

ACCEPTED

APR 15 1986

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 147-147

## Directions for Use

See attached literature for complete directions for use.

Read all directions carefully before applying.

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

## Precautionary Statements

### Hazards to Humans and Domestic Animals

#### WARNING

Harmful if swallowed. Avoid contact with skin, eyes or clothing. Avoid inhaling dust from product. In case of contact, flush with water.

#### Environmental Hazards

Do not contaminate any body of water, ponds or streams as death or injury may occur to vegetation irrigated by such. Do not contaminate water by cleaning of equipment or disposal of wastes.

## STORAGE AND DISPOSAL

**Storage:** The herbicidal properties of Spike Dry Flowable require caution in handling, storage and transportation of this product. Store in original container only. In case of leak or spill, contain material and dispose as waste.

**Pesticide Disposal:** Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. 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). Do not reuse. Then puncture and dispose of in a sanitary landfill, away from desirable plants, trees and water supply, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

The manufacturer makes no warranties, express or implied, concerning this product or its use which extend beyond the description on the label. All statements made concerning this product apply only when used as directed. Spike Dry Flowable must be applied according to Elanco's written instructions, including, but not limited to, recommended rates. Failure to do so may result in poor weed control or plant injury. Elanco expressly disclaims any warranty, either express or implied, for the use of Spike Dry Flowable, alone or in combination with other products, when that use is not in strict compliance with Elanco's written recommendations.

WU 0340 AMX

Elanco Products Company • A Division of Eli Lilly and Company  
Indianapolis, IN 46285, U.S.A.

FN 3084

ELANCO

ID 5943

Herbicide

**Spike**®

Dry Flowable

Net Weight 4 Pounds

**A preemergence and postemergence herbicide for control of brush and weeds in such areas as:**

- Around industrial buildings
- Lumberyards
- Tank farms
- Airport runways
- Utility substations and rights-of-way
- Road shoulders where no vegetation is desired
- At the base of transmission towers and poles
- At the base of highway guardrails, signposts, and markers
- Under asphalt and concrete pavements where no future landscaping is planned
- Ditchbanks
- Firebreaks
- Fence rows
- Railway roadbeds & ballast
- Railroad rights-of-way
- Railroad yards

The degree and duration of control may vary with the amount of chemical applied, soil texture, and other conditions.

#### Active Ingredient:

lebuthuron\* N[5-(1,1-dimethylethyl)-  
1,3,4-thiadiazol-2-yl]-N,N'-dimethylurea ..... 85.0%

Inert Ingredients ..... 15.0%

Contains 3.4 pounds active ingredient per 4 pound bottle.

\*Spike®—the registered trademark for Elanco Products lebuthuron

Keep Out of Reach of Children.

## WARNING

See side panel for additional precautionary statements.

EPA Reg. No. 1471-147

EPA Est. 1471-IN-5



Keep out of reach of children.  
See side panel for precautionary  
statements.

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ELANCO ID 5943



A preemergence and postemergence  
herbicide for control of brush and  
weeds

Active Ingredient:

tebuthiuron\* M5-(1,1-dimethylethyl)-1,3,4-  
thiadiazol-2-yl]-N,N-dimethylurea . . . . . 85.0%

Inert Ingredients . . . . . 15.0%

Contains 3.4 pounds active ingredient per 4 pound bottle

\*Spike®—the registered trademark for Elanco Products  
tebuthiuron.

EPA Reg. No. 1471-147

Elanco Products Company  
A Division of Eli Lilly and Company  
Indianapolis, IN 46285, U.S.A.

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### Precautionary Statements

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**Hazards to Humans and Domestic Animals**

#### WARNING

Harmful if swallowed. Avoid contact with skin, eyes or

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### Environmental Hazards

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### STORAGE AND DISPOSAL

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**Container Disposal:** Triple rinse (or equivalent). Do not reuse. Then puncture and dispose of in a sanitary landfill, away from desirable plants, trees and water supply, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

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## Precautions



Spike Dry Flowable is intended for non-cropland vegetation control. It is an extremely active herbicide which will kill trees, shrubs and other forms of desirable vegetation having roots extending into the treated area. Feeder roots of many species of desirable vegetation extend many feet beyond the drip line of the branches, and a very small amount of Spike Dry Flowable in contact with one feeder root of a tree, shrub or other desirable vegetation may cause serious injury or death to the entire plant.

An arboriculturist (tree expert) should be consulted to help you to determine if the area of proposed application is free of all roots of desirable vegetation. The effect of Spike Dry Flowable on desirable vegetation may be irreversible and its presence in the soil may prevent growth of other desirable vegetation for some years after application.

Read the entire label before using Spike Dry Flowable to determine if this product is suitable for the desired purpose.

Do not use Spike Dry Flowable on areas such as walks, driveways, streets, lawns, patios, tennis courts, swimming pools, cemeteries, or other landscaped areas, or under asphalt or concrete pavement where future landscaping is planned. Do not apply on field crops. Do not apply on any area into which the roots of field crops or other desirable vegetation may extend. Roots of trees, shrubs, and other desirable vegetation

may extend far beyond the drip line of the plant's branches.

Avoid nontarget drift or product movement. Do not apply when winds are gusty or under any other condition which will allow drift or product movement. Do not apply to areas where soil movement by water erosion and/or natural or mechanical means is likely. Do not apply to areas where wind is likely to cause soil movement unless a soil sealant is used. Drift or any form of product movement from treated areas may cause damage to any vegetation to which treatment is not intended.

**Ditchbank Usage**—Do not apply Spike Dry Flowable to any portion of the ditchbank that will come into direct contact with water as movement of Spike Dry Flowable in this water to non-target plant species may result in the injury or death of those plants. Do not apply on ditches used to transport irrigation or potable water. Keep from contact with other pesticides and seeds.

Thoroughly clean all traces of Spike Dry Flowable from application equipment after use. Do not empty residues cleaned from application equipment on areas where they may come in contact with the roots of desirable vegetation or the water source for such vegetation.

**Woody Plant Control**—Grazing is allowed in areas receiving band or individual plant treatments with 4.70 pounds per acre or less of Spike Dry Flowable. In areas receiving band or individual plant treatments with 4.70 pounds per acre or less of Spike Dry Flowable, grass may be cut for hay one year after application.

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Spike Dry Flowable may injure or suppress certain herbaceous vegetation in the treated area. Therefore, do not apply where such injury cannot be tolerated. Do not apply broadcast applications of Spike Dry Flowable where forage or maintenance of a grass cover is desired. Injury to most herbaceous perennials is reduced if Spike Dry Flowable is applied when this vegetation is dormant.

#### Directions for Use

Read all directions carefully before applying.

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

#### Total Vegetation Control

Spike Dry Flowable is a preemergence and postemergence herbicide for total control of vegetation in such noncropland areas as: airport runways, utility substations and rights-of-way, and concrete pavements where no future landscaping is planned, at the base of highway guardrails, sign posts and markers, at the base of transmission towers and poles, around industrial buildings, lumberyards, railroad yards, ditchbanks, firebreaks, and fence rows.

For total vegetation control in areas not treated the previous season with Spike Dry Flowable or other residual herbicides, apply Spike Dry Flowable prior to or just after emergence of plants as follows:

At 4.75 pounds per acre, Spike Dry Flowable will control the following:

Ailanthus  
Aster, heath

Aster, white heath  
Barley, little

Bedstraw  
Bluegrass, annual  
Bluegrass, Kentucky  
Bouncingbet  
Bromegrass, downy  
Bromegrass, ripgut  
Bromegrass, smooth  
Broomsedge  
Buffelgrass  
Burdock  
Buttercup,  
    smallflower  
Camphorweed  
Carrot, wild  
Catsear, spotted  
Cheat  
Chickweed  
Clover, red  
Cocklebur  
Creeper, Virginia  
Crowfootgrass  
Dock, curly  
Dogfennel  
Fescue  
Fescue, rattail  
Fiddleneck, coast  
Filaree  
Filaree, redstem  
Fleabane, annual  
Foxtail  
Gaillardia,  
    rosering  
Geranium,  
    Carolina  
Goldenrod

Grape  
Gumweed  
Hemlock, poison  
Henbit  
Honeysuckle,  
    Japanese  
Horseweed  
Knapweed  
Kochia  
Lambsquarters  
Lupine  
Medic, black  
Morningglory  
Mullein, common  
Nightshade,  
    silverleaf  
Oat, wild  
Panicum, Texas  
Pepperweed,  
    Virginia  
Pigweed  
Plantain, buckhorn  
Puncturevine  
Ragweed, giant  
Raspberry, red  
Ryegrass, Italian  
Sedge, annual  
Shepherdspurse  
Sida, prickly  
Sowthistle, annual  
Spikeweed  
Spurge  
Spurge, spotted  
Starthistle,  
    yellow

Strawberry	Trumpet creeper
Sunflower, common	Velvetgrass
Telegraph plant	Vetch
Timothy	Witchgrass

At 7.0 pounds per acre, Spike Dry Flowable will control the following:

Awngrass, triple	Ivy, poison
Barley, foxtail	Reed, common
Bromegrass, Japanese	Sandbur, field
Canarygrass, reed	Smartweed, swamp
Carpetweed	Sowthistle, perennial
Chicory	Spurge, prostrate
Cinquefoil, common	Sumac, staghorn
	Sweetclover, white

At 9.5 pounds per acre, Spike Dry Flowable will control the following:

Barnyardgrass	Oxtongue, bristly
Crabgrass	Poorjoe
Itchgrass	Purslane, common
Johnsongrass, seedling	Ragweed, common
Lovegrass	Saltbush
Orchardgrass	Sedge, bull

At 18.75 pounds per acre, Spike Dry Flowable will control the following:

Bermudagrass	Lookingglass, Venus
Cudweed	Vaseygrass
Dallisgrass	

For the maintenance of total vegetation control in noncropland areas east of the Rocky Mountains which were treated the previous season with Spike Dry Flowable or other residual herbicides, apply Spike

Dry Flowable prior to or just after emergence of plants as follows: (Some of the species listed may show erratic control depending on the time between application and weed germination.)

At 2.0 pounds per acre, Spike Dry Flowable will control the following:

Bluegrass, annual	Parsnip, wild
Bluegrass, Kentucky	Pepperweed
Carrot, wild	Pigweed
Chickweed, common	Ragweed, common
Croton	Smartweed,
Fleabane, annual	Pennsylvania
Horseweed	Sweetclover
Mullein	Thistle, Canada
Panicum, fall	Woodsorrel, yellow

At 3 pounds per acre, Spike Dry Flowable will control the following:

Goldenrod	Spurge
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In areas of rainfall greater than 25 inches per year, the 3 pounds per acre maintenance rate should be used for all weed species listed above.

For the maintenance of total vegetation control in noncropland areas west of the Rocky Mountains which were treated the previous season with Spike Dry Flowable or other residual herbicides, apply Spike Dry Flowable prior to or just after emergence of plants as follows: (Some of the species listed may show erratic control depending on the time between application and weed germination.)

At 1.5 pounds per acre, Spike Dry Flowable will control the following:

Bassia, fivehook	Cudweed
Cheat	Foxtail

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Lettuce, prickly  
Oat, wild  
Oxtongue, bristly  
Pigweed  
Plantain

Ryegrass, annual  
Saltbush  
Shepherdspurse  
Witchgrass

At 2.0 pounds per acre, Spike Dry Flowable will control the following:

Buttercup  
Canarygrass, reed  
Knapweed, Russian  
Knotweed  
Mallow

Mustard  
Ragweed, western  
Starthistle, yellow  
Telegraphplant

At 3.0 pounds per acre, Spike Dry Flowable will control the following:

Barley  
Gumweed  
Puncturevine

Sida, alkali  
Smartweed, swamp

In areas of rainfall greater than 25 inches per year, the 3 pounds per acre maintenance rate should be used for all weed species listed above.

#### Application Directions

Apply Spike Dry Flowable in 15 to 150 gallons of water per acre before or during the period of active growth of plants to be controlled. Initial control is enhanced by rainfall.

In areas of low annual rainfall (less than 15 inches per year) Spike Dry Flowable should be applied prior to the time of year when the predominant portion of that rainfall occurs. A minimum of 1 to 1 1/2 inches of rainfall is required to activate Spike Dry Flowable and place it in the primary weed seed germination zone.

To maximize performance under a variety of conditions, Spike Dry Flowable is recommended for use in tank-mix combination with any of the following products: amitrole, Atritol® 80W, Banvel® 720, Banvel® W.S., Karmex® 80W, MSMA, paraquat, Princep® 80W, Roundup®, Surflan® 75W, 2,4-D or Oust®. Where applications are made to existing vegetation, the contact or burning properties of paraquat or MSMA provide the rapid top kill while Spike Dry Flowable gives the residual long-term control desired. Applications to areas which are infested with certain difficult to control perennial weeds (such as johnsongrass, bermudagrass, quackgrass, horsetail, bindweed, dandelion or nutsedge) will benefit from tank-mixing Spike Dry Flowable with Roundup, amitrole, Banvel, Banvel 720, or 2,4-D. The addition of Surflan, Oust, Karmex, Atritol or Princep will improve Spike's performance on certain annual broadleaf and grass weeds such as foxtail, kochia, Russian thistle, or seedling johnsongrass.

Read the Spike Dry Flowable label and labels of products to be tank-mixed carefully before using. Note all warnings, cautions, precautions, and limitations of warranty on all labels.

Apply with any sprayer that will apply the spray uniformly. Check the sprayer before and during use to insure proper calibration and uniform application.

Surflan®-oryzalin, Elanco Products Company  
Atritol®-atrazine and prometon, Ciba-Geigy  
Banvel®-dicamba, Velsicol Chemical Corporation  
Karmex®-diuron, E. I. DuPont De Nemours & Company  
Princep®-simazine, Ciba-Geigy  
Roundup®-glyphosate, Monsanto Company  
Oust®-sulfometuron methyl, E. I. DuPont De Nemours & Company

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To mix, fill spray tank half full of water. Start agitation and continue during the entire mixing process. Add required amount of Spike Dry Flowable and allow to mix when tank mixing. If additional product is a wettable powder, add to tank and allow to mix thoroughly. If additional product is a liquid, add slowly while filling remainder of tank with water. Continuous agitation in the spray tank is required to keep the materials in suspension throughout application.

Agitate by mechanical or bypass (hydraulic) means in the spray tank. If bypass or return agitation is used, it should terminate at the bottom of the tank to minimize foaming.

For treating small areas, a tank type hand sprayer or sprinkling can may be used. Before application determine the amount of water and chemical necessary to cover uniformly the area to be treated. Shake or stir frequently.

### Woody Plant Control

Spike Dry Flowable is an effective herbicide for the control of brush and vines. Spike Dry Flowable can be applied either as a broadcast spray, banded application or as an individual plant treatment depending upon the size, density and location of brush to be controlled.

Spike is to be applied to the soil (Not the Foliage!) where it is absorbed by the roots of plants. Effects are slow to appear and will not become apparent until sufficient moisture has carried Spike Dry Flowable into

the root zone. The time required to achieve control is dependent on soil type, amount of rainfall and rooting depth of target species. Some species may go through several defoliations and refoliations over a period of approximately two to three years prior to dying.

Spike Dry Flowable can be applied anytime except when the ground is frozen or the soil is saturated with moisture. For optimum results, applications should be made just prior to the resumption of active seasonal growth in the spring and/or periods of rainfall. For applications made in the late summer or early fall in areas of average annual rainfall of greater than 25 inches, higher rates should be used and inconsistent control may result on densely infested brush areas and hard to control species.

Spike Dry Flowable may be used on cut brush but for optimum results time should be allowed for the brush to resprout to a height of approximately 5 feet prior to application. Spike requires an actively growing plant to be effective. The larger the resprouts the more Spike that will be taken up by the plant and the more effective and consistent the control will be.

For the control of woody plants and vines, the following rates of Spike Dry Flowable are recommended. These rates can vary depending upon soil type, rainfall, time of application and size/density of the woody plants.

Spike Dry Flowable applied at the rate of 1.25 pounds per acre will control the following species.

<i>Haplopappus tenuisectus</i>	Burroweed
<i>Larrea tridentata</i>	Creosotebush

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*Mimosa biuncifera* Wait-a-minute-bush  
Spike Dry Flowable applied at the rate of 2.50 pounds  
per acre will control the following species.

<i>Ailanthus altissima</i>	Tree-of-heaven
<i>Aloysia lycioides</i>	Whitebrush
<i>Artemisia tridentata</i>	Big sagebrush
<i>Carya glabra</i>	Pignut hickory
<i>Celtis occidentalis</i>	Western hackberry
<i>Datura discolor</i>	Desert thornapple
<i>Lycium berlandieri</i>	Berlandier wolfberry

<i>Morus rubra</i>	Red mulberry
<i>Pinus monticola</i>	Western white pine
<i>Pinus spp.</i>	Pine
<i>Prunus emarginata</i>	Bitter cherry
<i>Rhus glabra</i>	Smooth sumac
<i>Robinia pseudoacacia</i>	Black locust
<i>Rosa multiflora</i>	Multiflora rose
<i>Salvia leucophylla</i>	Black sage

<i>Symphoricarpos orbiculatus</i>	Buckbrush
<i>Ulmus americana</i>	American elm
<i>Vaccinium spp.</i>	Blueberry
<i>Gaylussacia spp.</i>	Huckleberry

Spike Dry Flowable applied at the rate of 3.50 pounds  
per acre will control the following species.

<i>Abies balsamea</i>	Balsam fir
<i>Acacia farnesiana</i>	Huisache
<i>Acer saccharum</i>	Sugar maple
<i>Alnus rugosa</i>	Speckled alder
<i>Betula populifolia</i>	Gray birch
<i>Carya texana</i>	Black hickory
<i>Celtis pallida</i>	Granjeno
<i>Condalia obtusifolia</i>	Lotebush condalia

<i>Ilex vomitoria</i>	Yaupon
<i>Larix laricina</i>	Tamarack
<i>Picea glauca</i>	White spruce
<i>Populus balsamifera</i>	Balsam poplar
<i>Populus deltoides</i>	Eastern cottonwood
<i>Quercus douglasii</i>	Blue Oak
<i>Quercus marilandica</i>	Blackjack oak
<i>Quercus stellata</i>	Post oak
<i>Salix spp.</i>	Willow
<i>Schaefferia cuneifolia</i>	Desert yaupon
<i>Spiraea tomentosa</i>	Hardhack
<i>Ulmus alata</i>	Winged elm

Spike Dry Flowable applied at the rate of 4.70 pounds  
per acre will control the following species.

<i>Acacia berlandieri</i>	Guajillo
<i>Acacia greggii</i>	Catclaw acacia
<i>Acacia rigidula</i>	Blackbrush acacia
<i>Acacia tortuosa</i>	Twisted acacia
<i>Acer negundo</i>	Boxelder
<i>Adenostoma fasciculatum</i>	Chamise
<i>Alnus rubra</i>	Red alder
<i>Campsis radicans</i>	Trumpet creeper
<i>Carya ovata</i>	Shagbark hickory
<i>Cercocarpus betuloides</i>	Birchleaf mountain-mahogany
<i>Colubrina texensis</i>	Texas colubrina
<i>Condalia obovata</i>	Bluewood condalia
<i>Cornus drummondii</i>	Roughleaf dogwood
<i>Crataegus spp.</i>	Hawthorn
<i>Eysenhardtia texana</i>	Texas kidneywood
<i>Fagus grandifolia</i>	American beech
<i>Jatropha dioica</i>	Leatherstem
<i>Leucophyllum frutescens</i>	Cenizo (Texas silverleaf)

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<i>Liquidambar styraciflua</i>	Sweetgum
<i>Parthenocissus</i> <i>quinquefolia</i>	Virginia creeper
<i>Populus grandidentata</i>	Bigtooth aspen
<i>Portiera angustifolia</i>	Guayacan
<i>Prunus virginiana</i>	Common chokecherry
<i>Pseudotsuga menziesii</i>	Douglas fir
<i>Pueraria lobata</i>	Kudzu
<i>Quercus dumosa</i>	California scrub oak
<i>Quercus palustris</i>	Pin oak
<i>Quercus rubra</i>	Red oak
<i>Quercus virginiana</i>	Live oak
<i>Rhus typhina</i>	Staghorn sumac
<i>Rubus allegheniensis</i>	Allegheny blackberry
<i>Salvia ballotaeflora</i>	Shrubby blue salvia

Spike Dry Flowable applied at the rate of 6.0 pounds per acre will control the following species.

<i>Acer macrophyllum</i>	Bigleaf maple
<i>Acer platanoides</i>	Norway maple
<i>Acer saccharinum</i>	Silver maple
<i>Baccharis</i> spp.	Groundsel tree
<i>Cornus florida</i>	Flowering dogwood
<i>Fraxinus pennsylvanica</i>	Green ash
<i>Gaultheria shallon</i>	Salal
<i>Juniperus virginiana</i>	Eastern redcedar
<i>Lantana camara</i>	Lantana
<i>Liriodendron tulipifera</i>	Tuliptree
<i>Melaleuca quinquenervia</i>	Melaleuca
<i>Pinus banksiana</i>	Jack pine
<i>Pinus echinata</i>	Shortleaf pine
<i>Pinus resinosa</i>	Red pine
<i>Pinus virginiana</i>	Virginia pine
<i>Platanus occidentalis</i>	American sycamore

<i>Prunus serotina</i>	Black Cherry
<i>Quercus alba</i>	White oak
<i>Rubus laciniatus</i>	Everygreen blackberry
<i>Rubus occidentalis</i>	Black raspberry
<i>Schinus</i> <i>terebinthifolius</i>	Brazilian peppertree

Spike Dry Flowable applied at the rate of 7.0 pounds per acre will control the following species.

<i>Acer circinatum</i>	Vine maple
<i>Arctostaphylos patula</i>	Greenleaf manzanita
<i>Ceanothus cuneatus</i>	Wedgeleaf ceanothus
<i>Ceanothus leucodermis</i>	Whitelhorn chaparral
<i>Cartaegus crus-galli</i>	Cockspur hawthorn
<i>Elaeagnus angustifolia</i>	Russianolive
<i>Fraxinus americana</i>	White ash
<i>Ligustrum</i> spp.	Privet
<i>Rhus laurina</i>	Laurel sumac
<i>Sapium sebiferum</i>	Tallowtree
<i>Smilax rotundifolia</i>	Common greenbrier
<i>Ulmus parvifolia</i>	Chinese elm
<i>Ulmus rubra</i>	Slipper elm

#### Broadcast Application

Apply Spike Dry Flowable in 15 to 150 gallons of water per acre with any properly calibrated herbicide sprayer. Check the sprayer before and during use to insure proper calibration and uniform application. Add the recommended amount of Spike Dry Flowable to clean water in the spray tank during the filling operation. Material must be kept in suspension at all times by constant agitation. Agitate by mechanical or bypass (hydraulic) means in the spray tank. If bypass or return

agitation is used, it should terminate at the bottom of the tank to minimize foaming.

For treating small areas, a tank type hand sprayer may be used. Before application, determine the amount of water and chemical necessary to cover uniformly the area to be treated. Shake or stir frequently.

Do not apply broadcast applications of Spike Dry Flowable where forage or maintenance of a grass cover is desired.

#### **Banded Application**

Spike Dry Flowable is recommended for the control of woody plant species in noncropland areas (such as utility, railroad, and pipeline rights-of-way, ditchbanks and fence rows) by application of a series of parallel bands to the soil surface. Individual bands should be spaced at intervals from 4 to 10 feet and at the currently labeled rate range of 2.5 to 7.0 pounds per acre depending on the woody species to be controlled. Actual herbicide bands should be kept as narrow as possible during application to achieve minimal injury or control of herbaceous vegetation. Apply Spike Dry Flowable to the soil surface in 5 to 75 gallons of water per acre in a series of parallel bands with spacing between bands ranging from 4 to 10 feet. In areas such as brush infested fence rows on utility rights-of-way, a single band may be applied. Control is dependent upon root systems intercepting bands. Therefore larger stems should be treated individually when using single bands.

Band spacing should be selected based on the size

of the woody plants in the area to be treated and the amount of injury or control of herbaceous vegetation that can be tolerated.

Where control of young or seedling woody plants is desired, bands should be spaced closer together. This will achieve maximum exposure to their limited root systems. Where larger more mature woody species are to be controlled, bands should be spaced at the wider end of the recommended spacing range.

In addition to allowing adequate exposure of the more extensive root systems of these larger woody species for control, use of the wider spacings will further reduce injury or control of herbaceous vegetation in the area of treatment.

Within the treated band nearly all vegetation, woody and herbaceous, will be killed. Some herbaceous vegetation close to the treated band with roots extending into it may be severely injured or killed. However, since herbaceous species tend to have restricted root systems, most species outside the treated band will not be affected. Banded applications in areas of steep terrain should be applied across existing slopes in order to prevent soil erosion.

Apply with equipment designed to deliver the spray uniformly in the bands. To maintain the integrity of the individual herbicide bands, straight stream nozzles fitted with internal stabilizing vanes or their equivalent are recommended. Operating pressures should also be kept as low as will provide uniform delivery of the spray solution. Pressures in the range of 10 to 40 psi should be adequate. Pressures in excess of 40 psi will tend to cause the individual bands to break up.

When applications are made in an area where nozzles are elevated above the soil surface more than 5 feet, breakup of the individual spray streams may occur. If conditions do not permit delivery of intact spray streams to the soil surface, this method of application should not be used.

Fill the spray tank half-full of water. Start agitation and continue during entire mixing and spraying operation. Add the required amount of Spike Dry Flowable and allow it to mix thoroughly while completing the spray tank filling. If hand held or back pack type sprayers are used, shake vigorously after filling and periodically during application to maintain product suspension. A master shut-off switch for the entire spraying system and nozzle check valves are recommended on commercial spray equipment.

Material must be kept in suspension at all times by continuous agitation. Agitate by mechanical or bypass (hydraulic) means in the spray tank. If bypass or return agitation is used, it should terminate at the bottom of the tank to minimize foaming. Check the sprayer frequently before and during use to insure proper calibration and uniform application.

#### **Individual (Spot) Application**

Spike Dry Flowable may be applied in high or low volumes of water to selectively control individual woody plants. Recommended rates will vary depending upon site conditions with the higher rates needed for difficult to control species, large plants, heavier soils, fall applications and cut brush. Consult your local Elanco Spike distributor to determine the best rates for your location.

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For high volume applications, mix 1 pound of Spike Dry Flowable in enough water to make 10 gallons of solution. Apply 10 ounces of material to the soil per every 2 to 4 inches of stem diameter.

For low volume applications, mix 1 pound of Spike Dry Flowable in enough water to make 1 gallon of solution. Apply 1 ounce of material to the soil per every 2 to 4 inches of stem diameter.

When treating large stems, apply the multiple treatments in even spacing around the stem.

For applying Spike Dry Flowable in banded or individual plant treatment, two pieces of equipment are suggested; the Solo Model 425 back pack sprayer for both banding and individual plant treatment and the Spot Gun for individual plant treatment.

The Solo sprayer is prepared for spraying by adding the pre-slurried contents of a 4 pound bag of Spike Dry Flowable and water to the tank. Fill to capacity with additional water and shake vigorously. Equip the Solo sprayer with a 0003-SS straight stream nozzle and the Solo pressure regulator with the green (10 psi) pressure limiting spring. To band Spike Dry Flowable at 5 pounds per acre, walk at 3 mph (264 feet per minute) with the Solo on continuously and space the bands 5 feet apart. Adjust the rate and walking speed according to the brush species and conditions encountered. For individual plant treatment with the Solo, apply a 1.5 second shot for every 1 to 2 inches of stem diameter at the base of unwanted woody plants.

The Spot Gun is prepared for individual plant treatment by mixing 2 pounds of Spike Dry Flowable in

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sufficient water to obtain 1 gallon of spray solution. Set the Spot Gun to deliver 8 milliliters of this solution for every 1 to 2 inches of stem diameter at the base of the unwanted woody plants. For application on steep slopes or other sensitive areas, the Spot Gun can be equipped with a soil probe to allow injection of the Spike Dry Flowable solution beneath the soil surface. Placement at a soil depth of 2 to 4 inches will eliminate any surface movement and reduce injury to herbaceous vegetation.

At the prescribed rates, a 4 pound bag of Spike Dry Flowable will treat approximately 950 stems 1 to 2 inches in diameter. Because of its non-volatile nature and low potential for drift this Spike application technique can be used for treating unwanted woody plants growing on non-cropland areas adjacent to sensitive crops. (See label precautions.) A white spot should be visible at the base of each treated stem which should aid in inspection of the completed work.

**Precaution:** Do not use Spike Dry Flowable in this manner in any area where desirable species are in the vicinity of the plants to be eliminated. A small amount of Spike Dry Flowable in contact with the roots of desirable trees or other woody species may cause severe injury or death. The roots of such plants may extend far beyond their drip lines.

Spike Dry Flowable will injure or control other herbaceous vegetation in the treated area. Therefore, do not apply where such injury cannot be tolerated. See the list of herbaceous vegetation controlled by Spike Dry Flowable under the Total Vegetation Control section of this booklet.

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