04/20/99

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

APR 20 1999

Callista Chukwunenye FMC Corporation 1735 Market Street Philadelphia, PA 19103

Dear Dr. Chukwunenye:

SUBJECT: Lab

Label Amendment Spartan Herbicide

EPA Registration No. 279-3189

Your Application Dated March 19, 1999

The labeling referred to above, submitted in accordance with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. A stamped copy of the labeling is enclosed for your records. Please submit one (1) final printed copy for the referenced label before releasing the product for shipment.

Sincerely yours,

Joanne I. Miller Product Manager (23) Herbicide Branch Registration Division (7505C)

Enclosure

		 CONCUR	RENCES			
SYMBOL ►	7505C					
SURNAME .	Morgan	-	}	}	ļ	j
DATE	4/20/99				***************************************	

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY

Code 1850

EPA Reg. No. 279-3189

Net Weight



For Agricultural or Commercial Use Only

Active Ingredient:	By Wt.
Sulfentrazone*	75.0%
Inert Ingredients:	25.0%
	100.0%

*N-[2,4-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]phenyl]methanesulfonamide Contains 0.75 pounds of active ingredient per pound formulated. U.S. Patent No. 4,818,275

CAUTION

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. If person is unconscious, do not give anything by mouth or induce vomiting.

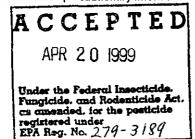
inhaled: Remove victim to fresh air. If not breathing, give artificial espiration, preferably mouth-to-mouth. Get medical attention.

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

If in eyes: Flush eyes with plenty of water. Call a physician if irritation persists.

For Emergency Assistance Call (800) 331-3148.

See other panels for additional precautionary information.





FMC Corporation Agricultural Products Group Philadelphia PA 19103

PRECAUTIONARY STATEMENTS Hazards to Humans (and Domestic Animals)

Caution

Causes moderate eye irritation. Harmful if inhaled, swallowed, or absorbed through skin. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes or clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear: long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:

Users should:

EPA Est. 279-

 Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

This pesticide is toxic to marine/estuarine invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to terrestrial and aquatic plants in neighboring areas. Do not contaminate water when disposing of equipment washwaters or insate.

<u>Groundwater advisory</u>: This chemical is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Do not use on coarse soils classified as sand which have less than 1% organic matter.

<u>Surface water advisory</u>: Sulfentrazone can contaminate surface water through spray drift. Under some conditions, sulfentrazone may also have a high potential for runoff into surface water (primarily via dissolution in runoff water), for several to many months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlying extremely shallow groundwater, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-lying tile drainage systems that drain to surface waters.

Physical/Chemical Hazards

Do not use or store near heat or open flame.

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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.

Do not apply this product by air or through any type of irrigation system.

Do not apply Spartan more than once per season.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls over long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks.

STORAGE AND DISPOSAL

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

Pesticide Storage

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

Store in a cool, dry place and avoid excess heat.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills, Call FMC: (800) 331-3148

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container, Identify contents.

Pesticide Disposal

If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

Container Disposal

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.

GENERAL INFORMATION

Spartan is a selective soil-applied herbicide for the control of certain broadleaf weeds, grasses and sedges in tobacco. When applied according to directions, it will provide control of susceptible species. Spartan is formulated as a water dispersible granule containing 75% of the active ingredient, sulfentrazone.

The mode of action of Spartan involves uptake by weed roots and shoots. Preemergence and preplant incorporated applications of Spartan require rainfall or irrigation to activate the herbicide. The amount of rainfall or irrigation required for activation following application depends on existing soil moisture, organic matter content and soil texture. If adequate moisture (%* to 1*) is not received within 7 to 10 days after the Spartan treatment, a shallow cultivation may be needed to obtain desired weed control. When sufficient moisture is received after dry conditions, Spartan will provide control of susceptible germinating weeds.

Observe all instructions, crop restrictions, mixing directions, application precautions, replanting directions, rotational crop guidelines and other label information of each product when tank mixing with Spartan.

<u>Proper handling instructions</u>: This product may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas.

Operations that involve mixing, loading rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or washwater, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad. which means the pad must be self contained. The pad shall be sloped to facilitate material removal. An unrooted pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Do not apply this product through any type of irrigation system.

Do not use flood irrigation to apply or incorporate this product.

Product must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

GENERAL APPLICATION INFORMATION

For Use on Tobacco (Burley, Flue-Cured and Dark)
Do Not Use On Shade Grown Tobacco

Ground application only

Utilize a boom and nozzle sprayer equipped with the appropriate nozzles, spray tips and screens and adjusted to provide optimum spray distribution and coverage at the appropriate operating pressures. Utilize nozzles which produce minimal amounts of fine spray droplets. Do not exceed 30 psi spray pressure unless otherwise required by the manufacturer of drift reducing nozzles. Apply a minimum of 10 gallons of finished spray per acre. Be aware that overlaps and slower ground speeds while starting, stopping or turning while spraying may result in crop response.

Water must be used as the carrier for Spartan when applied alone, or when tank mixed with other tobacco herbicides.

Continuous agitation during application is required. Avoid overlap. Shut off spray booms while turning, slowing or stopping, as over application may result. Avoid letting Spartan sit overnight as settling of product and difficulty of resuspending may occur.

To avoid injury to sensitive crops, spray equipment used for Spartan applications must be drained and thoroughly cleaned with water plus ammonia before being used to apply other products.

Do not allow spray to drift onto adjacent crops or plants as injury to other plants may occur. To avoid drift, applicators must observe the following precautions:

Spray Drift Precautions

not spray when wind speeds exceed 10 mph.

Band Treatment Applications

For band treatment, apply the broadcast equivalent rate and volume per acre. To determine these:

Band width in inches Row width in inches	×	Broadcast Rate Per Acre	=	Band rate per acre
Band width in inches Row width in inches	×	Broadcast Volume Per Acre	=	Band volume per acre

SPRAY TANK PREPARATION

It is important that spray equipment is clean and free of existing pesticide deposits before using Spartan. Follow the spray tank clean out procedures specified on the label of product previously applied before adding Spartan the tank.

MIXING INSTRUCTIONS

Spartan herbicide may be tank mixed with Command 3ME herbicide for the control of additional weed species. Mixtures with some other tobacco pesticides have not been tested. Conduct an appropriate compatibility test prior to tank mixing with products other than Command herbicide, see below. Follow all precautions and restrictions on the tank mix partner label.

For best results fill spray tank with one fourth of the volume of clean water needed for the field to be treated. Start agitation system, add Spartan per directions under APPLICATION INFORMATION. Continuous spray tank agitation is required at all times to keep the product in suspension. Make sure Spartan is thoroughly mixed before application or before adding another product to the spray tank. For best mixing and application, the preparation of a sturry with water is required before adding Spartan to the spray tank.

For tank mixtures with other tobacco herbicide(s), a jar test should be conducted to ensure product compatibility before full-scale mixing. Provided the jar test indicates the mixture to be compatible, prepare the tank mixture as follows: Fill spray tank one fourth full with water. With agitator operating, add the recommended amounts of ingredients using the following order: dry granules first, liquid suspensions (flowables) second. Add EC products followed by water soluble products to tank as agitation continues and tank is filled with water. All applicable directions, restrictions and precautions for the tank mixture herbicide(s) must be followed.

Use Spartan spray mixture immediately after mixing. Do not store mixture. If Spartan was tank mixed with other tobacco herbicides, all additional directions, restrictions and precautions for the additional herbicides must also be followed.

Sprayer Equipment Clean-Out:

After spraying Spartan and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned using the following procedure:

- 1. Drain sprayer tank, hoses, and spray boom and thoroughly rinse the inside of the sprayer tank with clean water to remove sediment and residues. In addition, thoroughly flush sprayer hoses, boom and nozzles with clean water.
- 2. Fill the tank 1/2 full with clean water, and add appropriate detergent or ammonia (follow manufacturer's directions for use). Fill the tank to capacity and operate the sprayer for 15 minutes to flush hoses, boom, and nozzles.
- Drain the sprayer system. Rinse the tank with clean water and flush through the hoses, boom, and nozzles. Remove and clean spray tips and screens separately.
- 4. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State and local regulations and guidelines.

Do not drain or flush equipment on or near desirable trees or plants. Do not contaminate any body of water including irrigation water that may be used

APPLICATION INSTRUCTIONS

	Spartan Rate Table	
	Ounces of Produ	ct per Acre*
Soil Texture**	% Organio <u>0-2</u>	: Matter*** 2-4
Coarse	5.3	6.7
Medium	6.7	8.0
Fine	0.8	8.0

- One pound of Spartan contains 0.75 pounds of active ingredient.
- ** Refer to the information on soil types under the COARSE, MEDIUM and FINE categories in the lists below.
- ••• Do not apply Spartan to soils classified as sand with less than 1% Organic Matter.

COARSE	MEDIUM	<u>FINE</u>
Sand	Loams	Silty clay loams
Loamy sands	Silt loams	Sandy clay loams
Sandy loams	Silts	Silty clays
		Sandy clays
		Clay loams
		Clays

Spartan may be surface applied or preplant incorporated (to a depth no greater than 2 inches) from 12 hours to 14 days prior to transplanting tobacco. Incorporating Spartan deeper than 2 inches can result in inconsistent weed control.

inconsistent weed control.

For best performance a tankmix of Spartan plus Command Herbicide is recommended.

Broadcast apply the appropriate Spartan rate from the table above, in a minimum of 10 gallons per acre of water, to the soil prior to setting transplants as follows:

Non-Bedded - Fields where raised beds are $\underline{\text{NOT}}$ formed prior to transplanting:

Perform all accepted cultural practices for land preparation, fertilizer/fungicide incorporation, etc. prior to the application of Spartan. Once the field has been prepared for planting, Spartan may be surface applied or lightly preplant incorporated from 12 hours to 14 days prior to transplanting.

If Spartan is surface applied and it is necessary to remove equipment tracks from the field after application but prior to transplanting, any light finishing equipment may be used providing the soil is not disturbed to a depth greater than 2 inches.

Bedded - Fields where raised beds $\underline{\textbf{ARE}}$ formed prior to transplanting:

Apply Spartan to formed beds as a surface application from 12 hours to 14 days prior to transplanting. If it is customary to drag/knock down beds prior to transplanting, this procedure must be performed prior to the Spartan application.

When incorporating prior to bedding, Spartan must be thoroughly and uniformly incorporated to a depth no greater than 2 inches to avoid concentrating Spartan in the bed.

If initial transplanting fails to produce a uniform stand, tobacco may be replanted. DO NOT re-treat field with a second application of Spartan, and DO NOT re-bed. Re-transplant into previously formed, treated beds.

WEEDS CONTROLLED:

Preemergence:

When used as directed, a soil applied treatment of Spartan will provide control or suppression of the following weeds:

BROADLEAVES

Amaranth, Palmer Amaranth, spiny Anoda, spurred Beggarweed, Florida Carpetweed Cocklebur, common* Copperleaf, Hophombeam Croton, tropic Daisy, American Dayflower, common Galinsoga, hairy Groundcherry, clammy Groundcherry, cutteaf Jimsonweed Kochia Ladysthumb Lambsquarters, common Mexicanweed Morningglory: Entireleaf Ivyleaf Palmteaf Pitted* Purple	Morningglory: (continued) Red Smallflower Tall Mustard, wild Nightshade, eastern black Nightshade, hairy Nightshade, silverleaf Pigweed: Redroot Smooth Tumble Poorjoe Purslane, common Pusley, Florida Senna, coffee Sida, prickly (Teaweed) Smartweed, Pennsylvania Smellmellon Spurge, spotted Starbur, bristly Velvetleaf Waterhemp, common Waterhemp, tail
SEDGES	

Nutsedge, purple Nutsedge, yellow Sedge, annual GRASSES

Broadleaf signalgrass Crabgrass, large Crabgrass, smooth

Goosegrass Orchardgrass Panicum, fall

Spartan suppresses many other annual grasses. Tank mixing with an herbicide partner such as Command 3ME or mechanical cultivation will be required for grass management.

EPLANTING INSTRUCTIONS

Tobacco may be replanted into a field that has been treated with Spartan alone, or Spartan tank mixed with Command. Do not retreat fields with a second application of Spartan. When a field has been treated with another labeled product, consult the product label for specific replanting instructions. If the field must be reworked prior to replanting, do not disturb soil to a depth of more than 2 inches, or weed control may be reduced or temporary crop injury may occur.

ROTATIONAL GUIDELINES

This table shows the minimum interval in months from the time of Spartan application until Spartan treated soil can be replanted to the crops listed. When Spartan is tank mixed with another herbicide, refer to the partner label for recropping instructions, following the directions that are most restrictive.

ROTATIONAL CROP GUIDELINE

Crop	Recropping Interval in Months
Soybeans	Anytime
Tobacco	Anytime
Wheat, Barley, Rye, Oats, Tritical	
Corn, Field*	
Rice	10
Sorghum	10
Other Cereal Grains (Buckwheat;	
pearl: Millet, proso; Teosinte; Wild	1 rice) . 12
Sweet Potatoes	12
Peanuts	12
Cotton	181
Sweet Corn	
Canola	241
Sugar Beets	241

- * Field Corn includes only corn grown for grain or silage, popcorn and seed corn.
- Crops that have rotational intervals greater than 12 months after a Spartan application are the result of crop injury concerns.

PRECAUTIONS

Do not apply Spartan to soils classified as sands containing less than 1% organic matter.

Do not use Spartan in Tobacco seeding beds or greenhouses.

Do not impregnate Spartan on fertilizers.

Apply Spartan as previously noted in the Application Section on page 3. Do not apply Spartan post-transplant or unacceptable injury may occur. Do not perform tillage practices that concentrate Spartan into the bed or crop injury may occur.

Poor agronomic practices, unfavorable pH soils, diseases, cold weather, excessive moisture, drought or other conditions unfavorable to normal plant growth may adversely affect the growth of tobacco transplants. Weakened transplants may be more susceptible to herbicide injury particularly under poor drainage or compacted conditions or when the soil is saturated for long periods of time. Contact your State Agricultural Extension Service Specialist for consultation as to the agronomic recommendations suited for your tobacco varieties and local conditions.

Temporary stunting of tobacco may occur if transplants are set too shallow, or if heavy rainfall occurs immediately following transplanting.

Splashing of treated soil onto tobacco leaves may cause some localized, inconsequential burning. Use sound transplanting practices that insure treated soil will not wash or crust over tobacco plants.

Thoroughly clean Spartan from application equipment immediately after use and prior to spraying crops other than tobacco. Failure to remove even small amounts of Spartan from application equipment may result in injury to subsequent sprayed crops, including tobacco.

^{*} Indicates suppression or partial control only.

WEED SCIENTIFIC NAMES

BROADLEAVES	SCIENTIFIC NAMES
Amaranth, Palmer	. (Amaranthus palmeri)
Amaranth, spiny	. (Amaranthus spinosus)
Anoda, spurred	. (Anoda cristata)
Beggarweed, Florida	. (Desmodium tortuosum)
Carpetweed	. (Mollugo verticillata)
Cocklebur, common*	. (Xanthium strumarium)
Copperleaf, Hophombeam	. (Acalypa ostryifolia)
Copperleaf, Hophombeam	. (Croton glandulosus)
Daisy, American	. (Eclipta alba)
Dayflower, common	. (Commerlina communis)
Galinsoga, hairy	. (Galinsoga ciliata)
Groundcherry, clammy	. (Physalis heterophylla)
Groundcherry, cutleaf	. (Physalis angulata)
Jimsonweed	. (Datura stramonium)
Kochia	. (Kocnia scopana)
Ladysthumb	. (Polygonum persicana)
Lambsquarters, common	. (Cnenopodium album)
Mexicanweed	. (Caperonia castanaeiolia)
Morningglory: Entireleaf	(Inomona integriuscula)
lvyleaf	(Inomosa hadaracea)
Palmieaf	(Inomoea wrightii)
Pitted*	(Inomoea lacunosa)
Purple	
Red	(Inomoea coccinea)
Smallflower	(.lacquemontia tamnifolia)
Tall	(Inomoea purpurea)
Mustard, wild	. (Sinapis arvensis)
Nightshade:	
Eastern Black	. (Solanum ptycanthum)
Hairy	. (Solanum sarrachoides)
Silverleaf	. (Solanum elaeagnifolicum)
Pigweed:	
Redroot	. (Amaranthus retroflexus)
Smooth	. (Amaranthus hybridus)
Tumble	. (Amaranthus albus)
Poorjoe	. (Diodia teres)
Purslane, common	
Pusley, Florida	
Senna, coffee	
Sida, prickly (Teaweed)	. (Sida spinosa)
Smartweed, Pennsylvania	
Smellmellon	
Starbur, bristly	(Acanthospermum hispidum)
'alvetleaf	(Abutilon theophrasti)
./aterhemp, common	(Amaranthus rudis)
Waterhemp, Tall	. (Amaranthus tuberculatos)
SEDGES	,
	
Nutsedge, purple	. (Cyperus rotundus)
Nutsedge, yellow	. (Cyperus esculentus)
Sedge, annual	. (Cyperus compressus)
<u>GRASSES</u>	
Broadleaf signalgrass	(Brachiaria platvohvlla)
Crabgrass, large	
Crabgrass, smooth	. (Digitaria ischaemum)
Goosegrass	
Orchardgrass	
Panicum, falt	(Panicum dichotomiflorum)
* Indicates suppression or partial control only	
maioates suppression or partial control only	•

COLENTREIO NAMEO

Dealers Should Sell in Original Packages Only.

Terms of Sale or Use: On purchase of this product buyer and user agree to the following conditions:

Warranty: FMC makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

Directions and Recommendations: Follow directions carefully. Timing and method of application, weather and crop conditions, mixture with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller and are assumed by the buyer at his own risk.

Use of Product: FMC recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice.

Damages: Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages.

Spartan, Command and FMC —Trademarks of FMC Corporation

(1850-1/5/98-A)