RANGELAND AND PERMANENT GRASS PASTURES - ANNUAL AND BIENNIAL WEEDS - MULLEIN COMMON

General Information

Product Information

Use Tordon 22K herbicide to control noxious, invasive, or other broadleaf weeds and listed woody plants and vines on rangeland and permanent grass pastures, fallow cropland, Conservation Reserve Program (CRP) acres, non-crop areas including forest planting sites, industrial manufacturing sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, and wildlife openings in forest and non-crop areas.

Use Precautions

- Use this product only as specified on this label or EPA-accepted Dow AgroSciences supplemental labeling. 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.

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

- Grass Tolerance: Tordon 22K at rates over 1 quart per acre may suppress certain established grasses, such as bromegrass and blue gramma. However, subsequent grass growth should be improved by release from weed competition.

Use Restrictions

- Not for Sale, Distribution, and/or Use in Nassau and Suffolk Counties of New York State.

- Not for sale or use in the San Luis Valley of Colorado.

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

- Do not use this product for impregnation of dry fertilizer, unless otherwise specified in use directions on Dow AgroSciences supplemental labeling.

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

- Maximum Use Rates:
Non-cropland Areas: Total use of Tordon 22K, including retreatments or spot treatments, must not exceed 1.0 lb a.i. picloram (2 quarts) per acre per annual growing season on rights-of-way and other non-crop areas. On forest sites, no more than 1.0 lb a.i. picloram (2 quarts) per acre may be applied within a period of 2 annual growing seasons.

Rangeland and Permanent Grass Pastures:
For control of noxious or invasive weeds as defined by federal, state, or local authorities, do not apply more than 1.0 lb active ingredient (2 quarts of Tordon 22K) per acre per annual growing season as a broadcast treatment. Spot treatments may be applied at the equivalent broadcast rate of up to 1.0 lb active ingredient (2 quarts) per acre.

For control of other broadleaf weeds and woody plants, do not apply more than 0.5 lb active ingredient (1 quart of Tordon 22K) per acre per annual growing season. Spot treatments may be applied at an equivalent broadcast rate of up to 1.0 lb active ingredient (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.

Fallow Cropland (Not Rotated to Broadleaf Crops): Do not apply more than 0.25 lb a.i. picloram (1 pint) per acre as a broadcast treatment per annual growing season.

Conservation Reserve Program (CRP) for Seeding to Permanent Grasses Only: Do not broadcast apply more than 0.5 lb active ingredient (1 quart) per acre of Tordon 22K per annual growing season or apply more than 1.0 lb active ingredient (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 (such as planting strips of the intended broadleaf crop in the treated area) shows that no detectable picloram is present in the soil.

- Do not apply to areas that may be rotated to any broadleaf crop.

- 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 plants or 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 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 (such as pastures/meadows areas irrigated by periodic flooding or a shallow water table).

- 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.

- 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 apply to snow or frozen ground. Application during very cold (near freezing) weather is not advisable.

- Do not apply Tordon 22K 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 topsoil 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 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.

- Do not apply this product through a mist blower.

- Grazing Restrictions:

  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.

  When applying more than 0.5 lb a.i. picloram (1 quart of Tordon 22K) per acre, do not cut grass for feed within two weeks after treatment. There are no restrictions for rates below 1 quart per acre.

- 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.

Precautions for Avoiding 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, tobacco, tomatoes, and other vegetable crops, flowers, fruit plants, ornamentals or shade trees or the soil containing roots of nearby valuable plants.

Avoid spray drift. Exposure to very small quantities of spray or drift, which may not be visible, may cause serious injury to susceptible plants during active growth or 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 or deposition aid may be used with this product, especially when water alone is used as the carrier. If a drift control aid is used, follow all use recommendations and precautions on the product label. Do not use a thickening agent with Microfoil or 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 10 gallons or more of spray per acre; by keeping the operating spray pressures at the 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. 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 drift control or deposition aid may be used to further reduce the potential for drift.

Aerial Application: Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower 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 90% of rotor width.

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 must 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.]
Weed Resistance Management

Picloram, the active ingredient in this product, is a Group 4 synthetic auxin herbicide based on the mode of action classification system of the Weed Science Society of America. The occurrence of herbicide resistance is not as common in this mode of action group, as other, more specific mode of action groups. However, any weed population could develop plants that are resistant to herbicides with frequent, continued use. Such resistant weed plants may be effectively managed utilizing other herbicides alone or in mixtures from a different herbicide mode of action group (that are labeled for control of these weeds on these sites) and/or by using cultural or mechanical practices. Consult your local company representative, state cooperative extension service, professional consultants or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

Best Management Practices: Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistant weeds. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant weed populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in reducing the spread of resistant weed seed.

Mixing and Application Directions

Mixing 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.

Use with Surfactants: Under certain conditions, such as drought or dusty plant surfaces, the addition of a surfactant may improve efficacy. However, if foliar burn
occurs too rapidly, translocation of Tordon 22K will be impaired 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 specified 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.

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, Garlon 3A, Sendero herbicide or 2,4-D Amine.

3. With continued, vigorous agitation slowly add a premix of oil, emulsifier and oil soluble herbicides such as Garlon 4, Remedy® Ultra 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.

Invert Emulsions (Non-food Crop Use Only)

Tordon 22K may be applied with an approved inverting agent to provide a thick invert water-in-oil spray emulsion designed to minimize spray drift. Consult use directions on the label for inverting agent. Invert emulsions may be used only for non-food uses.
Where root-suckering species such as sumac, sassafras, locust, and black gum predominate, mix the inverting agent as directed by its use directions plus 1 1/2 quarts Tordon 22K with 9 gallons of water for each acre to be sprayed.

Where harder-to-control species such as red maple, elm, or oaks are present, mix 5 to 6 gallons of the inverting agent as directed by its use directions plus 1 to 2 quarts of Tordon 22K with 15 to 18 gallons of water for each acre to be sprayed.

Mixing With Sprayable Liquid Fertilizer Solutions
Tordon 22K is compatible with most non-pressurized liquid fertilizer solutions; however, 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.

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

Application Methods

Ground or Aerial Broadcast
Use Tordon 22K as a broadcast treatment by ground or by air to control listed broadleaf weeds and woody plants. Apply Tordon 22K as a coarse low-pressure spray at the specified rates in a spray volume of 2 or more gallons per acre by air or 10 or more gallons per acre by ground. For optimal results make ground applications of Tordon 22K in 15 or more gallons of total spray mixture per acre. For
optimal results from aerial applications, use 5 to 20 gallons per acre of spray mixture.

High-Volume Foliar Applications
Spray to thoroughly wet foliage and stems of individual plants. An approved surfactant should 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.

Modified High Volume Applications
For modified high volume leaf-stem treatments of woody brush mix 1 to 3 quarts of Tordon 22K in 100 gallons of water. To control a wider range of plant species, mix 1 to 3 quarts of Tordon 22K with 1-3 quarts of Garlon® 4 herbicide or 1 to 4 quarts of Garlon 3A herbicide and dilute to make 100 gallons of spray. Apply after the foliage is well developed and in a manner which thoroughly wets all leaves, stems, and root collars.

The amount of spray mixture applied per acre will vary with plant size and density. For optimal results, apply in a total spray volume of 40 to 60 gallons per acre. Do not apply more than the maximum application rate of Tordon 22K specified for a given treatment site.

Spot Treatment
Use application rates specified in the "Approved Uses" section of this label or specified by your area weed control specialist. Apply in a total spray volume of 20 to 100 gallons per acre. 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 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 (unless the target weed is a noxious weed which allows higher broadcast use rates). Repeat treatments may be applied as necessary, but total use must not exceed the maximum amount specified.

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.

Special Application Methods

Soil Spot Concentrate: Tordon 22K may be applied undiluted as a spot concentrate
application to control ashe juniper, eastern redcedar and eastern persimmon. (See
specific use directions for these plant species under the Rangeland and Permanent
Grass Pasture section of this label.) Applications should precede periods of expected
rainfall. Apply directly to the soil within the dripline and on the upslope side of the
tree. For best results, apply to trees under 12 feet in height.

Broadcast Cut Stubble Treatment
To prevent re-sprouting of susceptible woody species after mowing or hand cutting
on non-crop areas and rights-of-way, use Tordon 22K herbicide at the rate of 2
quarts per acre in 15 or more gallons of a water spray mixture. Best results may be
obtained when applications are made before or during periods of active root growth.
Applications should not be made when the soil is frozen or covered by snow or
standing water. Make applications soon after cutting, before sprouting of woody
species has occurred. For best results, use the Brown Brush Monitor for this type of
application.

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.

Limitations, Restrictions, and Exceptions

Rangeland and Permanent Grass Pastures

Use Tordon 22K on rangeland and permanent grass pastures to control susceptible
broadleaf weeds and woody plants including, but not limited to those shown in the
following tables. Many annual weeds at the seedling stage can be controlled at the rate of 1 pt per acre. Where a rate range is specified, 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.

Specific Use Directions

Apply at the rosette stage with surfactant and use at least 30 gallons per acre of water carrier.

Rate: 1 to 1.5 pt/acre Tordon 22K + 1 lb ae 2,4-D

Method
- Broadcast/Foliar Air
- Broadcast/Foliar Ground

Rates
- field rates 0

Restricted Entry Interval

12 hours

Timings
- At the rosette stage