

REASON TO ISSUE: (1) Revise label format (2) Expand list of grasses and ornamentals for California and rest of U.S. (3) Provide a more detailed "Directions for Use" and "Recommended Applications"

Date of Draft: 3/10/83
Supersedes Draft: 2/14/83

EMBARK® 2-S
PLANT GROWTH REGULATOR

3M

AG 7182 2-1

Reduces Frequency of Mowing and Trimming on Certain Grasses and Ornamentals

STOP!

READ THE LABEL BEFORE USING

EPA REG. NO. 7182-7-AA

EPA Est. 07182-1L-01

NET CONTENTS: 1 Gallon

ACTIVE INGREDIENT:

Diethanolamine salt of mefluidide*
(N-[2,4-dimethyl-5-[[trifluoromethyl)-sulfonyl]amino]phenyl]acetamide),..... 28%**

INERT INGREDIENTS:..... 72%
100%

*U.S. Patent Nos. 3,639,474; 3,894,078; 4,013,444

**Equivalent to 2.0 lbs. (21% by weight) of N-[2,4-dimethyl-5-[[trifluoromethyl)-sulfonyl]amino]phenyl]acetamide per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUTIONARY STATEMENTS

HUMANS AND DOMESTIC ANIMALS:

Harmful if swallowed or absorbed through the skin.

Avoid breathing spray mist.

Avoid contact with skin, eyes or clothing. Wear protective clothing; including rubber gloves when handling.

Statement of Practical Treatment: If swallowed: drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Get medical attention. If in eyes: flush with plenty of water. Get medical attention if irritation persists. If inhaled: remove victim to fresh air. If on skin: wash with plenty of soap and water..

ENVIRONMENTAL:

Do not apply directly to lakes, ponds or streams.

Do not contaminate water by cleaning of equipment or disposal of wastes.

Do not allow spray to drift onto nontarget crops or vegetation.

NOTE: Underlined letters in chemical nomenclature should be italicized when printed, not underlined.

STORAGE AND DISPOSAL:

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

PESTICIDE DISPOSAL:

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.

CONTAINER DISPOSAL:

Triple rinse (or equivalent) and dispose of in a sanitary landfill or by incineration as permitted by state and local procedures.

DIRECTIONS FOR USE

GENERAL INFORMATION:

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

EMBARK 2-S Plant Growth Regulator (PGR) is recommended for regulating the growth of various species of turfgrasses, broadleaf vegetation, and ornamentals in public, commercial, and industrial areas.

SPRAY EQUIPMENT:

The following spray equipment is recommended for:

Ornamentals and Groundcover: Use a power sprayer equipped with handheld or vehicular-mounted equipment that will deliver sufficient spray to penetrate dense foliage and provide thorough coverage of all parts of shrubs or plants.

Turfgrasses: Use conventional power spray equipment fitted with a spray boom, off-center nozzles, or handgun. Handpump sprayers are suitable for edging or spot treatments.

MIXING:

Pour the required amount of EMBARK PGR into the spray tank containing approximately 1/2 the required amount of water.

Fill the tank as required with water and spray as recommended.

Minimal agitation in the spray tank is necessary since EMBARK PGR is soluble in water.

CALIBRATION:

It is essential that spray equipment is properly adjusted and calibrated to assure proper dosage and uniform spray coverage. Follow the spray equipment manufacturers directions for cleaning, adjusting pressure and selecting appropriate nozzles.

RINSING:

Triple rinse the EMBARK PGR container with water and pour the rinse solution into the spray tank prior to spraying. Do not use spray equipment for other purposes until thoroughly cleaned. Flush spray equipment with plenty of water immediately after use to avoid contamination of later sprays.

RECOMMENDED APPLICATIONS-TURFGRASSES

RECOMMENDED USE AREAS:

EMBARK PGR may be applied to specified turfgrasses in commercial, public and certain agricultural areas such as:

COMMERCIAL-INDUSTRIAL: Highway rights-of-way, utility rights-of-way, building, industrial parks, tank farms, airports.

PUBLIC: Schools, libraries, hospitals, cemeteries, golf courses, parks, roads, walkways.

AGRICULTURAL PREMISES: Around farm building, storage sheds, implement storage areas, roadsides.

MOWING:

When mowing after application: for an evenly trimmed appearance grass may be mowed 3-7 days after EMBARK PGR is applied.

When mowing before application: grass may be mowed up to two days before applying EMBARK PGR. Clippings and other debris should be removed before spraying. If mowing removes most of the green leaf tissue, spraying should be delayed until sufficient new growth develops to assure product absorption into green leaves.

When mowing is not desired or practical: apply EMBARK PGR in the spring after greenup, but before mowing is necessary, thus, avoiding mowing until growth regulation wears off.

SURFACTANTS:

The use of a non-ionic surfactant for example, WK[®], Citowett[®], or X-77[®] is recommended to increase the extent and consistency of turfgrass regulation. The surfactant rate is recommended at 0.25 to 0.5% V/V (1 to 2 quarts/100 gals. finished spray solution). Temporary slight discoloration of turf also may increase with the use of a surfactant.

TANK MIXING WITH HERBICIDES:

EMBARK PGR may be tank mixed with one of the following herbicides to control broad leaf weeds:

<u>HERBICIDE</u>	<u>MAXIMUM HERBICIDE RATE</u>
TRIMEC [®] Broadleaf Herbicide	4 Pints/acre
2,4D low volatility ester and amine salt formulations	2 lbs active ingredient/acre
MCPP in amine salt formulations	2 lbs active ingredient/acre

ROADSIDE AND LOW MAINTENANCE TURF:

Maximum benefits, including season-long seedhead suppression of cool season grasses, can be attained by applying 1 1/2 to 2 pints/acre of EMBARK PGR with surfactant after uniform grass greenup until approximately 2 weeks before seedhead appearance. Use the 2 pint rate for maximum seedhead suppression during the last week of this period. If applied less than two weeks prior to seedhead appearance, EMBARK PGR applications will continue to give vegetative growth suppression for up to 8 weeks, however, a mowing will be necessary to eliminate seedheads. For roadside and low maintenance turf in California, follow the recommended rates according to the California rate table.

LIMITATIONS:

Do not apply EMBARK PGR to golf greens. Do not apply to turf areas within 4 growing months after seeding and do not reseed within 3 days (except Calif.) following application.

Turf treated with EMBARK PGR may appear less dense and temporarily discolored when compared with untreated, actively-growing turf. However, with increasing time, turf may appear darker green than untreated areas. Optimum results may not be obtained if rainfall or overhead irrigation occurs within 8 hours following application.

Do not allow animals to graze on treated areas.

APPLICATION RATE TABLE - TURFGRASSES

RECOMMENDATIONS: EMBARK PGR, applied to turfgrasses, reduces mowing requirements for up to 8 weeks following treatment by regulating growth and preventing seedhead formation. Apply EMBARK PGR uniformly to green, actively growing turf. For season-long seedhead suppression of cool season grasses, apply no later than when the seedhead can be felt at the base of the stem (approximately 2 weeks prior to seedhead appearance). Do not apply to closely-mowed areas, where most of the green growth has been cut. Remove excessive grass clippings and leaves prior to treatment. Avoid spray overlaps that will increase dosage above those recommended. EMBARK PGR may be applied more than once per season, however, wait at least six weeks between applications. In turfgrass renovation programs, areas treated with EMBARK PGR may be reseeded 3 days following application. (except Calif.)			
Species:	Recommended Rate of EMBARK 2-S PGR		REMARKS
	per acre in 15-150 gal. water*	per 1000 sq. ft. in water*	
Annual Bluegrass (Poa annua) (seedhead suppression)	1/2 pint	1/5 fl. oz.	For seedhead suppression only apply after uniform greenup but before the first appearance of seedheads. Applications after first seedhead appearance will only suppress seedheads which have not emerged.
Kentucky and Annual Bluegrass Tall, Red and Chewings Fescue Perennial Ryegrass Timothy Reed Canarygrass Quackgrass Kikuyugrass Crested Wheatgrass Orchardgrass Smooth Bromegrass	1 1/2 pints	3/5 fl. oz.	For those grasses recommended at the 1 1/2 pint rate a slightly longer period of growth regulation can be attained with a 2 pint/acre rate. If temporary discoloration of turf occurs and is objectionable reduce the 1 1/2 pint rate to 1 pint/acre.
St. Augustinegrass	1 pint	2/5 fl. oz.	
Common Bermudagrass	4 pints	1 1/2 fl. oz.	

*The amount of water used to give adequate and uniform spray coverage is dependent on the

California Species Only	Recommended Rate of EMBARK 2-S PGR		REMARKS
	per acre in 15-150 gal. water*	per 1000 sq. ft. in water*	
Kentucky and Annual Bluegrass Tall, Red and Chewings Fescue Perennial Ryegrass Timothy Reed Canarygrass Quackgrass Centipede grass Kikuyugrass	1 1/2 pints	3/5 fl. oz.	For grasses recommended at the 1 1/2 pint rate, reduce the rate to 1 pint/acre if temporary discoloration of turf occurs and is objectionable.
St. Augustine grass	1 pint	2/5 fl. oz.	In turfgrass renovation programs, areas treated with EMBARK PGR may be reseeded 2 weeks following application
Common Bermudagrass	4 pints	1 1/2 fl. oz.	
NATIVE GRASSES AND BROADLEAF VEGETATION <u>Grasses:</u> Wild Barley, Red Brome, Ripgut Brome, Wild Oats <u>Broadleaves:</u> Cheeseweed, Sour Clover, Fiddleneck, Redstem Filaree, Black Mustard	2 pints	4/5 fl. oz.	For native grasses and broadleaf vegetation, areas with high soil fertility may require up to 4 pints/acre.

*The amount of water used to give adequate and uniform spray coverage is dependent on the type of spray equipment used.

RECOMMENDED APPLICATIONS - ORNAMENTALS

RECOMMENDED USE AREAS:

EMBARK PGR may be applied to specified ornamentals and groundcover in commercial and public areas such as:

COMMERCIAL-INDUSTRIAL: Highway rights-of-way, utility rights-of-way, buildings, industrial parks, tank farms, airports.

PUBLIC: Schools, libraries, hospitals, cemeteries, golf courses, parks, roads, walkways.

LIMITATIONS:

Avoid spray drift on non-target foliage. Avoid drift on food crops. Do not wash foliage for at least 8 hours after application. If rain occurs within 8 hours, dilution of spray may occur. Do not apply to plants that are stressed, diseased, or otherwise unhealthy. Do not apply to plants grown in containers.

APPLICATION RATE TABLE - ORNAMENTALS

RECOMMENDATIONS: EMBARK PGR applied as a full coverage spray to specified ornamental shrubs, hedges, trees and groundcover reduces trimming and pruning for up to 12 weeks by regulating growth.			
Species	Recommended rate of EMBARK 2-S PGR		REMARKS
	per 100 gals. water	per gal. water	
Ligustrum, Japanese Pyracantha Ivy, English Holly, Burford and Japanese	4 pints	2/3 fl.oz.	
Species California Only: Groundcover: African Daisy Capeweed Iceplant Ivy, English and Algerian Shrubs and Trees: Acacia Bottlebush Brazilian Pepper Tree Carob Ficus Hibiscus Holly, Burford and Japanese Melaleuca Oleander Photinia Pittosporum Podocarpus Privet (Ligustrum sp.) Pyracantha Raphiolepis Viburnum Xylosma	4 pints	2/3 fl.oz.	For growth regulation, apply EMBARK PGR to foliage as a full coverage spray to run-off and foliage penetration. Applications should be made to healthy, actively growing plants 7-14 days after pruning or trimming. Once the plant resumes active growth, pruning and repeat applications may be made.
Ornamental Olive Trees	1 pint	1/6 fl.oz.	For flower inhibition of olive trees apply EMBARK PGR to foliage as a full coverage spray to run-off at pre-bloom (tight bud stage) through the 5% bloom stage. Trees 20 to 30 ft. in height will require 10 to 15 gallons of finished spray solution per tree.

NOTICE - LIMITED WARRANTY:

The Directions for Use for 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. Permanent injury, ineffectiveness or other unintended consequences may result because of such factors as adverse weather conditions, presence of fertilizers or other pesticides, or use inconsistent with label directions, all of which are beyond the control of 3M or the Seller. All such risks shall be assumed by the Buyer.

3M 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. 3M makes no other expressed or implied Warranty of Fitness or Merchantability or any other expressed or implied warranty. In no case shall 3M or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product.

3M 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 3M.

EMBARK is a registered trademark of 3M
Citowett is a registered trademark of BASF, AG.
Surfactant WK is a product of E.I. DuPont de Nemours and Company (Inc.)
X-77 is a product of Chevron Chemical Company.
Trimec is a registered trademark of P.B.I.- Gordon Corporation.

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