available for herbicide activation. Under limited rainfall conditions, "Oust" may not provide satisfactory control of hard-to-kill perennials.

To reduce the potential for off-target movement, do not apply "Oust" during periods of intense rainfall or to soils saturated with water.

"Oust" is absorbed by both roots and foliage of weeds, resulting in visual effects progressing from growth inhibition to reddish-purplish coloration, chlorosis, necrosis, vein discoloration and death of terminals. Initial effects are usually seen 2 or 3 weeks following application; however, the final effects are evident at about 4 to 6 weeks after application.

The degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other environmental conditions. Follow all use precautions on label.

E. I. DU PONT DE NEMOURS & CO. (INC.), AGRICULTURAL PRODUCTS DEPARTMENT, WILM., DE 19898

Continued ▸

Pressure Sensitive Label

Atratol® 4LC

Herbicide

For weed control in noncrop areas
and industrial sites

Active Ingredients:	
Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine	40.8%
Related compounds	2.2%
Inert Ingredients:	57.0%
Total:	100.0%

Gallons
U.S. Standard Measure

Atratol 4LC contains 4 lbs. active ingredients per gal.

Keep Out of Reach of Children.

Caution

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed, inhaled, or absorbed through skin. Do not breathe vapors or spray mist. Avoid contact with eyes, skin or clothing.

First Aid: If swallowed, contact your local poison control center, hospital, or physician. If the patient is unconscious, maintain breathing and heartbeat (cardiopulmonary

/Continued ... 2

Atratol®

90

SAMPLE LABEL

bare ground weed control

high suspensibility formulation

easy wetting

Herbicide

For nonselective weed control on industrial sites and noncrop areas

Do not use on agricultural lands

Active Ingredients:

Atrazine: 2-chloro-4-ethylamino-6-isopropyl-amino-s-triazine ...	85.5%
Related compounds	4.5%
Inert Ingredients:	10.0%
Total:	100.0%

Atratol 90 is a water dispersible granule

Keep Out of Reach of Children.

Caution

See additional precautionary statements on panel below.

EPA Est. 100-LA-1
EPA Reg. No. 100-622

See directions for use on panel below.

25 Pounds
Net Weight

CIBA–GEIGY

CGA '30-621

7-6

Specimen Label

Garlon* 4
Herbicide

For the control of Woody Plants and Broadleaf Weeds on Rights-of-Way, Industrial Sites and Non-crop Areas, and for Use in Forests

Active Ingredient(s):
Triclopyr (3,5,6-trichloro-2-pyridinyloxyacetic acid), Butoxyethyl Ester 61.6%
Inert Ingredients 38.4%
Acid Equivalent: Triclopyr - 44.3% - 4 lb/gal
Contains petroleum distillates
E.P.A. Registration No. 464-554
E.P.A. Est. 464-MI-1

KEEP OUT OF REACH OF CHILDREN

CAUTION

AVISO:

PRECAUCION AL USUARIO:
Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN

Avoid Contact With Eyes, Skin, Or Clothing • Avoid Breathing Mists or Vapors • Avoid Contamination Of Food • Wash Thoroughly After Handling • Remove And Wash Contaminated Clothing Before Reuse

STATEMENT OF PRACTICAL TREATMENT: In case of skin contact, flush skin with plenty of water. Get medical attention if irritation persists. **If swallowed,** do not induce vomiting. **Call a physician.**

Physical or Chemical Hazards

COMBUSTIBLE • Do Not Use or Store Near Heat or Open Flame. • Do Not Cut or Weld Container.

Environmental Hazards

This pesticide is toxic to fish. Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes.

NOTICE
Read the entire label. Use only according to label directions.

Before buying or using this product, read "WARRANTY LIMITATIONS AND DISCLAIMER" elsewhere on this label. If terms are not acceptable, return unopened package at once to seller for full refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under "WARRANTY LIMITATIONS AND DISCLAIMER."

IN CASE OF AN EMERGENCY

endangering life or property involving this product, call collect 517-636-4400

AGRICULTURAL CHEMICAL
Do Not Ship or Store with Food, Feeds, Drugs, or Clothing

See Back Panel for Important Use Precautions.

Garlon* 4

PRECAUTIONARY STATEMENTS

HAZARD TO HUMANS & DOMESTIC ANIMALS

CAUTION

May cause irritation of eyes, nose, throat and skin. Avoid breathing dust. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

ENVIRONMENTAL HAZARD

Do not apply directly to any body of water. Do not contaminate water by cleaning of equipment or disposal of waste.

DIRECTIONS FOR USE

It is a violation of federal laws to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

STORAGE:

To maximize the shelf life of this product, store in dry area where the container is not likely to come in contact with moisture.

DISPOSAL:

Do not contaminate water, food or feed by storage or disposal.

Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility.

(For Plastic Buckets) Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

(For Bags) Completely empty bag into application equipment. Then dispose of bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

WEED BLAST 4-G

WEED KILLER

ACTIVE INGREDIENTS:

Bromacil (5-bromo-3-sec-butyl-6-methyluracil)	2%
Diuron [3-(3,4-dichlorophenyl)-1, 1-dimethylurea]	2%
INERT INGREDIENTS	96%
Total	100.0%

SAMPLE LABEL

KEEP OUT OF REACH OF CHILDREN

CAUTION!

STATEMENT OF PRACTICAL TREATMENT

If in eyes: Flush with plenty of water. Get medical attention if irritation persists.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.

See side panel for additional precautionary statements.

NET CONTENTS: 50 POUNDS

MANUFACTURED FOR

MOBLEY CHEMICALS, INC.

3800 Stone Road • Kilgore, Texas 75662

EPA REGISTRATION NO. 26932-1 EPA ESTABLISHMENT NO. 39578-TX-1

NON-CROP WEED CONTROL INDUSTRIAL USE OF

Weed Blast 4-G is a non-selective herbicide for controlling a wide range of annual and perennial weeds and grasses. It is recommended only for noncropland areas such as railroad, utility and highway rights of ways and industrial areas. 200- to 400-pound applications of Weed Blast 4-G per acre usually result in a nonproductive condition of the soil for a period of a year or more. The duration of non-productivity is dependent upon rainfall, soil type, and other conditions.

Weed Blast 4-G should be applied as furnished with a seed spreader, a fertilizer spreader, or with any equipment which will distribute the chemical uniformly over the area to be treated. For the control of annual and most perennial weeds and grasses, apply Weed Blast 4-G at the rate of 200 to 400 pounds per acre; on small plots 1/2 to 1 pound per 100 square feet. Repeat spot treatment may be required when deep-rooted perennial weeds are present. To obtain the best results, Weed Blast 4-G should be applied to the ground where it will be absorbed by the roots. Applications made early in the season have been found to give results superior to applications at a later seasonal date. Weed Blast 4-G may, however, be applied at any time of the year except when the ground is frozen. Maximum effectiveness in arid regions is obtained when application is made just prior to the rainy season. Users should consult state agricultural experimental stations or extension service weed specialists for recommendations as to use in their particular area or write to this manufacturer.

IMPORTANT: Do not apply on or near valuable woody or herbaceous plants or on areas where their roots may extend because of possible injury to such plants. Thoroughly clean spreading equipment with a suitable chemical cleaner before using for other purposes (or do not use same spreading equipment for other purposes). Dispose of rinsate according to "Pesticide Disposal" instructions found under "Storage and Disposal" heading. Do not use on croplands or any land to be used for subsequent cropping. Keep animals off treated areas.

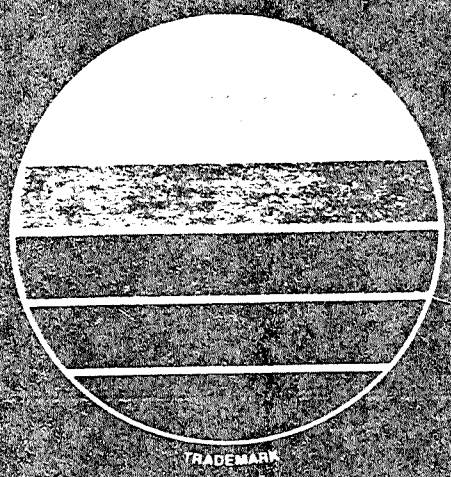
7-8

SPECIMEN LABEL 125% OF ACTUAL SIZE

DU PONT

Telar®

HERBICIDE



TRADEMARK

DISPERSIBLE GRANULE **NET WT 18 oz (1 lb. 2 oz)**

ACTIVE INGREDIENT: Chlorsulfuron
2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl]benzenesulfonamide 75%
INERT INGREDIENTS 25%
U.S. Pat. 4,127,405 EPA Est. 352-WV-1 EPA Reg. No. 352-404

KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS

CAUTION! MAY IRRITATE EYES, NOSE, THROAT, AND SKIN.

Avoid breathing dust or spray mist.

Avoid contact with skin, eyes, and clothing.

In case of contact with eyes, immediately flush with plenty of water. Get medical attention if irritation persists. Wash thoroughly after handling. Remove and wash contaminated clothing before reuse.

For medical emergencies involving this product, call toll free 1-800-441-3637.

ENVIRONMENTAL HAZARDS

Do not apply directly to any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

Agricultural Products Department, Wilmington, Delaware

IMPORTANT

Do not use on food or feed crops. Injury to, or loss of, desirable trees or other plants may result from failure to observe the following: Do not apply (except as recommended), or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not apply where runoff water may flow onto agricultural land as injury to crops may result. Do not contaminate any body of water, including irrigation water. Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to cropland and other desirable plants. Keep from contact with fertilizers, insecticides, fungicides and seeds.

Following a Telar® application, the spray tank should not be used for other than non-crop applications. This is extremely important as low rates of Telar® can kill or severely injure most crops.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only, away from other pesticides, fertilizer, food or feed.

DISPOSAL: Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

7-9

DECEMBER

Arsenal

CODE # - 19

ARSENAL®

herbicide

ACTIVE INGREDIENT:

2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid with 2-propanamine (1:1) salt[1] 27.6%

INERT INGREDIENT 72.4%

[1]Equivalent to 22.6% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon.

EPA Reg. No. 241-273

EPA Est. No. 5905-AR-1

CYANAMID

KEEP OUT OF REACH OF CHILDREN

CAUTION!

See Side Panel for Other Warnings

SPECIMEN

PRECAUCION

PRECAUCION AL USUARIO: Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

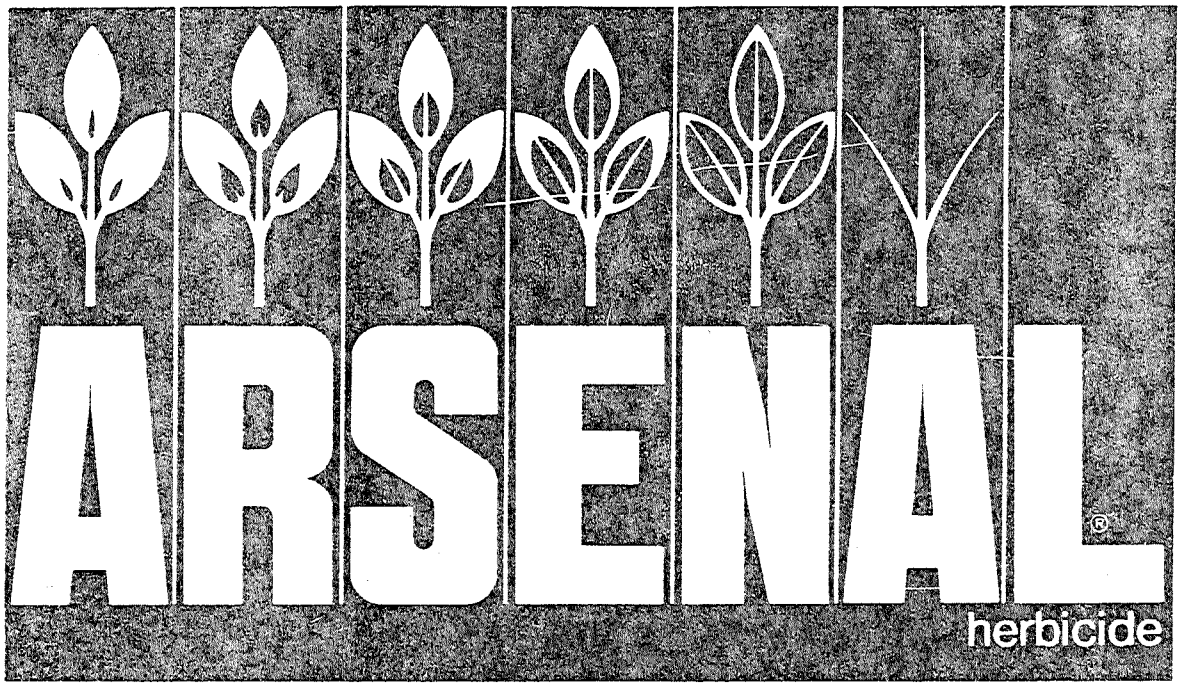
In case of an emergency endangering life or property involving this product, call collect, day or night, Area Code 201-835-3100.

D41

Net Contents: 5 gallon (18.90 liters)

7-10

JULY 1987



0.5 Granule

FOR USE IN NONCROP AREAS

ACTIVE INGREDIENT:	
Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid) . .	0.5%
INERT INGREDIENT	99.5%
TOTAL	100.0%

EPA Reg. No. 241-295

KEEP OUT OF REACH OF CHILDREN
CAUTION!

See Side Panel for Additional Precautionary Statements

PRECAUCION

AL USUARIO: Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

In case of an emergency endangering life or property involving this product, call collect, day or night, Area Code 201-835-3100

D40
(7/87)

® Registered Trademark of American Cyanamid Company

7-11

Atratol® 8P

SAMPLE LABEL

Pelleted Herbicide

For control of weeds on noncrop land

50 Pounds
Net Weight

Active Ingredients:

Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-*s*-triazine	7.6%
Atrazine-related compounds	0.4%
Sodium chlorate ($NaClO_3$)	40.0%
Sodium metaborate* ($Na_2B_2O_4$-$5H_2O$)	47.0%
Inert Ingredients:	5.0%
Total:	100.0%

*Equivalent to 4.58% boron expressed as elemental boron

Keep Out of Reach of Children.

Caution

See additional caution statements on back of bag.

EPA Reg. No. 100-475

Control No. 47235

See directions for use on back of bag.

CIBA-GEIGY

CGA 130-496A

7-12

PRECAUTIONARY STATEMENTS

HAZARD TO HUMANS (& DOMESTIC ANIMALS)

CAUTION

Causes (moderate) eye injury (irritation). Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling. Harmful if absorbed through skin.

ENVIRONMENTAL HAZARD

Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of waste.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

1. PROHIBITIONS
   Do not contaminate water, food, or feed by storage or disposal.
2. PESTICIDE DISPOSAL
   Pesticide that cannot be used according to lable instructions must be disposed of according to applicable federal, state or local procedures.
3. CONTAINER DISPOSAL
   Completely empty bag by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of bags in a sanitary landfill or by incineration if allowed by state and local authorities.
4. GENERAL
   Consult Federal, State or Local disposal authorities for approved alternative procedures such as limited open burning.

7-13

SPRAKIL
SK-13 GRANULAR
WEED KILLER

ACTIVE INGREDIENTS:

Tebuthiuron 1-(5-tert-butyl-1, 3, 4-thiediazol-2yl)-1, 3-dimethylurea	1.0%
*Equivalent to 1.25% Spike ®80W. Spike is the registered trademark of Tebuthiuron, Elanco Products Company, a division of Eli Lilly and Company.	
Diuron 3-(3, 4-dichlorophenyl)-1, 1-dimethylurea	3.0%
INERT INGREDIENTS	96.0%
Total	100.0%

KEEP OUT OF REACH OF CHILDREN

CAUTION

AVOID BREATHING DUST

If in eyes: Flush with plenty of water.
Get medical attention if irritation persists.

See back panel for additional Precautionary Statements.

MANUFACTURED FOR

SSI INDUSTRIES, INC.
4711 PIEDMONT ROAD
HUNTINGTON, W. VA. 25704

EPA Registration No. 34913-15
EPA Establishment No. 39578-TX-1

NET CONTENTS: 50 Pounds

NON-CROP WEED CONTROL

INDUSTRIAL USE

SpraKil SK-13 Granular is a residual herbicide for controlling a wide range of annual and perennial weeds and grasses. It is recommended only for non-cropland areas such as railroad rights-of-way and industrial areas. 150 to 400 pound applications of SpraKil SK-13 Granular per acre usually result in a non-productive condition of the soil for a period of a year or more. The duration of non-productivity is dependent upon rainfall, soil type and other conditions.

SpraKil SK-13 Granular should be applied as furnished with a seed spreader, a fertilizer spreader, a shaker type applicator, or with any equipment which will distribute the chemical uniformly over the area to be treated. Application equipment is available from SSI Industries, Inc. For the control of annual and most perennial weeds and grasses, apply SpraKil SK-13 Granular at the rate of 150 to 400 pounds per acre; on smaller plots, 0.35 to 1.0 pounds per 100 square feet. Repeat spot treatment may be required when deep rooted perennial weeds are present. To obtain the best results, SpraKil SK-13 Granular should be applied to the ground where it will be absorbed by the roots. Applications made early in the season have been found to give results superior to applications at a later seasonal date. SpraKil SK-13 Granular may, however, be applied at any time of the year. Maximum effectiveness in arid regions is obtained when application is made just prior to the rainy season. Users should consult state agricultural experimental stations or extension service weed specialists for recommendations as to use in their particular area or write to SSI Industries, Inc.

IMPORTANT: Do not apply on or near valuable woody or herbaceous plants or on areas where their roots may extend, because of possible injury to such plants. Thoroughly clean spreading equipment with a suitable chemical cleaner before using for other purposes (or do not use same spreading equipment for other purposes). Do not contaminate irrigation ditches or water used for domestic purposes. Do not use on crops or any land to be used for crop cropping. Keep animals off treated areas.

DUPONT
REG. U.S. PAT. & TM. OFF.

EPA Est. 34704-MS-1; 34704-NE-2
Superscript used is first letter of lot number.

Karmex® DF HERBICIDE

ACTIVE INGREDIENT: Diuron [3-(3,4-dichlorophenyl)-1,1-dimethylurea] 80%
INERT INGREDIENTS 20%

EPA Reg. No. 352-506

Keep out of reach of children
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS

WARNING! CAUSES EYE IRRITATION. MAY IRRITATE NOSE, THROAT AND SKIN.

Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling.

STATEMENT OF PRACTICAL TREATMENT

If on skin: Wash with plenty of soap and water; get medical attention if irritation persists.

If in eyes: Flush with plenty of water; get medical attention if irritation persists.

FOR MEDICAL EMERGENCIES INVOLVING THIS PRODUCT, CALL TOLL FREE 1-800-441-3637.

ENVIRONMENTAL HAZARDS

Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes. Cover or incorporate spills.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only, away from other pesticides, fertilizer, food or feed.

DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

NOTICE OF WARRANTY

Du Pont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with the directions under normal use conditions. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Du Pont. In no case shall Du Pont be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. DU PONT MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

Continued on back side ▶

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DU PONT

Karmex® DF

HERBICIDE

TRADEMARK

DISPERSIBLE GRANULES

7-15

DU PONT

EPA Est. 34704-MS-1; 34704-NE-2
Superscript used is first letter of lot number.

Karmex® DF HERBICIDE

ACTIVE INGREDIENT: Diuron [3-(3,4-dichlorophenyl)-1,1-dimethylurea] 80%
INERT INGREDIENTS 20%

EPA Reg. No. 352-508

Keep out of reach of children
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS

WARNING! CAUSES EYE IRRITATION. MAY IRRITATE NOSE, THROAT AND SKIN.

Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling.

STATEMENT OF PRACTICAL TREATMENT

If on skin: Wash with plenty of soap and water; get medical attention if irritation persists.

If in eyes: Flush with plenty of water; get medical attention if irritation persists.

FOR MEDICAL EMERGENCIES INVOLVING THIS PRODUCT, CALL TOLL FREE 1-800-441-3637.

ENVIRONMENTAL HAZARDS

Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes. Cover or incorporate spills.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only, away from other pesticides, fertilizer, food or feed.

DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

NOTICE OF WARRANTY

Du Pont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with the directions under normal use conditions. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Du Pont. In no case shall Du Pont be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. DU PONT MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

Continued on back side ▶

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IMPORTANT—Injury to or loss of desira[illegible]es or other plants may result from failure to observe the [illegible]ng:
Do not apply (except as recommended for crop u[illegible]r drain or flush equipment on or near desirable trees or othe[illegible]nts, or on areas where their roots extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not use on home plantings of trees, shrubs, herbaceous plants, nor on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of dry powder or spray to desirable plants. Do not contaminate any body of water. Keep from contact with fertilizers, insecticides, fungicides and seeds. Do not apply this product through any type of irrigation system.

Thoroughly clean all traces of "Karmex" DF from application equipment immediately after use. Flush tank, pump, hoses and boom with several changes of water after removing nozzle tips and screens (clean these parts separately).

GENERAL INFORMATION

Du Pont "Karmex" DF Herbicide is a dispersible granule to be mixed in water and applied as a spray for selective control of weeds in certain crops and for nonselective weed control on non cropland areas. It is noncorrosive to equipment, nonflammable and nonvolatile.

"Karmex" DF may be applied to soil prior to emergence of weeds to control susceptible weed seedlings for an extended period of time; the degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other conditions. Soils high in clay or organic matter require higher dosages than soil low in clay or organic matter to obtain equivalent herbicide performance. Moisture is required to activate the chemical; best results occur if rainfall (or sprinkler irrigation) occurs within 2 weeks of application.

"Karmex" DF applied preemergence, before emergence of crop and weeds, is an effective procedure because susceptible weeds are controlled in an early, vulnerable seedling state before they compete with the crop. With favorable moisture conditions, "Karmex" DF continues to control weeds for some time as the crop becomes better able to compete. Should weed seedlings begin to break through the preemergence treatment in significant numbers, secondary weed control procedures should be implemented; these include cultivation and postemergence herbicide application.

"Karmex" DF may also be used to control emerged weeds. Results vary with rate applied and environmental conditions; best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70°F or higher. Addition of a surfactant such as Du Pont Surfactant WK to the spray (where recommended) increases contact effects of "Karmex" DF.

"Karmex" DF may be used as a directed postemergence application, where spray nozzels are adjusted so the weeds are sprayed but the crop is not, on the following crops: artichoke, corn (field), cotton, sorghum (grain), sugarcane, and established plantings of apples, bananas, plantains, blueberries, caneberries, gooseberries, citrus, grapes, macadamia nuts, olives, papayas, peaches, pears, pecans, walnuts and certain tree plantings.

Under specified conditions (see Directions for Use), "Karmex" DF without surfactant may be applied over the top of alfalfa (established, dormant or semidormant), asparagus (established), birdsfoot trefoil (established, dormant), grass seed crops (established), oats, red clover (established, dormant), surgarcane, wheat, pineapple and plumosus fern (established, mowed).

Weed species vary in susceptibility to "Karmex" DF and they may be more difficult to control when under stress. Combinations of "Karmex" DF with other herbicides (as registered) increase the number of weed species controlled; consult labels of the companion product for this and other information.

Since the effect of "Karmex" DF varies with soils, uniformity of application, and environmental conditions, it is suggested that growers limit their first use to small areas. Observe all cautions and limitations on labeling of all products used in mixtures.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Du Pont "Karmex" DF Herbicide should be used only in accordance with recommendations on this label, or in separate published Du Pont recommendations available through local dealers.

Du Pont will not be responsible for losses or damages resulting from use of this product in any manner not specifically recommended by Du Pont. User assumes all risk associated with such non recommended use.

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Farm workers performing hand labor operations should not enter treated cropland areas without protective clothing until sprays have dried. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to farm workers performing hand operations who are expected to be in a treated cropland area or in an area about to be treated with this product. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Warnings must include the following information: "CAUTION. Area treated with "Karmex" DF on (date of application). Do not enter without appropriate protective clothing until sprays have dried. In case of contact, wash skin with plenty of soap and water; flush eyes with plenty of water. Get medical attention if irritation to skin or eyes persist".

Do not use in Kern County, California, except for non cropland and citrus weed control.

SELECTIVE USE IN CROPS

PREEMERGENCE USE (Germinating Weeds): "Karmex" DF, at recommended rates, controls annual weeds such as:

Broadleaves			Grasses		
¾ to 1 Lb/Acre	1½ to 2 Lbs/Acre	2 to 6 Lbs/Acre	¾ to 1 Lb/Acre	1½ to 2 Lbs/Acre	2 to 6 Lbs/Acre
Lambsquarters	Annual groundcherry	Ageratum	Barnyardgrass (watergrass)	Annual bluegrass	Annual lovegrass
Pigweed	Annual morningglory	Annual smartweed	Crabgrass	Annual sweet vernalgrass	Annual ryegrass
Purslane	Chickweed	Annual sowthistle		Foxtail	Kylinga
Ragweed	Corn spurry	Corn speedwell		Rattail fescue	Orchardgrass
	Dogfennel	Dayflower		Red sprangletop	Peppergrass
	Fiddleneck (amsinckia)	Flora's paintbrush		Velvetgrass	Ricegrass
	Gromwell	Hawksbeard			Sandbur
	Knawel	Horseweed			Seedling johnsongrass
	Pennycress	Kochia			
	Shepherdspurse	Marigold			
	Tansy-mustard	Mexican clover			
	Wild buckwheat	Pineappleweed			
	Wild lettuce	Pokeweed			
	Wild mustard	Rabbit tobacco			
		Spanishneedles			
		Velvetleaf (buttonweed)			
		Wild radish			

Partial control of the following weeds usually occurs at rates stated:

Broadleaves		Grasses	
1 Lb/Acre	4 Lbs/Acre	4 Lbs/Acre	8 to 10 Lbs/Acre
Annual morningglory	Horsenettle	Quackgrass	Guineagrass
Cocklebur			Maidencane
Prickly sida (teaweed)			Pangolagrass
Sesbania			
Sicklepod			

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POSTEMERGENCE USE (Emerged Seedlings)
"Karmex" DF at recommended rates, controls annual weeds such as annual morningglory, barnyardgrass (watergrass), crabgrass, crowfoot, goosegrass, pigweed and purslane. Addition of Surfactant WK to the spray (where recommended) increases contact effects of "Karmex" DF. Best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70°F or higher.

EQUIPMENT—SPRAY VOLUMES AND PRESSURES
Use a boom power sprayer properly calibrated to a constant speed and rate of delivery. Openings in screens should be equal to or larger than 50 mesh. Continuous agitation in the spray tank is required to keep the material in suspension. Agitate by mechanical or hydraulic means; if by-pass or return line is used, it should terminate at bottom of tank to minimize foaming. Avoid overlapping, and shut off spray booms while starting, turning, slowing or stopping, or injury to the crop may result.

For preemergence application, use 25 to 40 gals per acre and spray pressure of 30 to 40 psi. For postemergence application, use sufficient volume (min 25 gals per acre) for thorough coverage of weed foliage; use spray pressure of 20 to 25 psi to keep spray drift to a minimum.

Aerial: For alfalfa, asparagus, barley (winter), cotton (preplant or preemergence only), grass seed crops, pineapple, sugarcane and wheat (winter), application may be made by aircraft (5 to 10 gals per acre); avoid overlapping of spray swath and avoid application under conditions where excessive drift may occur. Where land is bedded, make application parallel to rows.

SPRAY PREPARATION
Mix proper amount of "Karmex" DF into necessary volume of water; where use of Du Pont Surfactant WK is recommended, dilute with 10 parts of water and add as last ingredient to nearly full tank.

USE RATES:
All dosages of "Karmex" DF are expressed as broadcast rates; for band treatment, use proportionately less. For example, use 1/3 of the broadcast rate when treating a 14" band where row spacing is 42". Where a range of dosages is given, use the lower rate on coarse textured soils (low in clay or organic matter) and the higher rate on the fine textured soils (high in clay or organic matter); for postemergence application, use the lower rate on smaller weeds and the higher rate on larger weeds.

SOIL LIMITATIONS:
Crop injury may result from failure to observe the following:

Unless otherwise directed, do not use on sand, loamy sand, gravelly soils or exposed subsoils; nor on pecans where organic matter is less than ½%; nor on alfalfa, apples, artichoke, barley (winter), bermudagrass pasture, citrus, cotton, grapes, oats, olives, papayas, peaches, pears, plumosus fern, sorghum, sugarcane, walnuts and wheat (winter) where organic matter is less than 1%; nor on blueberries, birdsfoot trefoil, caneberries, gooseberries, macadamia nuts and peppermint where organic matter is less than 2%.

Preemergence weed control will be reduced on high organic matter soils (greater than 5%, such as peat or muck).

REPLANTING
Unless otherwise directed, do not replant treated areas to any crop within 2 years after last application as injury to subsequent crops may result.

• FIELD CROPS
(See Soil Limitations)

A good seedbed must be prepared before preemergence use of "Karmex" DF as crop injury may result if application is made to ground which is cloddy or compacted resulting in improperly planted seed. Plant seed to depth specified. Unless otherwise directed, surface of the soil should not be cultivated or disturbed after application of "Karmex" DF and before emergence of the crop as weed control may be reduced and crop injury may result. However, if moisture is insufficient to activate the herbicide, a shallow cultivation (rotary hoe preferred) should be made after emergence of crops while weeds are small enough to be controlled by mechanical means.

• ALFALFA
Treat only stands established for 1 year or more. Do not apply to seedling alfalfa nor to alfalfagrass mixtures; do not apply to alfalfa under stress from disease, insect damage, shallow root penetration (such as on shallow hard pans), alkali spots; nor to flooded fields as crop injury may result. Do not spray on snow-covered or frozen ground.

Idaho, Oregon, Washington: Use 1½ to 3 lbs per acre; for control of volunteer alfalfa, use 4 lbs per acre. Apply in fall after alfalfa becomes dormant but no later than mid-December.

California (Dormant and Semi-Dormant Varieties): Use 1½ to 3 lbs per acre; for control of volunteer alfalfa, use 4 lbs per acre. Apply in fall or winter after alfalfa becomes dormant or semi-dormant, but before growth begins in the spring. Crop injury may result if application is made to actively growing alfalfa. For best results, apply before weeds have emerged or become established (2" in height or diameter). Control of established weeds is improved by applying "Karmex" DF with a suitable contact herbicide registered for such use. Sufficient rainfall for soil activation of "Karmex" DF is unlikely in California after February 1. Treated areas may be replanted to any crop after one year from last application if rate does not exceed 2 lbs per acre.

Arizona, Nevada: Use 1½ to 3 lbs per acre; apply in fall after alfalfa becomes dormant but no later than January.

Eastern Colorado, Kansas: For control of tansymustard, apply 1 lb per acre shortly after emergence of mustard in the fall or winter; use 2 lbs per acre if weeds are 2" to 4" in height. Alternatively, if other annual weeds are present, apply 2 to 3 lbs per acre in February or March.

Other Areas Where Alfalfa Becomes Winter Dormant: Use 1½ to 3 lbs per acre (1½ to 2 lbs per acre East of Appalachian Mountains). Apply in March or early April, but before spring growth begins.

• ARTICHOKE—California
Apply 2 to 4 lbs per acre in late fall or early winter after the last cultivation. Apply before weeds germinate or to emerging seedlings. Direct spray to cover the area between the rows and at the base of artichoke plants, keeping contact with crop plants at a minimum.

• ASPARAGUS
Apply as a band or broadcast treatment. Do not apply to young plants during the first growing season (except as noted below), nor to newly seeded asparagus, nor on plants with exposed roots as severe injury may result. Preemergence weed control will be reduced on high organic matter soils (greater than 5%).

Established Plantings: On light sandy soils and other soils low in clay or organic matter, apply 1 to 2 lbs per acre. On soils high in clay or organic matter, use 2 to 4 lbs per acre. Two applications may be used; the first application should be made before weeds become established but no earlier than 4 weeks before spear emergence and no later than the early cutting period (if weeds are controlled into the cutting period by cultural practices, application may be delayed until immediately after the last cultivation); a second application may be made immediately following completion of harvest provided rainfall is expected. When two applications are used in one season, do not exceed 3 lbs per acre per application. In Washington (irrigated crop), apply a single treatment of 4 lbs per acre. If treatment is delayed until late winter or early spring, incorporation of the chemical in the top 1" to 2" of soil may substitute for lack of rain to activate the herbicide.

Newly Planted Crowns—California (San Joaquin Delta): Make a single application of 2 to 4 lbs per acre on soils high in clay or organic matter; use the lower rate on clay loams and the higher rate on peat soils. Do not use on soils containing less than 2% organic matter. Soil must be settled by rainfall or irrigation prior to treatment. Do not treat crowns planted to a depth of less than 2".

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- **BARLEY, WINTER (Drill-Planted)—Wes[illegible]regon and Western Washington**
Make a single application of 1½ to 2 lbs per a[illegible] as soon as possible after planting but before emergence of [illegible]ey. Do not replant treated areas t crop within 1 year after last application as injury to subsequent crops may result.

- **BERMUDAGRASS PASTURES (Newly Sprigged)**
Apply 1 to 3 lbs after planting and before emergence of bermudagrass or weeds. Alternatively, for control of emerged annual weeds up to 4" in height, apply ½ to 1 lb per acre; add 1 pt Surfactant WK per 25 gals of spray. If bermudagrass has emerged at time of treatment, temporary burn of exposed plant parts may occur.

  Plant sprigs (stolons) 2" deep in a well-prepared seedbed; do not treat areas where sprigs are planted less than 2" deep as crop injury may result. Do not graze or feed foliage from treated areas to livestock within 70 days after application.

- **BIRDSFOOT TREFOIL (Lotus)—Western Oregon**
Treat only stands established for a least 1 year; do not apply to seedling trefoil as injury may result. Make a single application of 2 lbs per acre when trefoil is dormant (October 15 to December 15). Do not replant treated areas to any crp within 1 year after last application as injury to subsequent crops may result.

- **CORN (FIELD)**
Postemergence—Make a single application of ¾ lb per acre in combination with non pressure nitrogen solution. If nitrogen solution is not used, apply 1 lb per acre; add 1 pt Surfactant WK per 25 gals of spray. Apply as a directed spray when corn is a least 20" high and weeds are no taller than 3". DO NOT APPLY OVER TOP OF CORN. Do not replant to any crop within 1 year, except that cotton, corn and grain sorghum may be planted the spring following treatment.

  Preemergence—Arkansas, Louisiana, Mississippi and Tennessee: Make a single application of 2/3 to 1 lb per acre as a broadcast or band treatment after planting but before corn emerges. Plant corn at least 1½" deep. Do not replant treated areas to crops other than corn or cotton within 4 months following band treatment and 6 months following broadcast treatment as crop injury may result.

- **COTTON**
During a single crop season, do not exceed the following amounts of "Karmex" DF per acre as injury to subsequent crops may result: 1 lb on loamy sand; 1½ lbs on sandy loam; 2 lbs on clay loam; 2¾ lbs on clay. Injury may occur if "Karmex" DF is used in conjunction with soil-applied organic phosphate pesticides. Do not allow livestock to graze treated cotton.

  Preplant—Arizona and California: Use "Karmex" DF alone, or apply as a separate operation following preplant broadcast treatment with "Treflan"[1] (incorporated according to directions on "Treflan" label). Apply "Karmex" DF as a broadcast spray after beds are formed, preirrigated, and final seedbeds prepared. Prior to planting, drag-off the tops of the beds and plant in moist soil not treated with "Karmex" DF. Treated soil is returned to the bed after planting when irrigation furrows are reformed after cotton has emerged. If more than two furrowing-out operations are made prior to lay-by, or deep furrows are made early, weed control may be reduced in furrow bottoms. Use at the following rates:

  "Karmex" DF Alone: 1 to 2½ lbs per acre.

  "Karmex" DF Following "Treflan":

Soil Texture	Product Per Acre—Preplant "Treflan"	"Karmex" DF
Sandy loam, loam, silt loam, silt	1 pt	⅔ to 1 lb
Sandy clay loam, clay loam, silty clay loam, sandy clay, clay	1½ pts	1 to 1¼ lbs

Note: Seedling disease may weaken plants and increase the possibility of injury from the use of "Treflan" followed by "Karmex" DF. These treatments should be used only in conjunction with a standard fungicide seed treatment plus a good supplemental soil fungicide program such as captan-PCNB mixture.

[1] Reg. trademark of Elanco Products Co.

Preemergence—U.S., except Arizona, California, and areas west of Interstate 35 or 35W in Texas and Oklahoma: Use "Karmex" DF alone or apply as a separate operation following preplant treatment with "Treflan". Apply "Karmex" DF after planting but before cotton emerges. Do not treat cotton in deep furrows as crop injury may result; use only where cotton is planted on flat or raised seedbeds. Shallow incorporation (no deeper than ¼") with a rotary hoe or similar equipment following planting usually improves results especially during dry weather. A wide press wheel should be used on the planter to provide a level seedbed for subsequent early season postemergence treatments. If moisture is insufficient to activate "Karmex" DF or if soil becomes crusted before crop emerges, a shallow rotary hoeing (no deeper than ¼") should be made before weeds become established.
"Karmex" DF Alone: Make a single application as a broadcast or band spray, using the following broadcast rates; for band treatment, use proportionately less.

Soil Texture**	Lbs "Karmex" DF Per Acre
Loamy sand	⅔
Sandy loam, loam, silt loam, silt	1
Sandy clay loam, clay loam, silty clay loam, sandy clay	1¼
Silty clay, clay	2

**Do not use on soils with less than 1% organic matter as crop injury may result.

"Karmex" DF Following "Treflan" Preplant: Apply "Treflan" prior to planting as a broadcast or band treatment; incorporate according to directions on "Treflan" label. As a separate operation, apply "Karmex" DF as a band treatment (14" to 20" wide) after planting but before cotton emerges. Use at the following broadcast rates; for band treatment, use proportionately less. See "Note" under Preplant above.

Soil Texture**	Product Per Acre Preplant "Treflan"	Preemergence "Karmex" DF
Loamy sand	½ pt	⅔ lb
Sandy loam, loam, silt loam, silt	1 pt	1 lb
Sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, clay	1½ pts	1¼ - 2 lbs

**Do not use on soils with less than 1% organic matter as crop injury may result.

Post emergence—U.S.: Apply only as a directed spray to cover weed foliage; adjust nozzles to minimize contact of cotton leaves with spray or drift or crop injury may result. DO NOT SPRAY OVER TOP OF COTTON.

Early Season—Apply when cotton is a least 6" tall and when weeds are actively growing and do not exceed 2" in height. Apply as a band treatment at following rates; for each 25 gals of spray, add 1 pt Surfactant WK. Two application may be made if needed.

Weed Problem (Up to 2" Tall)	Lbs "Karmex" DF Per Acre (Broadcast Basis)
Annual grasses	½
Pigweed	¼

For control of seedling perennial grasses such as johnsongrass and partial control of nutsedge or when weed growth is under drought stress or as high as 4", add 2 to 3½ lbs disodium methylarsonate (DSMA; 63% anhydrous or equivalent) to above spray mixture. If DSMA is used, do not apply after first bloom.

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Late Season (Lay-By)—Apply 1 to 1½ lbs p[illegible]e (1 to 2 lbs in Arizona and California) when cotton is at le[illegible] tall (at least 20" tall for Pima S-2 control of germinating weed seedlings, apply [illegible]oil beneath cotton plants and between rows immediately a[illegible]st cultivation. In irrigated cotton, weed control is obtained if the field is irrigated within 3 to 4 days after application; thoroughly wet the surface of the ground over the row to carry herbicide into the root zone of germinating weeds. Alternatively, for control of emerged annual weeds (up to 4" in height) at lay-by time, make a single application in combination with Surfactant WK (1 pt per 25 gals spray), or use 1/2 to ¾ lb "Karmex" DF (plus surfactant) per acre and repeat later if needed.

Replanting: If initial seeding fails to produce a stand, cotton may be replanted in soil treated preplant or preemergence with "Karmex" DF, alone or following "Treflan". Wherever possible, avoid disturbing original bed. If necessary to rework soil before replanting, use shallow cultivation such as discing; do not relist nor move soil into the original drill area. Plant seed at least 1" deep. Do not retreat field with a second preplant or preemergence application during the same crop year as injury to the crop may result.

Subsequent Crops:

"Karmex" DF—Type of Application	Crops That May Follow Treated Cotton
Band preemergence or postemergence	Any crop 4 months after last application.
Band preemergence plus postemergence —or— Broadcast preemergence (and preplant) —or— Broadcast preemergence plus band postemergence	Cotton, soybeans, corn or grain sorghums (not sorgos or forage sorghums nor grass sorghums) the next spring. Do not replant treated areas to any other crop within one year after last application as injury to subsequent crops may result.
Broadcast postemergence (lay-by)	Cotton, corn, grain sorghums (not sorgos or forage sorghums nor grass sorghums) the next spring. Do not replant treated areas to any other crop within one year after last application as injury to subsequent crops may result.

For subsequent crops in fields where "Treflan" is used, follow instructions on "Treflan" label.

- **GRASS SEED CROPS (Perennial):** Except as noted, apply only to established plantings at least 1 year old.

Colorado, Kansas, New Mexico and Oklahoma: On sand bluestem, side oats grama and switchgrass, apply 2 to 3 lbs per acre during the dormant period shortly before weed seedlings emerge. Do not apply after crop begins growth in the spring as crop injury may result. In fields where ash residues have accumulated from burning straw, use 3 lbs per acre; spread unburned chaff or straw with a harrow or chopper before application.

Western Oregon: On alto fescue, Astoria bentgrass, Highland bentgrass, Kentucky bluegrass (Merion bluegrass) and orchardgrass, apply 2 to 4 lbs per acre between October 1 and November 15. In fields where ash residues have accumulated from burning straw, use 3 to 4 lbs per acre; spread unburned chaff or straw with a harrow or chopper before application. If perennial velvetgrass (Holcus lanatus) is a problem, use 4 lbs per acre. For best results, apply as soon as possible after fall rains start. Established weeds (beyond 2 to 4 leaf stage) should be removed prior to treatment.

Well established vigorous stands of spring-planted alta fescue, Kentucky bluegrass and orchardgrass may be treated the following fall provided the crop is planted before April 1 and treatment is not applied before October 15; use 2 lbs per acre.

Oregon: For use in newly planted bentgrass, Chewing fescue, Kentucky bluegrass, perennial ryegrass, orchardgrass and tall fescue. During planting operation ,spray Aqua Nu-Char[2] or Gro-Safe[3] or other suitable brands of activated charcoal as a 1" band on soil surface at rate of 300 lbs per acre (broadcast basis; equivalent to 15 lbs per acre of crop where row spacing is 20"). Mount nozzles to apply directly over seed rows to prevent crop injury. Follow with "Karmex" DF as a single broadcast spray at rate of 2½ to 3 lbs per acre; apply as soon as possible after planting but before crops or weeds emerge and before rains or sprinkler irrigation. Fall or spring plantings may be treated; best results usually occur with early fall plantings. Treatment will not control downy brome or wild oats.

[2] Reg. trademark of Westvaco Corp.
[3] Reg. trademark of ICI United States Inc.

- **OATS (Drill-Planted)**

Do not replant treated areas to any crop within one year after last application as injury to subsequent crops may result.

Spring oats—Idaho, Eastern Oregon, Eastern Washington: Use in areas where average annual rainfall exceeds 16". Make a single application of 1 to 1½ lbs per acre after planting, either before or after oats emerge but within 6 weeks of planting. Best results are usually obtained when application is made 3 to 4 weeks after planting. Apply before weeds are 3" to 4" tall.

Winter Oats and Mixtures with Peas or Vetch—Western Oregon and Western Washington: Make a single application of 1½ to 2 lbs per acre as soon as possible after planting but before emergence of the crop.

- **PEPPERMINT—Pacific Northwest**

Apply 3 lbs per acre just after the last cultivation in the spring prior to emergence of peppermint. Do not apply to newly planted (less than 1 year) nor to emerged peppermint as injury may result.

- **RED CLOVER—Western Oregon**

Make a single application of two pounds per acre on established red clover stands (at least 9 months). Apply "Karmex" DF when red clover is dormant (October 15 to December 15). Do not apply to seedling red clover, and do not replant treated area to any crop within one year after last application.

Treatment will control annual weeds such as bluegrass, chickweed, hawksbeard, rattail fescue, rye grass, and velvet grass.

- **SORGHUM (GRAIN)—Southwestern States**

Apply ¼ to½ lb per acre; add 1 pt Surfactant WK per 25 gals of spray. Apply as a directed postemergence broadcast or band spray after sorghum is 15" tall to control weeds 2" to 4" in height. DO NOT SPRAY OVER TOP OF SORGHUM. Use the lower rate on broadleaved weeds up to 2" tall; use the higher rate on grasses up to 2" and broadleaved weeds up to 4" tall. When the lower rate is used, a second application may be made if needed provided the amount applied in one crop year does not exceed ½ lb per acre. Treatment of weeds under drought stress is usually ineffective.

Do not replant treated areas to crops other than cotton or corn within 4 months following band treatment and 6 months following broadcast treatment as crop injury may result.

- **SUGARCANE**

To prevent possible crop injury on new cane varieties, tolerance to "Karmex" DF should be determined prior to adoption as field practice. Do not treat surgarcane growing on thinly covered subsoils or rocky areas as crop injury may result. Temporary chlorosis of the crop may result from application over emerged cane; to minimize chlorosis, use directed postemergence sprays.

Florida: Preemergence—For high organic soils, apply 2 to 4 lbs per acre as a broadcast or band spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). Postemergence—Make 1 or 2 applications of 2 lbs per acre as needed by directed spray inter-row. Alternatively, for panicum control, make up to 3 application of ½ to 1 lb per acre as a directed spray after cane has emerged but before panicum exceeds 2" in height; add 1 qt Surfactant WK per 100 gals of spray. Adjust nozzles to spray beneath cane plants and between rows to cover weed foliage and to minimize contact of cane leaves with spray drift. Do not apply more than 6 lbs total per acre between planting (or ratooning) and harvest.

Hawaii and Puerto Rico: Apply 4 to 8 lbs per acre as a broadcast spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). A second and third application of 2 to 4 lbs per acre may be made as a broadcast spray over emerged cane or by directed spray inter-row.

If weeds are emerged, add a surfactant (such as Surfactant WK, "Osamul" 95 or "Sterox" SK) to the spray at the rate of 1 to 2 qts per 100 gals and apply as a directed spray. DO NOT SPRAY OVER TOP OF CANE.

Do not apply more than 3 treatments nor more than 10 lbs (Puerto Rico) or 12 lbs (Hawaii) total per acre between planting (or ratooning) and harvest. Treated areas may be planted to sugarcane or pineapple one year after last application.

Louisiana: Use on plant cane seeded on fallowed ground. Make a single application of 3 to 3¾ lbs per acre at either of the following times. Fall Treatment (August through October)—Treat a 2 ft band over the row after planting of cane, but before weeds or cane emerge. Spring Treatment (January through April)—if shaving and off-barring are practiced, treat a 2 ft band over the row before weeds or cane emerge.

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- **WHEAT, WINTER (Drill-Planted)**

Crop injury may result where severe winter stres... sease or insect damage follows application; winter-sensitive... eties such as McDermid and Hys may be less tolerant of "Karmex" DF than winter-hardy varieties such as Gaines and Nugaines. Crop injury may also result from failure to observe th... following: Do not use on sand or loamy sand soils, nor on gravelly or sandy loams low in organic matter (less than 1%), nor on thinly covered or exposed subsoil areas (clay knobs); do not treat wheat planted less than 1" deep; do not treat wheat where winter climatic conditions have caused "heaving" of plants; do not treat wheat plants lacking in vigor due to poor emergence, insect damage, disease, high alkalinity or other causes; do not apply after wheat has reached the "boot" stage of maturity; do not use with surfactants, or nitrogen solution. Do not replant treated areas to any other crop within 1 year after last treatment (except as noted) as injury to subsequent crops may result.

Idaho, Oregon and Washington—East of Cascade Range:

Areas Where Average Annual Rainfall Exceeds 16 Inches: Make a single application of 1 to 1½ lbs per acre. Fall Treatment. For early fall-planted wheat (seeded before September 10), apply 3 to 6 weeks after planting but before weeds are 3" to 4" tall. Treatment after October 1 has generally given best results. Application should not be made after soil freezes in the fall. Wheat planted in late October should not be treated until the following spring. Spring Treatment: Apply as soon as wheat starts to grow in the spring. Treatment made prior to April 10 will usually give good results provided weed growth is less than 4" tall. Application later than May 1 may give poor results.

Alternatively, make a single application of ½ to 1 lb "Karmex" DF plus ¼ lb bromoxynil per acre as a tank mixture, either in the fall after wheat has emerged but before soil freezes or in the spring as soon as soil thaws; apply before weeds are 2" tall or across.

Areas Where Average Annual Rainfall is 10 to 16 Inches: After wheat is planted in the fall, make a single application of 1 to 1½ lbs per acre when sufficient moisture is available to germinate wheat seed. Apply before soil freezes and before weeds are 2" tall. Application later than March 1 may give poor results.

Note—If fall-planted wheat fails to grow due to winter kill or adverse growing conditions after fall treatment, only fields treated before November 1 may be replanted to spring wheat. Spring wheat should not be planted before April 1, and only after deep discing and plowing to a depth of 4" to 6" prior to planting. Do not retreat field with a second application during the same crop year as injury to the crop may result.

Oregon and Washington—West of Cascade Range: Make a single application of 1½ to 2 lbs per acre as soon as possible after planting; if wheat and weeds have emerged, apply before weeds are 3" to 4" tall. Alternatively, apply a tank mixture of "Karmex" DF plus bromoxynil as detailed above for "East of Cascade Range".

Other Areas: Make a single application in the spring as soon as wheat (fall-planted) starts to grow and before weeds are 2" tall. Application later than May 1 may give poor results.

Central Plains and Midwest: Use 1 to 2 lbs per acre

Kansas, Oklahoma and Texas: Do not use on sand or sandy loam soils. Use 1 lb per acre on silt and silt loam soils and 1½-2 lbs per acre on clay, clay loam, and silty clay loam soils.

Northeast: Use 1 to 1½ lbs per acre.

• FRUIT AND NUT CROPS

(See Soil Limitations)

Unless otherwise directed, make a single application per year as a directed spray, avoiding contact of foliage and fruit with spray or drift. Do not graze livestock in treated orchards or groves.

APPLES:

Use "Karmex" DF alone, or apply as a tank mixture with Du Pont "Sinbar" Herbicide.

"Karmex" DF Alone—Use only under trees established in the orchard for at least 1 year; do not treat varieties grafted on full-dwarf root stocks. Apply 4 lbs per acre in the spring (March through May). In the Far West, treatment may be made in winter (December through February), or apply 2 lbs per acre as a postharvest treatment followed by 2 lbs in the spring.

"Karmex" DF + "Sinbar"—Use only under trees established in the orchard for at least 2 years. Apply either in the spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth.

	Lbs Product Per Acre	
Soil Texture	1 to 2% Organic Matter "Karmex" DF + "Sinbar"	More Than 2% Organic Matter "Karmex" DF + "Sinbar"
Sandy loam	1 .... +...1	1½.... +...1½
Loam, silt loam, silt	1½.... +...1½	2 .... +...2
Clay loam, clay	2 .... +...2	2 .... +...2

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat flood or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

Georgia—Apply 2 to 3 lbs per acre in the spring. Repeat application in the fall but do not use more than 4 lbs per acre per year. Add Du Pont Surfactant WK at 1 pint per 25 gals spray mixture to improve control of small, emerged weeds.

- **BANANAS AND PLANTAINS—New Plantings**

To control annual weeds, apply 1½ to 3 lbs per acre after planting but before weeds emerge. Do not apply to loose soil directly over the planting material.

Established Plantings: For control of annuals and for top-kill of perennials such as bermudagrass, birdseed grass and guineagrass, apply 3 to 6 lbs per acre plus 1 pt Surfactant WK (or suitable equivalent) per 25 gals of spray; avoid contact of plants with spray or drift as injury may result. When tall, dense weed growth is present, remove weed growth before application. If application is made to soil free of weeds, omit the surfactant from the spray. Repeat treatment as needed, but do not apply more often than 6-week intervals nor more than a total of 12 lbs per acre (broadcast basis) in a 12-month period.

Note: Do not replant treated areas to any crop within 2 years after last application as injury to subsequent crops may result, except that sugarcane or pineapple may be planted one year after last application.

- **BLUEBERRIES, CANEBERRIES AND GOOSEBERRIES**

Use only in fields which have been established for a least 1 year. Do not apply to berries interplanted with fruit trees; do not apply to plants whose roots are exposed as injury may result. Apply as a band treatment at a base of canes or bushes; for spring application, apply before germination and growth of annual weeds.

Georgia—Blueberries

Apply 1½ to 2 lbs per acre in the spring and repeat treatment after harvest in the fall. Add Du Pont Surfactant WK at 1 pint per 25 gals spray mixture to improve control of small, emerged weeds.

Indiana, Michigan and Ohio—Blueberries: Apply 2 to 4 lbs per acre in late spring; alternatively, apply 2 lbs per acre in the fall and repeat at same rate in the spring. Raspberries: Apply 3 lbs per acre in the spring.

Massachusetts—Blueberries: Apply 2 lbs per acre in late spring.

New Jersey—Blueberries: For control of winter annuals, apply 2 lbs per acre in October, November or December, or a single application of 2½ lbs per acre may be applied in early to mid spring.

California—Raspberies, Blackberries, Boysenberries, Dewberries and Loganberries: For control of winter annuals, apply 2 lbs per acre in October or November; repeat at same rate in late spring to control summer annuals. A single application of 3 lbs per acre in January or February will control both winter and summer annuals in some areas, but the separate fall and spring schedule is preferred.

Western Oregon and Western Washington—Blueberries, Caneberries and Gooseberries: Use same schedule as recommended for California.

Continued ▸

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- **CITRUS:**
Use only under trees established in the grove ___least 1 year. Time application as indicated for specific are___ except application may be made time of the year where sprinkler or flood irrigation can be timed to activate the herbicide. Established perennial weeds require other special cont procedures. Do not apply under citrus trees that have been subjected to freezing within 6 months.

Arizona (except Yuma area) and California (except Imperial and Coachella Valleys): Apply 3 to 4 lbs per acre shortly after grove has been laid-up in final form (nontillage program) in late fall or early winter. Alternatively, apply 2 lbs per acre in October or November and repeat at the same rate in March or April. Subsequent annual applications of 2 to 3 lbs per acre will usually give adequate weed control.

Florida and Puerto Rico: Make a single application of 4 to 8 lbs per acre, or apply 3 to 4 lbs per acre followed by the same rate 4 to 6 months later. On bearing citrus, apply any time when seasonal rains are expected; on nonbearing trees, apply when winter banks are pulled down.

For control of guineagrass, loosestrife, maidencane, paragrass, primrose willow and seamyrtle in ditches adjacent to citrus groves, use 1 lb per 1000 sq ft (40 lbs per acre) in sufficient water (min 4 gals per 1000 sq ft) to provide thorough and uniform coverage. Apply in the spring before weed growth starts or after removal of vegetation. Repeat treatment on a spot basis to control hard-to-kill species such as guineagrass. In bedded groves, do not treat water furrows between the beds as injury to the trees may result.

Texas: Apply 2 to 4 lbs per acre for annual weeds; use 4 to 6 lbs per acre for control of johnsongrass seedlings. Best results accompany application in the spring; well established weeds should be eliminated by cultivation prior to treatment.

- **GRAPES**
Apply only to established vineyards (at least 3 years old) as a band treatment to grape rows. On soils low in clay or organic matter (1 to 2%), severe plant injury may result if heavy rainfall or more than one inch of irrigation occurs soon after treatment. This risk must be assumed by the user.

East of the Rocky Mountains: On soils low in clay or organic matter (1 to 2%), apply 2 to 3 lbs per acre; on soils high in clay or organic matter, apply 3 to 6 lbs per acre. Apply in the spring just prior to germination and growth of annual weeds.

West of the Rocky Mountains: Apply in November, December or January. For initial treatment, apply 3 to 4 lbs per acre; subsequent annual applications of 2 lbs per acre will usually give adequate weed control. Do not apply to vines with trunks less than 1½" in diameter as injury may result.

New York and Pennsylvania—Perrennial Grasses: Use only in established vineyards (at least 4 years old) for spot control of perennial grasses such as orchardgrass, quackgrass and ryegrass. Apply in the spring as a band treatment to ridged soil (2" to 4" high) under the trellis at the rate of 8 to 12 lbs per acre. Band width should not exceed 30". Do not apply more than once every 4 years. Use only on heavy soils such as loams, silt loams, clay loams. Do not use in areas where grape roots are shallow or exposed because of high bedrock, poor drainage, or erosion as injury to grapes may result.

- **MACADAMIA NUTS—Hawaii**
Use only under trees established in the orchard for at least 1 year. Apply 2 to 6 lbs per acre immediately after harvest, preferably before weeds emerge; if weeds have emerged, add 1 pt Surfactant WK per 25 gals of spray. Retreat as needed but do not exceed 10 lbs per acre per year.

- **OLIVES—California**
Use only under trees established in the grove for at least 1 year. Apply 2 lbs per acre after grove has been laid-up in final form in late October or November; repeat at same rate in March or April. Remove weed growth prior to treatment.

- **PAPAYAS**
Use only under trees established in the orchard for at least 1 year. Apply 2½ to 5 lbs per acre, preferably before weeds emerge; if weeds have emerged, add 1 pt Surfactant WK per 25 gals of spray.

- **PEACHES**
Use "Karmex" DF alone, or apply as a tank mixture with "Sinbar".

"Karmex" DF Alone—Use only under trees established in the orchard for at least 3 years. Apply 2 to 5 lbs per acre in the early spring before weeds emerge or during the early seedling stage of weed growth. Do not apply within 3 months of harvest; in the Far West, do not apply within 8 months of harvest.

"Karmex" DF + "Sinbar"—Use only under trees established in the orchard for at least 2 years. Apply either in the spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth.

	Lbs Product Per Acre		
Soil Texture	1 to 2% Organic Matter "Karmex" DF + "Sinbar"		More Than 2% Organic Matter "Karmex" DF + "Sinbar"
Sandy loam	1 + 1		1½ + 1½
Loam, silt loam, silt	1½ + 1½		2 + 2
Clay loam, clay	2 + 2		2 + 2

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat flood or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

Georgia—On trees established for at least 2 years, apply 2 to 3 lbs per acre in the spring. Repeat application in the fall but do not exceed 5 lbs per acre per year. Add Du Pont Surfactant WK at 1 pint per 25 gals spray mixture to improve control of small, emerged weeds.

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat flood or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

- **PEARS**
Use only under trees established in the orchard for at least 1 year; do not treat varieties grafted on full-dwarf root stocks. Apply 4 lbs per acre in the spring (March through May). In the Far West, treatment may be made in winter (December through February), or apply 2 lbs per acre as a postharvest treatment followed by 2 lbs in the spring.

- **PECANS**
Use "Karmex" DF alone or apply as a tank mixture with "Sinbar". Make a single band or broadcast application as a directed spray using a minimum of 30 gals of water per acre. Apply in the spring before weeds emerge or during the early seedling stage of growth.

	Lbs Product Per Acre		
Soil Texture	"Karmex" DF Alone*	-OR-	Tank Mixture "Karmex" DF + "Sinbar"**
Sandy loam	2		1½ + 1½
Loam, silt loam, silt	3		1¾ + 1¾
Clay loam, clay	4		2 + 2

*Use only on trees established in grove for at least 3 yrs and on soils with at least ½% organic matter.
**Use on trees established in the grove for at least 1 yr and on soils with at least 1% organic matter.

Note: Do not use on eroded areas where subsoil or roots are exposed, nor on trees that are diseased or lacking in vigor or on trees planted in irrigation furrows as injury to the trees may result.

Continued ►

PINEAPPLE—Hawaii and Florida
Apply 4 to 8 lbs per acre as a broadcast spray just before or immediately after planting but prior to weed emergence. Apply 4 lbs per acre after harvesting plant crop (for ratoon crop). For plant crop only, a second and third broadcast or interspace application may be made prior to differentiation at the rate of 2 lbs per acre at intervals of not less than 2 months. Additional applications to plant crop may be made as needed to interspace only using 2 lbs per acre. Do not apply more than 3 broadcast sprays (maximum 12 lbs per acre) prior to differentiation nor more than 16 lbs total per acre per plant crop. Treated areas may be planted to pineapple or sugarcane 1 year after last application.

- **WALNUTS (English)—California**
Use only under trees established in the orchard for at least 1 year. As an initial treatment, apply 3 to 5 lbs per acre after the orchard has been laid up in final from (nontillage program) in late fall or early winter; retreat annually with 2 to 3 lbs per acre. Alternatively, apply 2 lbs per acre in October or November and repeat at same rate in March or April.

• ORNAMENTAL CROPS
(See Soil Limitations)

- **ORNAMENTAL BULB CROPS (Bulbous Iris, Narcissus)—Western Washington**
Make a single application of 4 lbs per acre. Apply after planting but no later than 4 weeks prior to bulb emergence (usually late September or October). Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

- **PLUMOSUS FERN—Florida**
Hand weed and mow fern; then make a single application of 3 lbs per acre within 3 to 5 days. Do not cultivate or disturb soil after application as crop injury may result. Treat only established stands at least 1 year old.

- **TREE PLANTINGS—Colorado, Montana, Nebraska, North Dakota, South Dakota, Wyoming**
Use only under established plantings (1 year or older) of American elm, caragana, cottonwood, Douglas fir, green ash, honeysuckle, Ponderosa pine, redcedar, Russian olive and Siberian elm. Use 2½ to 5 lbs per acre; apply as a band 4 ft wide in the tree row (2 ft on each side of row). For example, 1 oz "Karmex" DF treats 135 ft of tree row (2 ft on each side of row) at the rate of 5 lbs per acre. Apply as a directed spray in early spring before weeds emerge and before trees leaf out. Do not apply to foliage of trees, nor under trees growing in low areas as injury to the trees may result.

• NON-CROP WEED CONTROL

"Karmex" DF is an effective herbicide for the control of many annual and perennial grasses and herbaceous weeds on non-cropland areas where bare ground is desired. The degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other conditions.

"Karmex" DF may be used as a preemergence treatment at any time of the year except when ground is frozen, provided adequate moisture is supplied by rainfall or artificial means to activate the herbicide. Best results are obtained if application is made to the soil shortly before weed growth begins. If dense growth is present, remove tops and spray the ground.

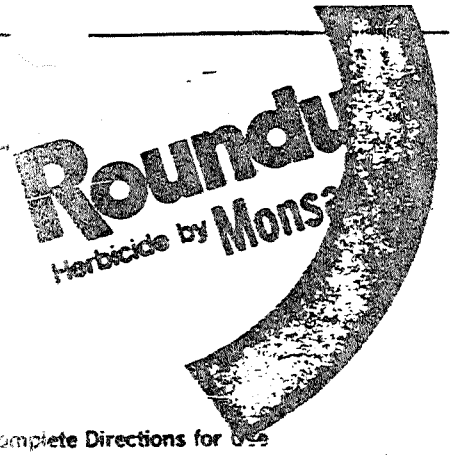
Increased contact activity on established weeds may be obtained by the addition of Du Pont Surfactant WK at the rate of 2 qts per 100 gals of spray mixture. Apply as a drenching spray to actively growing weeds during warm weather when daily temperature will exceed 70°F.

Except for small areas, use a fixed-boom power sprayer properly calibrated to insure a constant rate of application. Mix proper amount of "Karmex" DF into volume of water necessary to obtain uniform coverage; if Surfactant WK is used, dilute with 10 parts of water and add as last ingredient to nearly full tank. Material must be kept in suspension at all times. Agitate by mechanical or hydraulic means in the spray tank; if bypass or return line is used, it should terminate at bottom of tank to minimize foaming. Openings in screens should be equal to or larger than 50 mesh.

General Weed Control: To control most weeds for an extended period of time on non-cropland such as utility, highway, pipeline and railroad right of ways, petroleum tank farms, lumberyards, storage areas, industrial plant sites, and around farm buildings—apply 5 to 20 lbs per acre to control most annual weeds. Use 20 to 60 lbs per acre for perennial weeds; additional treatment may be required where a longer period of control is desired or when hard-to-kill, deep-rooted perennial weeds such as johnsongrass are present. In low rainfall areas, "Karmex" DF may not provide satisfactory control of deep-rooted perennial weeds.

For weed control on small areas, use one-half cupful of "Karmex" DF per 100 sq ft for a dosage of approximately 50 lbs per acre.

Irrigation and Drainage Ditches: Apply 5 to 20 lbs per acre to control most annual weeds; use 20 to 60 lbs per acre to control both annual and perennial weeds. Apply only when water is not in the ditch. For irrigation ditches, apply during the non-crop season, and when ditch is not in use. To minimize movement of "Karmex" DF with irrigation water (to avoid possible crop injury), it is essential that the herbicide be fixed in the soil by moisture. Apply before expected seasonal rainfall (if possible when soil in the ditch is still moist). Following treatment, if rainfall has not totaled at least 4 inches, fill ditch with water and allow to stand for 72 hours; drain off and waste remaining water before using ditch. Do not treat any ditch into which roots of trees or other desirable plants may extend as injury may result.



Complete Directions for Use

EPA Reg No 524 308 AA

For use of this product in California see page 79

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

1982-2 897.10-002.02/53

Read each of these sections of this label for essential product performance information.

Read the entire label.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

LIMIT OF WARRANTY AND LIABILITY

This company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this company, including but not limited to incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather (i) weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied with the normal range being determined on the basis of the average range for the prior 40 years computed from the best available information, and ii. weather perils, including but not limited to hurricanes, tornadoes and floods) as well as weather considerations set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

The buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

PRECAUTIONARY STATEMENTS

Hazard to Humans and Domestic Animals

Keep out of reach of children.

WARNING!

CAUSES EYE IRRITATION.

HARMFUL IF SWALLOWED.

Do not get in eyes, on skin or on clothing.

FIRST AID: IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Call a physician. IF ON SKIN, flush with water. Wash clothing before reuse.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Environmental Hazards

Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment.

Storage and Disposal

Avoid contamination of seed, feed, and foodstuffs.

Do not reuse container, destroy when empty.

ACTIVE INGREDIENT	
*Isopropylamine salt of glyphosate	41.0%
INERT INGREDIENTS	59.0%
	100.0%

Contains 480 grams per liter or 4 pounds of active ingredient isopropylamine salt of N-(phosphonomethyl) glycine per U.S. gallon. Equivalent to 356 grams per liter or 3 pounds per U.S. gallon of the acid, glyphosate.

U.S. Pat. No. 3,799,758 covers use. Other patents are pending.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167 U.S.A.

Monsanto

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

Roundup® herbicide, a water soluble liquid, mixes readily with water to be applied as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Unless otherwise specified on this label delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "Weeds Controlled" section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow for the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or

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ir within 2 hours after application may wash th cal off the foliage and a repeat treatment may be required.

Roundup herbicide does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Nonionic surfactants which are labeled for use with herbicides may be used to improve wetting of foliage. Do not reduce rates of Roundup when adding surfactant. Read and carefully observe surfactant rates, cautionary statements, and other information appearing on the surfactant label.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of Roundup with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label, may result in reduced Roundup performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

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ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift, splash onto desirable vegetation since minute quantities of this herbicide can cause severe damage or destruction to the crop, plants, or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY UNDER WIND OR OTHER CONDITIONS WHICH ALLOW DRIFT TO OCCUR. HAND GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, such as WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the proper amount of this product (see "Directions for Use" and "Weeds Controlled" sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, place the filling hose below the surface of the spray solution, terminate by-pass and return lines at the bottom of the tank and if needed use an approved anti-foam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixes of this herbicide with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of Roundup herbicide with water as follows:

1. Place a 20 to 35 mesh screen or wetting basket over filling port.
2. Through the screen, fill the sprayer tank one-half full with water and start agitation.
3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.
4. If a flowable formulation is used, pre-mix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
5. If Lasso is used pour one part Lasso into two parts water and mix. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
6. Continue filling the sprayer tank with water and add the required amount of Roundup herbicide near the end of filling process. Maintain good agitation at all times until the contents of the tank are sprayed. NOTE: If spray mixture is allowed to settle at any time, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground applications equipment, use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

SOIL TEXTURE

The recommended use rates of other herbicides labeled for use with Roundup® in tank mixtures generally vary with soil texture. Rate tables throughout this label, unless the soil texture is specifically named, refer to only three soil texture groups: Coarse, Medium and Fine. The following is a complete listing of soil textures included in each of these three soil texture groups:

SOIL TEXTURE GROUP	SOIL TEXTURE
COARSE	sand, loamy sand, sandy loam
MEDIUM:	loam, silt loam, silt, sandy clay loam
FINE:	silty clay loam, clay loam, sandy clay, silty clay, clay

Refer to the above table to determine the corresponding soil texture group for the soil to be treated.

APPLICATION EQUIPMENT AND TECHNIQUES

AERIAL EQUIPMENT

Use the recommended rates of Roundup herbicide in 5 to 15 gallons of water per acre unless otherwise specified on this label. See "WEEDS CONTROLLED" section of this label for specific rates. Aerial applications of this product may only be made as specifically recommended on this label.

Avoid direct application to any body of water.

AVOID DRIFT — DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application — To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (Paint) which meets aerospace specification MIL C 38413 may prevent corrosion.

BOOM EQUIPMENT

For control of Annual or Perennial Weeds listed on this label using conventional boom equipment—Use the recommended rates of this product in 10 to 40 gallons of water per acre as a broadcast spray

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exc[illegible]dicated on this label. See "Weeds Controlle[illegible]ction of this label for specific rates. As density of weeds increase, spray gallonage should be increased within the recommended range to [illegible]ure complete coverage.

Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment use flat fan nozzles. Check for even distribution of spray droplets.

HAND-HELD and HIGH VOLUME EQUIPMENT

Use coarse sprays only

For control of weeds listed on this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements — Unless otherwise specified, make a 1% solution of this product in water and apply to foliage of vegetation to be controlled. For best results, use a 2% solution on harder-to-control perennials such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of runoff. Do not reduce recommended rates of Roundup when adding surfactant.

Prepare the desired volume of spray solution by mixing the amount of this product in water, shown in the following table:

[illegible]ray solution

[illegible]SIRED	AMOUNT OF ROUNDUP*		
VOLUME	1%	1½%	2%
1 gallon	1⅓ oz	2 oz	2⅔ oz
25 gallons	1 qt	1½ qt	2 qt
100 gallons	1 gal	1½ gal	2 gal

2 tablespoons = 1 ounce

For use in knapsack sprayers, it is suggested that the proper amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

For Hand Held WIPER APPLICATORS see the "Selective Equipment" section of this label for use precautions, rates and weeds controlled.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water, to listed weeds growing in any non-crop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

[illegible]hielded applicator directs the herbicide solution onto weeds while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting, or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

See the "Weeds Controlled" section of this label for recommended stage of growth for specific weeds.

NOTE

- Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.
- Adjust height of applicator to insure proper contact with weeds.
- Keep nozzle tips and wiping surfaces clean.
- Keep spray patterns aligned into recovery chamber of the recirculating sprayer.
- Keep shields on shielded applicators adjusted to protect desirable vegetation.
- Maintain recommended roller RPM on roller applicators while in use.
- Keep wiper material at proper degree of saturation with herbicide solution.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds greater than 5 mph. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of a wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.
- Care must be taken with all types of wipers to insure that the absorbent material does not become oversaturated, causing the herbicide to drip on desirable vegetation.
- Mix only the amount of solution to be used during a one day period, as reduced activity may result from use of leftover solutions. With all equipment, drain and clean sprayer and wiper parts immediately after using this product by thoroughly flushing with water.

RECIRCULATING SPRAYERS

Recirculating sprayer calibration is made on the basis of ground speed and delivery volume. Two procedures can be used to calibrate: (1) determine the discharge being delivered per minute, then operate at the designated ground speed, or (2) select the desired ground speed and then adjust the sprayer to deliver the proper volume per minute (this may require nozzle changes). Use the appropriate table below.

Do not operate at nozzle pressure above 20 PSI.

Table 1. Use this table when calibrating Box or Row type recirculating sprayers. Box or Row type sprayer calibration is based on the total discharge collected per row. Use only straight stream or 15° fan type nozzles.

*VOLUME PER MINUTE PER ROW	
MPH	Ounces
2	26 to 35
3	38 to 51
4	51 to 68
5	65 to 86

*NOTE: Be certain the amount collected is for all spray streams treating one row.

Table 2. Use this table when calibrating Broadcast type recirculating sprayers. Broadcast recirculating sprayer calibration is based on the discharge collected per minute from one nozzle on a 20 inch spacing.

VOLUME PER MINUTE PER NOZZLE	
MPH	Ounces
2	7 to 9
3	10 to 13
4	13 to 18
5	16 to 22

When applied as recommended under the conditions described for recirculating sprayers, this product will control the following weeds growing a minimum of 6 inches above desirable vegetation.

Perennial Broadleaf Weeds — To SUPPRESS the following weeds, mix in a ratio of 4 quarts of this product in 20 gallons of water and apply as directed.

Dogbane (hemp) — Apocynum cannabinum
Milkweed — Asclepias syriaca

Perennial Grasses and Annual Broadleaf Weeds — To control the following weeds, mix in a ratio of 3 quarts of this product in 20 gallons of water and apply as directed:

Cocklebur — Xanthium pensylvanicum
Pigweed, Redroot — Amaranthus retroflexus
Johnsongrass — Sorghum halepense
Sunflower — Helianthus annuus

Annual Grasses — To control the following weeds, mix in a ratio of 2 quarts of this product in 20 gallons of water and apply as directed:

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Corn (volunteer)
Zea mays

Shattercane
Sorghum bicolor

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the "Weeds Controlled" section of this label.

Shielded applicators which apply the herbicide solution as a spray band should be calibrated on a broadcast equivalent rate and volume basis. To determine these:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Herbicide Broadcast RATE per acre} = \text{Herbicide Band RATE per acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast VOLUME of solution per acre} = \text{Band VOLUME of solution per acre}$$

Use nozzles that provide uniform coverage within the treated area. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

WIPER APPLICATORS

Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained, and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

For Roller Applicators — Mix 1 gallon of this product in enough water to prepare 10 gallons of herbicide solution (10% solution). Apply this solution to perennial weeds or annual broadleaf weeds listed in this "Wiper Applicators" section.

Mix 1 gallon of this product in enough water to prepare 20 gallons of herbicide solution (5% solution). Apply this solution to annual grasses listed in this "Wiper Applicators" section.

Roller speed should be maintained at 40 to 60 RPM.

For Wick or other Wiper Applicators — Mix 1 gallon of this product in 2 gallons of water to prepare a 33% solution. Apply this solution to weeds listed in this "Wiper Applicators" section.

In severe infestations, reduce equipment ground speed to insure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation.

When applied as recommended under the conditions described for "Wiper Applicators", this product CONTROLS the following weeds:

ANNUAL GRASSES

Corn (volunteer)
Zea mays

Shattercane
Sorghum bicolor

Rye (common)
Secale cereale

ANNUAL BROADLEAVES

Spanishneedles
Bidens bipinnata

When applied as recommended under the conditions described for "Wiper Applicators", this product SUPPRESSES the following weeds:

ANNUAL BROADLEAVES

Dog fennel
Eupatorium capillifolium

Pigweed, Redroot
Amaranthus retroflexus

Ragweed, (common)
Ambrosia artemisiifolia

Ragweed (giant)
Ambrosia trifida

Sunflower
Helianthus annuus

Thistle (musk)
Carduus nutans

Velvetleaf
Abutilon theophrasti

PERENNIAL GRASSES

Bermudagrass
Cynodon dactylon

Guineagrass
Panicum maximum

Johnsongrass
Sorghum halepense

Smutgrass
Sporobolus poiretii

Vaseygrass
Paspalum urvillei

PERENNIAL BROADLEAVES

Dogbane (hemp)
Apocynum cannabinum

Milkweed
Asclepias syriaca

Nightshade (silverleaf)
Solanum elaeagnifolium

Thistle (Canada)
Cirsium arvense

WEEDS CONTROLLED

Roundup herbicide controls many annual and perennial grasses and broadleaf weeds.

CONTROL OF ANNUAL WEEDS

Apply to actively growing grasses and broadleaf weeds. Use 1 quart of this product per acre if weeds are less than 6 inches tall. If weeds are over 6 inches tall, apply 1.5 quarts of this product per acre. Allow at least 3 days after treatment before tillage. See "Directions for Use" for specific volumes of water.

When applied as recommended under the conditions described, this product WILL CONTROL the following ANNUAL WEEDS:

Barley
Hordeum vulgare

Bluegrass (annual)
Poa annua

Brome (downy)
Bromus tectorum

Cocklebur
Xanthium pensylvanicum

Corn (volunteer)
Zea mays

Crabgrass
Digitaria spp.

Falseflax (smallseed)
Camelina microcarpa

Panicum
Panicum spp.

Pennycress (field)
Thlaspi arvense

Pigweed, Redroot
Amaranthus retroflexus

Pigweed (smooth)
Amaranthus hybridus

Ragweed (common)
Ambrosia artemisiifolia

Ragweed (giant)
Ambrosia trifida

Rye
Secale cereale

Fiddleneck
Amsinckia spp.

Fleabane
Erigeron spp.

Foxtail
Setaria spp.

Kochia
Kochia scoparia

Lambsquarters (common)
Chenopodium album

Lettuce (prickly)
Lactuca serriola

Mustard (tansy)
Descurainia pinnata

Mustard (tumble)
Sisymbrium altissimum

Oats (wild)
Avena fatua

Ryegrass (Italian)
Lolium multiflorum

Sandbur (field)
Cenchrus spp.

Shattercane
Sorghum bicolor

Smartweed (Pennsylvania)
Polygonum pensylvanicum

Spanishneedles*
Bidens bipinnata

Sunflower
Helianthus annuus

Thistle (Russian)
Salsola kali

Velvetleaf
Abutilon theophrasti

Wheat (volunteer)
Triticum aestivum

*Apply 2 quarts of this product per acre.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds. Repeat treatments must be made prior to crop emergence.

CONTROL OF PERENNIAL WEEDS

Apply this product as follows to control or destroy most perennial weeds:

NOTE: If weeds have been mowed, grazed, or tilled, do not treat until regrowth has reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

When applied as recommended under the conditions described, this product WILL CONTROL the following PERENNIAL WEEDS:

Alfalfa
Medicago sativa

Artichoke (Jersualem)
Helianthus tuberosus

Bahiagrass
Paspalum notatum

Bermudagrass
Cynodon dactylon

Bindweed (field)
Convolvulus arvensis

Bluegrass (Kentucky)
Poa spp.

Brackenfern
Pteridium aquilinum

Bromegrass (smooth)
Bromus inermis

Cattail
Typha spp.

Clover (red)
Trifolium pratense

Clover (white)
Trifolium repens

Dallisgrass
Paspalum dilatatum

Knapweed
Centaurea repens

Lantana
Lantana camara

Milkweed
Asclepias spp.

Muhly (wirestem)
Muhlenbergia frondosa

Mullein (common)
Verbascum thapsus

Napiergrass
Pennisetum purpureum

Nightshade (silverleaf)
Solanum elaeagnifolium

Nutsedge (purple, yellow)
Cyperus rotundus
Cyperus esculentus

Orchardgrass
Dactylis glomerata

Paragrass
Brachiaria mutica

Quackgrass
Agropyron repens

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Dandelion
Taraxacum officinale
Dock (curly)
Rumex crispus
Dogbane (hemp)
Apocynum cannabinum
Fescues
Festuca spp.
Guineagrass
Panicum maximum
Horsenettle
Solanum carolinense
Horseradish
Armoracia rusticana
Johnsongrass
Sorghum halepense

Kikuyugrass
Pennisetum clandestinum

Reed canarygrass
Phalaris arundinacea
Ryegrass (perennial)
Lolium perenne
Smartweed (swamp)
Polygonum coccineum
Texas Blueweed
Helianthus ciliaris
Thistle (Canada)
Cirsium arvense
Timothy
Phleum pratense
Torpedograss*
Panicum repens
Vaseygrass
Paspalum urvillei

Wheatgrass (western)
Agropyron smithii

*Partial control

Bermudagrass — Apply 5 quarts of this product per acre. Apply when bermudagrass is actively growing and when seed heads appear. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Brackenfern — Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1½ percent solution with hand-held equipment. Apply to brackenfern after fronds are at least 18 inches long.

Canada Thistle — Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. Fall treatments must be applied before frost. Allow 3 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Field Bindweed/Silverleaf Nightshade/Texas Blueweed — Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. For silverleaf nightshade, best results can be achieved when application is made after berries are formed. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Guineagrass (Panicum maximum) — Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Hemp Dogbane / Knapweed / Horseradish — Apply 4 quarts of this product per acre. Apply when actively growing and most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Johnsongrass / Bromegrass (smooth) / Reed Canarygrass / Ryegrass (perennial) / Timothy / Wheatgrass (western) — Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot to head stage of growth. When applying prior to the boot stage, less desirable control may be obtained. Allow johnsongrass to reach at least 18 inches average height. In the fall, apply before plants have turned brown. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Lantana — Apply this product as a 1 to 1¼ percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

Milkweed (common) — Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Nutsedge (purple/yellow) — Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1% solution from hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control. Wait 7 days after treatment before tillage. Tillage will stimulate nutlet germination.

Quackgrass/Wirestem Muhly/Kikuyugrass — Apply 2 to 3 quarts of this product per acre. Spray when most quackgrass or wirestem muhly is at least 8 inches in height (3 or 4 leaf stage of growth), and actively growing. Do not fall plow or spring till prior to spring application. Allow 3 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Torpedograss (Panicum repens) — Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

Other perennials listed on this label — Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage. See "Directions for Use" and "Mixing and Application" sections of this label for labeled uses and specific application instructions.

CONTROL OF WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product CONTROLS the following woody brush plants and trees:

Alder
Alnus spp.
Berries*
Rubus spp.
Elderberry
Sambucus spp.
Honeysuckle
Lonicera spp.
Kudzu
Pueraria lobata
Maple**
Acer spp.
Oak***
Quercus spp.
Multiflora rose
Rosa multiflora
Poison Ivy
Rhus radicans
Poison Oak
Rhus toxicodendron
Trumpet creeper
Campsis radicans
Willow
Salix spp.

*Includes blackberry, dewberry and raspberry
**Includes sugar maple and red maple.
***Includes red oak, white oak and Northern pin oak.

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Allow 7 or more days after application before tillage, mowing or removal. See "Directions for Use," and "Mixing Application" sections of this label for labeled uses and specific application instructions.

Repeat treatments may be necessary to control plants regenerating from underground parts or seed.

Some autumn colors on undesirable deciduous species are acceptable provided no major leaf fall has occurred.

Apply this product as follows to control or destroy these listed plants and trees.

Alder (Alnus spp.)/Elderberry (Sambucus spp.) — Apply 3 to 4 quarts of this product as a broadcast spray or as a 1 to 1½ percent solution with hand-held equipment.

Apply when actively growing and at or after the full bloom stage of growth. Use the higher rate for larger plants and dense areas of growth. Best results are achieved when applied in late summer or fall prior to killing frost. Ensure thorough coverage when using hand-held equipment. Visual symptoms of control may not appear prior to frost or senes

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c[illegible] fall treatments.

Berries (Rubus spp.) — Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1½ percent solution with hand-held equipment. Apply when canes are actively growing and most are at or beyond the full bloom stage of growth.

Use the higher rate for plants that have reached the woody stage of growth. Best results are achieved when application is made in late summer or fall after berries are formed. Fall treatments must be applied before a killing frost. This product's activity symptoms may not occur before frost with fall treatments. Ensure thorough coverage when using hand-held equipment.

Honeysuckle (Lonicera spp.) — Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1½ percent solution with hand-held equipment. Apply when plants are actively growing and are at or beyond the bloom stage of growth. Use the higher rate for plants that have reached the woody stage of growth. Ensure thorough coverage when using hand-held equipment.

Kudzu (Pueraria lobata) — Apply 4 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Apply product when vines are actively growing and most are at or beyond the early to full bloom stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Ensure thorough coverage when using hand-held equipment.

Maples (Acer spp.)/Oaks (Quercus spp.) — Apply as a 1 to 1½ percent solution with hand-held equipment. Apply product over top of actively growing plants. Apply when at least 50 percent of the new leaves are fully developed. Use the higher rate for large mature trees. Ensure thorough coverage when using hand-held equipment.

Multiflora Rose (Rosa multiflora) — Apply 2 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Apply product when canes are actively growing and most are at or beyond the early to full bloom stage of growth. Treatments should be made prior to leaf deterioration by leaf-feeding insects. Fall treatments must be applied before a killing frost. Symptoms may not occur before frost with fall treatments. Ensure thorough coverage when using hand-held equipment. Spot treated areas in pastures must not be grazed by domestic livestock for a minimum of 8 weeks following application.

Poison Ivy (Rhus radicans)/Poison Oak (Rhus toxicodendron) — Apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with handheld equipment. Apply when plants are actively growing at or beyond the early to full bloom stage of growth. Best results are achieved when application is made in late summer after fruit is formed. Repeat applications may be required to maintain control. Fall treatments must be applied before a killing frost and before leaves lose green color. This product's activity symptoms may not occur before frost with fall treatments. Use the higher rate for plants that have reached the woody stage of growth.

Trumpet Creeper (Campsis radicans) — Apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1½ percent solution with hand-held equipment. Apply when vines are actively growing at or beyond the early to full bloom stage of growth. Best results are achieved when application is made in late summer or fall after fruit is formed. Fall treatments must be applied before a killing frost. This product's activity symptoms may not occur before frost with fall treatments. Use the higher rate for plants that have reached the woody stage of growth.

Willow (Salix spp.) — Apply this product as a 1 percent solution with hand-held equipment. Apply when trees are actively growing and when foliage is full and well developed. Ensure thorough coverage when using hand-held equipment. For best results, apply in late summer or early fall. Fall treatments must be made before any fall color occurs.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in any manner inconsistent with its labeling.

NON-CROP USES

See "General Information" and "Mixing and Application Instructions" sections of this label for essential product performance information.

See the following NON-CROP SECTIONS for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

NOTE: If spraying areas adjacent to desirable plants, use a shield made of cardboard, sheet metal or plyboard while spraying to help prevent spray from contacting foliage of desirable plants.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

Roundup herbicide does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

TANK MIXTURE

ROUNDUP® plus Banvel™

Use in GROUND APPLICATION EQUIPMENT ONLY.

Refer to the specific product labels for cautionary statements of all products used in these tank mixtures.

See the "Control of Perennial Weeds" part of the "Weeds Controlled" section of this label for the weed growth stage needed to obtain best results.

Apply 2 quarts of this product and 0.5 pou[illegible] of Banvel™ in 10 to 20 gallons of water per acre.

When applied as directed under the conditions described, this product plus Banvel™, will control the following perennial broadleaf weeds:

Bindweed (field)	**Thistle (Canada)**
Convolvulus arvensis	Cirsium arvense

™Banvel is a trademark of the Velsicol Chemical Company, Chicago, Ill.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for "Non-Crop Uses", under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumberyards, parking areas, parks, petroleum tank farms and pumping installations, pipelines, power and telephone rights-of-way, railroads, roadsides, schools, storage areas, other public areas and similar industrial or non-crop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the "Weeds Controlled" section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any non-crop site specified on this label. See the "Selective Equipment" part of "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

FARMSTEAD WEED CONTROL

When applied as directed for "Non-Crop Uses," under conditions described, this product controls undesirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts, and for general non-selective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

ORNAMENTALS

NOTE: NOT RECOMMENDED FOR DOMESTIC APPLICATION EXCEPT BY PROFESSIONAL APPLICATORS.

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS.

When applied as directed for the conditions described for "Non-Crop Uses", this product controls undesirable vegetation listed on this label prior to planting ornamentals, in established ornamentals, and within and around greenhouses and shadehouses.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

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Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation – Following preplant applications of this product, any ornamental species may be planted. Precautions should be taken to protect non-target plants during site preparation applications.

Greenhouse/Shadehouse Use – This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Post Directed Spray – Use as a directed spray toward the base of established woody ornamentals species listed below.

Arborvitae	**Lilac**
Thuja spp.	Syringa spp.
Azalea	**Magnolia**
Rhododendron spp.	Magnolia spp.
Boxwood	**Maple**
Buxus spp.	Acer spp.
Crabapple	**Oak**
Malus spp.	Quercus spp.
Euonymus	**Privet**
Euonymus spp.	Ligustrum spp.
Fir	**Pine**
Abies spp.	Pinus spp.
Pseudotsuga spp.	**Spruce**
Hollies	Picea spp.
Ilex spp.	**Yew**
	Taxus spp.

SILVICULTURAL SITES and RIGHTS-OF-WAY

When applied as directed for "Non-Crop Uses" under conditions described, this product controls undesirable vegetation listed on this label. This product also suppresses or controls undesirable vegetation listed on this label when applied at recommended rates for release of established coniferous species listed on this label.

For specific rates of application and instructions for control of various brush, annual and perennial weeds, see the "Weeds Controlled" section of this label. For specific rates of application for release of listed coniferous species, see the "Conifer Release" part of this section of the label.

Where repeat applications are necessary do not exceed 10.6 quarts of this product per acre per year.

Aerial Application – This product may be applied using aerial spray equipment for silvicultural site preparation, conifer release and rights-of-way treatments. See the "Application Equipment and Techniques" part of the "Mixing and Application" section of this label for information on how to properly spray this product by air.

Do not apply this product by air to rights-of-way sites in California.

In order to reduce the drift hazard to non-targeted plants and aquatic species when making aerial applications, maintain the following buffer zones:

1. Do not apply this product within 200 feet of any agricultural, horticultural, park, golf course, homestead or any populated areas.
2. For applications using more than 2 quarts per acre of this product, do not apply within 125 feet of lakes, ponds and streams used for significant domestic purposes or angling.
3. For applications using 2 quarts or less per acre of this product, do not apply within 75 feet of lakes, ponds and streams used for significant domestic purposes or angling.
4. When making applications on rights-of-way from 75 feet or more above ground level, do not apply within 400 feet of any agricultural, horticultural, park, golf course, homestead, populated areas, lakes, ponds and streams used for significant domestic purposes or angling.

Site Preparations – Following preplant applications of this product, any silvicultural species may be planted.

Post Directed Spray – In established silvicultural sites, use as a spray on the foliage of undesirable vegetation. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of desirable species.

Conifer Release—Apply 1½ to 2 quarts of this product per acre for release of the following coniferous species:

Douglas fir	**Pines**
Pseudotsuga menziesii	Pinus spp.
Fir	**Spruce**
Abies spp.	Picea spp.
Hemlock	
Tsuga spp.	

Applications must be made after formation of final conifer resting buds in the fall or prior to initial bud swelling in spring. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf fall has occured. Annual and perennial weeds or woody brush or trees listed on this label may be controlled or suppressed.

For release, apply only where conifers have been established for more than a year. Vegetation should not be disturbed prior to treatment or until visual symptoms appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth.

NOTE:

This product is not recommended for use as an over-the-top broadcast spray in silvicultural nurseries, or Christmas tree plantations.

DO NOT USE FOR CONIFER RELEASE IN THE FOLLOWING STATES: ALABAMA, ARKANSAS, FLORIDA, GEORGIA, LOUISIANA, MISSISSIPPI, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, TEXAS AND VIRGINIA.

FOR USE IN CONIFER RELEASE WEST OF THE CREST OF THE CASCADE MOUNTAINS:

Spring Application – Apply 1 quart of this product per acre before bud swell of conifer for control of annual weeds listed on the label.

Fall Applications – Apply 1 to 1½ quarts of this product per acre before leaf abscission of deciduous species. Apply only if no major leaf fall has occurred. Some autumn colors are acceptable.

Apply 1 quart of this product per acre for release of western hemlock.

NOTE TO USER

This product must not be used in areas where adverse impact on Federally designated endangered/threatened plant or aquatic species is likely.

Prior to making applications the user of this product must determine that no such species are located in or immediately adjacent to the area to be treated.

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into living tissue. Use this product without dilution and apply at least 1 ml (1/29 oz.) of herbicide solution for each 2 to 3 inches of trunk diameter breast height (DBH). Space applications evenly around the circumference of the trunk. Application should be made during periods of active growth and full leaf expansion.

This treatment WILL CONTROL the following woody species:

Gum (sweet)	**Poplar**
Liquidambar styraciflua	Populus spp.
Oak	**Sycamore**
Quercus spp.	Platanus occidentalis

This treatment WILL SUPPRESS the following woody species:

Dogwood	**Hickory**
Cornus spp.	Carya spp.
Gum (black)	**Maple (red)**
Nyssa sylvatica	Acer rubrum

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

NOTE: NOT RECOMMENDED FOR DOMESTIC APPLICATION EXCEPT BY PROFESSIONAL APPLICATORS.

When applied as directed for "Non Crop Uses," under conditions described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas.

For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the "Weeds Controlled" section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm season grasses, such as bermudagrass, summer or fall application provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

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TURFGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in the "Weeds Controlled" section of this label.

Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Desirable turfgrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth given in the "Weeds Controlled" section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

DO NOT feed or graze treated areas within 8 weeks after application.

CROPPING SYSTEMS

See "General Information" and "Mixing and Application Instructions" sections of this label for essential product performance information.

See the following CROPPING SYSTEM SECTIONS for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from under ground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a Crop section of this label the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent crops other than those on the label for one year following application.

Do not graze treated cotton fields or feed treated cotton forage to livestock.

For other cropping systems do not feed or forage treated crops within 8 weeks after application.

Roundup herbicide does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

ARTICHOKE (JERUSALEM)
BARLEY*
BEANS (All)
BEET GREENS
BEETS (Red, Sugar)
BROCCOLI
CABBAGE
CARROT
CAULIFLOWER
CHICORY
CORN (All)*
COTTON*
FORAGE GRASSES
FORAGE LEGUMES
HORSERADISH
KALE
LENTILS
LETTUCE
MUSTARD GREENS
OATS*
OKRA
ONION
PEANUTS*
PEAS (All)
POTATO (Irish, Sweet)
RADISH
RICE**
SORGHUM (Milo)*
SOYBEANS*
SPINACH
WHEAT*

*Spot treatment applications can be done in these crops.

**Do not treat rice fields or levees when the fields contain flood water.

When applied as directed for "Cropping Systems", under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of these crops.

For dilution and rates of application using Boom or Hand-Held Equipment, see "Mixing and Application" and "Weeds Controlled" sections of this label.

Spot Treatment (Only those crops with "*" can be spot treated) — Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, boll opening on cotton and pegging of peanuts.

For dilution and rates of application using Boom or Hand-Held Equipment, see "Mixing and Application" and "Weeds Controlled" sections of this label.

NOTE: DO NOT TREAT MORE THAN 10% OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment — This product may be applied through recirculating sprayers, shielded applicators, or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes.

See the "Selective Equipment" part of the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Cotton, Soybeans	7 days
Grapes, Citrus, Apples, Avocado, Cherry, Pear	14 days
Nut Crops	21 days

ASPARAGUS

When applied as directed for "Cropping Systems" under the conditions described, this product controls weeds listed on this label in asparagus.

For specific rates of applications [illegible] instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Prior to Crop Emergence — Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Post Harvest — Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as a directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use proper spray equipment for post emergence post harvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

CRANBERRIES

Wiper applicators may be used in cranberries in accordance with instructions in this section.

See "General Information" and "Mixing and Application Instructions" sections of this label for essential product performance information.

See the "Selective Equipment" part of the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

For Wick or other Wiper Applicators—Mix one gallon of this product in 4 gallons of water to prepare a 20% solution. Apply the solution to emerged weeds.

Apply after cranberry fruit set and no later than 30 days before harvest.

In severe infestations, reduce equipment ground speed to insure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation.

FALLOW AND REDUCED TILLAGE SYSTEMS

EMERGED ANNUAL WEEDS

Use this product in fallow and reduced tillage systems prior to the emergence of crops listed in this label. Refer to specific product labels for crop rotation restrictions of all products recommended for tank mixing as outlined in this section.

This product does not provide residual weed control therefore, delay herbicide applications until maximum emergence of annual weeds, but before weeds

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are greater than 6 inches tall. Reduced control may be observed when application is made to weeds which have been cut to less than 6 inches tall.

Avoid spraying when weeds are subject to moisture stress, when dust is on foliage, or when straw canopy covers the weeds.

This product may be applied using ground or aerial spray equipment for weed control on fallow lands or small-grain stubble. See the "Application Equipment and Techniques" section of this label for instructions.

For Ground Applications: Apply in 3 to 10 gallons of water per acre.

For Aerial Applications: Apply in 3 to 5 gallons of water per acre.

Mixing Instructions: Fill spray tank with the required amount of water. Add the proper amounts of herbicide and surfactant, and mix well before using.

SPRAY SOLUTION RATE TABLE

Volume gallons/acre	Nonionic Surfactant Rate fl. oz/acre
3	2.0
5*	3.0
10	6.5

*Maximum aerial application rate.

When applied as directed under the conditions and rates described for fallow and reduced tillage systems, this product plus an approved agricultural nonionic surfactant will control the listed, emerged annual weeds:

Apply ¾ pint (12 fl. oz.) of this product plus 0.5% by volume nonionic surfactant per acre to control the following emerged annual weeds:

Brome (downy)
Bromus tectorum
Foxtails
Setaria spp
Mustard (tansy)
Descurainia pinnata
Mustard (wild)
Brassica kaber
Wheat
Triticum aestivum

Apply 1 pint of this product plus 0.5% by volume nonionic surfactant per acre to control the additional emerged annual weeds:

Barley
Hordeum vulgare
Falseflax (smallseed)
Camelina microcarpa
Mustard (tumble)
Sisymbrium altissimum
Oats (wild)
Avena fatua
Pennycress (field), Fanweed
Thlaspi arvense
Rye
Secale cereale
Ryegrass (annual)
Lolium multiflorum

Tank Mixtures

ROUNDUP® plus NONIONIC SURFACTANT plus BANVEL™

ROUNDUP® plus NONIONIC SURFACTANT plus 2,4-D AMINE

DO NOT APPLY BANVEL OR 2,4-D AMINE TANK MIXTURES BY AIR IN CALIFORNIA.

The addition of Banvel™ in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if Banvel™ is applied within 45 days of planting.

For use instructions, refer to Banvel ™ label.

These recommended tank mixtures may be applied using ground or aerial spray equipment. See the "Application Equipment and Techniques" section of this label for instructions.

Mixing Instructions: Fill the spray tank with the required amount of water. Add the proper amounts of herbicide and surfactant, and mix well before using.

When applied as directed under the conditions and rates described for EMERGED ANNUAL WEEDS in the "Tank Mixture" portion of this section, this product plus Banvel™ or 2,4-D amine plus nonionic surfactant will control the additional listed annual broadleaf weeds:

Apply ¾ pint (12 fl. oz.) of this product plus 0.25 lb. a.i. of Banvel plus 0.5% by volume nonionic surfactant per acre to control the following broadleaf weeds:

Kochia*
Kochia scoparia
Pigweed, Redroot
Amaranthus retroflexus
Lambsquarters
Chenopodium album

*Controlled with Banvel™ tank mixture only.

Apply 1 pint of this product plus 0.25 lb. a.i. of Banvel or 0.5 lb. a.e. of 2,4-D amine plus 0.5% by volume nonionic surfactant per acre to control the additional annual broadleaf weeds:

Lettuce (prickly)
Lactuca serriola
Thistle (Russian)
Salsola kali

EMERGED PERENNIAL WEEDS

When applied as directed under the conditions described, this product plus Banvel™ will control the following perennial broadleaf weeds:

Bindweed (field)
Convolvulus arvensis
Thistle (Canada)
Cirsium arvense

Tank Mixture

ROUNDUP® plus BANVEL™

PRIOR TO PLANTING SMALL GRAINS.
Use in GROUND APPLICATION EQUIPMENT ONLY.

Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures.

See the "Control of Perennial Weeds" part of the "Weeds Controlled" Section of this label for the weed growth stage needed to obtain best results.

Apply 2 quarts of this product plus 0.5 pound a.i. of Banvel™ in 10 to 20 gallons of water per acre. Some crop injury may occur if Banvel™ is applied within 45 days of planting.

SUGARCANE

When applied as directed for "Cropping Systems," under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields to be planted to sugarcane. This product will also control undesirable sugarcane.

NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment — Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane.

For specific rates of application and instructions for control of various annual and perennial weeds see the "Weeds Controlled" section of this label.

For removal of last stubble or ratoon cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields — For dilution and rates of application using Hand Held Equipment, see "Mixing and Application" and "Weeds Controlled" sections of this label.

For control of volunteer or diseased sugarcane, make a 1% solution of this product in water and spray to wet the foliage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

TANK MIXTURES
Minimum Tillage Systems
CORN

When applied as recommended under the conditions described, these tank mixtures control many emerged weeds, and give preemergence control of many annual weeds when corn will be planted directly into a cover crop, established sod, or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. Lasso® EC herbicide may be substituted for Lasso® herbicide in these tank mixtures. For mixing instructions, see the "Mixing and Application Instructions" section of this label.

ROUNDUP® plus LASSO®

Do not use the following tank mixtures on sand or loamy sand soils.

ROUNDUP® plus LASSO® plus ATRAZINE

or

ROUNDUP® plus LASSO® plus BLADEX™

or

ROUNDUP® plus LASSO® plus PRINCEP™

or

ROUNDUP® plus ATRAZINE plus PRINCEP™

Apply these tank mixtures in 10 to 40 gallons of water per acre after planting or during planting in such manner that the planter does not disturb the treated soil. Do not apply these mixtures after crop emergence.

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REDUCED CONTROL MAY RESULT IF THIS PRODUCT IS USED IN TANK MIXTURES CONTAINING FLUID FERTILIZERS.

CONTROL OF EMERGED WEEDS

Annual Weeds — Apply to actively growing grasses and broadleaf weeds. Use 1 quart of Roundup herbicide per acre in these tank mixtures if weeds are less than 6 inches tall. If weeds are over 6 inches tall, apply 1.5 quarts of this product per acre. For emerged annual weeds controlled, see the "Weeds Controlled" section of this label.

Perennial Weeds — At normal application dates in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "General Information" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of Roundup herbicide per acre in these tank mixtures, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "Weeds Controlled" section of this label. To obtain control, follow recommendations on this label for stage of growth and rate of application for specific perennial weeds. To obtain the desired stage of growth, it may be necessary to apply Roundup herbicide alone in the late summer or fall and then follow with a label approved seedling weed control program at planting.

NOTE: When using these tank mixtures, do not exceed 4 quarts of Roundup herbicide per acre.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "Control of Perennial Weeds" section of this label and then use a label approved seedling weed control program in a minimum tillage or conventional tillage system. For johnsongrass control, follow the instructions under the "Control of Perennial Weeds" section of the label, and then use a label approved seedling weed control program with conventional tillage.

PREEMERGENCE WEED CONTROL

LASSO®

For weeds controlled preemergence, see the "Weed Control with Lasso®" section of the label for Lasso herbicide.

See the following table for recommended rates of Lasso in this tank mixture with Roundup® herbicide on various soil types:

Lasso®

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE Lasso® (quarts)
COARSE	2.5 to 3
MEDIUM	3
FINE	3.5 to 4

*Refer to the Soil Texture section of the label to determine the corresponding soil texture group for the soil to be treated.

Use the higher rate of Lasso® herbicide in the recommended ranges in areas of heavy grass infestation, or when organic matter content is 3 percent or more.

®Lasso is a registered trademark of Monsanto Company.

LASSO® plus ATRAZINE

For weeds controlled preemergence, see the "Weed Control with Lasso® and Lasso plus atrazine (Tank Mixture)" sections of the label for Lasso herbicide.

See the following table for recommended rates of Lasso plus atrazine 80W in this tank mixture with Roundup herbicide on various soil types.

Lasso® plus atrazine

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE Lasso® (Quarts)	atrazine 80W** (Pounds)
COARSE		
Sandy Loam only	2 to 2.5	1.25 to 1.5
MEDIUM	2.5 to 3	1.5 to 2
FINE	2.5 to 3	2 to 2.5

*Refer to the Soil Texture section of the label to determine the corresponding soil texture group for the soil to be treated.

**When using atrazine 4L or AAtrex™ 4LC use equivalent rates. One quart equals 1.25 pound of atrazine 80W.

Use the higher rate of Lasso® herbicide in the recommended ranges in areas of heavy grass infestation or when fall panicum or crabgrass will be present.

Use the higher rate of atrazine in the recommended ranges on soils with greater than 3% organic matter.

LASSO® plus BLADEX™

For weeds controlled preemergence, see the "Weed Control with Lasso and Lasso plus Bladex (Tank Mixture)" sections of the label for Lasso herbicide.

See the following table for recommended rates of Lasso plus Bladex in this tank mixture with Roundup herbicide on various soil types.

Lasso® plus Bladex™

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE Lasso® (quarts)	+	Bladex** 4L (quarts)
COARSE	2 to 2.5		1 to 1.6
MEDIUM	2.5 to 3		1.2 to 1.6
FINE	2.5 to 3		1.6 to 2.2

*Refer to the Soil Texture section of the label to determine the corresponding soil texture group for the soil to be treated.

**When using Bladex 80W use equivalent rates. One quart Bladex 4L equals 1.25 lbs. of Bladex 80W.

Use the higher rate of Lasso® herbicide in the recommended ranges in areas of heavy grass infestation or when fall panicum or crabgrass will be present.

Use the higher rate of Bladex in the recommended ranges on soils with greater than 3% organic matter.

NOTE: Do not use this mixture on sand or loamy sand soils with less than 2% organic matter.

™Bladex is a trademark of the Shell Chemical Company.

LASSO® plus PRINCEP™

For weeds controlled preemergence see the "Weed Control" sections of the labels for Lasso and Princep.

See the following table for recommended rates of Lasso plus Princep in this tank mixture with Roundup herbicide on various soil types.

Lasso® plus Princep™ 80W

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE Lasso® (Quarts)	Princep 80W** (Pounds)
COARSE		
Sandy Loam only	2 to 2.5	1.25 to 1.5
MEDIUM	2.5 to 3	1.5 to 2
FINE	2.5 to 3	2 to 2.5

*Refer to the Soil Texture section of the label to determine the corresponding soil texture group for the soil to be treated.

**When using Princep 4L use equivalent rates. One quart equals 1.25 pounds of Princep 80W.

Use the higher rate of Lasso® herbicide in the recommended ranges in areas of heavy grass infestation or when fall panicum or crabgrass will be present.

Use the higher rate of Princep herbicide in the recommended ranges on soils with greater than 3% organic matter.

™Princep is a registered trademark of Ciba Geigy Corporation
™AAtrex is a registered trademark of Ciba Geigy Corporation

ATRAZINE plus PRINCEP™

For weeds controlled preemergence see the "Weed Control" sections of the labels for atrazine and Princep.

See the following table for recommended rates of atrazine 80W and Princep 80W in this tank mixture with Roundup herbicide on various soil types.

Atrazine 80W plus Princep™ 80W

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE atrazine 80W** (Pounds)	Princep 80W** (Pounds)
COARSE		
Sandy Loam only	1.25	1.25
MEDIUM	1.25 to 1.75	1.25 to 1.75
FINE	1.5 to 2	1.5 to 2

*Refer to the Soil Texture of the label to determine the corresponding soil texture group for the soil to be treated.

**When using atrazine 4L, AAtrex 4LC or Princep 4L use equivalent rates. One quart equals 1.25 pounds of atrazine 80W or Princep 80W.

Use the higher rate of these products in the recommended ranges on soils with greater than 3% organic matter.

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TANK MIXTURES
Minimum Tillage Systems
SOYBEANS

When applied as directed under the conditions described, these tank mixtures control many emerged annual weeds, suppress many emerged perennial weeds and give preemergence control of many annual weeds when soybeans will be planted directly into a cover crop, stale seed bed, or in previous crop residues such as wheat stubble. These tank mixtures will not control regrowth from perennial weeds.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. Lasso® EC herbicide may be substituted for Lasso® herbicide in these tank mixtures. For mixing instructions, see the "Mixing and Application Instructions" section of this label.

ROUNDUP® plus LASSO®
or
ROUNDUP® plus LASSO® plus LOROX™
or
ROUNDUP® plus LASSO® plus LEXONE™
or
ROUNDUP® plus LASSO® plus SENCOR™

Apply these tank mixtures in 10 to 40 gallons of water per acre after planting or during planting in such manner that the planter does not disturb the treated soil. Do not apply these mixtures after crop emergence.

REDUCED CONTROL MAY RESULT IF THIS PRODUCT IS USED IN TANK MIXTURES CONTAINING FLUID FERTILIZERS.

CONTROL OF EMERGED WEEDS

Annual Weeds — Apply to actively growing grasses and broadleaf weeds. Use 1 quart of Roundup herbicide per acre in these tank mixtures if weeds are less than 6 inches tall. If weeds are over 6 inches tall, apply 1.5 quarts of this product per acre. For emerged annual weeds controlled, see the "Weeds Controlled" section of this label.

Perennial Weeds — At normal application dates in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "General Information" section of this label for the proper stage of growth for perennial weeds. Use of 2 to 4 quarts of Roundup herbicide per acre in these tank mixtures under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "Weeds Controlled" section of this label. To obtain control, follow recommendations on this label for stage of growth and rate of application for specific perennial weeds. To obtain the desired stage of growth, it may be necessary to apply Roundup herbicide alone in the late summer or fall and then follow with a label approved seedling weed control program at planting.

NOTE: When using these tank mixtures, do not exceed 4 quarts of Roundup herbicide per acre.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "Control of Perennial Weeds" section of this label and then use a label approved seedling weed control program in a minimum tillage or conventional tillage system. For johnsongrass control, follow the instructions under the "Control of Perennial Weeds" section of the label, and then use a label approved seedling weed control program with conventional tillage.

PREEMERGENCE WEED CONTROL

LASSO®

For weeds controlled preemergence, see the "Weed Control with Lasso®" section of the label for Lasso herbicide.

See the following table for recommended rates of Lasso in this tank mixture on various soil types:

Lasso®

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE Lasso® (quarts)
COARSE	2.5 to 3
MEDIUM	3
FINE	3.5 to 4

*Refer to the Soil Texture section of the label to determine the corresponding soil texture group for the soil to be treated.

Use the higher rate of Lasso® herbicide in the recommended ranges in areas of heavy grass infestation, or when organic matter content is 3 percent or more.

LASSO® plus LOROX™

For weeds controlled preemergence, see the "Weed Control with Lasso® and Lasso plus Lorox 50WP" sections of the label for Lasso herbicide.

See the following table for recommended rates of Lasso plus Lorox 50WP in this tank mixture with Roundup herbicide on various soil types.

Lasso® plus Lorox

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE Lasso® (Quarts)	Lorox 50 WP (Pounds)
COARSE		
Sandy Loam only	2 to 2.5	1 to 1.5
MEDIUM	2.5 to 3	1.5 to 2
FINE	2.5 to 3	2 to 3

*Refer to the Soil Texture Section of the label to determine the corresponding soil texture group for the soil to be treated.

Use the higher rate of Lasso in the recommended ranges in areas of heavy grass infestation or when fall panicum or crabgrass will be present.

Use the higher rate of Lorox 50WP in the recommended ranges on soils with greater than 3% organic matter.

Do not use this mixture on sand or loamy sand or on soil with less than 1% organic matter as crop injury from Lorox may occur.

™Lorox is a registered trademark of E.I. duPont deNemours and Company

LASSO® plus LEXONE™
or
LASSO® plus SENCOR™

For weeds controlled preemergence, see the "Weed Control with Lasso® and Lasso plus Lexone or Sencor" sections of the label for Lasso herbicide.

See the following table for recommended rates of Lasso plus Lexone 50WP or Lasso plus Sencor 50WP in this tank mixture on various soil types.

Lasso® plus Lexone™ 50WP or Lasso® plus Sencor™ 50WP

SOIL TEXTURE GROUP*	BROADCAST RATE PER ACRE Lasso® (Quarts)	Lexone 50WP** or Sencor 50WP** (Pounds)
COARSE		
Sandy Loam only	2 to 2.5	0.5 to 0.75
MEDIUM	2.5 to 3	0.75 to 1
FINE	2.5 to 3	1 to 1.5***

*Refer to the Soil Texture Section of this label to determine the corresponding soil texture group for the soil to be treated.

**When using Lexone 4L or Sencor 4 Flowable use equivalent rates. One quart equals 2 pounds of Lexone 50WP or Sencor 50WP.

***On the silty clay or heavy clay soils of the Mississippi Delta, use 1.5 to 2 pounds of Lexone or Sencor per acre.

Use the higher rate of Lasso herbicide in the recommended ranges in areas of heavy grass infestations or when fall panicum or crabgrass will be present.

Use the higher rate of Lexone or Sencor herbicides in the recommended ranges on soils with greater than 2% organic matter.

Do not use this mixture on sand or loamy sand soils as crop injury from Lexone or Sencor may occur.

Do not use on muck soils.

Do not apply on alkaline soils with a pH of more than 7.4.

Crop injury may occur if any atrazine was applied on the soil the year before use of this Lexone or Sencor tank mixture.

DO NOT REPLANT CROPS OTHER THAN SOYBEANS FOR 120 DAYS AFTER APPLICATION.

™Lexone is a registered trademark of E. I. duPont de Nemours and Company.

™Sencor is a registered trademark of the parent company of Farbenfabriken Bayer GmbH, Leverkusen.

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PRE-HARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of COTTON.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Ground Applications — Apply this product in 10 to 40 gallons of water per acre on emerged labeled annual and perennial weeds.

Timing of Application — Apply this product for pre-harvest weed control after 80% of the cotton bolls have opened.

NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED.

Allow a minimum of 7 days between application and harvest.

Do not feed or graze treated areas within 8 weeks after application.

PERENNIAL CROPS

This product is recommended for weed control in established groves, vineyards, or orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, shielded sprayers, hand-held and high-volume wands, lances, or orchard guns, or with wiper applicator equipment, except as directed in this section. See the "Application Equipment and Techniques" section of this label for specific information on use of equipment.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

TREE CROPS

Citrus*: grapefruit, kumquat, lemon, lime, orange, tangelo, tangerine.

Nuts**: almond, filbert, macadamia, pecan, pistachio, walnut.

Pome Fruit*: apple, pear.

Stone Fruit*: for peaches, plums/prunes, nectarines, and apricots in Arizona, California, Colorado, Oregon, Idaho, North Dakota, Utah, Texas, Oklahoma and Washington only, any application equipment listed in this section may be used.

For all other states, peaches, plum/prunes, nectarines or apricots may be treated with wick wipers only.

For cherries, any application equipment listed in this section may be used in any state.

Tropical Fruit: avocado*, coffee*, guava, mango*, papaya. Allow a minimum of 1 day between last application and harvest of guava and papaya. In coffee delay applications 3 months after transplanting to allow the new coffee plant to become established.

NOTE:

*Allow a minimum of 14 days between last application and harvest.

**Allow a minimum of 21 days between last application and harvest of these crops.

VINE CROPS

Grapes*: any variety of table, wine, or raisin grape may be treated with any equipment listed in this section. Applications should not be made when green shoots, canes, or foliage are in the spray zone.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

NOTE:

*Allow a minimum of 14 days between last application and harvest.

in CROPPING SYSTEMS:

Artichoke (Jerusalem)	Corn	Okra
Asparagus	Cotton	Onion
Barley	Cranberries	Peanuts
Beans Edible (all)	Forage Grasses	Peas (English, green)
Beet Greens	Forage Legumes	Potato (Irish, sweet)
Beets (red, sugar)	Horseradish	Radish
Broccoli	Kale	Rice
Cabbage	Lentils	Sorghum (milo)
Carrot	Lettuce	Soybeans
Cauliflower	Mustard Greens	Spinach
Chicory	Oats	Sugarcane
		Wheat

Fallow and Reduced Tillage Systems

in TREE CROPS:

Citrus (as listed)	Pome Fruit (as listed)	Tropical Fruit (as listed)
Cherry		
Nuts (as listed)	Stone Fruit (as listed)	

in GRAPES — Wine, Table and Raisin

in MINIMUM TILLAGE SYSTEMS for: Corn, Soybeans

CALIFORNIA

Roundup® herbicide has been approved by the U.S. Environmental Protection Agency for the uses, crops and sites listed in this label. Approval of the items listed below is pending under the State of California registration requirements.

These use conditions, crops and sites may not be treated with this product in California until approval is received:

- Suppression of Bermudagrass, dog fennel, ragweed (common), smutgrass, thistle (Canada), thistle (musk), and velvetleaf with selective equipment
- Control of rye (common), and Spanishneedles with selective equipment.
- Use in mango
- Preharvest applications

ROUNDUP® Herbicide Complete Directions for Use in NON-CROP AREAS such as:

Industrial, Recreational and Public areas
Farmstead Weed Control
Ornamentals
Silvicultural Sites and Rights-of-Way
Turfgrasses and Grasses for Seed Production

EPA Reg. No. 524-308-AA
1982-2 897.10-002.02/53

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SPECIMEN LABEL

E-90801

DUPONT

SEE U.S. PAT. & TM. OFF.

Oust®

HERBICIDE

TRADEMARK

DISPERSIBLE GRANULES

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DU PONT

REG. U.S. PAT. & TM. OFF.

Oust® HERBICIDE

ACTIVE INGREDIENT: Sulfometuron methyl
Methyl 2-[[[[(4,6-dimethyl-2-pyrimidinyl)amino]carbonyl]amino]sulfonyl]benzoate 75%

INERT INGREDIENTS 25%

U.S. Pat. 4,394,506

EPA Reg. No. 352-401

KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENTS — HAZARDS TO HUMANS

CAUTION! MAY IRRITATE EYES, NOSE, THROAT AND SKIN.

Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing.

If in eyes, immediately flush with plenty of water and get medical attention. If on skin, immediately flush with plenty of water and get medical attention if irritation persists.

For medical emergencies involving this product, call toll free 1-800-441-3637.

ENVIRONMENTAL HAZARDS

Do not apply directly to wetlands or any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only, away from other pesticides, fertilizer, food or feed.

DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

NOTICE OF WARRANTY

Du Pont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Du Pont. In no case shall Du Pont be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. DU PONT MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

IMPORTANT

Do not use on food or feed crops. Injury to or loss of desirable trees or other plants may result from failure to observe the following: Do not apply (except as recommended), or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not apply where runoff water may flow onto agricultural land or into surface water being used for irrigation, as injury to crops may result. In addition, do not apply directly to any body of water. Powdery, dry soil and light, sandy soils should not be treated when there is little likelihood of rainfall after treatment. Treated soils should be left undisturbed to reduce the potential for "Oust" movement by soil erosion due to wind or water. Injury to crops may occur when treated soil is blown or moved onto land used to produce crops. Do not use on lawns, walks, driveways, tennis courts or similar areas. Prevent drift of spray to desirable plants. Keep from contact with fertilizers, insecticides, fungicides and seeds.

Following an "Oust" application, the spray tank used should not be used for other than noncrop applications. This is extremely important, as low rates of "Oust" can kill or severely injure most crops.

GENERAL INFORMATION

Du Pont "Oust" Herbicide is a dispersible granule to be mixed in water and applied as a spray for control of many annual and perennial grasses and broadleaf weeds on noncropland areas.

"Oust" may be applied preemergence or postemergence to the weeds; best results are obtained if application is made before or during early stages of weed growth. "Oust" may be used at any time of the year except when ground is frozen, provided adequate moisture is available for herbicide activation. Under limited rainfall conditions, "Oust" may not provide satisfactory control of hard-to-kill perennials.

To reduce the potential for off-target movement, do not apply "Oust" during periods of intense rainfall or to soils saturated with water.

"Oust" is absorbed by both roots and foliage of weeds, resulting in visual effects progressing from growth inhibition to reddish-purplish coloration, chlorosis, necrosis, vein discoloration and death of terminals. Initial effects are usually seen 2 or 3 weeks following application; however, the final effects are evident at about 4 to 6 weeks after application.

The degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other environmental conditions. Follow all use precautions on label.

E. I. DU PONT DE NEMOURS & CO. (INC.), AGRICULTURAL PRODUCTS DEPARTMENT, WILM., DE 19898

Continued ▸

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DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

"Oust" Herbicide should be used only in accordance with recommendations on this label or in separate published Du Pont recommendations available through local dealers.

Du Pont will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by Du Pont. User assumes all risks associated with such nonrecommended use.

"Oust" is recommended for pre- and postemergence control of many annual and perennial grasses and broadleaf weeds on noncropland areas such as airports, fence rows, roadsides and associated rights-of-way, lumberyards, petroleum tank farms, pipeline and utility rights-of-way, pumping installations, railroads, storage areas, plant sites and other similar areas.

SPRAY PREPARATION: Mix the proper amount of "Oust" in water in the spray tank with the agitator running. Continuous agitation is required to keep the product in suspension. A drift control agent must be used at its recommended rate when spraying in areas near cropland or desirable vegetation. For nonselective postemergence applications, a nonionic surfactant such as Du Pont Surfactant WK or "Ortho"[1] X-77 may then be added at the rate of one quart per 100 gallons of spray to improve wetting and/or contact activity. "Oust" spray preparations may degrade in acid solutions if not used within 48 hours. Thoroughly reagitate before reusing.

EQUIPMENT — SPRAY VOLUME AND PRESSURE:

Apply uniformly with properly calibrated ground equipment, using at least 15 gallons of spray per acre and a spray pressure of 25 to 50 psi. Extreme care must be taken to prevent drift to desirable plants or agricultural land. To minimize drift, apply at low pressures with coarse spray nozzles and booms as low as possible to ground. Keep "Oust" out of cropland. Do not apply "Oust" by aircraft, except for use as directed in the "Conifer Site Preparation and Release" section of this label.

WEEDS CONTROLLED, RATES AND TIMING:

Early Postemergence—Selective Applications—1 Ounce Per Acre

Broadleaves		Grasses
Carolina geranium	Spotted spurge	Downy brome
Goldenrod	Sweet clover	Fescue
Kochia	Wild carrot	Foxtail
Russian thistle		

Preemergence to Early Postemergence—3 to 5 Ounces Per Acre

Broadleaves (Up to 3 to 4" in Height or Diameter)			Grasses (Up to 6 to 12" in Height)	
Bouncingbet	Horsetail	St. Johnswort	Alta fescue	Kentucky bluegrass
Buckhorn plantain	Kochia	Sunflower	Annual bluegrass	Little barley
Burclover	Little mallow	Sweet clover	Annual ryegrass	Red brome
Carolina geranium	Mustard	Tansymustard	Bahiagrass	Red fescue
Common chickweed	Ox-eye daisy	Tansy ragwort	Barnyardgrass	Reed canarygrass
Common dandelion	Pigweed	Tumble mustard	Downy brome	Ripgut brome
Common speedwell	Prickly lettuce	Vetch	Fescue	Ryegrass
Common yarrow	Purple starthistle	Wild carrot	Foxtail	Smooth brome
Crimson clover	Ragweed	Yellow rocket	Indian grass	Sprangletop (annual)
Dogfennel	Russian thistle		Italian ryegrass	
Hoary cress	Sowthistle		Johnsongrass (short-term control)	

Early Postemergence — 6 to 12 Ounces Per Acre

Broadleaves			Grasses
Bedstraw	Fleabane	Muskthistle	Johnsongrass (season-long control)
Canada thistle	Goldenrod	Poison ivy	Yellow nutsedge
Curly dock	Groundsel	Spanishneedles	
Dewberry	Hemlock	Turkey mullein	
Fiddleneck	Honeysuckle	Virginia pepperweed	
Filaree	Jerusalem artichoke	Wild blackberry	
Fireweed (Willowweed)	Kudzu*		
	Mayweed		

*Considered hard to kill. Use only high rate of 12 ounces per acre.

Use the higher level of the recommended dosage ranges under the following conditions: Heavy weed growth; on soils containing more than 2½% organic matter; and on high soil moisture areas such as along road edges or railroad shoulders.

NONSELECTIVE WEED CONTROL:

Johnsongrass Control: For short-term control (up to 3 months), apply "Oust" at 2 to 5 ounces per acre early postemergence to the johnsongrass. Retreat when regrowth occurs or if further control of the actively growing johnsongrass is desired.

For season-long control, apply "Oust" at 6 to 12 ounces per acre during the stages of early postemergence to the johnsongrass through the period when the johnsongrass is actively growing.

Control of Other Weeds: Apply "Oust" at 3 to 5 ounces per acre for control of weeds such as Carolina geranium, foxtail, kochia, little barley, ox-eye daisy, Russian thistle, etc., during pre- to early postemergence stages of weed growth. For hard-to-control weeds such as curly dock, goldenrod, musk thistle, etc., apply "Oust" at 6 to 12 ounces per acre.

Tank Mixtures With Residual Herbicides (Bareground Weed Control): For improved preemergence to early postemergence control of downy brome, fescue, foxtail, johnsongrass, kochia, Russian thistle and wild blackberry, add 2 to 6 ounces of "Oust" per acre to the recommended rates of the following products: Du Pont Hyvar® X Herbicide, Du Pont Karmex® Herbicide, Du Pont Krovar® I Herbicide, Du Pont Velpar® L Herbicide, Du Pont Velpar® Herbicide, "Roundup"[2], or 2,4-D.

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SELECTIVE WEED CONTROL:

For use on unimproved industrial turf, on roadsides, and on other noncropland areas where bermudagrass (common and coastal varieties), bahiagrass, crested wheatgrass and smooth brome are well established, and are desired as ground covers.

BERMUDAGRASS RELEASE

For control of many annual and perennial broadleaf weeds and grasses use the following application timings:

Late Spring and Early Summer: Apply 1 to 2 oz of "Oust" per acre for control of Carolina geranium, fescue, foxtail, goldenrod, spotted spurge, sweet clover and wild carrot after bermudagrass is well established, usually about 30 days after initial spring flush. If regrowth of weeds occurs and additional control is desired, repeat treatment at 1 to 2 oz during the late spring and summer. After weeds become established, best results occur when applications are made 1 to 2 weeks following mowing.

Apply 2 to 3 oz per acre for short-term control of johnsongrass after bermudagrass is well established, usually about 30 days after initial spring flush. Retreat with 2 to 3 oz if additional control is desired or if regrowth occurs.

Late Fall and Early Winter: Apply 1 to 4 oz of "Oust" per acre for control of winter annuals such as Carolina geranium, common chickweed, fescue, little barley and wild blackberry.

BAHIAGRASS RELEASE AND SEEDHEAD SUPPRESSION

Apply 1 oz of "Oust" per acre for control of fescue, goldenrod, spotted spurge and wild carrot. Rates as low as ½ oz per acre have reduced bahiagrass growth vigor and suppressed seedheads when applied before seedhead emergence in the spring or following mowing.

SMOOTH BROME RELEASE AND SUPPRESSION

For control of downy brome, foxtail, goldenrod, kochia, Russian thistle and sweet clover in well established stands of smooth brome, apply 1 oz of "Oust" per acre in the spring. This application may also result in smooth brome seedhead reduction, as well as growth suppression and reduced plant vigor.

CRESTED WHEATGRASS RELEASE AND SUPPRESSION

For control of downy brome, kochia, Russian thistle and sweet clover in well established stands of crested wheatgrass on noncrop sites, apply 1 oz "Oust" per acre during the rainy season or spring. This application may also result in growth suppression of the crested wheatgrass.

NOTE: *(Selective Weed Control)*

1. Temporary discoloration or top kill of bahiagrass, bermudagrass and smooth brome may result following an application of "Oust". Browning and degree of stand reduction may increase in areas with warm climates.
2. Do not apply "Oust" to industrial turf that is under stress from drought, insects, disease, cold temperatures or late spring frost, as injury may result.
3. Do not use a surfactant.

CONIFER SITE PREPARATION AND RELEASE [EXCEPT CALIFORNIA]:

"Oust" provides both foliar and residual control of many herbaceous grass and broadleaf weeds in jack pine, loblolly pine, red pine, slash pine and Virginia pine reforestation areas.

When used as described, "Oust" controls many herbaceous plants such as: Crabgrass, dog fennel, fescue, fireweed (willowweed), goldenrod, horseweed, Kentucky bluegrass, nutsedge (yellow), panicums (broadleaf, fall, narrow), pokeweed, ragweed, white snakeroot and yellow sweetclover.

PREPLANT OR POSTPLANT TO CONIFERS:

Make application from late winter to midsummer.

Apply 2-8 ounces of "Oust" per acre (2-4 ounces per acre on red pine) using appropriate ground or air (helicopter only) equipment and sufficient water, usually 25-50 gallons per acre by ground and 5-15 gallons per acre by air. Calibrate equipment to insure uniform distribution of liquid over treated area. To reduce drift when applying by air, use precise application spray equipment (jet nozzles directed backwards [D4 or larger] or a "Microfoil"[3] boom or equivalent. When compatible with equipment, addition of a spray thickening agent, such as "Nalco-Trol"[4], is recommended to further minimize drift. Do not apply by air within 200 feet of any homestead, agricultural land or other desirable plantings.

NOTE: *(Conifer Site Preparation and Release)*

1. Extreme care must be taken to prevent drift or runoff to homesteads, desirable plantings, agricultural land or any body of water. Do not apply when weather conditions favor drift from treated areas.
2. Use extreme care when applying in areas adjacent to any body of water. Keep out of lakes, streams, ponds, reservoirs or any body of water.
3. Do not apply where conifers are suffering from loss of vigor caused by insects, diseases, drought, winter damage or other stresses, as injury may result.
4. "Oust" is not recommended for use on poorly drained or marshy sites, but it may be used where pines have been planted in beds.
5. "Oust" applications may result in damage to Douglas fir, Noble fir and Ponderosa pine.
6. Use the lower rates on coarse textured soils (i.e., loamy sands, sandy loams) and higher rates on fine textured soils (i.e., sandy clay loams and silty clay loams). Do not use on gravelly or rocky soils, exposed subsoils, or heavy clay soils (i.e., sandy clay, silty clay or clay).

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.

[1]Trademark of Chevron Chemical Company
[2]Trademark of Monsanto Company
[3]Trademark of Union Carbide Agricultural Products Company
[4]Trademark of Nalco Company

AG-1900 8017 12/18/86 Made in U.S.A. Printed in U.S.A.

Pressure Sensitive Label

Atratol® 4LC

Herbicide

For weed control in noncrop areas
and industrial sites

Active Ingredients:	
Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine	40.8%
Related compounds	2.2%
Inert Ingredients:	57.0%
Total:	100.0%

Gallons
U.S. Standard Measure

Atratol 4LC contains 4 lbs. active ingredients per gal.

Keep Out of Reach of Children.

Caution

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed, inhaled, or absorbed through skin. Do not breathe vapors or spray mist. Avoid contact with eyes, skin or clothing.

First Aid: If swallowed, contact your local poison control center, hospital, or physician. If the patient is unconscious, maintain breathing and heartbeat (cardiopulmonary

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resuscitation). If the patient is conscious and alert, induce vomiting (syrup of ipecac or stimulate the back of the throat with a finger). NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON!

In case of skin contact, remove contaminated clothing and wash with soap and water. In case of contact with eyes, flush with plenty of water. Get medical attention if irritation persists.

Note to Physician: There is no specific antidote for atrazine. If this product is ingested, induce emesis or lavage stomach. The use of an aqueous slurry of activated charcoal may be considered.

Environmental Hazards

Do not apply directly to any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

IMPORTANT: Read the entire Directions for Use and the Conditions of Sale and Warranty before using this product.

Conditions of Sale and Warranty

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of CIBA-GEIGY or the Seller. All such risks shall be assumed by the Buyer.

CIBA-GEIGY warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use subject to the inherent risks referred to above. CIBA-GEIGY makes no other express or implied warranty of Fitness or Merchantability or any other

express or implied warranty. In no case shall CIBA-GEIGY or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. CIBA-GEIGY and the Seller offer this product, and the Buyer and user accept it, subject to the foregoing Conditions of Sale and Warranty, which may be varied only by agreement in writing signed by a duly authorized representative of CIBA-GEIGY.

To be used in accordance with Directions for Use in the Atratol 4LC label booklet.

Atratol® trademark of CIBA-GEIGY

EPA Reg. No. 100-535
EPA Est. 100-LA-1

Control No.

Agricultural Division
CIBA-GEIGY Corporation
Greensboro, North Carolina 27419

CGA 20L7

CIBA-GEIGY

September 29, 1983

(Booklet)

Atratol® 4LC

Herbicide

For weed control in noncrop areas
and industrial sites

Active Ingredients:	
Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine	40.8%
Related compounds	2.2%
Inert Ingredients:	57.0%
Total:	100.0%

____ Gallons
U.S. Standard Measure

Atratol 4LC contains 4 lbs. active ingredients per gal.

Keep Out of Reach of Children.

Caution

See additional precautionary statements inside booklet.

EPA Reg. No. 100-535

CGA 20L7

CIBA-GEIGY

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Directions for Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

FAILURE TO FOLLOW ALL PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL OR ILLEGAL RESIDUES.

General Information

This herbicide is effective in noncrop areas and industrial sites for control of most annual and many perennial broadleaf and grass weeds. It may be applied before or after weeds emerge.

Following many years of continuous use of this product and chemically related products, biotypes of some of the weeds listed on this label have been reported which cannot be effectively controlled by this and related herbicides. Where this is known or suspected and weeds controlled by this product are expected to be present along with resistant biotypes, we recommend the use of this product in registered combinations or in sequence with other registered herbicides which are not triazines. If only resistant biotypes are expected to be present, use a registered non-triazine herbicide. Consult with your state Agricultural Extension Service for specific recommendations.

Since this product acts mainly through root absorption, its effectiveness depends on moisture to move it into the root zone. If weeds develop, a shallow cultivation will generally result in better weed control.

This product is nonflammable.

Avoid using near adjacent desirable plants or in greenhouses, or injury may occur.

Where the use directions give a range of rates, use the lower rate on coarse-textured soil and soil low in organic matter; use the higher rate on fine-textured soil and soil high in organic matter.

Note: CIBA-GEIGY does not recommend applications in combination with other herbicides or oils, except as specifically described on the label or in literature published by CIBA-GEIGY.

Application Procedures

Use conventional ground sprayers equipped with nozzles that provide accurate and uniform application. Be certain that nozzles are uniformly spaced and are the same size. Calibrate sprayer before use and recalibrate at the start of each season and when changing carriers.

Use a pump with capacity to (1) maintain 35-40 psi at nozzles, (2) provide sufficient agitation in tank to keep mixture in suspension, and (3) to provide a minimum of 20% bypass at all times. Use centrifugal pumps which provide propeller shear action for dispersing and mixing this product. The pump should provide a minimum of 10 gal/minute/100 gal tank size circulated through a correctly positioned sparger tube or jets.

Use screens to protect the pump and to prevent nozzles from clogging. Screens placed on the suction side of the pump should be 16-mesh or coarser. Do not place a screen in the recirculation line. Use 50-mesh or coarser screens between the pump and boom, and where required, at the nozzles. Check nozzle manufacturer's recommendations.

Mixing procedures: (1) Be sure sprayer is clean and not contaminated with any other materials, or sprayer clogging may result. (2) Fill tank 1/4 full with clean water. (3) Start agitation. (4) Be certain that the agitation system is working properly and creates a rippling or rolling action on the liquid surface. (5) Pour product directly from container into tank. (6) Continue filling tank until 90% full. Increase agitation if necessary to maintain surface action. (7) Add tank mix herbicide(s) after this product is thoroughly suspended. (8) Finish filling tank. (9) Empty tank as completely as possible before refilling to prevent buildup of emulsifiable concentrate residue. Maintain agitation to avoid separation of materials. (10) If an emulsifiable concentrate film starts to build up in tank, drain it and clean with strong detergent solution or solvent. (11) Clean sprayer thoroughly immediately after use by flushing system with water containing a detergent.

Nonselective Weed Control on Noncrop Land

This product provides long-term weed control on industrial sites, highway medians and shoulders, railroad rights-of-way, lumberyards, petroleum tank farms, equipment and fuel storage areas, and along fences and lanes. Do not use near adjacent desirable plants or in greenhouses, or injury may occur.

Apply before or soon after weeds begin growth. Make postemergence applications when weeds are young and actively growing. Use the higher rates on fine clay and muck soils. Use sufficient water to assure thorough coverage. Use at least 1 gal of water for each qt of product; use more if practical.

Note: Do not allow livestock to graze treated areas.

Annual broadleaf and grass weeds (including barnyardgrass, cheatgrass, crabgrass, lambsquarters, foxtail, ragweed, puncturevine, and turkey mullein): Broadcast 4.8-10 qt/A.

Hard-to-kill annual and many perennial broadleaf and grass weeds (including bluegrass, burdock, Canada thistle, dogfennel, orchardgrass, plantain, quackgrass, purpletop, redtop, and smooth brome): Broadcast 10-20 qt/A.

Hard-to-kill biennial and perennial weeds (including bull thistle and sowthistle): Broadcast 20-40 qt/A.

For longer residual control in regions of high rainfall and a long growing season, broadcast 20-40 qt/A.

For small areas, 0.28 pt per 1,000 sq ft is equivalent to 10 qt/A.

Tank Mixture with Princep® 80W or Princep Caliber 90®

Use only for long-term control of broadleaf and grass vegetation in areas listed in respective labels. Do not use on cropland, or near desirable trees, shrubs or other plants, or in greenhouses, or injury may occur.

This tank mixture has similar activity and moisture requirements as described in above General Information section, except that Princep provides preemergence control only.

For best results, apply to soil shortly before weed growth begins or apply postemergence to young, actively growing plants not over 6 inches tall.

Use sufficient water for thorough soil and plant coverage. Use at least 1 gal. of water for each pint of Atratol 4LC used in the combination. More water may be needed for heavy weed growth. Maintain agitation during mixing and application.

Broadcast tank mixtures at the following rates to control weeds listed. Use the lower rates for light weed infestations and the higher rates for heavier infestations.

Use 2.6-5 qts. of Atratol 4LC plus 3.25-6.26 lbs. of Princep 80W or 2.9-5.6 lbs. of Princep Caliber 90 per acre to control weeds listed in the General Information and the several crops sections of the Princep 80W and Princep Caliber 90 labels.

The above rates will also control California burclover, Orthocarpus purpurescens, ripgut brome, smooth catsear, summer lupine, and turkey mullein.

Use 5 qts. of Atratol 4LC plus 6.25 lbs. of Princep 80W or 5.6 lbs. of Princep Caliber 90 per acre to control burdock, daisy fleabane, goldenrod, horseweed, little mallow, milkweed, orchardgrass, quackgrass, Russian thistle, shortpod mustard, wild barley, and wood sorrel.

Use 2.5 gals. of Atratol 4LC plus 12.5 lbs. of Princep 80W or 11.1 lbs. of Princep Caliber 90 per acre to control evening-primrose, shepherds-needle, and tall fescue.

For small areas, 7 1/3 fl. oz. of Atratol 4LC or 2/3 cup (4.6 oz.) of Princep 80W or 1/2 cup (4 oz.) of Princep Caliber 90, per 1,000 sq. ft. is equivalent to 2.5 gals. of Atratol 4LC or 12.5 lbs. of Princep 80W or 11.1 lbs. of Princep Caliber 90 per acre, respectively.

Tank Mixture With Diuron 80W

Use only for long-term control of broadleaf and grass vegetation in areas listed in respective labels. Do not use on cropland, or near desirable trees, shrubs or other plants, or in greenhouses, as injury may occur.

This tank mixture has activity and moisture requirements similar to that described in above General Information section and in the Diuron 80W label. For best results, apply to soil shortly before weed growth begins or apply to young, actively growing plants not over 6 inches tall. For increased contact activity, add a surfactant, such as Surfactant WK, at 2 qts. per 100 gals. of spray volume. Add surfactant as last ingredient to nearly full spray tank.

For best results, apply immediately prior to weed emergence. The combination of Atratol 4LC plus Ontrack 8E may also be applied after weeds emerge, but before they exceed 6 inches in height.

Precautions: Do not use near desirable trees, shrubs, plants or in greenhouses, or injury may occur.

Tank Mixture with Oust®

Use this tank mixture to control the weeds listed below with either preemergence, early postemergence, or postemergence applications. Use the higher rates within the ranges given under conditions of heavy weed growth, on soil with over 2 1/2% organic matter, on areas with heavy decaying plant residues, or on high moisture areas such as along road edges or railroad shoulders. To improve wetting and/or contact activity on emerged weeds, add a nonionic surfactant such as DuPont Surfactant WK or X-77® at 1 qt. per 100 gals. of spray. Do not apply by aircraft. Provide constant agitation during mixing and application to keep the mixture in suspension. Refer to the labels of both herbicides for specific noncrop sites and further directions, precautions, and limitations.

Preemergence to Early Postemergence: To control the weeds listed below apply 1-2 gals. of Atratol 4LC plus 3-5 ounces of Oust in a minimum of 25 gals. of water per acre.

Broadleaf Weeds (Up to 3-4" in Height or Diameter)

bouncingbet
buckhorn plantain
burclover
Carolina geranium
common chickweed
common dandelion
common speedwell
common yarrow
crimson clover
dogfennel
filaree
hoary cress
horsetail
kochia
lambsquarters
little mallow
mustard
ox-eye daisy
pigweed
prickly lettuce
puncturevine
purple starthistle
ragweed
Russian thistle
sowthistle
St. Johnswort
sunflower
sweet clover
tansymustard
tansy ragwort
tumble mustard
turkey mullein
vetch
wild carrot
yellow rocket

Grasses (Up to 6-12" in Height)

Alta fescue
annual bluegrass
annual ryegrass
bahia grass
barnyardgrass
cheatgrass
crabgrass
downy brome
fall panicum
fescue
foxtails
Indian grass
Italian ryegrass
johnsongrass (short-term control)
little barley
red brome
red fescue
reed canarygrass
ripgut brome
ryegrass
smooth brome
sprangletop
witchgrass

Postemergence: To control actively growing weeds listed below apply 2-4 gals. of Atratol 4LC plus 6-12 ounces of Oust in a minimum of 25 gals. of water per acre.

Actively Growing Weeds

bedstraw
burdock
Canada thistle
curly dock
dewberry
fiddleneck
fleabane
goldenrod
hemlock
hemp dogbane
honeysuckle
Jerusalem artichoke
kudzu
mayweed
musk thistle
plantain
poison ivy
Spanishneedles
Virginia pepperweed
wild blackberry
johnsongrass (season-long control)
orchardgrass
quackgrass
redtop
yellow nutsedge

Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Thoroughly clean container before reuse. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to applicable federal, state, or local procedures. Triple rinse (or equivalent) and offer for recycling or reconditioning, or dispose of in a sanitary landfill or by other approved state and local procedures.

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed, inhaled, or absorbed through skin. Do not breathe vapors or spray mist. Avoid contact with eyes, skin or clothing.

First Aid: If swallowed, contact your local poison control center, hospital, or physician. If the patient is unconscious, maintain breathing and heartbeat (cardiopulmonary resuscitation). If the patient is conscious and alert, induce vomiting (syrup of ipecac or stimulate the back of the throat with a finger). NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON!

In case of skin contact, remove contaminated clothing and wash with soap and water. In case of contact with eyes, flush with plenty of water. Get medical attention if irritation persists.

Note to Physician: There is no specific antidote for atrazine. If this product is ingested, induce emesis or lavage stomach. The use of an aqueous slurry of activated charcoal may be considered.

Environmental Hazards

Do not apply directly to any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

Atratol® trademark of CIBA-GEIGY for atrazine

Caliber® trademark of CIBA-GEIGY

Ontrack® trademark of CIBA-GEIGY

Oust® trademark of E. I. duPont de Nemours Co., Inc.

Princep® trademark of CIBA-GEIGY for simazine

X-77® trademark of Kalo Agricultural Chemicals, Inc.

Agricultural Division
CIBA-GEIGY Corporation
Greensboro, North Carolina 27419

CGA 20L7 September 29, 1983

Atratol®

90

SAMPLE LABEL

bare ground weed control

high suspensibility formulation

easy wetting

Herbicide

For nonselective weed control on industrial sites and noncrop areas

Do not use on agricultural lands

Active Ingredients:	
Atrazine: 2-chloro-4-ethylamino-6-isopropyl-amino-s-triazine ...	85.5%
Related compounds	4.5%
Inert Ingredients:	10.0%
Total:	100.0%

Atratol 90 is a water dispersible granule

Keep Out of Reach of Children.

Caution

See additional precautionary statements on panel below.

EPA Est. 100-LA-1
EPA Reg. No. 100-622

See directions for use on panel below.

25 Pounds
Net Weight

CIBA—GEIGY

CGA '30-621

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DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

IMPORTANT: Read the entire **Directions for Use** and the **Conditions of Sale and Warranty** before using this product.

Conditions of Sale and Warranty

The **Directions for Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of CIBA-GEIGY or the Seller. All such risks shall be assumed by the Buyer.

CIBA-GEIGY warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions for Use** subject to the inherent risks referred to above. **CIBA-GEIGY makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall CIBA-GEIGY or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product.** CIBA-GEIGY and the Seller offer this product, and the Buyer and user accept it, subject to the foregoing **Conditions of Sale and Warranty,** which may be varied only by agreement in writing signed by a duly authorized representative of CIBA-GEIGY.

Directions for Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

General Information

Atratol 90 is a nonselective herbicide for use on noncrop areas. Atratol 90 can be applied before or after plant growth begins. Although Atratol 90 has some foliage activity, most of its activity is through root absorption. Therefore moisture is required to move it into the root zone. Very dry soil conditions and lack of sufficient rainfall may result in poor weed control. Postemergence applications should be made when weeds are young and growing actively.

Following many years of continuous use of this product and chemically related products, biotypes of some of the weeds listed on this label have been reported which cannot be effectively controlled by this and related herbicides. Where this is known or suspected, we recommend the use of this product in combination with other registered herbicides which are not triazines. Consult with your State Agricultural Extension Service for specific recommendations.

Use only in areas where complete control of broadleaf and grass vegetation is desired, such as 1) railroad, highway, and utility rights-of-way, 2) petroleum tank farms, 3) industrial sites, 4) lumberyards, 5) around warehouses and chemical plants, and 6) along industrial fence lines. When applied to the soil, this product usually inhibits plant growth for one year or more. It should not be used on land to be cropped or near adjacent desirable trees, shrubs or plants, or in greenhouses, as injury may occur. Do not allow livestock to graze treated areas.

Atratol 90 is noncorrosive to equipment.

Mixing Procedures

(1) Be sure sprayer is clean and not contaminated with any material, as sprayer clogging may result. (2) Fill tank ¼ full with clean water, and start agitation. (3) Be certain that the agitation system is working properly and creates a rippling or rolling action on the liquid surface. (4) Pour product directly from bag into tank. (5) Continue filling tank until 90% full. Increase agitation if necessary to maintain surface action. (6) Add tank mix herbicides. (7) Complete filling tank, maintaining sufficient agitation at all times to ensure surface action. This applies to both spray and nurse tanks. (8) Empty tank as completely as possible before refilling to prevent buildup of emulsifiable concentrate residue. Always maintain agitation to avoid separation. (9) If an emulsifiable concentrate film starts to build up in tank, drain and clean with strong detergent solution or solvent. (10) Immediately after use, clean sprayer thoroughly by flushing system with water containing a detergent.

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Application Equipment

Use conventional ground sprayers equipped with nozzles that provide accurate and uniform application. Be certain that nozzles are uniformly spaced and the same size. Calibrate sprayer before use and recalibrate at the start of each season.

Use a pump with capacity to (1) maintain 35-40 psi at nozzles, (2) provide sufficient agitation in tank to keep mixture in suspension, and (3) to provide a minimum of 20% bypass at all times. Use centrifugal pumps which provide propeller shear action for dispersing and mixing this product. The pump should provide a minimum of 10 gals./minute/100 gals. tank size circulated through a correctly positioned sparger tube or jets.

Use screens to protect the pump and to prevent nozzles from clogging. Screens placed on suction side of pump should be *16-mesh or coarser.* Do not place a screen in the recirculation line. Use 50-mesh or coarser screens between the pump and boom, and where required, at the nozzles. Check nozzle manufacturer's recommendations.

Application Rates — Atratol 90 Applied Alone

Use sufficient water to assure thorough ground and plant coverage. Use at *least* 1 gallon of water for each pound of Atratol 90; more water may be necessary where weed growth is heavy.

To control annual broadleaf and grass weeds (such as barnyardgrass, cheatgrass, crabgrass, foxtail, lambsquarters, puncturevine, and ragweed) and biennials (such as turkey mullein): Broadcast 5.3-11.1 lbs. of Atratol 90 per acre.

To control most annual and many perennial broadleaf and grass weeds (such as bluegrass, burdock, Canada thistle, dogfennel, orchardgrass, plantain, purpletop, quackgrass, redtop, and smooth brome): Broadcast 11.1-22.2 lbs. of Atratol 90 per acre

To control hard-to-kill biennial and perennial weeds (such as bullthistle and sowthistle): Broadcast 22.2-44.4 lbs. of Atratol 90 per acre.

For longer residual control in regions of high rainfall and a long growing season, apply 22.2-44.4 lbs. of Atratol 90 per acre.

For small areas, 4 oz. per 1,000 sq. ft. is equivalent to 11.1 lbs. per acre.

Tank Mixtures

Atratol 90 plus Princep® 80W or Princep Caliber® 90

Use only for long-term control of broadleaf and grass vegetation in areas listed in respective labels. Do not use on cropland, or near desirable trees, shrubs or other plants, or in greenhouses, as injury may occur.

This tank mixture has similar activity and moisture requirements as described in above General Information section, except that Princep provides preemergence control only.

For best results, apply to soil shortly before weed growth begins or apply postemergence to young, actively growing plants not over 6 inches tall.

Use sufficient water for thorough soil and plant coverage. Use at least 1 gal. of water for each lb. of Atratol 90 plus Princep 80W or Caliber 90 combination. More water may be needed for heavy weed growth. Maintain agitation during mixing and application.

Broadcast tank mixtures at the following rates to control weeds listed. Use the lower rates for light weed infestations and the higher rates for heavier infestations.

Use 2.9-5.6 lbs. of Atratol 90 plus 3.25-6.25 lbs. of Princep 80W or 2.9-5.6 lbs. of Princep Caliber 90 per acre to control weeds listed in the General Information and the several crops sections of the Princep 80W and Princep Caliber 90 labels.

The above rates will also control California burclover, *Orthocarpus purpurescens,* ripgut brome, smooth catsear, summer lupine, and turkey mullein

Use 5.6 lbs. of Atratol 90 plus 6.25 lbs. of Princep 80W or 5.6 lbs. of Princep Caliber 90 per acre to control burdock, daisy fleabane, goldenrod, horseweed, little mallow, milkweed, orchardgrass, quackgrass, Russian thistle, shortpod mustard, wild barley, and wood sorrel.

Use 11.1 lbs. of Atratol 90 plus 12.5 lbs. of Princep 80W or 11.1 lbs. of Princep Caliber 90 per acre to control eveningprimrose, shepherds-needle, and tall fescue.

For small areas, ½ cup (4 oz.) of Atratol 90 or ⅔ cup (4.5 oz.) of Princep 80W or ½ cup (4 oz.) of Princep Caliber 90, per 1,000 sq. ft. is equivalent to 11.1 lbs. of Atratol 90 or 12.5 lbs. of Princep 80W or 11.1 lbs. of Princep Caliber 90 per acre, respectively.

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Atratol 90 plus Diuron 80W

Use only for long-term control of broadleaf and grass vegetation in areas listed in respective labels. Do not use on cropland, or near desirable trees, shrubs or other plants, or in greenhouses, as injury may occur.

This tank mixture has activity and moisture requirements similar to that described in above General Information section and in the Diuron 80W label. For best results, apply to soil shortly before weed growth begins or apply to young, actively growing plants not over 6 inches tall. For increased contact activity, add a surfactant, such as Surfactant WK, at 2 qts. per 100 gals. of spray volume. Add surfactant as last ingredient to nearly full spray tank.

Use sufficient water for thorough ground and plant coverage. Use at least 1 gal. of water for each lb. of tank mixture. More water may be needed for heavy weed growth. Maintain agitation during mixing and application.

Broadcast tank mixtures at the following rates to control weeds listed. Use the lower rates for light weed infestations and the higher rates for heavier infestations.

Use 4.4-5.6 lbs. of Atratol 90 plus 5-6.25 lbs. of Diuron 80W, for example, Karmex® 80W, per acre to control weeds listed in crop and noncrop Directions for Use in the Diuron 80W label.

Use 5.6 lbs. of Atratol 90 plus 6.25 lbs. of Diuron 80W per acre to control broomsedge, buckhorn plantain, Carolina geranium, chicory, downy brome, eveningprimrose, fleabane, goldenrod, horseweed, lespedeza, little mallow, orchardgrass, Russian thistle, shortpod mustard, tall fescue, wild barley, and wood sorrel.

Use 11.1 lbs. of Atratol 90 plus 12.5 lbs. of Diuron 80W per acre to control alfalfa, black nightshade, leafy spurge, and shepherds-needle.

To determine compatibility of tank mixtures, thoroughly mix products in a small container at the ratio of 1 qt. of water to 1.75 oz. of Atratol 90 plus 2 oz. of Diuron 80W. Let stand for 5 minutes. If the mixture remains mixed,or can be remixed readily, it is compatible and can be sprayed.

For small areas, ½ cup (4 oz.) of Atratol 90 or 1.25 cups of Diuron 80W, such as Karmex 80W, per 1,000 sq. ft is equivalent to 11.1 lbs. of Atratol 90 or 12.5 lbs. of Diuron 80W per acre.

Storage and Disposal

Store in a dry place. Do not contaminate water, food, or feed by storage, disposal, or cleaning of equipment. Open dumping is prohibited. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures under the Resource Conservation and Recovery Act. Dispose of bags according to approved federal, state, or local procedures under the Resource Conservation and Recovery Act.

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed, inhaled, or absorbed through the skin. Avoid contact with eyes, prolonged contact with skin, and inhalation of dust. Wash thoroughly after handling and before eating or smoking. Remove and wash contaminated clothing before reuse.

First Aid: In case of contact with skin, wash with plenty of soap and water; with eyes, flush with water for 15 minutes and get medical attention if irritation persists. In case of inhalation exposure, move from contaminated area.

Environmental Hazards

Do not contaminate domestic or irrigation water supplies, or lakes, streams, or ponds. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not apply when weather conditions favor drift from treated areas.

Agricultural Division
CIBA-GEIGY Corporation
Greensboro, North Carolina 27419
CGA 20L6 091

7-57

Specimen Label

Garlon* 4
Herbicide

For the control of Woody Plants and Broadleaf Weeds on Rights-of-Way, Industrial Sites and Non-crop Areas, and for Use in Forests

Active Ingredient(s):
Triclopyr (3,5,6-trichloro-2-pyridinyloxyacetic acid), Butoxyethyl Ester 61.6%
Inert Ingredients 38.4%
Acid Equivalent: Triclopyr - 44.3% - 4 lb/gal
Contains petroleum distillates
E.P.A. Registration No. 464-554
E.P.A. Est. 464-MI-1

KEEP OUT OF REACH OF CHILDREN

CAUTION

AVISO:

PRECAUCION AL USUARIO:
Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN

Avoid Contact With Eyes, Skin, Or Clothing • Avoid Breathing Mists or Vapors • Avoid Contamination Of Food • Wash Thoroughly After Handling • Remove And Wash Contaminated Clothing Before Reuse

STATEMENT OF PRACTICAL TREATMENT: In case of skin contact, flush skin with plenty of water. Get medical attention if irritation persists. **If swallowed,** do not induce vomiting. **Call a physician.**

Physical or Chemical Hazards

COMBUSTIBLE • Do Not Use or Store Near Heat or Open Flame. • Do Not Cut or Weld Container.

Environmental Hazards

This pesticide is toxic to fish. Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes.

NOTICE
Read the entire label. Use only according to label directions. **Before** buying or using this product, read "WARRANTY LIMITATIONS AND DISCLAIMER" elsewhere on this label. If terms are not acceptable, return **unopened** package at once to seller for full refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under "WARRANTY LIMITATIONS AND DISCLAIMER."

IN CASE OF AN EMERGENCY
endangering life or property involving this product, call collect 517-636-4400

AGRICULTURAL CHEMICAL
Do Not Ship or Store with Food, Feeds, Drugs, or Clothing

See Back Panel for Important Use Precautions.

Garlon* 4

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GENERAL INFORMATION

GARLON 4 Herbicide is recommended for the control of unwanted woody plants and annual and perennial broadleaf weeds in forests and on non-crop areas including industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides and railroads, fence rows, non-irrigation ditch banks and around farm buildings.

Among the woody plant species controlled are:

Alder	Dogwood	Sassafras
Arrowwood	Douglas Fir	Scotch Broom
Ash	Elderberry	Sumac
Aspen	Elm	Sweetbay Magnolia
Beech	Hazel	Sweetgum
Birch	Hickory	Sycamore
Blackberry	Hornbeam	Tanoak
Blackgum	Locust	Thimbleberry
Cascara	Madrone	Tulip Poplar
Ceanothus	Maples	Wild Rose
Cherry	Mulberry	Willow
Chinquapin	Oaks	Winged Elm
Choke Cherry	Persimmon	
Cottonwood	Pine	
Crataegus (Hawthorn)	Poison Oak	
	Poplar	
	Salmonberry	

Among the annual and perennial broadleaf weeds controlled are:

Black Medic	Dandelion	Plantain
Bull Thistle	Field Bindweed	Ragweed
Burdock	Goldenrod	Smartweed
Canada Thistle	Ground Ivy	Sweet Clover
Chicory	Lambsquarters	Vetch
Clover	Lespedeza	Wild Carrot (Queen Annes Lace)
Creeping Beggarweed	Matchweed	Wild Lettuce
Curled Dock	Mustard	Yarrow
	Oxalis	

DIRECTIONS FOR USE

Do not use for manufacturing or formulating.

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

FOLIAR APPLICATIONS

Use GARLON 4 Herbicide at rates of 1 to 8 quarts per acre to control broadleaf weeds and woody plants. In all cases use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. The recommended order of addition to the spray tank is water, NALCO-TROL (if used), surfactant (if used), additional herbicide (if used), GARLON 4 Herbicide. If surfactant is used, add 1 to 2 quarts per acre of a standard agricultural surfactant such as Tronic, Sponto 712 or Ortho X-77. Use continuous adequate agitation.

Before using any recommended tank mixtures, read the directions and all precautions on both labels.

For best results applications should be made when woody plants and weeds are actively growing. When hard-to-control species such as ash, blackgum, choke cherry, elm, maples (other than vine or big leaf), oaks, pines, or winged elm are prevalent and during applications made during late summer when the plants are mature, or during drought conditions, use the higher rates of GARLON 4 Herbicide alone or in combination with TORDON* 101 Mixture Herbicide.

When using GARLON 4 in combination with 3.8 lb/gal 2,4-D low volatile ester herbicide generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard-to-control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those recommended may be effective. Consult State or Local Extension personnel for such information.

HIGH-VOLUME LEAF-STEM TREATMENT WITH GROUND EQUIPMENT

FOLIAGE TREATMENT: For control of woody plants, use GARLON 4 Herbicide at the rate of 1 to 3 quarts in water to make 100 gallons of spray mixture, or GARLON 4 Herbicide at 1 1/2 to 3 pints may be tank mixed with 1/4 to 1/2 gallon of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON 101 Mixture Herbicides and diluted to make 100 gallons of spray. Apply at a volume of 100 to 400 gallons of total spray per acre depending on size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars.

BROADCAST APPLICATIONS WITH GROUND EQUIPMENT

Make application using equipment that will assure uniform coverage of spray volumes applied.

Woody Plant Control

FOLIAGE TREATMENT: Use 4 to 8 quarts of GARLON 4 Herbicide in enough water to make 20 to 100 gallons of total spray per acre, or GARLON 4 Herbicide at 3 pints to 3 quarts may be combined with 1 to 2 gallons of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON 101 Mixture in sufficient water to make 20 to 100 gallons of total spray per acre.

Broadleaf Weed Control

Use GARLON 4 Herbicide at rates of 1 to 4 quarts in a total volume of 20 to 100 gallons per acre as a water spray mixture. Apply at any time weeds are actively growing. GARLON 4 Herbicide at 1/2 to 6 pints may be tank mixed with 1 to 2 quarts of 3.8 lb/gal 2,4-D amine or low-volatile ester, TORDON* K, or TORDON* 101 Mixture Herbicides to improve the spectrum of activity.

AERIAL APPLICATION (Helicopter Only)

Aerial sprays should be applied using suitable drift control. (See Use Precautions.)

FOLIAGE TREATMENT: (Utility and Pipeline Rights-of-Way) Use 4 to 8 quarts of GARLON 4 Herbicide alone, or 3 to 4 quarts GARLON 4 Herbicide in a tank mix combination with 1 to 2 gallons of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON 101 Mixture and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions.

BASAL BARK AND DORMANT BRUSH TREATMENTS

OIL MIXTURE SPRAYS: Use only diesel oil, No. 1 or No. 2 fuel oil or kerosene. Add GARLON 4 Herbicide to the required amount of oil in the spray tank or mixing tank and mix thoroughly. If the mixture stands over 4 hours, reagitation is required.

OIL-WATER MIXTURE SPRAYS: First, premix the GARLON 4 Herbicide, oil and surfactant in a separate container. Do not allow any water or mixtures containing water to get into the GARLON 4 Herbicide or the premix. Fill the spray tank about half full with water, then slowly add the premix with continuous agitation and complete filling the tank with water. Continue moderate agitation.

NOTE: If the premix is put in the tank without any water, the first water added may form a thick "invert" (water in oil) emulsion which will be hard to break.

BASAL BARK TREATMENT: In right-of-way, other non-crop areas and forests, use 1 to 3 gallons of GARLON 4 Herbicide in enough diesel oil, No. 1 or No. 2 fuel oil or kerosene to make 100 gallons of spray mixture. Apply with knapsack sprayer or power spraying equipment using low pressure (20-40 psi). Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground. Thorough wetting of the indicated area is necessary for good control. Spray until run-off at the ground line is noticeable. Old or rough bark requires more spray than smooth young bark. Apply at any time, including the winter months, except when snow or water prevent spraying to the ground line. For oil-water mixture application, mix 2 gallons

RLON 4 Herbicide, 25 gallons of oil and one half gallon of onto 712, and add to 72.5 gallons water as indicated under directions for use. Treat as above. For best results with oil/water mixtures, treat only stems 2 inches or less in diameter.

THINLINE BASAL BARK TREATMENT: To control susceptible woody plants with stems less than 6 inches in diameter, apply undiluted GARLON 4 in a thin stream to all sides of the stems about 6 inches above the base of the plants. The stream should be directed horizontally to apply a narrow band of GARLON 4 around each stem or clump. From 2 to 15 ml. of chemical will be required for treatment of single stems and from 25 to 100 ml. to treat clumps of stems. Use an applicator metered or calibrated to deliver the small amounts required.

DORMANT STEM TREATMENT: Mix 3 to 6 quarts of GARLON 4 Herbicide in enough oil to make 100 gallons of spray. Apply with knapsack or power spraying equipment, using low pressure (20-40 psi). Treat any time when brush is dormant and most of the foliage has dropped. Thoroughly wet the upper parts of the stems and use the remainder needed to wet the lower 12 to 15 inches above the ground to the point of run-off. For root suckering species such as sumac, persimmon, sassafras and locust, also spray the ground under the plants to cover small root suckers which may not be visible above the soil surface. Brush of average density and 4 to 6 feet high may take up to 150 gallons of spray mixture per acre. For oil-water mixture application mix 6 quarts GARLON 4 Herbicide, 25 gallons of oil and one half gallon of Sponto 712 and 73 gallons water as indicated under directions for use. Treat as above.

FOREST MANAGEMENT APPLICATIONS

For broadcast applications of GARLON 4 Herbicide, use volume rates needed to provide adequate coverage of brush for good control, usually 5 to 25 gpa by air or 10 to 100 gpa by ground. Application systems should be used to prevent hazardous drift to off-target sites. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to maintain brush control.

Forest Site Preparation

FOREST SITE PREPARATION (not for conifer release): Use 4 to 8 quarts of GARLON 4 Herbicide and apply in a total spray volume of 5 to 25 gallons per acre, or GARLON 4 Herbicide at 2 to 4 quarts may be used with 1 to 2 gallons of 3.8 lb/gal 2,4-D low volatile ester herbicide or TORDON* 101 Mixture in a tank mix combination in a total spray volume of 5 to 25 gallons per acre.

NOTE: Conifers planted sooner than one month after treatment with GARLON 4 at less than 1 gallon per acre or sooner than two months after treatment at 1 to 2 gallons per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture should be consulted and the longest recommended waiting period observed.

Control of Brush on Conifer Plantations in the Pacific Northwest and California

BROADCAST APPLICATIONS ON DORMANT CONIFERS BEFORE BUD SWELL (EXCLUDING PINES): To control or suppress deciduous hardwoods such as vine maple, bigleaf maple, alder or willow **before leaf-out** or evergreen hardwoods such as madrone, chinquapin, and Ceanothus spp., use GARLON 4 Herbicide at 1 to 2 qts. per acre. Diesel or fuel oil carrier may be used especially on deciduous hardwood species. On evergreen hardwoods, water carrier with 1 to 2 gallons of diesel oil per acre or a suitable surfactant or oil substitute at manufacturer's recommended rates are equally effective.

ON CONIFER PLANTATIONS (EXCLUDING PINES) AFTER HARDWOODS BEGIN GROWTH AND BEFORE CONIFER BUD BREAK ("Early Foliar" hardwood stage), use GARLON 4 Herbicide at 1 to 1.5 qts. alone or with 3.8 lb/gal 2,4-D low volatile ester herbicide in water carrier to provide no more than 3 lbs. acid equivalent per acre from both products. After conifer bud break, these sprays may cause more serious injury to the crop trees. Added surfactant may cause unacceptable injury to conifers especially after bud break.

ON CONIFER PLANTATIONS (EXCLUDING PINES) AFTER CONIFERS HARDEN OFF IN LATE SUMMER AND WHILE HARDWOODS ARE STILL GROWING ACTIVELY, use GARLON 4 Herbicide at rates of 1 to 1.5 qts. per acre alone or plus 3.8 lb/gal 2,4-D low volatile ester herbicide to provide no more than 3 lbs. acid equivalent per acre from both products. Treat as soon after conifer bud hardening as possible so that hardwoods are actively growing. Added oil, oil substitute or surfactant may cause unacceptable injury to the conifers.

DIRECTED SPRAY AT ANY TIME, INCLUDING PINES: When brush is susceptible, GARLON 4 at 1 to 3 qts. per acre alone with 3.8 lb/gal 2,4-D low volatile ester herbicide may be used at rates not to exceed 4 lbs. acid equivalent per acre from both products. Apply in water carrier as a **directed** spray between the conifers or over covered conifers; a suitable surfactant or additive such as diesel oil and 1/4 to 1 gallon per acre may be added to improve brush kill.

NOTE: Sprays may cause discolored needles and temporary growth suppression of some conifers, but they should recover and grow normally.

Control of Brush on Conifer Plantations in the Northeastern United States

BROADCAST APPLICATIONS FOR CONIFER RELEASE: To release spruce, fir, red pine and white pine from competing hardwoods such as red maple, sugar maple, striped maple, alder, birch (white, yellow, and grey), aspen, ash, pin cherry, and rubus spp. and perennial and annual broadleaf weeds, use GARLON 4 Herbicide at rates of 1.5 to 3 quarts per acre alone or plus 3.8 lb/gal 2,4-D amine or low-volatile ester herbicides to provide no more than 4 pounds acid equivalent per acre from both products. Applications should be made in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

NOTE: Sprays may cause discolored needles and temporary growth suppression of some conifers, but they should recover and grow normally.

Control of Brush on Conifer Plantations in the Lake States Region

BROADCAST APPLICATIONS FOR CONIFER RELEASE: To release spruce, fir, red pine and jack pine from competing hardwoods such as aspen, birch, maple, cherry, willow, oak, hazel, and rubus spp. and perennial and annual broadleaf weeds, use GARLON 4 Herbicide at rates of 1.5 to 3 quarts per acre. Applications should be made in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

NOTE: Sprays may cause discolored needles and temporary growth suppression in jack pine. Rates exceeding 1.5 quarts/A may result in more severe damage especially to young jack pine 18 inches or less in height.

Spot Treatment to Control Clumps of Resprouting Hardwoods Such As Big Leaf Maple Using a Hovering Helicopter in Forests

STEM TREATMENT BEFORE LEAF-OUT: Mix 1 to 2 gallons of GARLON 4 Herbicide with about 20 gallons diesel oil and enough water to make 100 gallons of solution. Apply as an invert emulsion by means of a hovering helicopter equipped with a nozzle system to direct sufficient spray to cover the stems to the ground line of the sprouted trees, usually 3/4 to 1 1/2 gallon per clump.

NOTE: Conifers contacted by this spray may be seriously injured; in existing plantations, drift control systems, such as invert emulsions, should be used to minimize injury to adjacent conifers. A dye or other marking system to designate treated trees may be used.

USE PRECAUTIONS

Apply this product only as specified on this label.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels.

Do not apply GARLON 4 Herbicide directly to, or otherwise permit it to come into direct contact with grapes, tobacco, vegetable crops, flowers or other desirable broadleaf plants and do not permit spray mists containing it to drift onto them.

AVOID INJURIOUS SPRAY DRIFT: Applications should be made only when there is little or no hazard from spray drift. Very small quantities of spray, which may not be visible may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

Aerial Application: For aerial application on rights-of-way or other areas near susceptible crops, use NALCO-TROL drift control additive as recommended by the manufacturer or apply through the MICROFOIL boom, THRUVALVE boom, or equivalent drift control system. Thickened sprays prepared by using high viscosity invert systems or other drift reducing systems may be utilized if they are made as drift-free as are mixtures containing NALCO-TROL or applications made with the MICROFOIL boom or THRUVALVE boom. If a spray thickening agent is used, follow all use recommendations and precautions on the product label. Do not use a thickening agent with the MICROFOIL boom, THRUVALVE boom, or other systems that cannot accommodate thick sprays.

With aircraft, drift can be lessened by applying a coarse spray; by using no more than 30 pounds spray pressure at the nozzles; by using a spray boom no longer than 3/4 the rotor length; by spraying only when wind velocities are low; or by using approved drift control system.

Ground Equipment: To aid in reducing spray drift GARLON 4 should be used in thickened (high viscosity) spray mixtures using NALCO-TROL drift control additive, high viscosity invert systems, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by using no more than 30 pounds spraying pressure with large droplet producing nozzle tips; and by spraying when wind velocity is low. Do not apply with nozzles that produce a fine droplet spray.

HIGH VOLUME LEAF-STEM TREATMENT: To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle aj' keep sprays no higher than brush tops. NALCO-TROL thickening agent or equivalent may be used to reduce spray drift.

Do not apply on ditches used to transport irrigation water. Do not apply where runoff or irrigation water may flow onto agricultural land as injury to crops may result.

Do not graze treated areas or feed treated forage for one year following application.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

STORAGE: Store above 28° F or agitate before use.

DISPOSAL:

Prohibitions - Open dumping is prohibited.

Pesticide Disposal - Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of according to applicable federal, state, or local procedures.

Container Disposal - Triple rinse (or equivalent). Then offer recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved state and local procedures.

General - Consult federal, state, or local disposal authorities for approved alternative procedures.

Be sure that use of this product conforms to all applicable regulations.

WARRANTY LIMITATIONS AND DISCLAIMER

The Dow Chemical Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions therein under normal conditions of use. THIS IS THE ONLY WARRANTY MADE ON THIS PRODUCT. NO OTHER EXPRESS AND NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OUTSIDE OF THIS LABEL. Therefore, neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), under abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes, etc.) or under conditions not reasonably foreseeable to or beyond the control of seller.

When buyer or user suffers losses or damages resulting from the use or handling of this product (including claims based on contract, negligence, strict liability, or other legal theories), buyer or user must promptly notify in writing The Dow Chemical Company of any claims to be eligible to receive either remedy given below. The EXCLUSIVE REMEDY OF THE BUYER OR USER and the LIMIT OF LIABILITY of The Dow Chemical Company or any other seller will be one of the following, at the election of The Dow Chemical Company:

(1) **Refund of purchase price** paid by buyer or user for product bought, **or**

(2) **Replacement** of amount of product used.

The seller **will not be liable for consequential or incidental damages or losses.**

The terms of this Warranty Limitations And Disclaimer cannot be varied by any written or verbal statements or agreements. Any employee or sales agent of the seller is not authorized to vary or exceed the terms of this Warranty Limitations And Disclaimer in any manner.

38322-L6 C586

DOW*

THE DOW CHEMICAL COMPANY
Midland, Michigan 48674 U.S.A.

*Trademark of THE DOW CHEMICAL COMPANY

SPECIMEN LABEL 86-1471 DATE CODE C586
REPLACES 86-1471 DATE CODE B785
DISCARD PREVIOUS SPECIMEN LABELS

REVISIONS INCLUDE:
1) REVISION OF PRECAUTIONARY STATEMENTS
2) ADDITION OF NON-IRRIGATION DITCHBANK USE

7-61

PRECAUTIONARY STATEMENTS

HAZARD TO HUMANS & DOMESTIC ANIMALS

CAUTION

May cause irritation of eyes, nose, throat and skin. Avoid breathing dust. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

ENVIRONMENTAL HAZARD

Do not apply directly to any body of water. Do not contaminate water by cleaning of equipment or disposal of waste.

DIRECTIONS FOR USE

It is a violation of federal laws to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

STORAGE:

To maximize the shelf life of this product, store in dry area where the container is not likely to come in contact with moisture.

DISPOSAL:

Do not contaminate water, food or feed by storage or disposal.

Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility.

(For Plastic Buckets) Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

(For Bags) Completely empty bag into application equipment. Then dispose of bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

WEED BLAST 4-G

WEED KILLER

ACTIVE INGREDIENTS:

Bromacil (5-bromo-3-sec-butyl-6-methyluracil)	2%
Diuron [3-(3,4-dichlorophenyl)-1, 1-dimethylurea]	2%
INERT INGREDIENTS	96%
Total	100.0%

SAMPLE LABEL

KEEP OUT OF REACH OF CHILDREN

CAUTION!

STATEMENT OF PRACTICAL TREATMENT

If in eyes: Flush with plenty of water. Get medical attention if irritation persists.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.

See side panel for additional precautionary statements.

NET CONTENTS: 50 POUNDS

MANUFACTURED FOR

MOBLEY CHEMICALS, INC.

3800 Stone Road • Kilgore, Texas 75662

EPA REGISTRATION NO. 26932-1 EPA ESTABLISHMENT NO. 39578-TX-1

NON-CROP WEED CONTROL

INDUSTRIAL USE ONLY

7-62

Weed Blast 4-G is a non-selective herbicide for controlling a wide range of annual and perennial weeds and grasses. It is recommended only for noncropland areas such as railroad, utility and highway rights of ways and industrial areas. 200- to 400-pound applications of Weed Blast 4-G per acre usually result in a nonproductive condition of the soil for a period of a year or more. The duration of non-productivity is dependent upon rainfall, soil type, and other conditions.

Weed Blast 4-G should be applied as furnished with a seed spreader, a fertilizer spreader, or with any equipment which will distribute the chemical uniformly over the area to be treated. For the control of annual and most perennial weeds and grasses, apply Weed Blast 4-G at the rate of 200 to 400 pounds per acre; on small plots 1/2 to 1 pound per 100 square feet. Repeat spot treatment may be required when deep-rooted perennial weeds are present. To obtain the best results, Weed Blast 4-G should be applied to the ground where it will be absorbed by the roots. Applications made early in the season have been found to give results superior to applications at a later seasonal date. Weed Blast 4-G may, however, be applied at any time of the year except when the ground is frozen. Maximum effectiveness in arid regions is obtained when application is made just prior to the rainy season. Users should consult state agricultural experimental stations or extension service weed specialists for recommendations as to use in their particular area or write to this manufacturer.

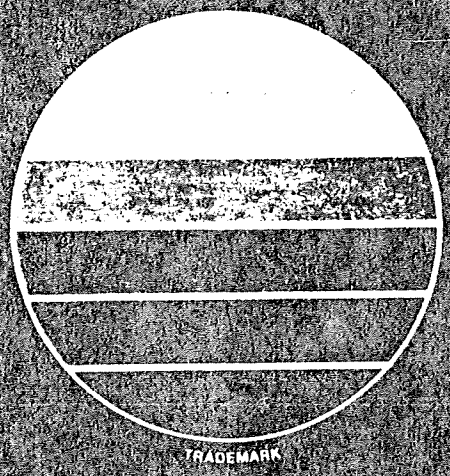
IMPORTANT: Do not apply on or near valuable woody or herbaceous plants or on areas where their roots may extend because of possible injury to such plants. Thoroughly clean spreading equipment with a suitable chemical cleaner before using for other purposes (or do not use same spreading equipment for other purposes). Dispose of rinsate according to "Pesticide Disposal" instructions found under "Storage and Disposal" heading. Do not use on croplands or any land to be used for subsequent cropping. Keep animals off treated areas.

SPECIMEN LABEL 125% OF ACTUAL SIZE

DUPONT

Telar®

HERBICIDE



DISPERSIBLE GRANULE

NET WT 18 oz (1 lb. 2 oz)

ACTIVE INGREDIENT: Chlorsulfuron
2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl]benzenesulfonamide 75%

INERT INGREDIENTS 25%

U.S. Pat. 4,127,405 EPA Est. 352-WV-1 EPA Reg. No. 352-404

KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS

CAUTION! MAY IRRITATE EYES, NOSE, THROAT, AND SKIN.

Avoid breathing dust or spray mist.

Avoid contact with skin, eyes, and clothing.

In case of contact with eyes, immediately flush with plenty of water. Get medical attention if irritation persists. Wash thoroughly after handling. Remove and wash contaminated clothing before reuse.

For medical emergencies involving this product, call toll free 1-800-441-3637

ENVIRONMENTAL HAZARDS

Do not apply directly to any body of water. Do not contaminate water by cleaning of equipment or disposal of wastes.

Agricultural Products Department, Wilmington, Delaware

IMPORTANT

Do not use on food or feed crops. Injury to or loss of desirable trees or other plants may result from failure to observe the following. Do not apply (except as recommended) or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not apply where runoff water may flow onto agricultural land as injury to crops may result. Do not contaminate any body of water, including irrigation water. Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to cropland and other desirable plants. Keep from contact with fertilizers, insecticides, fungicides and seeds.

Following a Telar application, the spray tank should not be used for other than non-crop applications. This is extremely important as low rates of Telar can kill or severely injure most crops.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only, away from other pesticides, fertilizer, food, or feed.

DISPOSAL: Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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SPECIMEN LABEL

ACTUAL SIZE

GENERAL INFORMATION

"Telar" Herbicide is a dispersible granule to be mixed in water and applied as a uniform broadcast spray for non-cropland weed control. It is noncorrosive, nonflammable, nonvolatile and does not freeze.

"Telar" rapidly inhibits growth of susceptible weeds. However, typical symptoms (discoloration) of dying weeds may not be noticeable for 1 to 3 weeks after application depending on growing conditions and weed susceptibility. Warm, moist conditions following treatment promote the activity of "Telar" while cold, dry conditions delay the activity of "Telar". Weeds hardened off by cold weather or drought stress may not be fully controlled.

Degree of control and duration of effect depend on a) rate used, b) weed spectrum, c) weed size, d) growing conditions at and following time of treatment, e) soil pH, f) precipitation, and g) soil organic matter.

NOTE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.

NOTICE OF WARRANTY

Du Pont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with the use of this product. Injury to adjacent crops, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Du Pont. In no case shall Du Pont be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the buyer. DU PONT MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

"Telar" Herbicide should be used only in accordance with recommendations on this label or in separate published Du Pont recommendations available through local dealers.

Du Pont will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by Du Pont. User assumes all risks associated with such nonrecommended use.

Du Pont "Telar" Herbicide is recommended for preemergence and postemergence control of many annual and perennial broadleaf weeds. "Telar" may be applied as a selective or non-selective treatment to non-cropland areas such as airports, fencerows, highways, industrial turf, lumberyards, petroleum tank farms, pipeline rights-of-way, plant sites, railroads, roadside turf, storage areas, and utility rights-of-way.

"Telar" may be applied preemergence or postemergence to the weeds, but for best results, apply postemergence to young, actively growing weeds at any time of the year, except when ground is frozen. Adequate moisture by rainfall is needed to activate the herbicide. Do not apply to soils saturated with moisture or during periods of intense rainfall.

SELECTIVE WEED CONTROL

Bahiagrass, bermudagrass, bluegrass, fescue and smooth brome have demonstrated good tolerance to "Telar". For selective weeding, "Telar" may be applied at the rate of ¼ to 1 oz per acre per year to bahiagrass, bermudagrass and bluegrass and at the rate of ¼ to ½ oz per acre per year to fescue and smooth brome. The higher rates and/or the addition of surfactant may result in temporary chlorosis of desirable grasses. Application of "Telar" may also suppress grass growth and inhibit grass seedhead formation.

NON-SELECTIVE WEED CONTROL

Apply "Telar" at the rates of ¼-3 oz per acre per year to control many annual and perennial broadleaf weeds in non-cropland areas. The addition of a surfactant in postemergence applications enhances activity and is recommended.

Since the degree of control and duration of effect will vary with the amount of chemical applied, soil texture, soil pH, soil organic matter, weed size, rainfall and other conditions, it is suggested that users limit their first use to a small area.

WEEDS CONTROLLED AND USE RATES

¼ oz to 1 oz per Acre

annual sowthistle**
bouncingbet
Canada thistle*
common chickweed**
common lambsquarters**
common speedwell**
common sunflower**
dandelion*
fiddleneck**
filaree**
goldenrod*
groundsel
henbit**
London rocket**
sweetclover
tumble mustard
turkey mullein*
wild mustard**
wild parsnip

* partial control only
** controlled at ¼ to ½ oz per acre

1 oz to 3 oz per Acre

aster
bedstraw
black mustard
buckhorn plantain
burclover
Canada thistle
common cinquefoil
common mallow
common yarrow
curly dock
foxtail (setaria spp)*
horsetail
kochia
musk thistle
plantain*
prickly lettuce
puncturevine*
ragweed*
red clover
Russian thistle
scouringrush
tansymustard
white clover
wild carrot
yellow starthistle*

* partial control only

HOW TO USE

SPRAY PREPARATION: Fill the spray tank half full of water and, with agitator running, add the proper amount of "Telar". Finish adding the required amount of water. Continuous agitation is required to keep the product in suspension. For postemergence applications, a non-ionic surfactant such as Du Pont Surfactant WK or "Ortho X-77"® — may be added at the rate of 1 qt. per 100 gallons of spray to improve wetting and/or contact activity. To minimize drift, a drift control agent may be added at the recommended label rate. Use "Telar" spray preparation within 24 hours or product degradation may occur. Thoroughly reagitate before using.

APPLICATION TECHNIQUE: Before spraying, calibrate the equipment to determine the quantity of water necessary to uniformly cover the vegetation and soil in a measured area to be treated. Use a fixed boom, off center nozzle or boomless straight stream nozzles properly calibrated to a constant speed of travel and rate of delivery. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping when spraying industrial turf as injury to the desired species may result. Do not allow spray to drift onto adjacent crops or other valuable plants or trees, as injury may occur. Extreme care must be taken to prevent drift.

SPRAY VOLUME: Apply "Telar" in ground equipment. Select a spray volume that will assure thorough coverage and uniform spray pattern. Do not use less than 10 gallons of water per acre. Spray volumes of 20 to 40 gallons per acre are preferred. Spray pressures of 25 to 50 psi are adequate.

AGITATION: Use mechanical or by-pass agitation to thoroughly mix the spray solution. After initial mixing, do not use excessive agitation when using a surfactant as foaming problems may result. To avoid foaming problems, use anti-foam agents.

SELECTION OF USE RATES: Rate selection is based on weed species, weed size and soil texture. Use the higher rates on established plants and on fine textured soils and lower rates on smaller weeds and coarse textured soils.

Registered trademark of Chevron Chemical Company

AG-452 0984/8125 1/3/85
Made in U.S.A. Printed in U.S.A.

E-73254

7-64

ARSENAL®

herbicide

ACTIVE INGREDIENT:

2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid with 2-propanamine (1:1) salt[1] 27.6%

INERT INGREDIENT 72.4%

[1]Equivalent to 22.6% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon.

EPA Reg. No. 241-273 **EPA Est. No. 5905-AR-1**

CYANAMID

KEEP OUT OF REACH OF CHILDREN

CAUTION!

See Side Panel for Other Warnings

PRECAUCION

PRECAUCION AL USUARIO: Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

In case of an emergency endangering life or property involving this product, call collect, day or night, Area Code 201-835-3100.

D41

Net Contents: 5 gallon (18.90 liters)

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PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS

CAUTION!

Avoid contact with skin, eyes or clothing. Avoiding breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Flush with plenty of water. Get medical attention if irritation persists.

PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of ARSENAL should be mixed, stored and applied only in stainless steel, fiberglass, plastic and plastic-lined steel containers.

DO NOT mix, store or apply ARSENAL or spray solutions of ARSENAL in unlined steel (except stainless steel) containers or spray tanks.

ENVIRONMENTAL HAZARDS

DO NOT apply directly to any body of water. DO NOT contaminate water by cleaning of equipment or disposal of waste.

STORAGE AND DISPOSAL

PROHIBITIONS: DO NOT store below 10°F.
DO NOT contaminate water, food or feed by storage or disposal.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in an approved sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

IMPORTANT

DO NOT use on food or feed crops. DO NOT apply on ditches used to transport irrigation water. DO NOT apply where runoff or irrigation water may flow onto agricultural land as injury to crops may result. Keep from contact with fertilizers, insecticides, fungicides and seeds. DO NOT apply or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. DO NOT use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to desirable plants. DO NOT USE in California.

Throughly clean application equipment immediately after use. Flush tank, pump, hoses and boom with several changes of water after removing nozzle tips and screens (clean these parts separately).

GENERAL INFORMATION

ARSENAL herbicide is an aqueous solution to be mixed in water and applied as a spray for control of most annual and perennial grasses and broadleaf weeds on noncropland areas.

ARSENAL may be applied either preemergence or postemergence to the weeds; however, postemergence application is the method of choice in most situations, particularly for control of perennials. For maximum activity, weeds should be growing vigorously at the time of postemergence applications. The preemergence activity of ARSENAL will provide residual control of most weed species following a postemergence application.

ARSENAL is readily absorbed through foliage and roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into and kills underground storage organs, thus preventing regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until two weeks after application. Complete kill of plants may not occur for several weeks.

DISCLAIMER

The label instructions for the use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the use or application of the product contrary to label instructions, all of which are beyond the control of American Cyanamid Company. All such risks shall be assumed by the user.

American Cyanamid Company warrants only that the material contained herein conforms to the chemical description on the label and is reasonably fit for the use therein described when used in accordance with the directions for use, subject to the risks referred to above.

Any damages arising from a breach of this warranty shall be limited to direct damages and shall not include consequential commercial damages such as loss of profits or values or any other special or indirect damages.

American Cyanamid Company makes no other express or implied warranty, including other express or implied warranty of FITNESS or of MERCHANTABILITY.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

ARSENAL herbicide should be used only in accordance with recommendations on the leaflet label attached to the container. Keep containers closed to avoid spills and contamination.

A postemergence application of ARSENAL is recommended for control of most annual and perennial grasses and broadleaf weeds on noncropland areas such as railroad, utility and pipeline rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, non-irrigation ditch banks and other similar areas.

MIXING INSTRUCTIONS

Mix the proper amount of ARSENAL in water in the spray tank with the agitator running. To minimize drift, a drift control agent may be added at the recommended label rate. A foam reducing agent may be added at the recommended label rate, if needed.

SPRAYING INSTRUCTIONS

Uniformly apply with properly calibrated ground equipment in 30 to 60 gallons of water per acre with a spray pressure of 25 to 50 psi. Spray volumes greater than 60 gallons per acre may be applied without reducing efficacy; however, additional nonionic surfactant such as Surfactant WK[rr] or Ortho[rrr] X-77 must then be added at the rate of 1 quart per 100 gallons of spray to provide optimum wetting and/or contact activity.

[rr]Registered trademark of E.I. duPont de Nemours and Company.

[rrr]Registered trademark of Chevron Chemical Company.

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ARSENAL herbicide will provide postemergence control with residual control of the following weed species at the rates listed.

BIENNIAL/PERENNIAL WEEDS

*Apply 2-3 pints per acre**

Dandelion (*Taraxacum officinale*)
Field bindweed (*Convolvulus arvensis*)
Guineagrass (*Panicum maximum*)
Honeylocust (*Gleditsia triacanthos*)
Johnsongrass (*Sorghum halepense*)
Multiflora rose (*Rosa multiflora*)
Ox-eye daisy (*Chrysanthemum leucanthemum*)
Paragrass (*Panicum purpurascens*)
Quackgrass (*Agropyron repens*)
Sandspur (*Cenchrus* spp.)
Tall fescue (*Festuca arundinacea*)
Vaseygrass (*Paspalum urvillei*)
Wild carrot (*Daucus carota*)

*Apply 3-4 pints per acre**

Dewberry (*Rubus* spp.)
Greenbriar (*Smilax* spp.)
Honeysuckle (*Lonicera* spp.)
Opossum grape (*Cissus sicyoides*)
Poison ivy (*Rhus radicans*)
Redvine (*Brunnichia cirrhosa*)
Trumpetcreeper (*Campsis radicans*)
Virginia creeper (*Parthenocissus quinquefolia*)

*Apply 4-6 pints per acre**

Bermudagrass (*Cynodon dactylon*)
Blackberry (*Rubus* spp.)
Canada thistle (*Cirsium arvense*)
Mulberry (*Morus* spp.)
Sumac (*Rhus* spp.)

ANNUAL WEEDS

*Apply 2-3 pints per acre**

Broadleaf signalgrass (*Brachiaria platyphylla*)
Carpetweed (*Mollugo verticillata*)
Common ragweed (*Ambrosia artemisiifolia*)
Curly dock (*Rumex crispus*)
Downy brome (*Bromus tectorum*)
Fleabane (*Erigeron* spp.)
Foxtails (*Setaria* spp.)
Goldenrod (*Solidago* spp.)
Hoary vervain (*Verbena stricta*)
Horseweed (*Erigeron canadensis*)
Kochia (*Kochia scoparia*)
Lambsquarters (*Chenopodium album*)
Lespedeza (*Lespedeza* spp.)
Pigweed (*Amaranthus* spp.)
Plantain (*Plantago* spp.)
Smartweed (*Polygonum* spp.)
Sorrel (*Rumex* spp.)
Sowthistle (*Sonchrus* spp.)
Sunflower (*Helianthus annuus*)
Wild buckwheat (*Polygonum convolvulus*)
Wild mustard (*Brassica kaber*)
Yellow woodsorrel (*Oxalis stricta*)

*Apply 3-4 pints per acre**

Cocklebur (*Xanthium pensylvanicum*)
Crabgrass (*Digitaria* spp.)
Goosegrass (*Eleusine indica*)
Morningglory (*Ipomoea* spp.)

*The higher rates should be used where heavy or well established infestations occur.

CYANAMID

American Cyanamid Company
Agricultural Division
Bio-Tech Products Department
Wayne, N.J. 07470

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AVEM

JULY 1987

ARSENAL®

herbicide

0.5 Granule

FOR USE IN NONCROP AREAS

ACTIVE INGREDIENT:	
Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid) . .	0.5%
INERT INGREDIENT	99.5%
TOTAL	100.0%

EPA Reg. No. 241-295

KEEP OUT OF REACH OF CHILDREN
CAUTION!

See Side Panel for Additional Precautionary Statements

PRECAUCION

AL USUARIO: Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

In case of an emergency endangering life or property involving this product, call collect, day or night, Area Code 201-835-3100

D40
(7/87)

® Registered Trademark of American Cyanamid Company

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PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
CAUTION!

Avoid contact with skin, eyes or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Flush with plenty of water. Get medical attention if irritation persists.

PHYSICAL AND CHEMICAL HAZARDS

ARSENAL granules should be mixed and stored only in lined paper bags, stainless steel, fiberglass, plastic and plastic-lined steel containers.

DO NOT mix or store ARSENAL granules in unlined steel (except stainless steel) containers.

ENVIRONMENTAL HAZARDS

DO NOT apply directly to any body of water. DO NOT contaminate water by cleaning equipment or disposal of waste.

IMPORTANT

DO NOT use on food or feed crops. DO NOT apply on ditches used to transport irrigation water. DO NOT apply where runoff or irrigation water may flow onto agricultural land as injury to crops may result. Keep from contact with fertilizers, insecticides, fungicides and seeds. DO NOT apply or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. DO NOT use on lawns, walks, driveways, tennis courts, or similar areas. DO NOT use in California.

GENERAL INFORMATION

ARSENAL® herbicide 0.5 Granule is applied for control of most annual and perennial grasses and broadleaf weeds.

ARSENAL® herbicide 0.5 Granule is readily absorbed through the roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into and kills underground storage organs, thus preventing regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until two weeks after application. Complete kill of plants may not occur for several weeks.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

A preemergence application of ARSENAL granular is recommended for control of most annual and perennial grasses and broadleaf weeds. ARSENAL granular may be applied anytime during the growing season before weeds have emerged.

STORAGE AND DISPOSAL

PROHIBITIONS: DO NOT store below 10°F. DO NOT contaminate water, food or feed by storage or disposal.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

DISCLAIMER

The label instructions for the use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the use of application of the product contrary to label instructions, all of which are beyond the control of American Cyanamid Company. All such risks shall be assumed by the user.

American Cyanamid Company warrants only that the material contained herein confirms to the chemical description on the label and is reasonably fit for the use therein described when used in accordance with the directions of use, subject to the risks referred to above.

Any damages arising from a breach of this warranty shall be limited to direct damages and shall not include consequential commercial damages such as loss of profits or values of any other special or indirect damages.

American Cyanamid Company makes no other express or implied warranty, including other express or implied warranty of FITNESS or of MERCHANTABILITY.

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APPLICATION INSTRUCTIONS

Uniformly apply with properly calibrated aerial or ground equipment at a rate of 1.0 lbs. ae A (200 lbs. of product per acre).

ARSENAL herbicide will provide preemergence control with residual control of the following target vegetation species at 1.0 lb. ae A.

BROADLEAF WEEDS

Bull thistle *(Circium vulgare)*
Burdock *(Arctium* spp.*)*
Camphorweed *(Heterotheca subzxillaris)*
Canada thistle *(Circium arvense)*
Carpetweed *(Mullugo verticillata)*
Carolina geranium *(Geranium carolinianum)*
Clover *(Trifolium* spp.*)*
Cocklebur *(Xanthium strumarium)*
Common chickweed *(Stellaria media)*
Common ragweed *(Ambrosia artemisiifolia)*
Dandelion *(Taraxacum officinale)*
Dock *(Rumex* spp.*)*
Dogfennel *(Eupatorium capillifolium)*
Filaree *(Erodium* spp.*)*
Fleabane *(Erigeron* spp.*)*
Giant ragweed *(Ambrosia trifida)*
Hoary vervain *(Verbena stricta)*
Horseweed *(Conyza canadensis)*
Indian mustard *(Brassica juncea)*
Kochia *(Kochia scoparia)*
Lambsquarters *(Chenopodium album)*
Lespedeza *(Lespedeza* spp.*)*
Little mallow *(Malvapar viflora)*
Milkweed *(Asclepias* spp.*)*
Miners lettuce *(Montia perfoliata)*
Mullein *(Verbascum* spp.*)*
Nettleleaf goosefoot *(Chenopodium murale)*
Oxeye daisy *(Chrysanthemus leucanthemum)*
Pepperweed *(Lepidium* spp.*)*
Pigweed *(Amaranthus* spp.*)*
Plantain *(Plantago* spp.*)*
Pokeweed *(Phytolacca americana)*
Primrose *(Oenothera kunthiana)*
Purslane *(Portulaca* spp.*)*
Silverleaf nightshade *(Solanum elaeagnifolium)*
Smartweed *(Ploygonum* spp.*)*
Sorrel *(Rumex* spp.*)*
Sowthistle *(Sonchus* spp.*)*
Sunflower *(Helianthus* spp.*)*
Sweet clover *(Melilotus* spp.*)*
Tansymustard *(Descurainia pinnata)*
Texas thistle *(Circium texanum)*
Western ragweed *(Ambrosia psilostachya)*
Wild carrot *(Caucus carota)*
Wild lettuce *(Lactuca* spp.*)*
Wild parsnip *(Pastinaca sativa)*
Wild turnip *(Brassica campestris)*
Wollyleaf bursage *(Ambrosia grayl)*
Yellow starthistle *(Centaurea solstitialis)*
Yellow woodsorrel *(Oxalis stricta)*

GRASSES

Annual bluegrass *(Poa annua)*
Bahiagrass *(Paspalum notatum)*
Beardgrass *(Andropogon* spp.*)*
Bermudagrass *(Cynodon dactylon)*
Big bluestem *(Andropogon geradi)*
Broadleaf signalgrass *(Brachiaria platphylla)*
Canada bluegrass *(Poa compressa)*
Cattail *(Typha* spp.*)*
Cheat *(Bromus secalinus)*
Crabgrass *(Digitaria* spp.*)*
Dallisgrass *(Paspalum dilatatum)*
Downey brome *(Bromus tectorum)*
Fall panicum *(Panicum dichotomiflorum)*
Fescue *(Festuca* spp.*)*
Foxtail *(Setaria* spp.*)*
Goosegrass *(Eleusine indica)*
Guineagrass *(Panicum maximum)*
Italian ryegrass *(Lolium multiflorum)*
Johnsongrass *(Sorghum halepense)*
Kentucky bluegrass *(Poa pratensis)*
Lovegrass *(Eragrostis* spp.*)*
Orchardgrass *(Cactylis glomerata)*
Paragrass *(Brachiaria mutica)*
Prairie cordgrass *(Spartina pectnata)*
Prairie threeawn *(Aristida oligantha)*
Quackgrass *(Agropyron repens)*
Sandbur *(Cenbchrus* spp.*)*
Sand dropseed *(Sporobolus cyptandrus)*
Smooth brome *(Bromus inermis)*
Timothy *(Phleum pratense)*
Torpedograss *(Ponicum repens)*
Vaseygrass *(Paspalum urvillei)*
Wild barley *(Hordeum* spp.*)*
Wild oats *(Avena fatua)*
Wiresterm muhly *(Muhlenbergia frondosa)*
Witchgrass *(Panicum capillare)*

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Atratol® 8P

SAMPLE LABEL

Pelleted Herbicide

For control of weeds on noncrop land

50 Pounds
Net Weight

Active Ingredients:

Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-*s*-triazine	7.6%
Atrazine-related compounds	0.4%
Sodium chlorate ($NaClO_3$)	40.0%
Sodium metaborate* ($Na_2B_2O_4$-$5H_2O$)	47.0%
Inert Ingredients:	5.0%
Total:	100.0%

*Equivalent to 4.58% boron expressed as elemental boron

Keep Out of Reach of Children.

Caution

See additional caution statements on back of bag.

EPA Reg. No. 100-475

Control No. 47235

See directions for use on back of bag.

CIBA–GEIGY

CGA 130-468A

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DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

IMPORTANT: Read the entire **Directions for Use** and the **Conditions of Sale and Warranty** before using this product.

Conditions of Sale and Warranty

The **Directions for Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of CIBA-GEIGY or the Seller. All such risks shall be assumed by the Buyer.

CIBA-GEIGY warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions for Use** subject to the inherent risks referred to above. **CIBA-GEIGY makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall CIBA-GEIGY or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product.** CIBA-GEIGY and the Seller offer this product, and the Buyer and user accept it, subject to the foregoing **Conditions of Sale and Warranty**, which may be varied only by agreement in writing signed by a duly authorized representative of CIBA-GEIGY.

General Information

Atratol 8P is a nonselective herbicide that can be applied before or after plant growth begins. Since Atratol enters plants through their roots, its effectiveness is dependent on rainfall to move the chemical into the root zone. Very dry conditions and lack of rainfall may result in poor weed control.

Important: Use only in areas where complete control of all vegetation is desired, such as industrial sites, rights-of-way, lumberyards, petroleum tank farms, around farm buildings, along fence lines, and similar areas. When applied to the soil, this product usually inhibits all plant growth for a year or more. It should not be used on land to be cropped, or where adjacent desirable trees, shrubs, or plants might be injured.

Directions for Use

To control annual broadleaf weeds and grasses: Apply ¼ - ½ lb. per 100 sq. ft.

To control most perennial broadleaf weeds and grasses: Apply ½ - 1 lb. per 100 sq. ft. Where deep-rooted perennials are present, use the 1 lb. rate.

The higher rates listed above should be used in areas having a long growing season or high rainfall. The higher rates will also provide longer residual control.

CAUTION

Keep out of reach of children.

Harmful if swallowed. Avoid contamination of food and feed. Avoid inhalation of dust. Avoid contact with eyes, skin, and clothing. Wash clothing after application. Wash out equipment after application. Do not use equipment to apply insecticides, fungicides, or fertilizers. Do not contaminate water intended for domestic or irrigation use.

Store in a dry place.

Do not reuse container. Destroy when empty.

Atratol® trademark of CIBA–GEIGY

Agricultural Division
CIBA–GEIGY Corporation
Greensboro, North Carolina 27419
CGA 20L1L 081

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TESTIMONY

SENATE BILL NO. 162
Senate Committee on Agriculture
February 16, 1989

by

Dale Lambley, Director
Plant Health Division
Kansas State Board of Agriculture

Senate Bill No. 162 would establish specific standards and procedures for the outdoor application of pesticides by powered equipment by railroads to railroad right-of-ways and for outdoor applications by state, county, municipalities, townships and other governmental organizations. Commercial firms employed or contracted by railroads or governmental agencies to do outdoor applications would also be required to meet the standards and procedures specified by the bill. Businesses hired by railroads or the State Department of Transportation to do right-of-way weed and brush control or aerial applicators hired by county weed departments for musk thistle control applications provide examples which come to mind. Weed control in city parks and ball diamonds as well as mosquito control programs provide common examples of uses in the municipal setting which would be impacted by the bill.

Beyond general administrative duties, the Kansas State Board of Agriculture has specific assignments under Senate Bill No. 162. In general terms, these are as follows:

1. to prepare and provide the forms which are to be utilized by persons who are required to notify the KSBA that drift management plans have been prepared;
2. to maintain file records of drift management plan notifications along with records showing that such plans have been updated at the end of each two year period;
3. in the event of an pesticide drift incident, to review the drift management plan for adequacy;
4. to act as a mediator between pesticide applicators and persons dissatisfied with the efforts made by the applicator in providing pre-treatment notification;
5. to approve or disapprove requests submitted by applicators or persons requesting variances from any of the standards imposed under the statute. Variances could not be generic in form but would be directed to specific pesticide applications. Should the KSBA decide that approval of an individual request for variance was in order, the agency would issue the specified permit; and
6. except with prior written approval of the KSBA, no authorization or consent may be given by any individual with regard to off-target direct discharge or drift of pesticides upon any body of water.

Finally, Senate Bill 162 provides that the KSBA may from time to time review any drift management plan for adequacy. To me, this means that the Plant Health Division is not required to review all plans, but that we should examine compliance at least on a spot check basis. As worded, I would also assume that these are to be generic drift management plans rather then specific plans for each site or time of application.

Senate agriculture
2-16-89
attachment 8

To my mind, Senate Bill 162 has two strong points. First, it addresses an area which every pesticide applicator in the state of Kansas knows can give problems. A great deal of time and energy has been expended in educational programs designed to aid pesticide applicators in handling wind drift and volitilization hazards. Further, the bill is designed toward drift prevention and outlines a number of very good practices which can be followed to prevent off-target contamination or damage. However, I have some concerns about the bill which I would also like to outline.

Section 4, lines 241-245 indicate that pesticide applications subject to the act shall be undertaken in a manner which does not result in off-target direct discharge of pesticides, unless prior authorization and consent is obtained from the owner or lessee of the land onto which such discharge may occur. Other language in that section (lines 257-260) appear to allow residue levels in non-target areas to be up to 20% of that found in the target area. Personally, we feel that this may be a step backward relative to protection of non-target sites from pesticide drift. Although some, mostly in other states, might feel us overly strict, the KSBA has always taken the stand that pesticides should be accurately applied to the target sites. If a pesticide application is made, and we find residues of that pesticide beyond the target area, we intend to (and do) institute enforcement action. No contaminant gradient or 20% off-target residues are allowed. Pesticide applicators in Kansas are accustomed to and appear to be comfortable with this approach. The fence row has proven to be an effective and recognizeable boundary. The problems we have with drift case enforcement are generally those of obtaining actual proof of the source of the off-target pesticide residues. but that is an issue separate from this bill.

Another concern which I would have concerning Senate Bill No. 162 and our ability to effectively administer this statute lies in the absence of penalty provisions from the current language.

Finally, I would like to draw your attention to Section 7, lines 407-443. This section allows pesticide applicators to request and the KSBA to issue variances from standards imposed under the act. These provisions are both an important and necessary component of the bill. However, I would alert you to the fact that many such requests will be coming to the agency for consideration. Almost every city would be required to request a variance for their mosquito control programs, for example, since effective control of adult mosquitoes is predicated upon community wide fogging programs. In such cases, pesticide drift is allowed by the product labeling and is intentional.