

DEC 30 1998

Steve A. McMaster
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1054

Dear Mr. McMaster:

Subject: Label Revisions
Tordon 22K Weed Killer
EPA Registration No. 62719-6
Your Submission Dated December 22, 1998

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended is acceptable provided that you:

1. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:

- On the front panel (page 1), Keep Out Of The Reach Of Children must be in close proximity to the Signal Word CAUTION. The preferred location is immediately above the Signal Word.

2. Submit one (1) copy of your final printed labeling before you release the product for shipment.

A stamped copy of the labeling is enclosed for your records.

Sincerely yours,

James
for James A. Tompkins
Product Manager (25)
Herbicide Branch
Registration Division (7505C)

Enclosure

2931

(Base label):

RESTRICTED USE PESTICIDE
 May Injure (Phytotoxic) Susceptible, Non-Target Plants. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Commercial certified applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.

(Logo) Dow AgroSciences LLC

Tordon* 22K

For use in areas west of the Mississippi River for the control of susceptible broadleaf weeds and woody plants on rangeland and permanent grass pastures, fallow cropland, spring seeded wheat, barley and oats not underseeded with a legume on grainland (which is not flood or sub-irrigated and not rotated to broadleaf crops), non-cropland, and on Conservation Reserve Program (CRP) acres and wildlife openings in these sites

Active Ingredient:

picloram: 4-amino-3,5,6-trichloropicolinic acid,	
potassium salt	24.4%
Inert Ingredients	75.6%
Total Ingredients.....	100.0%

**ACCEPTED
with COMMENTS
In EPA Letter Dated:**

December 30 1998
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 62719-6

Acid Equivalent
 picloram: 4-amino-3,5,6-trichloropicolinic acid - 21.1% - 2 lb/gal

CAUTION PRECAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

CAUTION PRECAUTION

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Causes Moderate Eye Irritation

Avoid contact with eyes or clothing. Prolonged or frequent repeated skin contact may cause allergic skin reactions in some individuals.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

~~Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. 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.~~

Engineering Controls:

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

First Aid

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

Environmental Hazards

This pesticide is toxic to some plants at very low concentrations. Non-target plants may be adversely affected if pesticide is allowed to drift from areas of application. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not contaminate water used for irrigation or domestic purposes by cleaning of equipment or disposal of wastes. Do not allow run-off or spray to contaminate wells, irrigation ditches or any body of water used for irrigation or domestic purposes. Do not make application when circumstances favor movement from treatment site.

Picloram is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

~~Picloram is a chemical which can travel (seep or leach) through soil and under certain conditions has the potential to contaminate groundwater which may be used for irrigation and drinking purposes. Users are advised not to apply picloram where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow or to soils containing sinkholes over limestone bedrock, severely fractured surfaces, and substrates which would allow direct introduction into an aquifer. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.~~

~~An aquifer is defined as "an underground, saturated, permeable, geologic formation capable of producing significant quantities of water to a well or spring. It is the ability of the saturated zone, or portion of that zone, to yield water which makes it an aquifer" (American Chemical Society, 1983).~~

This chemical can contaminate surface water through spray drift. Under some conditions, picloram may also have a high potential for runoff into surface water (primarily via dissolution in runoff water). These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, 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-laying tile drainage systems that drain to surface water.

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Note: Use in Hawaii limited exclusively to Supplemental Labeling. See "General Use Precautions" for details.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to label booklet under "Agricultural Use Requirements" in the "Directions for Use" section for information about this standard.

Refer to label booklet for Directions for Use including Storage and Disposal.

Notice: Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-6

EPA Est. 464-MI-1

*Trademark of Dow AgroSciences LLC
Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

Specialty Herbicide

Net Contents _____

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(Datapack cover):

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 May Injure (Phytotoxic) Susceptible, Non-Target Plants. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Commercial certified applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.

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potassium salt	24.4%
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Refer to inside of label booklet for additional precautionary information including Personal - Protective Equipment (PPE), User Safety Recommendations and Directions for Use including Storage and Disposal.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.

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Specialty Herbicide

Net Contents __

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Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

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This chemical can contaminate surface water through spray drift. Under some conditions, picloram may also have a high potential for runoff into surface water (primarily via dissolution in runoff water). These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, 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-laying tile drainage systems that drain to surface water.

Note: Use in Hawaii limited exclusively to Supplemental Labeling. See "General Use Precautions" for details.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

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.

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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
- Waterproof gloves
- Shoes plus socks

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Entry Restrictions for Non-WPS Uses: For applications on rangeland, permanent grass pastures, and non-cropland, do not enter or allow worker entry into treated areas until sprays have dried, unless applicator and other handler PPE is worn.

Storage and Disposal

Do not contaminate water, food, feed or fertilizer by storage or disposal. Open dumping is prohibited.

Storage: If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized material prior to use.

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 (Metal): **Do not reuse container.** Triple rinse (or equivalent). Puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Container Disposal (Plastic): **Do not reuse container.** Triple rinse (or equivalent). 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.

Sprayer Clean-Out: ~~To avoid injury to desirable plants, equipment used to apply Tordon 22K herbicide should be thoroughly cleaned before reusing to apply any other chemicals.~~

- ~~1. Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.~~
- ~~2. Rinse a second time, adding 1 quart of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 minutes). Let the solution stand for several hours, preferably overnight.~~
- ~~3. Flush the solution out the spray tank through the boom.~~
- ~~4. Rinse the system twice with clean water, recirculating and draining each time.~~
- ~~5. Nozzles and screens should be removed and cleaned separately.~~

General: Consult federal, state or local disposal authorities for approved alternative procedures.

General Information

In areas west of the Mississippi River use Tordon 22K herbicide to control susceptible broadleaf weeds and woody plants on rangeland and permanent grass pastures, fallow cropland, spring seeded wheat, barley and oats not underseeded with a legume on grainland (which is not flooded or sub-irrigated and not rotated to broadleaf crops), non-cropland, and on Conservation Reserve Program (CRP) acres, and wildlife openings in these sites. **This product is NOT for sale or use in the San Luis Valley of Colorado.**

General Use Precautions and Restrictions

[Editor's note: Within this section, items have been moved or reformatted for clarity. Text changes are as shown by edit marks.]

Use this product only as specified on this label. Observe any special use and application restrictions and limitations, including method of application and permissible areas of use as promulgated by state or local authorities.

Use In Hawaii: In Hawaii, approved uses of Tordon 22K are limited to those described in Supplemental Labeling. ~~This Supplemental Labeling~~ which may be obtained from your Dow AgroSciences representative or chemical dealer. Refer to this Supplemental Labeling for specific use directions and precautions.

To prevent damage to crops and other desirable plants, read and follow all directions and precautions on this label and container before using.

~~Do not use for manufacturing or formulating.~~

Do Not Mix With Dry Fertilizer.

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

Grazing Poisonous Plants: Herbicide application may increase palatability of certain poisonous plants. Do not graze treated areas until poisonous plants are dry and no longer palatable to livestock.

Maximum Use Rates:

Non-cropland Areas: Total use of Tordon 22K, including retreatments or spot treatments, must not exceed 2 quarts per acre per annual growing season.

Rangeland and Permanent Grass Pastures: ~~In noxious weed control programs, For control of noxious weeds as defined by federal, state, or local authorities, Tordon 22K may be applied at up to 2 quarts per acre per annual growing season as a broadcast treatment. Spot treatments may be applied at the equivalent broadcast rate of up to 2 quarts per acre.~~ *and ??* *ok*

~~For control of other broadleaf weeds and woody plants, Tordon 22K may be applied broadcast at up to 1/4 quart per acre per annual growing season. Spot treatments may be applied at an equivalent broadcast rate of up to 2 quarts per acre per annual growing season, but not more than 50% of an acre may be treated. Repeat treatments may be applied as necessary, but total use must not exceed the maximum amount specified.~~

Cropland (Spring-seeded Wheat, Barley and Oats): Do not apply more than 1 1/2 fluid ounces of Tordon 22K per acre during the small grain growing season.

Fallow Cropland (Not Rotated to Broadleaf Crops): Do not apply more than 1 pint per acre as a broadcast treatment per annual growing season.

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Conservation Reserve Program (CRP) for Seeding to Permanent Grasses Only: Do not broadcast apply more than 1 quart per acre of Tordon 22K per annual growing season or apply more than 2 quarts per acre per annual growing season as a spot application. **To reduce potential damage to subsequent small grain crops,** use the lower rate or discontinue the use of Tordon 22K at least 2 years prior to the seeding of small grain crops. After CRP, do not plant broadleaf crops in treated acres until an adequately sensitive bioassay shows that no detectable picloram is present in the soil. OK

Precautions for Avoiding Injury to Non-target Plants

- **Do not contaminate water intended for irrigation or domestic purposes.** To avoid injury to crops or other desirable plants, do not treat or allow spray drift or run-off to fall onto banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation or domestic purposes.
- **Do not use on flood or sub-irrigated land.**
- **Do not rotate to food or feed crops on treated land if they are not registered for use with picloram until an adequately sensitive bioassay or chemical test shows that no detectable picloram is present in the soil.** [Editor's note: The preceding bullet point moved forward to this location; edits as shown.]
- **Do not spray if the loss of forage legumes, including clover cannot be tolerated.** Tordon 22K may injure or kill legumes. New legume seedlings may not grow for several years following application of this herbicide.
- **Do not use manure** from animals grazing treated areas or feeding on treated hay on land used for growing broadleaf crops, ornamentals, orchards or other susceptible, desirable plants. Manure may contain enough picloram to cause injury to susceptible plants.
- **Do not use grass or hay** from treated areas for composting or mulching of susceptible broadleaf crops.
- **Do not transfer livestock** from treated grazing areas (or feeding of treated hay) onto sensitive broadleaf crop areas without first allowing 7 days of grazing on an untreated grass pasture (or feeding of untreated hay). Otherwise, urine and manure may contain enough picloram to cause injury to sensitive broadleaf plants.
- **Do not apply** to snow or frozen ground. Application during very cold (near freezing) weather is not advisable.
- **Tordon 22K should not be applied on residential or commercial lawns or near ornamental trees and shrubs.** Untreated trees can occasionally be affected by root uptake of herbicide through movement into the top soil or by excretion of the product from the roots of nearby treated trees. Do not apply Tordon 22K within the root zone of desirable trees unless such injury can be tolerated.
- **Do not move treated soil** to areas other than those treatment sites for which Tordon 22K is registered for use. Also, do not use treated soil to grow plants for which use of Tordon 22K is not registered until an adequately sensitive bioassay or chemical test shows that no detectable residue of picloram is present in the soil.
- **Do not make application when circumstances favor movement from treatment site.**

[Editor's note: "Sprayer Clean-Out" instructions were removed from "Storage and Disposal" section and placed in "General Use Precautions" section.]

• **Sprayer Clean-Out**

To avoid injury to desirable plants, equipment used to apply Tordon 22K herbicide should be thoroughly cleaned before reusing to apply any other chemicals.

1. Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.
2. Rinse a second time, adding 1 quart of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Nozzles and screens should be removed and cleaned separately.

Precautions for Avoiding Injurious Spray Drift

Do not apply or otherwise permit Tordon 22K or sprays containing Tordon 22K to contact crops or other desirable broadleaf plants, including but not limited to alfalfa, beans, grapes, melons, peas, potatoes, safflower, soybeans, sugar beets, sunflower, tomatoes, and other vegetable crops, flowers, fruit plants, ornamentals or shade trees or the soil containing roots of nearby valuable plants.

Applications should be made to avoid spray drift since very small quantities of spray, which may not be visible, may seriously injure susceptible crops during both growing and dormant periods. To minimize spray drift, use low nozzle pressure; apply as a coarse spray; and use nozzles designed for herbicide application that do not produce a fine droplet spray. To aid in further reducing spray drift, a drift control and deposition aid such as Nalco-Trol may be used with this product, especially when water alone is used as the carrier. If such a drift control aid is used, follow all use recommendations and precautions on the product label. Do not use a thickening agent with the Microfoil or the Thru-Valve booms, or other systems that cannot accommodate thick sprays.

Ground Equipment: With ground equipment spray drift can be lessened by keeping the spray boom as low as possible; by applying 20-10 gallons or more of spray per acre; by keeping the operating spray pressures at the ~~manufacturers~~ manufacturer's recommended minimum pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); by spraying when the wind velocity is low (follow state regulations). Avoid calm conditions which may be conducive to air inversions. In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Direct sprays no higher than the tops of target vegetation and keep spray pressures low enough to provide coarse spray droplets to minimize drift. A spray thickening agent may be used to further reduce the potential for drift.

Aerial Application: Avoid spray drift at the application site. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the following **Aerial Drift Reduction Advisory**. [This information is advisory in nature and does not supersede mandatory label requirements.]

Aerial Drift Reduction Advisory

Information On Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

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Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produced larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height: Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

Wind: Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature And Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

Mixing and Application Methods Instructions

Mix the required amount of Tordon 22K in water and apply as a coarse, low pressure spray using ground equipment or aircraft. Use enough spray volume to provide uniform coverage of the weeds. For best results treat when the weeds are growing actively in the spring before full bloom or late summer into fall. ~~Treatments during full bloom or seed stage of some weeds may not give good control.~~

Use With Surfactants: Addition of wetting or penetration agents is not usually necessary when using Tordon 22K. ~~However, Under under certain~~ extreme conditions, such as drought, addition of a surfactant may improve efficacy. However, if foliar burn occurs too rapidly, translocation of Tordon 22K will not occur and control of perennial weeds, such as field bindweed, may be reduced.

Mixing with Water

To prepare the spray, add about half the desired amount of water in the spray tank. Then with agitation, add the recommended amount of Tordon 22K and other registered tank mix herbicides. Finally, with continued agitation, add the rest of the water and additives such as surfactants or drift control and deposition aids.

[Editor's note: Instructions for oil-water emulsions from the label for Grazon PC (62719-181).]

Mixing Oil-Water Emulsions (Ground and Aerial Applications)

For aerial application, add oil to the total spray mix at the ratio of 1 part oil to 5 parts water (1:5 ratio). For ground application, add oil to the spray mix at a rate of 5 to 10% of the total mix. **Do not use more than 1 gallon of oil per acre for aerial or ground application.** Use agricultural spray emulsifiers such as Sponto 712 or Triton X-100 according to mixing instructions given below .

Batch Mixing Instructions

With continuous, vigorous agitation:

1. Add half the amount of water to be used to the spray tank.
2. Add the required amount of water soluble herbicides such as Tordon 22K, Reclaim* herbicide or 2,4-D Amine.
3. With continued, vigorous agitation slowly add a premix of oil, emulsifier and oil soluble herbicides such as Remedy* herbicide or a 2,4-D ester as required. **Note:** Do not add water or mixtures containing water to the premix or oil soluble herbicide since a thick "invert" (water in oil) emulsion may be formed that will be difficult to break. An invert emulsion will also form if the premix is added to the mixing tank before the addition of water.
4. Finish filling the spray tank and maintain sufficient agitation to ensure uniformity of the spray mixture during application.

Use-Mixing With Sprayable Liquid Fertilizer Solutions

Tordon 22K is compatible with most non-pressurized liquid fertilizer solutions; however, if these solutions are to be sprayed with Tordon 22K, a compatibility test (jar test) should be made prior to mixing. Jar tests are particularly important when a new batch of fertilizer or pesticide is used, when water sources change, or when tank mixture ingredients or concentrations are changed. Compatibility may be determined by mixing the spray components in the desired order and proportions in a clear glass jar before large scale mixing of spray components in the spray tank. **Note:** The lower the temperature of the liquid fertilizer, the greater the likelihood mixing problems. Use of a compatibility aid such as Unite or Compex may help obtain and maintain a uniform spray solution during mixing and application. Compatibility is best with straight liquid nitrogen fertilizer solutions. Mixing with N-P-K fertilizer solutions or suspensions is more difficult and should not be attempted without first conducting a successful jar test. Agitation in the spray tank must be vigorous to be comparable with jar test agitation. For best results, liquid fertilizer rates should not exceed 50% of the total spray volume. Premix Tordon 22K with water and add to the liquid fertilizer/water mixture while agitating contents of the spray tank. Apply the spray the same day it is prepared while maintaining continuous agitation. Rinse spray tank thoroughly after use.

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Note: Foliar applied liquid fertilizers used as carrier for Tordon 22K can cause yellowing or leaf burn of crop foliage.

Do not use spray equipment used to apply Tordon 22K for other applications to land planted to, or to be planted to susceptible crops or desirable sensitive plants, unless it has been determined that all phytotoxic residue of this herbicide has been removed by thorough cleaning of equipment.

Local conditions may affect the use of herbicides. State agricultural experiment stations or extension service weed specialists in many states issue recommendations to fit local conditions. Be sure that use of this product conforms to all applicable regulations.

Tank Mixing

Tordon 22K may be applied in tank mix combination with labeled rates of 2,4-D or other products provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product.

Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed recommended application rates. If products containing the same active ingredient are tank mixed, do not exceed the maximum allowable active ingredient use rates.
- For products packaged in water soluble packaging, do not tank mix with products containing boron or mix in equipment previously used to apply a product mixture containing boron unless the tank and spray equipment has been adequately cleaned. (See "Sprayer Clean-Out" under "Precautions for Avoiding Injury to Non-target Plants".)
- For direct injection or other spray equipment where the product formulations will be mixed in undiluted form, special care should be taken to ensure tank mix compatibility.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

Tank Mix Compatibility Testing: A jar test is recommended prior to tank mixing to ensure compatibility of Tordon 22K and other pesticides or carriers. Use a clear glass jar with lid and mix the tank mix ingredients in their relative proportions. The tank mixture is compatible if the materials mix readily when the jar is inverted several times. The mixture should remain stable after standing for ½ hour or, if separation occurs, should readily mix if agitated. An incompatible mixture is indicated by separation into distinct layers which do not readily remix when agitated and/or the presence of flakes, precipitates, gels, or heavy oily film on the jar.

Application Methods

Ground or Aerial Broadcast

Use Tordon 22K as a broadcast treatment by ground or aerially to control listed broadleaf weeds and woody plants. Apply Tordon 22K as a coarse low-pressure spray at the recommended rates in a spray volume of 2 or more gallons per acre by air or 10 or more gallons per acre by ground.

High-Volume Foliar Applications

Spray to thoroughly wet foliage and stems. An approved agricultural surfactant may be added at the manufacturer's recommended rate. Do not apply more than the maximum application rate of Tordon 22K specified for a given treatment site.

Spot Treatment

Use application rates as suggested in the "Approved Uses" section of this label or recommended by your area weed control specialist. Apply in a total spray volume of 20 to 100 gallons per acre. ~~Make sure equipment is properly calibrated and that the amount of Tordon 22K added to the spray mixture corresponds to the desired rate and spray volume.~~ To prevent misapplication, spot treatments should be applied with a calibrated boom or with hand sprayers according to directions provided below. Do not exceed maximum application rates for Tordon 22K for a given treatment site. On rangeland and

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permanent grass pastures, spot treatments may be applied at an equivalent broadcast rate of up to 2 quarts per acre per annual growing season, but not more than 50% of an acre may be treated. Repeat treatments may be applied as necessary, but total use must not exceed the maximum amount specified.

To Calibrate:

1. Measure an area 18.5 ft by 18.5 ft in the target application area.
2. Spray the measured area uniformly with **water only** and record the number of seconds required to cover the area.
3. Measure the amount of water delivered to the test area by spraying into a container for this amount of time.
4. The amount of water collected in fl oz equals spray volume in gallons per acre.
5. Refer to the chart below for the amount of Tordon 22K to mix at the spray volume indicated by the calibration procedure. This chart contains the amount of Tordon 22K to mix when the application rate is 1 quart per acre. For a rate of 1/2 quart per acre (1 pint), divide the amount in the table by 2. For an application rate of 2 quarts per acre, multiply the table value by 2.

To Apply the Equivalent of 1 Quart of Tordon 22K per Acre at the Spray Volume Indicated, Mix the Following:		
Spray Volume (gallons per acre)	Amount of Tordon 22K per 1 gallon of water	Amount of Tordon 22K per 100 gallons of water
20	40 tsp	5 quarts
40	4 3/4 tsp	2 quarts
60	3 1/4 tsp	1 2/3 quarts
80	2 1/3 tsp	1 1/4 quarts
100	2 tsp	1 quart

Note: tsp = teaspoon
 _____ 6 tsp = 1 fluid ounce

Hand-Held Sprayers: Hand-held or backpack sprayers may be used for spot applications of Tordon 22K if care is taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based on an area of 1,000 sq ft. Mix the amount of Tordon 22K (fl oz or ml) corresponding to the desired broadcast rate in 0.5 to 2.5 gallons of water, depending on the spray volume required to treat 1000 sq ft. To calculate the amount of Tordon 22K required for larger areas, multiply the table value (fl oz or ml) by the area to be treated in "thousands" of square feet, e.g., if the area to be treated is 3,500 sq ft, multiply the table value by 3.5 (calc. 3,500 ÷ 1,000 = 3.5). An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size.

Amount of Tordon 22K per 1,000 sq ft to Equal Specified Broadcast Rate					
1/4 pt/acre	1/3 pt/acre	1/2 pt/acre	2/3 pt/acre	1 pt/acre	1 qt/acre
1/10 fl oz [†]	1/8 fl oz	1/5 fl oz	1/4 fl oz	3/8 fl oz	3/4 fl oz
(2.7 ml)	(3.6 ml)	(5.4 ml)	(7.3 ml)	(11 ml)	(22 ml)

[†] 1 fl oz = 29.6 (30) ml

Tank Mixture for Spot or Broadcast Treatment of Susceptible Weeds

Tordon 22K may also be tank mixed with 2,4-D products or other registered herbicides for use on areas having mixed species including those which respond well to 2,4-D. Read and follow all directions and use precautions on other product labels.

Special Application Methods

Wick Application: Mix 1 part of Tordon 22K with 2 parts of water to prepare a 33% solution. Apply when weeds are actively growing and are above most desirable plants. For ironweed and goldenrod, best results are obtained with applications made prior to early bud stage. Wick applicator should be drained and cleaned after each use. Ropes should be changed when flow is reduced from wear, extended use, poor cleaning or intermittent use.

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Carpet Roller: Tordon 22K can be applied with carpeted rollers where drift presents a hazard to susceptible crops, surface waters and other sensitive areas. Apply to previously untreated plants less than 6 feet tall, and short enough to pass beneath the tractor without breaking off at the ground. Applications made during periods of extended drought conditions will not provide acceptable control. Do not mow, burn or otherwise disturb the treated plants during the remainder of the growing season. Operate carpeted rollers as close to the ground as possible without breaking the stems, but above the tallest grasses. Grasses growing adjacent to treated plants may exhibit temporary injury. Maximize herbicide deposition on foliage and stems and minimize drippage losses by rotating the carpeted roller at 30 to 40 rpm with the lower edge moving in the same direction as the direction of travel. Maintain the carpet sufficiently wetted to apply up to 1 gal/acre of herbicide-water mixture to stands of average density (100 to 200 plants/acre), and up to 2 gal/acre in dense stands (300 to 400 plants/acre). Rewet rollers at regular intervals.

Soil Spot Concentrate (Texas and Oklahoma): Use Tordon 22K may be applied undiluted as a spot concentrate application to control ashe juniper, eastern redcedar and eastern persimmon (see specific user directions for these plant species which follow). Applications should precede periods of expected rainfall. Apply directly to the soil within the dripline and on the upslope side of the tree. Applications to trees taller than 12 feet is not recommended.

Special Ground Sprayer Equipment): To control annual and perennial weed species using special low-volume, minimum drift equipment, such as the hooded Forage Chemical Mower, apply 1 to 2 pt of Tordon 22K in total volumes ranging from 1 gal to 5 gal per acre in water alone or as an oil-water emulsion at a 1:5 and 1:4 oil-to-water ratio for a 1 gal and 5 gal per acre solutions, respectively.

Woody Plants and Broadleaf Weeds Controlled by Tordon 22K

Woody Plants:

absinth-wormwood	junipers/cedars
aspen	locust
blackberries	multiflora rose
catclaw acacia	pinyon pine
chaparral sp.	rabbitbrush
fringed sagebrush	Scotch broom
gorse	

acacia, blackbrush	<u>huisache (suppression only)</u>
acacia, catclaw	junipers/cedars
acacia, twisted	locust
aspen	<u>mesquite</u>
blackberries	pine, pinyon
broom, Scotch	rabbitbrush, <u>Douglas</u>
<u>camelthorn</u>	<u>rose, Macartney</u>
chaparral sp.	rose, multiflora
gorse	sagebrush, fringed
<u>granjeno</u>	<u>tallowtree, Chinese</u>
<u>quajillo</u>	wormwood, absinth

Annual and Perennial Broadleaf Weeds:

<u>bindweed, field (p)</u>	ironweed (p)	skeletonweed, rush (p)
<u>bitterweed (a)</u>	knapweed, diffuse (a)	<u>smartweed (a)</u>
brackenfern	knapweed, Russian (p)	snakeweeds
<u>broomweed, annual (a)</u>	knapweed, spotted (p)	<u>snakeweed, broom (p)</u>
buckwheat, wild (a)	knapweed, squarrose (p)	<u>sneezeweed, bitter (a)</u>
buffalobur (a)	lambsquarters (a)	<u>sowthistle, perennial (p)</u>
<u>bullnettle (p)</u>	larkspur, geyer (p)	spurge, leafy (p)
bursage (a)	larkspur, plains (p)	St. Johnswort (p)

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burweed (p)	larkspur, tall (p)	starthistle, Iberian (a)
camelthorn	lettuce, prickly (a)	starthistle, purple (a)
camphorweed (a)	licorice, wild (p)	starthistle, yellow (a)
carrot, wild (b)	locoweeds (p)	sunflower (a)
cinquefoil, sulfur (p)	loco, woolly (p)	tasajillo (p)
cocklebur (a)	loco, Wooten (garbancillo) (p)	thistles, annual or biennial, including:
elever	lupines (p)	thistle, bull (b)
coneflower, upright prairie (p)	marshelder (sumpweed) (a)	thistle, distaff (a)
croton (a)	mayweed (a)	thistle, Italian (b)
crupina, common (a)	milkweed (p)	thistle, musk (b)
daisy, ox-eye (p)	mustard, wild (a)	thistle, plumeless (b)
dock, curly (p)	nightshade, silverleaf (p)	thistle, Scotch (b)
garbancillo (Wooten loco) (p)	pennycress (a)	thistles, perennial, including
goldaster, gray (p)	pigweed (a)	thistle, Canada (p)
goldaster, narrowleaf (p)	pricklypear, plains (p)	thistle, wavy leaf (p)
goldenrod, common (p)	pricklypear, lindheimer (p)	thistle, artichoke
goldenweed, Drummond (p)	ragweed, bur (a)	thistle, beaumont
groundsel (p)	ragweed, common (a)	thistle, golden (b)
henbane, black (a,b)	ragweed, lanceleaf (a)	toadflax, dalmation (p)
horsenettle, Carolina (p)	ragweed, western (a)	toadflax, yellow (p)
horsenettle, western (p)	ragwort, tansy (b)	yankeeweed (p)
horsenettle, white (p)	Russian thistle (a)	
horseweed (a)		

(a) - annual; (b) - biennial; (p) - perennial

Approved Uses Specific Use Directions for Rangeland, Permanent Grass Pastures and Non-Cropland

Use Requirements for Non-Cropland, Rangeland and Permanent Pastures: Do not enter or allow worker entry into treated areas until sprays have dried, unless applicator and other handler PPE is worn.

General Requirements for Non-Cropland Areas

Use Tordon 22K to control susceptible broadleaf weeds and woody plants on non-cropland areas such as roadsides or other rights-of-way, fence rows, and around farm buildings. Use up to 2 quarts of Tordon 22K per acre as a broadcast or spot treatment may be applied. See "Rangeland and Permanent Grass Pastures" section for specific target weed or woody plant species treatment recommendations. Wick Application may be used on non-cropland. See "Wick Application" in "Mixing and Application Methods" section for directions.

- Maximum Use Rates for Non-cropland Areas: Total use of Tordon 22K, including retreatments or spot treatments, must not exceed 2 quarts per acre per annual growing season.

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General Requirements for Rangeland and Permanent Grass Pastures (Use Directions for States West of the Mississippi River Other Than Texas, Oklahoma and New Mexico)

Use Tordon 22K on rangeland and permanent grass pastures to control susceptible broadleaf weeds and woody plants such as (but not limited to) including, but not limited to those shown in the following table tables. Many annual weeds at the seedling stage can be controlled at the rate of 1 pt per acre. Where a rate range is recommended, choose the higher rate for dense weed infestations, and for more dependable, longer-lasting control. Lower rates will perform best when applied under favorable conditions and at the optimum growth stage, but may provide a lower level of control and require retreatment. For best results treat when weeds are small and actively growing in the spring before full bloom, however, certain weeds may also be treated in late summer to fall. Treatments during full bloom or seed stage of some weeds may not provide acceptable control.

Refer to "Application Methods" section for information on various methods of application including ground or aerial broadcast, high volume foliar application, spot treatments, and special application methods for certain weeds or woody plants including spot concentrate application or application with special low volume or hooded spray equipment.

Precautions and Restrictions:

- **Maximum Use Rates for Rangeland and Permanent Grass Pastures:** For control of noxious weeds as defined by federal, state, or local authorities, Tordon 22K may be applied at up to 2 quarts per acre per annual growing season as a broadcast treatment. Spot treatments may be applied at the equivalent broadcast rate of up to 2 quarts per acre.

For control of other broadleaf weeds and woody plants, Tordon 22K may be applied broadcast (ground, air, or high volume foliar) at up to 1 quart per acre per annual growing season. Spot treatments (hand sprayer, calibrated boom, high volume foliar, or soil spot concentrate) may be applied at an equivalent broadcast rate of up to 2 quarts per acre per annual growing season, but not more than 50% of an acre may be treated. Repeat treatments may be applied as necessary, but total use must not exceed the maximum amount specified.

- **Grazing Restrictions:** When applying more than 1 quart of Tordon 22K per acre, do not cut grass for feed within two weeks after treatment. Meat animals grazing for up to two weeks after treatment should be removed from treated areas three days prior to slaughter. Do not graze lactating dairy animals on treated areas within two weeks after treatment.
- Tordon 22K at rates over 1 quart per acre may suppress certain established grasses, such as bromegrass, blue gramma, and buffalograss. However, subsequent grass growth should be improved by release from weed competition.

Rangeland, Permanent Grass Pastures and Non-cropland - Continued (Specific Use Directions: All Areas West of the Mississippi River, Except Texas, Oklahoma and New Mexico)

[Editor's note: Specific use directions for target plant species have been revised and reformatted according to life cycle (annual, perennial, woody), application rate and methods of application. Significant edits are shown.]

Apply broadcast or as a spot application unless otherwise specified (See "Application Methods" section). For additional species or more specific rates consult your area's current Weed Control Guide and/or your local Dow AgroSciences representative. Rates in the table below are advisory in nature and do not supersede the maximum rates for the use site allowed for different methods of application.

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Weed Control Prior to Seeding Perennial Grasses:

Weed control with Tordon 22K fits into the following grass re-vegetation programs. Tordon 22K may be applied in the spring or early summer, depending on the target weed species, and grass seed planted in the fall when conditions are favorable. Alternatively, Tordon 22K may be applied in the fall and grass seed planted in the winter or fall when conditions are favorable.

Apply Tordon 22K at 1 qt/acre or less; see rate chart for information on control of target weed species. When Tordon 22K is applied at 1 qt/acre there may be temporary injury on new plantings of certain grass species, depending on sensitivity. However, this injury will be insignificant in comparison with the benefit to grasses due to the removal of weed competition. Germination of annual grass species may be suppressed after treatment. To optimize weed control it is suggested the application area be disturbed as little as possible by the seeding operation. At the very least, the site should be left undisturbed for 14 days prior to seedbed preparation or seeding. To decrease the potential for injury on sensitive grass species, increase the interval between application and seeding.

Weed Species	Broadcast Application (Rate/acre)	Specific Use Directions
Annual and Biennial Weeds:		
bursage (bur ragweed) crupina, common henbane, black horseweed starthistle, Iberian starthistle, purple starthistle, yellow	1-2 pt <u>Tordon 22K</u>	Apply when there is adequate soil moisture and weeds are actively growing.—Use lower rate in rate range in early season when weeds are less than 2-3 inches tall and higher rate in rate range when weeds are more than 3 inches tall to early flowering.
thistles, including, bull distaff Italian musk plumeless scotch	Fall: 1/2-3/4 pt Tordon 22K Spring: 1/2-3/4 pt Tordon 22K + 1 lb ae 2,4-D	General: Apply at the rosette stage before bolting in the spring or in the fall prior to soil freeze up. Distaff Thistle: Apply at rosette stage in spring only. Bolted Musk Thistle: Apply before flowering at the rate of 1/2-1 pt of Tordon 22K + 1 lb ae of 2,4-D/acre.
Perennial Weeds:		
pricklypear, plains	1/2-1 pt <u>Tordon 22K</u>	Apply at peak of flowering. Use of an oil-water emulsion spray mixture may improve control. Lower rate will provide partial control (stand reduction) and high rate more complete control. Treatment response is slow and may continue for 2 years or longer.
sagebrush, fringed	1/2-1 pt Tordon 22K + 1 lb ae 2,4-D ester	Apply after seed stalk elongation and early flowering and throughout the summer if growing conditions are favorable.

cinquefoil, sulfur larkspur, geyer larkspur, plains locoweeds snakeweed, broom	1 pt <u>Tordon 22K</u>	<p>General: Apply when weeds are actively growing.</p> <p>Sulfur cinquefoil: Apply during active growth or fall regrowth.</p> <p>Geyer larkspur: Apply when plant is actively growing between rosette stage and flower bud formation.</p> <p>Locoweeds: Apply from early bud to early bloom stage. <u>See "General Use Precautions" section for note on grazing treated poisonous plants.</u> Herbicide treatment may increase palatability of these poisonous plants. Do not graze until plants have dried and no longer attractive to livestock.</p> <p>Broom snakeweed: Apply during active growth between full leaf to early bloom stage.</p>
burroweed daisy, ox-eye goldenrod, common knapweed, diffuse knapweed, spotted knapweed, squarrose rabbitbrush, Douglas thistle, Canada thistle, wavy leaf wormwood, absinth	1-2 pt <u>Tordon 22K</u>	<p>General: Lower rates in rate range may require annual spot treatments. Control with lower rates may be improved by tank mixing with 1.0 lb ae per acre 2,4-D.</p> <p>Goldenrod: Apply during active growth prior to bud stage.</p> <p>Diffuse or spotted knapweed: Optimum application from rosette to mid-bolting stage or to fall regrowth.</p> <p>Thistle (Canada and Wavy Leaf): Apply when most basal leaves have emerged, but before bud stage, or apply to regrowth in the fall. Apply rates less than 1 1/2 pt/acre only under favorable conditions and in combination with 1 lb ae/acre of 2,4-D; retreatment may be required.</p> <p>Absinth wormwood: Apply in spring or early summer when plants are actively growing.</p>
licorice, wild milkweed	2 pt <u>Tordon 22K</u>	<p>Wild Licorice: Apply at bloom stage.</p> <p>Milkweed: Treat during active growth and tank mix recommended rate of Tordon 22K with 1 lb ae/acre 2,4-D.</p>
bindweed, field gorse lupines knapweed, Russian ragwort, tansy skeletonweed, rush spurge, leafy St. Johnswort toadflax, dalmation	2-4 pt <u>Tordon 22K</u>	<p>General: Annual retreatment of these species will be required at rates at low end of rate range. Control at low end of rate range may be improved by tank mixing with 1 lb ae/acre 2,4-D.</p> <p>Russian Knapweed: Apply during active growth from bud to mid-flowering, or to fall regrowth.</p> <p>Leafy Spurge: Apply at true flower stage of growth or apply to fall regrowth. <u>Re-apply when level of control falls below 80 percent.</u></p> <p>Dalmation Toadflax: Apply when plants are actively growing prior to through full bloom stage of growth.</p>
larkspur, tall sowthistle, perennial toadflax, yellow	4 pt <u>Tordon 22K</u>	<p>General: A retreatment program may be necessary for satisfactory control of these species.</p> <p>Tall Larkspur: <u>For best results apply from 6 inches tall to late bloom stage. For increased control, apply in tank-mix with Ally or Escort herbicide and non-ionic surfactant. See General Use Precautions for note on grazing treated poisonous plants.</u></p>

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Woody Plants:		
juniper	4-pt qt Tordon 22K per 100 gallons of spray [†]	†Apply as a high volume foliar spray / individual plant treatment
redcedar, eastern	Eastern redcedar can be controlled with spot concentrate applications of Tordon 22K in either the spring (April-May) or fall (September-October). For best results, use 3 ml to 4 ml of Tordon 22K (undiluted) per 3 feet of plant height. Application should precede periods of expected rainfall. Apply directly to soil within the dripline and on the upslope side of the tree. Application to trees taller than 15 feet is not recommended. Do not use more than 2 pints of Tordon 22K per acre in any one year.	

Rangeland, Permanent Grass Pastures and Non-cropland - Continued **(Specific Use Directions: Texas, Oklahoma and New Mexico)**

[Editor's note: Use directions for rangeland, permanent grass pastures and non-cropland from Grazon[®] PC herbicide (62719-181) specific to Texas, Oklahoma and New Mexico added to label. Grazon PC is identical in composition to Tordon 22K.]

Use—Unless otherwise specified, apply Tordon 22K as a broadcast treatment by ground or air, as a spot application, or high volume foliar application to control listed broadleaf weeds and woody plants (See "Application Methods" section). See "General Requirements for States West of the Mississippi River" for maximum use rates. Unless otherwise specified, apply Tordon 22K as a coarse low-pressure spray at the suggested rates in 2 or more gallons of water per acre by air or in 10 or more gallons of water per acre by ground. Use of a drift control additive is recommended to reduce drift, especially when water alone is used as the carrier. To control certain species, Tordon 22K may be applied alone or in combination with 2,4-D, as indicated in the following table. When Tordon 22K is applied alone herbicide symptoms will be slower to appear than when it is applied in combination with 2,4-D.

High-Volume Foliar Applications: Spray to thoroughly wet foliage and stems. Use an approved agricultural surfactant at the rate of 0.25 to 0.5% v/v. Do not use more than 1 qt of Tordon 22K (0.5 lb of picloram) per acre. To minimize spray drift, use lowest possible pressure and a coarse spray to achieve good coverage. Keep sprays no higher than brush tops. Use of a drift control agent is recommended. (See Table 5).

Note (Ground Application Special Equipment): To control annual and perennial weed species using special low volume, minimum drift equipment, such as the hooded Forage Chemical Mower, apply 1 to 2 pt of Tordon 22K in total volumes ranging from 1 gal to 5 gal per acre in water alone or as an oil-water emulsion at a 1:5 and 1:4 oil to water ratio for a 1 gal and 5 gal per acre solutions, respectively.

Repeat applications may be made in successive years if more complete control is desired. Consult your Extension Weed Specialist for local recommendations.

Use Recommendations

[Editor's note: Specific use directions for target plant species have been revised and reformatted according to life cycle (annual, perennial, woody), application rate and methods of application. Significant edits are shown.]

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Weed Species	Broadcast Application (Rate/acre)	High Vol. Folliar (Rate/100 gal)	Specific Use Directions
Annual and Biennial Weeds:			
bitterweed, western broomweed, annual buffalobur bursage (bur ragweed) camphorweed carrot, wild cocklebur croton horseweed lettuce, prickly marshelder (sumpweed, sulfaweed) ragweed, common ragweed, lanceleaf ragweed, western smartweed sneezeweed, bitter sunflower thistle, bull thistle, musk	<p>Early Season 1/4-1/2-1 pt Tordon 22K + 0.5 lb ae 2,4-D or 3/4 - 1 1/2 pt Tordon 22K</p> <p>Mid to Late Season 1/2-1 pt Tordon 22K + 0.5-1.0 lb ae 2,4-D or 1-2 pt Tordon 22K</p>	<p>1-2 qt Tordon 22K + 2 lb ae 2,4-D</p>	<p>General: Apply when there is adequate soil moisture and weeds are actively growing. Early Season: Recommendations are intended only for very early in the season when weeds are no more than 2 to 3 inches tall. Mid to Late Season: Recommendations are for weeds from 3 inches tall to early flowering. Marshelder: Use a minimum of 1/2 3/4 pt/acre of Tordon 22K + 0.75 lb ae/acre 2,4-D + non-ionic surfactant. Apply when plants are no more than 3-6 inches tall. Control may be improved by adding ammonium sulfate at 17 lbs/100 gal. spray solution Thistles: Apply when thistles are in the rosette stage before bolting Lanceleaf Ragweed: Use the higher rate within the recommended rate range.</p>
Perennial Weeds:			
snakeweed, broom	<p>Fall, Early Winter 1 pt Tordon 22K</p> <p>Late Winter, Early Spring 2 pt Tordon 22K</p>	<p>--</p>	<p>Fall and Early Winter: If rainfall is less than average prior to flowering, apply after flowering is complete. If rainfall is average to above average prior to or during flowering, apply during full flower and/or active pollination, before resumption of new top growth. Late Winter and Early Spring: Apply following sufficient precipitation (rain or snow) to stimulate active plant growth. Both basal and terminal leaves should be green and active plant growth occurring.</p>
bullnettle coneflower, upright prairie dock, curly horsenettle, Carolina horsenettle, western horsenettle, white ironweed nightshade, silverleaf yankeeweed	<p>Early Season 1/4-1/2-pt Tordon 22K^{†††} + 1/2-1 pt 2,4-D</p> <p>Mid to Late Season 1/2-1 pt Tordon 22K^{††} + 1-2 pt 2,4-D 1/2-1 pt Tordon 22K + 0.5-1.0 lb ae 2,4-D or 1-2 pt Tordon 22K</p>	<p>1-2 qt Tordon 22K^{†††} + 2 lb ae 2,4-D</p>	<p>†† Tank Mixing: Use lower rates in rate ranges in early season when weeds are less than 2-3 inches tall and higher rates in rate ranges when weeds are more than 3 inches tall to early flowering. ^{†††}Tordon 22K, if used alone, use high rate in rate range.</p> <p>General: Apply when there is adequate soil moisture and weeds are actively growing. Nettles and Silverleaf Nightshade: Apply when plants begin to flower in spring. Upright Prairie Coneflower: Apply when plants are 2-6 in. tall, before flowering. Curly Dock: Apply up to bolting Ironweed: Apply up to bud stage. Yankeeweed: Apply when plants are 8 to 10 in. tall.</p>

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goldaster, gray goldaster, narrowleaf goldenweed, common goldenweed, Drummond (Isocoma spp.)	1-2 pt Tordon 22K ^{†††} + 0.5-1 lb ae 2,4-D <u>or</u> 2 pt Tordon 22K	1-2 qt Tordon 22K ^{†††} + 2-4 lb ae 2,4-D	^{†††} Tordon 22K, if used alone, use high rate in rate range. Gray and Narrowleaf Goldaster: Apply in oil-water emulsion in spring during bud stage (prebloom). Thorough coverage is essential. Goldenweed: Apply in spring (April-June) when there is substantial canopy development as a result of good growing conditions. Add an agricultural surfactant at 0.25%-0.5% or apply in oil-water emulsion. Increase spray volume, 4-5 gpa by air or 15-20 gpa by ground, to ensure thorough coverage.
Poisonous Plants such as groundsel (Senecio spp.) loco, woolly loco, Wooton (garbancillo)	3/4-1 pt Tordon 22K + 0.5-1 lb ae 2,4-D <u>or</u> 1 1/2-2 pt Tordon 22K	1 qt Tordon 22K + 2 lb ae 2,4-D	Tordon 22K, if used alone, use high rate in rate range. General: Apply in fall or winter when there is adequate soil moisture and weeds are actively growing. Herbicide application may increase palatability of poisonous plants. Do not graze treated areas until poisonous plants are dry and no longer palatable to livestock. See General Use Precautions for note on grazing treated poisonous plants. Locoweeds: To improve wetting of locoweeds, use an agricultural surfactant at 0.25%-0.5% or apply in oil-water emulsion.
Woody Plants:	Tank Mixing: Within rate ranges for listed products, consult local recommendations		
huisache (suppression)	2 pt Tordon 22K ± 1 pt Remedy	2 qt Tordon 22K ± 1 qt Remedy	Fall application is recommended, however, fall applications will not provide satisfactory control of other woody species in the South Texas mixed brush complex. Performance can be erratic.
juniper, including, alligator redberry Utah one-seeded eastern redcedar pinyon pine	--	2-4 qt Tordon 22K	Apply May through July. Complete coverage is essential. Results with ashe juniper may be variable with high volume foliar application.
pricklypear, lindheimer (unburned rangeland)	2 pt Tordon 22K	4 qt Tordon 22K	Application may be made anytime, but optimum time is late August to early November. Onset of herbicidal activity is very slow and may continue for two years or longer. Good coverage is essential.
pricklypear, lindheimer (burned rangeland)	1 pt Tordon 22K	2 qt Tordon 22K	Conduct intense controlled burns from December through March and apply Tordon 22K mid-April through May. Rainfall following burning can also stimulate prolific resprouting of the burned plants. Good coverage is also essential.

rose, Macartney rose, multiflora	1 qt Tordon 22K + 2 lb ae 2,4-D	1-2 qt Tordon 22K + 2-4 lb ae 2,4-D	Apply in the spring or fall when conditions are favorable for plant growth. Use an agricultural surfactant (0.5% v/v) or apply as an oil-water emulsion. Ensure thorough and uniform coverage by applying at higher spray volume, 5 or more gpa by air or 20 or more gpa by ground. Avoid treatment less than 9 to 12 months after mowing when plants have a high percentage of new growth. Repeat treatment as necessary.
tallowtree, Chinese	1 qt Tordon 22K + 2 lb ae 2,4-D amine or 1 pt of Remedy	2 qt Tordon 22K or 1-2 qt Tordon 22K + 2-4 lb ae 2,4-D or 1 qt of Remedy	Apply in the spring or fall, when conditions are favorable for plant growth. Use an agricultural surfactant (0.5% vol/vol) or use an oil-water emulsion and higher spray volumes, 5 gpa or more by air and 20 gpa or more by ground.
South Texas mixed brush, including, acacia, blackbrush acacia, catclaw acacia, twisted granjeno guajillo mesquite prickly pear tasajillo	2 pt Tordon 22K + 2/3 - 1 1/3 pt of Reclaim or 1 to 2 pt of Remedy	2 qt Tordon 22K + 2-3 pt of Remedy or 1-2 qt of Reclaim	Apply in of oil-water emulsion. Use 4 or more gpa by air or 20 or more gpa by ground. For application timing for mesquite, see comments in section on mesquite control. Tank mixing with Reclaim will provide improved control of pricklypear and legume species such as mesquite and acacias while tank mixing with Remedy will provide improved control of non-legume species such as granjeno, oaks and hackberry.
mesquite	1-2 pt Tordon 22K + 2/3-1 1/3 pt Reclaim or 2 pt Tordon 22K + 1 pt Remedy	1-2 qt Tordon 22K + 1-2 qt Reclaim or 1 1/2-3 pt Remedy	Tordon 22K Alone: Apply as a water spray or oil-water emulsion (see Mixing Instructions) in 4 or more gpa by air or 10 or more gpa by ground. Increase spray volumes with increasing brush density and height to ensure adequate coverage. Where control of pricklypear cactus is desired, use the 2 pint/acre rate of Tordon 22K.

Tordon 22K in Tank Mix: Tank mixing with Reclaim will provide improved control of pricklypear and improved control of legume species such as mesquite and acacias while tank mixing with Remedy will provide improved control of non-legume species such as granjeno, oaks and hackberry. Regrowth mesquite should be at least 4 ft tall prior to treatment. See labels for Reclaim[®] and Remedy for additional treatment recommendations and information on mesquite control. Within rate ranges given for Tordon 22K and tank mix products, consult local recommendations.

Timing and Factors in Control: The herbicidal response of mesquite is strongly influenced by environmental conditions as well as foliage condition and stage of growth. For best results, apply when new growth foliage has turned from light to dark green, when the soil temperature has reached 75°F to 83°F at a depth of 12-18 inches, and soil moisture is adequate for plant growth. Application should be made within 45 days after the critical soil temperature at the 12-18 inch depth has been reached or, if Tordon 22K is applied in combination with Reclaim, within 60 days. Product performance may be adversely affected if application is made before mesquite foliage has turned from light to dark green or if foliage has been injured or removed by late frost, insects, hail or plant diseases. Do not apply if mesquite exhibits new (light green) growth in response to significant rainfall during the growing season. Soil temperatures at the 12-18 inch depth may vary with soil texture and drainage. Coarse-textured (sandy) soils warm up sooner than fine-textured soils (clay) soils and dry soils warm up more quickly than wet soils.

Re-application: Do not reapply in the same growing season. Retreatment will not be effective until woody plants develop sufficient new foliage for interception, uptake, and translocation of the herbicide to plant roots.

ashe juniper
eastern redcedar
eastern persimmon

General: Apply Tordon 22K undiluted as a spot concentrate application prior to periods of expected rainfall. Apply directly to the soil within the dripline and on the upslope side of the tree. Application to trees taller than 12 feet is not recommended. See directions for "Soil Spot Concentrate" in "Application Methods" section.

Ashe Juniper: Apply 4 to 6 ml per 3 ft of plant height in the spring (April-May)

Eastern Redcedar: Apply 3 to 4 ml per 3 ft of plant height in either spring (April-May) or fall (September-October)

Eastern Persimmon: Apply 2 to 4 ml per inch of stem diameter in spring (March through May)

Specific Use Directions for Small Grains, Fallow Cropland, and CRP Acres

Spring Seeded Barley, Oats, and Wheat Not Underseeded With a Legume (Which is Not Flood or Sub-Irrigated and Not Rotated to Broadleaf Crops)

Do not apply to winter wheat or barley as crop injury may occur. Do not treat durum wheat since some varieties of durum wheat may be injured.

Use Tordon 22K for the control of susceptible annual broadleaf weeds such as (but not limited to) volunteer sunflower, wild buckwheat, lambsquarters, pigweed, Russian thistle, and sowthistle. This product may cause shorter straw on some varieties of cereals but grain yields are usually not affected.

Special Use Precautions-Use Restrictions

- **Durum Wheat:** Do not treat durum wheat since some varieties of durum wheat may be injured.
- Do not apply Tordon 22K within 50 days before harvest.
- ~~Spray mixtures may cause shorter straw on some varieties of cereals but grain yields are usually not affected.~~
- Do not graze or feed forage from treated areas for 2 weeks after treatment. Do not harvest hay from treated grain fields.
- Use only on land that will be planted the following year to grass, barley, oats, wheat or fallowed. Do not apply more than 1 1/2 fluid ounces of Tordon 22K per acre during the small grain growing season.

Use Tordon 22K for the control of susceptible annual broadleaf weeds such as (but not limited to) volunteer sunflower, wild buckwheat, lambsquarters, pigweed, Russian thistle, and sowthistle.

Broadcast Treatment (Ground and Aerial Applications)

Tordon 22K can be applied as a single broadcast treatment by ground or aerially to control several broadleaf weeds by itself or as a tank mix with 2,4-D, MCPA, or sulfonyleurea herbicides such as Ally. Apply Tordon 22K at the rates suggested in the following table in 2 to 5 gallons of water per acre by air or in 5 to 20 gallons of water per acre by ground. The addition of surfactants may aid control under dry conditions, but may cause injury to grain if used over the top. Read and follow directions and precautions on other product labels when tank mixing.

Application Timing

Spring Wheat, Barley and Oats: Apply from the 3 to 5 leaf stage to the early jointing stage of growth as indicated in the table below. Applications at the 3 to 5 leaf stage occasionally cause slight head malformations and straw shortening but normally do not affect yield.

Durum Wheat

Do not treat durum wheat since some varieties of durum wheat may be injured.

Winter Wheat and Barley: Apply after resumption of active growth in the spring until the early jointing stage.

Use Rates for Spring Wheat, Barley and Oats†

Weeds Weed Species	Weed Growth Stage††	Grain Growth Stage	Amounts of Each Product Per Acre†††		
			Tordon 22K	4 lb ae/gal 2,4-D or MCPA	6 lb ae/gal 2,4-D or MCPA
More susceptible species, such as: lambquarters pennycress wild mustard mayweed	3 inches	3 to 5 leaf to early tillering	1 fl oz	1/2 pint	1/3 pint
	3 to 6 inches	Tillering to early jointing	1 1/2 fl oz	3/4 pint	1/2 pint
Less susceptible species such as: volunteer sunflower wild buckwheat Russian thistle pigweed Canada thistle, top growth suppression	1 to 6 inches	Tillering to early jointing	1 1/2 fl oz	3/4 to 1 pint	1/2 to 2/3 pint

†For oats, do not tank mix with 2,4-D herbicides.

††For best results, treat when weeds have 2 to 4 leaves and are actively growing.

†††When measuring small amounts of Tordon 22K, special care should be taken not to exceed suggested rates.

Fallow Cropland (Not Rotated to Broadleaf Crops)

Apply Tordon 22K as a post harvest or fallow treatment in continuous grain or during the fallow period. Tordon 22K may be applied alone or in tank mix combination with 2,4-D or other herbicides registered for this use. Apply in 2 or more gallons of water per acre by air or 5 or more gallons per acre by ground. Spray only under conditions that will prevent injury to nearby susceptible crops or ornamentals. Refer to "General Use Precautions" section for information on preventing drift to off-target areas.

Application Rates

Note: Do not apply more than 1 pint per acre as a broadcast treatment in any calendar year.

[Editor's note: The preceding moved to new "Restrictions" section, below.]

Annual Weeds: To control annual weeds such as Russian thistle and wild buckwheat, apply 1/4 to 1/2 pint per acre of Tordon 22K in tank mix combination with 1/2 to 1 lb ae of 2,4-D or other herbicides registered for use on fallow land. Apply when weeds are actively growing.

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Field Bindweed: Apply 1/2 to 1 pint per acre of Tordon 22K plus 1/2 to 1 lb ae per acre of 2,4-D when bindweed is actively growing. Optimum time for treatment is when plant runners reach 8 to 12 inches. Use 1/2 pint per acre to control light to moderate infestations under good growing conditions or to reduce the potential for crop injury. Use higher rates for heavy infestations and longer term control. Some regrowth will occur the following season and a re-treatment program for successive years is recommended.

Canada thistle: Apply 1 pint per acre of Tordon 22K plus 1 lb ae per acre of 2,4-D when the majority of thistle plants are emerged but prior to bud stage.

Crop Rotation

Use only on land to be planted the following year to grass, barley, oats, wheat or fallowed. Many broadleaf crops are extremely sensitive to soil residues of Tordon 22K. Do not plant sensitive broadleaf crops for 36 months after treatment or until soil residues have declined to a safe level as indicated by an adequately sensitive bioassay using the intended broadleaf crop. A bioassay is recommended following treatment prior to planting any sensitive broadleaf crop.

Preplant Interval

A preplant interval following application of Tordon 22K prior to planting small grains is recommended to reduce or eliminate potential crop injury and/or yield reduction. The possibility for crop injury or yield reduction to occur depends on application rate, soil organic matter, rainfall, temperature and incidence of cereal diseases. Adequate soil moisture and soil temperature during the preplant interval is important in reducing, but may not eliminate, the risk of crop injury. When considering use of Tordon 22K on fallow land, growers should consider the benefit of weed control against the risk of crop damage and treat only if the risk of injury to small grains can be tolerated. The following preplant intervals are recommended:

For applications up to 1/2 pint per acre, allow a minimum of **45 days** of soil temperatures above 40°F between application and planting.

For applications of greater than 1/2 pint and up to 1 pint per acre, allow a minimum of **60 days of soil temperatures above 40°F** between application and planting, except in the states of Idaho, North Dakota, Nebraska, Montana, Oregon, South Dakota, Washington and Wyoming, where the minimum preplant interval is **90 days**.

Restrictions:

- Do not apply more than 1 pint per acre as a broadcast treatment ~~in any calendar year~~ per annual growing season.
- **Spot Treatment:** See "Spot Treatment" in "Mixing and Application Methods" section for directions for calibration, spray volume determination and mixing. Spot treatments of Tordon 22K at rates over 1 pint per acre can be made on fallow, non-irrigated cropland if the treated areas comprise less than 10% of the immediate field in any one year. Tordon 22K should not be applied to cropland at rates exceeding 2 quarts per acre. When Tordon 22K is applied at rates above 1 pint per acre ~~are applied~~, injury to small grains may result for periods up to two years after treatment.

Conservation Reserve Program (CRP) for Seeding to Permanent Grasses Only

Do not use Tordon 22K if legumes are a desired cover during CRP.

Conditions that stress grasses, such as drought, will increase potential for injury to the grass at all stages of growth.

To reduce potential damage to subsequent small grain crops, use the lower rate or discontinue the use of Tordon 22K at least 2 years prior to the seeding of small grain crops. After CRP, do not plant broadleaf crops in treated acres until an adequately sensitive bioassay shows that no detectable picloram is present in the soil.

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Broadcast Treatment (Ground and Aerial Applications)

Applications of Tordon 22K should be made after perennial grasses are well established (have developed a good secondary root system and show good vigor). Most perennial grasses show improved tolerance to the herbicide at this stage of development.

For control of actively growing perennial weeds, use up to ~~1 quart~~ 2 pints per acre of Tordon 22K after the grass is established. For best results, use in 2 or more gallons of water per acre by air or in 5 or more gallons of water per acre by ground. Increasing the rate of application can increase the risk of injury.

For control of actively growing susceptible annual broadleaf weeds, (including Russian thistle) apply 1/4 to 1/2 pint per acre of Tordon 22K. Tordon 22K can also be tank mixed with 1/2 to 1 pound per acre of 2,4-D where 2,4-D sensitive species are present. Read and follow all directions for use and use precautions on other product labels.

Spot Treatment

See "Spot Treatment" in "Mixing and Application Methods" section for directions for calibration, spray volume determination and mixing. For spot applications when perennial grasses are established, use 1 to 4 pints per acre of Tordon 22K. Rates of ~~1 quart~~ 2 pints per acre or more should only be used for control of deep-rooted perennial broadleaf weeds.

Precaution: Tordon 22K at rates over 2 pints per acre may suppress certain established grasses such as brome grass, bluegramma and buffalograss. However, subsequent grass growth should be improved by release from weed competition.

Wick Application

See "~~Wick Application~~" in "~~Mixing and Application Methods~~" section for ~~directions~~. ~~Apply when weeds are actively growing and are above most desirable plants. For ironweed and goldenrod, best results are obtained with applications made prior to early bud stage.~~

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Dow AgroSciences 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, subject to the inherent risks set forth below. Dow AgroSciences **MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

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It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. All such risks shall be assumed by buyer.

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The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

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