

Minor Crop Farmer Alliance (MCFA)
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Prometryn Case Study
Syngenta Crop Protection, LLC.

Contents

1.0	overview.....	4
2.0	Product Use and Characterization	4
2.1	Registered Products.....	4
2.2	Use Information	5
2.3	Labeled Use Restrictions Relevant to Endangered Species Assessments.....	5
3.0	Prometryn Environmental Regulatory Assessments Conducted by EPA.....	9
4.0	Endangered species assessment Models and prometryn Inputs	10
4.1	Birds and Mammals	10
4.2	Reptiles and terrestrial-phase amphibians	11
4.3	Terrestrial invertebrates	11
4.4	Terrestrial Plants	11
4.5	Aquatic organisms.....	12
4.6	Biological Data Refinements	14
5.0	Geographic Scope of Uses.....	15
5.1	Data Source	15
5.1.1	Geographic Scope of Registered Prometryn Use Crops.....	15
5.1.2	California Pesticide Use Reporting (PUR) Data	18
5.1.3	Marketing Sales Data	19
5.2	Species Information	19
5.2.1	Federally Listed Species Information	19
5.2.2	Critical Habitats	19
5.3	Work Products of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Endangered Species Task Force (FESTF).....	20
5.3.1	Information Management System (IMS)	20
5.3.2	NatureServe Multi-Jurisdictional Database (MJD).....	20
5.4	Land Use Information.....	20
5.4.1	National Land Cover Database (NLCD).....	20
5.4.2	Cropland Data Layer (CDL)	21
5.4.3	GAP National Land Cover Data.....	23
5.5	Biological Data.....	23
5.6	Geospatial Analyses	25
5.6.1	County-level Co-occurrence Analysis.....	25
5.7	Proximity Analysis	27
6.0	Environmental Fate.....	30

6.1	Environmental Fate Summary.....	30
ReferenceS		33
7.0	Ecological Effects.....	34
8.0	Water Monitoring Database	38
9.0	Appendix Section	40
9.1	Appendix A: Prometryn Use Data	40
9.2	Appendix B: Incident Reports	42
9.3	Appendix C: Caparol 4L, Suprend WDG and 24(c) Labels	46

1.0 OVERVIEW

Prometryn is one of two active ingredients selected as a case study for the Minor Crop Farmer Alliance Endangered Species Act Workshop. Prometryn was selected as an example herbicide that has both major and minor uses, has uses that are geographically diverse, is a pesticide that has not yet been part of an endangered species consultation between U.S. EPA Office of Pesticide Programs (EPA) and Fish and Wildlife Service or National Marine Fisheries Service, and is a chemical that has not yet entered registration review.

Prometryn is a selective herbicide used historically in cotton, celery and pigeon peas (Puerto Rico only), and has been recently approved for use in carrot, celeriac, cilantro, okra, parsley, rhubarb and the leafy petiole crop subgroup 4B (celery, cardoon, Chinese celery, celtuce, Florence fennel, Swiss chard). Permitted for use on a 24c label: parsley and dill (Florida); seed carrot, seed parsley, seed parsnip, and seed dill (Washington); and carrots, parsley, and coriander grown for seed (Oregon).

Prometryn is available in six products, five of them containing only prometryn (including Caparol® 4L) and one in a premix with a second herbicide (trifloxsulfuron-sodium) called Suprend®. Suprend is used in cotton only. Prometryn is used pre- and post- emergence to control many broadleaf and grassy weeds.

This document describes examples of scientific information available for conducting an endangered species assessment on prometryn. Product information is discussed, including specific use information and required label restrictions. A discussion of the examples of available data for an example endangered species assessment process is provided, including inputs into exposure models, proximity analyses, environmental fate and environmental effects data, and available water monitoring data. Specific use information, a summary of incidence reports, and example product labels are appended to this document.

2.0 PRODUCT USE AND CHARACTERIZATION

2.1 Registered Products

Prometryn is a selective herbicide first registered for use in the U.S. in 1964 and used historically in cotton, celery and pigeon peas (Puerto Rico only), with many specialty crops recently added. There are no non-agricultural uses of prometryn.

Prometryn acts by inhibiting photosynthesis at photosystem II and may be used pre- and post-emergence. It is used to control annual broadleaf weeds and grasses including: groundcherry, common lambsquarters, annual morningglory, malva, mustard, black nightshade, pigweed (carelessweed), purslane, Florida pusley, ragweed, smartweed, teaweed (prickly sida), barnyardgrass (watergrass), crabgrass, foxtail, goosegrass, junglerice, *Panicum* spp., signalgrass (and other *Brachiaria* spp.), wild oats and shallow-germinating seedlings of cocklebur, coffeeweed, and sandbur.

Table 1 shows the currently registered technical and end-use products. Six products containing prometryn are available, five containing prometryn as the sole active ingredient, and one of which is a premix with a second herbicide. Suprend® is a premix of trifloxsulfuron-sodium (an acetolactate synthase (ALS) inhibitor) and prometryn, and is formulated for post-directed and lay-by application to provide contact and extended

residual control of many tough weeds in cotton. Caparol 4L contains 44.4% prometryn and eight inert ingredients comprising 55.6% of the formulation. Suprend contains 79.3% prometryn, 0.70% trifloxsulfuron-sodium and four inert ingredients totaling 20.0% of the formulation. The Caparol 4L, Suprend and associated 24(c) labels are appended to this report.

Table 1: Registered Products Containing Prometryn

Technicals	EPA Reg. No.	Registrant	Active Ingredients
Prometryn Technical	100-542	Syngenta Crop Protection, LLC	Prometryn
Prometrex® Technical	46386-2	Verolit Chemical Manufacturing CO, LTD	Prometryn
End Use Products			
Caparol® 4L	100-620	Syngenta Crop Protection, LLC	Prometryn
Vegetable Pro®/Cotton Pro®	66222-15	Makhteshim Agan of North America, Inc	Prometryn
Prometryne 4L	9779-297	Winfield Solutions, LLC	Prometryn
Prometryne 4L	34704-692	Loveland Products, Inc	Prometryn
Formulated Mixture			
Suprend®	100-1163	Syngenta Crop Protection, LLC	Prometryn + Trifloxsulfuron

2.2 Use Information

Appendix A contains prometryn product use information from 2009 and 2010, by state and Crop Reporting District (CRD), from GfK Kynetec. These data show that 96.6% of all acres treated with prometryn in the U.S. in 2010 were cotton, while 3.3% were celery. Of the 689,623 lb of prometryn use reported nationwide in 2010, 298,594 lb. were used in Texas (43%), 124,899 lb in Georgia (18%), 72,293 lb in Tennessee (11%), 69,045 lb in North Carolina (10%), and 49,504 lb in Alabama (7%). Smaller use amounts were also reported in Arizona, California, Louisiana, Mississippi, Missouri, Washington, Arkansas, and Michigan.

2.3 Labeled Use Restrictions Relevant to Endangered Species Assessments

The following use restrictions are highlighted from the Caparol 4L label to illustrate restrictions that should be considered in assessing potential risk of prometryn to endangered species. The Caparol 4L, Suprend and associated 24(c) labels are appended to this report. Ground application of Caparol 4L is allowed for all uses, while aerial applications are allowed only in cotton and pigeon peas. The product Suprend does not allow aerial applications.

SPRAY DRIFT RESTRICTIONS

- Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles
- Apply only when the wind speed is 2-10 mph
- Use high flow rate nozzles to apply the highest practical spray volume
- Use the minimum number of nozzles that provide uniform coverage
- Spray drift restrictions for ground boom application:
 - Do not apply with a nozzle height greater than 4 feet above the crop canopy
 - Preplant incorporated or preemergence: use flat fan nozzle tips
 - Postemergence band: use drop extraction tubes off-center nozzle tips
 - Postemergence broadcast: use flat fan or off-center nozzle tips

- Spray drift restrictions for aerial application:
 - Apply aerially for cotton & pigeon peas only
 - Apply at a maximum height of 10 feet above vegetation
 - Use low-drift nozzles at a maximum pressure of 40 psi
 - Apply only when wind speed does not exceed 10 mph
 - Apply at a minimum upwind distance of 400 ft. from sensitive plants
 - When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind
- Spray drift restrictions for sprinkler chemigation: Do not apply when wind speed favors drift beyond the area intended for treatment

RESTRICTIONS RELATED TO RUNOFF

- 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 wash water or rinsate
- Do not apply where runoff is likely to occur
- For cotton preplant incorporation: incorporate up to 4 inches deep immediately after application with PTO-driven equipment, double disk, rolling cultivator, rolling cultivators in tandem, or bed conditioner

GEOGRAPHICAL AND SOIL SPECIFIC RATE RESTRICTIONS

- Restrictions for broadcast application to celery seedbeds in Florida only:
 - Apply 1.2-1.6 pts/A (0.6-0.8 lb AI/A)
 - Apply after celery has 2-5 true leaves
- Restrictions for broadcast, preemergence application to direct-seeded celery, California only:
 - Do not use on sand or loamy sand
 - Apply 2.4-3.2 pts/A (1.2-1.6 lb AI/A)
 - Use higher rates on fine-textured soils & soils high in organic matter
 - Use lower rates on coarse-textured soils & soils low in organic matter
- Restrictions for broadcast, postemergence application to direct-seeded celery, California only:
 - Do not use on sand or loamy sand
 - Apply 1.6-2 pts/A (0.8-1 lb AI/A) after celery has 2-5 true leaves
 - Use higher rates on fine-textured soils & soils high in organic matter
 - Use lower rates on coarse-textured soils & soils low in organic matter
- Restrictions for Pigeon Peas (Puerto Rico Only), Preemergence Application
 - Do not use on sand or loamy sand
 - Loam: Apply 4 pts/A (2 lb AI/A)
 - Clay: Apply 6 pts/A (3 lb AI/A)

Restrictions for Transplanted Celery

State	Soil	Broadcast Rate Per Acre
FL	sandy or muck	1.6-3.2 pts.
CA and TX	coarse-textured	2-3.2 pts.
	fine-textured	3.2-4 pts.
MI and OH	fine-textured or muck	2-4 pts.
WI	fine-textured	3.2-4 pts.

Restrictions for Cotton, Preplant Incorporation

Region	Soil Texture	Broadcast Rate Per Acre
AZ, CA, and NM	sand, loamy sand	DO NOT USE
	sandy loam (AZ and CA only)	2.4-3.2 pts.
	sandy loam, loams (NM only)	3.2 pts.
	silt loam, clay	4.8 pts.

Restrictions for Cotton, Preemergence Application

Region	Soil Texture	Broadcast Rate Per Acre
Mid-South and Southeast, other than Mississippi River Delta in MS	sandy loam	3.2-4 pts.
	silt and clay loam	4.8 pts.
	Sharkey clay (AR only)	5.6 pts.
Mississippi River Delta in MS	sandy loam	4-4.8 pts.
	silt and clay loam	5.6 pts.
	Sharkey clay	DO NOT USE
Blacklands of OK and TX, TX Gulf Coast, and TX Coastal Bend	Loam	2.4 pts.
	clay	4.8 pts.
Rio Grande Valley of TX*	loam	3.2 pts.
	clay	4.8 pts.
High Plains, Rolling Plains, and Edwards Plateau of TX, Southwest TX, and NM** KS	sand, loamy sand	DO NOT USE
	sandy loam	1.6 pts.
	loam, sandy clay loam	2.4 pts.
	other clay soils	3.2 pts.
AZ and CA		DO NOT USE

Restrictions for Cotton, Postemergence Lay-by Application (Cotton must be at least 12" tall)

Region	Soil Texture	Broadcast Rate Per Acre
Mid-South and Southeast	sandy	2.4 pts.
	loam	2.8 pts.
	clay	3.2 pts.
Blacklands of OK and TX	loam	1.6 pts.
	clay	3.2 pts.
High Plains of NM and TX	sandy	1.6 pts.
	loam and clay	2.4 pts.
Southwest TX	loam	2.4 pts.
	clay	3.2 pts.
Rio Grande Valley of TX		DO NOT USE
AZ and CA (Do not use in the Coachella Valley)	sand and loamy sand	DO NOT USE
	sandy loam	2.4-3.2 pts.
	loam	3.2 pts.

Restrictions for Cotton, Postemergence Chemical Hoe Application

Height of Cotton and Area of Use	Height of Weeds	Broadcast Rate Per Acre
3-6 inches (AR, LA, MO, MS, TN, and TX)	less than 1 inch	1 pt.
6 or more inches (all regions)	less than 2 inches	1-1.3 pts.

Additional geographical and soil specific restrictions are on the Caparol 4L label for application to cotton via tank mixtures. Refer to the label in Appendix C.

Overview of Prometryn Uses

Use	Max. Single Appl. Rate (lb ai/A)	Max. Number Appl. per Year	Application Method(s)
Celery	2	1	Soil broadcast, soil band treatment, soil incorporated, band treatment, basal spray treatment, directed spray; sprinkler irrigation
Cotton	2.4	Varies ^a	Aerial // Fixed wing aircraft; sprinkler irrigation; Soil broadcast, soil band treatment, soil incorporated, band treatment, basal spray treatment, directed spray
Dill	1.6	1	Soil broadcast, soil band treatment, soil incorporated, band treatment, basal spray treatment, directed spray
Fennel	2	1	Soil broadcast, soil band treatment, soil incorporated, band treatment, basal spray treatment, directed spray
Parsley	2	1	Preplant broadcast incorporated or shielded applicator post-transplant
Carrot	2	Varies ^b	Preemergence or postemergence, over the top
Celeriac	2	1	Soil broadcast
Cilantro	1.6	1	Post planting, preemergence
Cardoon, Chinese celery, Celtsce, Swiss chard	2	1	Broadcast to seedbeds, post-directed, preemergence, postemergence
Okra	1.5	1	Preemergence, post-directed
Pigeon Peas	3	1	Broadcast, preemergence
Rhubarb	2	1	Broadcast when plants are dormant, before leaves emerge

^a Can apply up to 5.5 lb AI/A total per year over the following main application times: Pre-plant (max application of 2.4 lb AI/A); post-emergence (up to 3 applications totaling 2 lb AI/A); lay-by (maximum 1.6 lb AI/A); and winter weed control (maximum 2.4 lb AI/A).

^b Can apply up to 4 lb AI/A total per year over the following main application times: preemergence (max application of 2 lb AI/A); and postemergence (up to 2 applications of 2 lb AI/A)

3.0 PROMETRYN ENVIRONMENTAL REGULATORY ASSESSMENTS CONDUCTED BY EPA

The following provides a brief regulatory history and lists recent environmental regulatory assessments that have been conducted on prometryn and its products.

- First registration – 1964 by Ciba-Geigy Corporation
- Registration Standard was issued in 1987, and required product and residue chemistry, toxicology, fish and wildlife, plant protection and environmental fate data.
- A Reregistration Eligibility Decision document was completed in September 1995 and issued in February 1996. <http://www.epa.gov/opprrd1/REDs/0467.pdf>
- Prometryn Analysis of Risks to Endangered and Threatened Salmon and Steelhead (November 2002) <http://www.epa.gov/oppfead1/endanger/litstatus/effects/>
- Risks of Prometryn Use to Federally Threatened California Red-legged Frog(June 2009) <http://www.epa.gov/oppfead1/endanger/litstatus/effects/redleg-frog/index.html#prometryn>
- Prometryn is scheduled to begin EPA Registration Review in 2013, along with other triazines.
- In response to the recently approved minor uses of prometryn, EPA mandated the following environmental conditions of registration:

Condition of Registration	Guideline	Action	Deadline to Submit Data
Aquatic Invertebrate Life-cycle (saltwater)	850.1350	Conduct study	Jan. 5, 2012
Fish Early-Life Stage Toxicity Test (saltwater)	850.1400	EPA granted waiver request; condition satisfied	

4.0 ENDANGERED SPECIES ASSESSMENT MODELS AND PROMETRYN INPUTS

An example process for determining whether labeled uses of a pesticide could potentially adversely affect endangered species is described below, along with the prometryn data that are available. The process begins at the Tier 1 EPA environmental exposure models and endpoints from the most sensitive species tested to predict potential risk to terrestrial and aquatic organisms. While other models are currently in development, the very high level of conservativeness of several of these models and risk assumptions are described below. Potential model refinements are also described.

4.1 Birds and Mammals

The Terrestrial Residue EXposure Model (T-REX) is a screening-level model currently used to assess risk to terrestrial birds and mammals. Inputs for this model include the percent of the active ingredient in the formulation, application rate, foliar half-life of the compound, number of applications and duration between applications. In addition, toxicity endpoints for birds and mammals are entered, typically including the acute oral LD₅₀, dietary LC₅₀ (birds) and the No Observed Effects Concentration (NOEC) and/or No Observed Effects Level (NOEL) from appropriate reproduction studies. As an example, specific inputs for prometryn use on carrots are listed in Table 2. Based on the inputs for the pesticide (application rate, number of applications, etc.) the T-REX model estimates a dietary exposure concentration (EEC, Estimated Environmental Concentration) for four food categories: short grass, tall grass, broadleaf plants and small insects, and fruits, pods, seeds and large insects. These values are then compared to dietary toxicity endpoints (LC50 for acute; NOEC for chronic) and a Risk Quotient (RQ = EEC/toxicity endpoint) is calculated. These dietary EECs are also adjusted for the body weight of the test organism to estimate a dose-based EEC for various size classes (20, 100 and 1000g birds; 15, 35 and 1000g mammals) which is compared to the oral LD₅₀ and NOEL for determining acute and chronic RQs, respectively. The RQ is compared to the listed species Level of Concern (LOC) for acute exposure (LOC = 0.1) or chronic exposure (LOC = 1.0) as determined by EPA. Refinements to the model can be implemented if necessary (see below).

Table 2. T-REX model inputs for prometryn use (example on carrot).

Application Rate	2 lb a.i./A
Foliar half-life	35 days (default)
Number of applications	2
Avian oral LD ₅₀ (mallard duck)	LD ₅₀ > 4640 mg ai/ kg – bw
Avian dietary LC ₅₀ (bobwhite quail)	LC ₅₀ > 5000 mg ai/kg diet
Avian NOEC (mallard duck reproduction)	NOEC = 500 mg ai/kg-diet
Mammal oral LD ₅₀ (rat)	LD ₅₀ = 1802 mg ai/ kg – bw
Mammal NOEL (rat reproduction)	NOEL = 10 mg/ kg diet

The T-REX model is conservative based on the use of upper bound estimates of pesticide residues on food items in the calculation of EECs and the assumptions that animals feed solely on one food source to meet their dietary needs and 100% of the animal's diet is obtained from the treated area. In order to more accurately predict exposure, there are refinements that can be made within the existing model. Refinements for risk assessment that can be made include the use of foliar half-life data from a foliar dissipation study conducted at the assessed use rate. The T-REX model uses a 35-day default value, which typically highly overestimates actual foliar half lives. A further refinement is to use actual residue data from food items. For example, residue data from broadleaf crop or turf dissipation studies could be used in place of the short grass or

broadleaf plant EEC in the model. These values also tend to be lower and since the data are based on measured applications to the food item, they should be considered as refined data and used for a more accurate assessment of exposure. Toxicity data on animals with greater taxonomic relatedness to the species of concern could also be used as a refinement as well as any animal metabolism data for the species of concern or its food item. Identification of the dietary components and feeding/foraging habits of the species of concern would also help provide better estimates of dietary exposure.

4.2 Reptiles and terrestrial-phase amphibians

Exposure and potential risk to reptiles and terrestrial-phase amphibians is typically assessed with T-REX using EECs and toxicity data for birds as surrogates or the modified version of T-REX called T-HERPS. In T-HERPS, inputs for the pesticide (application rate, number of applications etc.) are the same as T-REX as well as the toxicity data for birds which is used as surrogate data for reptiles and terrestrial-phase amphibians. However, additional food items are included for dietary exposure such as small herbivorous and insectivorous mammals and small herbivorous amphibians. Dose-based EECs are determined by adjusting the dietary EEC for 1.4, 37 and 238 g animals. The T-HERPS model uses similar assumptions and estimates for predicting exposure as T-REX and is likewise, highly conservative. Similar refinements to the T-REX model can be used to refine the EECs in T-HERPS .

4.3 Terrestrial invertebrates

Currently, the toxicity of pesticides to invertebrates is assessed based on toxicity to honey bees. Pesticides with a contact LD₅₀ > 11 µg a.i./bee are considered to be practically non-toxic and therefore should pose minimal risk to listed terrestrial invertebrates. Prometryn is practically non-toxic to honey bees with a contact LD₅₀ = 96.69 µg a.i./bee and therefore risk to terrestrial invertebrates is expected to be low. Exposure of foliar applied pesticides to terrestrial invertebrates has been estimated by EPA using the T-REX model. For example, the residue on bees (µg ai/bee) is calculated by multiplying the residue predicted for the broadleaf plants/small insects category in T-Rex by the assumed weight of a foraging honey bee (0.128 g) (Mayer and Johansen, 1990) to establish a dose per bee. Although this method could potentially be useful for estimating a conservative Tier 1 exposure concentration for terrestrial invertebrates, the values developed by Hoeger and Kenaga (1972) to estimate residue values on insects are not based on residue data for insects but rather on plants or plant parts of similar size (Fletcher *et al.* 1994). Data from Hart and Thompson (Hart *et al.* 2001) indicate that the 95th percentile value for an insect residue per unit dose (RUD) is 24 compared to the approximately 6 fold higher value of 135 for broadleaf plants (EPA's surrogate for small insects). Data from additional studies (Fischer and Bowers, 1997; Brewer *et al.*, 1997) suggest that the insect residue estimates developed by Hoeger and Kenaga (1972) are greatly overestimated. Therefore, the use of T-REX to predict exposure of terrestrial invertebrates to foliar applied pesticides greatly overestimates exposure. A risk assessment framework is being developed among government (including EPA), academic, and industry scientists that will provide a tiered approach to assessing the potential risk of pesticides to bees which could be used as a surrogate for all terrestrial invertebrates. This framework will likely be based on conservative exposure estimates and toxicity values, but through the tiered approach, more realistic exposures will be incorporated into higher-tier tests used for estimating potential risk.

4.4 Terrestrial Plants

Exposure and potential risk to terrestrial plants is assessed using the TerrPlant model. TerrPlant performs very basic exposure calculations; the inputs for this screening-level model are based on the application rate, water solubility, incorporation depth, and method of application (e.g. aerial, ground, etc.). For example, the model

input value for runoff fraction is based on the solubility of the chemical. If the water solubility is < 10 ppm, a value of 0.01 is entered; if the water solubility is between 10 ppm and 100 ppm, a value of 0.02 is entered, etc. Specific inputs for prometryn use on carrots are listed in Table 3. This model predicts EECs within adjacent dry and semi-aquatic areas as a function of drift (assumption of 5% and 1% drift for aerial and ground applications, respectively) and pesticide runoff (assumption that 5% of applied AI will runoff). Runoff estimations are based on the application rate, chemical solubility, and conservative assumptions about drainage and receiving areas. Runoff to dry areas is assumed to be sheet runoff which is the amount of pesticide in water that runs off the soil surface of a target area of land which is equal in size to the non-target area. Runoff to semi-aquatic areas is assumed to be channel runoff which is the amount of pesticide that runs off a target area 10 times the size of the non-target area. The calculated EECs for spray drift, dry areas, and semi-aquatic areas are compared with EC₂₅ and NOEC values for monocots and dicots from seedling emergence and vegetative vigor studies. For listed species, the RQ (EEC/NOEC) is compared to a LOC of 1.0. Refinements to the model listed below can be implemented if necessary.

Table 3. TerrPlant model inputs for prometryn use on carrots

Application rate	2 lb a.i./A
Water solubility	33 mg/L (input value for runoff fraction= 0.02)
Incorporation depth	≤ 1 inch (input value for incorporation = 1)
Method of application	Ground (input value for drift fraction = 0.01)
Seedling emergence (most conservative selected value)	Dicot EC ₂₅ = 0.036 lb a.i./A; NOEC = 0.038 lb a.i./A Monocot EC ₂₅ = 0.095 lb a.i./A; NOEC = 0.038 lb a.i./A
Vegetative vigor (most conservative value)	Dicot EC ₂₅ = 0.006 lb a.i./A; NOEC = 0.019 lb a.i./A Monocot EC ₂₅ = 0.161 lb a.i./A; NOEC = 0.100 lb a.i./A

TerrPlant is conservative based on the assumptions that drift and runoff are uniform throughout the non-target area, runoff and spray drift enter the nontarget area at the same time, and plants exposed to pesticide residues in the nontarget area are all at the same, most sensitive, life-stage. TerrPlant does not consider environmental fate characteristics, but rather presumes a fixed, persistent concentration of runoff based on chemical solubility. In addition, plant toxicity data used in the model are generated from greenhouse studies using select crop and weed species which are likely less hardy than wild plants found in non-target areas. Refinements to the EECs generated in TerrPlant can be accomplished with information from other models.

For spray drift, estimates can be refined to some degree using AgDRIFT or AgDISP models. These models incorporate spray equipment information such as spray volume, evaporation rate, nozzle type, droplet size, and environmental conditions (e.g. temperature and humidity) that affect the amount of spray drifting from application sites. Refinements to the runoff fraction can be achieved using Pesticide Root Zone Model (PRZM) edge of field flux data, using the same inputs used for determining aquatic EECs described in next paragraphs. Maximum daily PRZM pesticide runoff flux (g/cm²) data for each year (1961-1990) are identified and converted to lb a.i./A in order to compare exposure estimates directly with seedling emergence and vegetative vigor toxicity data. The use of toxicity data for plants more closely related to the species of concern can also be used to help refine estimates of risk.

4.5 Aquatic organisms

For determining aquatic EECs from uses on terrestrial crops, the tier 1 model GENEEC (GENeric Estimated Environmental Concentration) is often used to estimate peak, 21-day and 60-day averages that are compared with acute and chronic toxicity data for aquatic organisms. For fish, acute RQs are determined by comparing

the peak EEC and the lowest LC₅₀; chronic RQs are determined by comparing the 60-day EEC with the NOEC from the early life stage test. For aquatic invertebrates, acute RQs are determined by comparing the peak EEC with the lowest EC₅₀; chronic RQs are determined by comparing the 21-day EEC with the lowest NOEC from a chronic exposure test. For both fish and aquatic invertebrates, acute RQs are compared to the listed species LOC of 0.05 and chronic RQs are compared to the LOC of 1.0 as determined by EPA. For aquatic plants (i.e. algae and duckweed), peak EEC values are compared with the lowest NOEC for algae and duckweed. The RQs are compared to the LOC of 1.0 in a screening-level assessment. Aquatic toxicity data for prometryn are listed in Table 4.

Table 4. Aquatic toxicity data for prometryn.

Acute toxicity (Rainbow trout)	LC ₅₀ = 2.9 mg ai/ L
Chronic early life-stage (Fathead minnow)	NOEC = 0.62 mg ai/L
Acute invertebrate toxicity (<i>Daphnia magna</i>)	EC ₅₀ = 18.6 mg ai/L
Chronic invertebrate life cycle (<i>Daphnia magna</i>)	NOEC = 1.0 mg ai/L
Non-vascular plant toxicity (<i>Navicula pelliculosa</i>)	EC ₅₀ = 0.001 mg ai/L
Vascular plant toxicity (<i>Lemna gibba</i>)	EC ₅₀ = 0.0118 mg ai/L

GENEEC is a screening model that is applied by EPA before moving onto more refined modeling, i.e. PRZM/EXAMS (EXAMS (Pesticide Root Zone Model/ Exposure Analysis Modeling System). The model is highly conservative and used to screen out scenarios that are clearly not a concern. It uses very conservative application parameters (maximum rate and number of applications, shortest application intervals when applicable) as well as limited physical chemistry and environmental fate data for the pesticide. The GENECC model is not crop and geographically specific. Most assessments require refinement from this screening-level model. Refinements to the aquatic EECs can be made by using the tier 2 model PRZM/EXAMS. The PRZM/EXAMS model provides more realistic, crop- and geographically-specific EEC values resulting from pesticide fate, transport and transformation down through the crop root zone, runoff and spray drift loading in a farm pond scenario. Some refinements using PRZM/EXAMS may involve use of site- or region-specific environmental or physical information to introduce more realism into the risk assessment process. These types of refinements might include: use of specific meteorological information/data, modified crop profile and soil property information, and re-definition of receiving water dimensions and/or hydrology. The 1 in 10 year of annual daily peak and the annual maximum 21-day and 60-day average values are used as EECs in the RQ calculations. While the PRZM/EXAMS model is more refined than GENECC, exposure estimates used by EPA from the model are still conservative. EPA first determines the highest daily pesticide concentration for each year in a 30-year period (1961-1990). EPA then calculates the 90th percentile from these 30 annual peak values. On a daily basis (total of 10,957 days in 30-year period), this 90th percentile of annual peak estimates would be greater than the 99th percentile.

Proximity Analysis

Endangered species exposure to pesticides can also be addressed through the use of species/crop proximity analysis. The list of endangered species for those particular taxonomic groups that exceed screening-level endangered species LOCs should be further refined using various techniques as described above. If available data do not allow risk refinement below the LOC for certain taxa, species locations can be identified using geospatial data as described in the geospatial discussion in this document.

4.6 Biological Data Refinements

Once the initial compliment of listed species is compiled it is recommended that the data be evaluated based on more refined biological considerations. High-quality species-specific data may be considered from various sources. These may include guideline studies, efficacy trials, recovery studies, literature studies, or other applicable species-specific data. These data can be compared taxonomically to the listed species. Provided taxonomic relatedness is demonstrated at the appropriate level, then the sensitivity value of the taxonomically related species should be used instead of the default value from the standard test species. Subsequent to the identification of listed species further refinements such as spatial analyses at the sub-county level to more appropriately establish proximity to listed species, identification of actual labeled crop areas (as opposed to “cultivated crops”), and temporality of coincidence of application time to critical stage of plant or animal development should be considered.

Indirect Effects

EPA evaluates organisms that rely on plants or animals that are potentially directly affected by the pesticide as a food source or that require potentially affected plants or animals within their habitat could be indirectly affected. Habitat and diet requirements of all potentially affected listed species in the spatial bounds of the use area should be considered using biological data in the FESTF-MJD or other available data to determine the potential for indirect effects. Organisms that feed on a variety of food items and have broad, non-specific habitat requirements are less likely to be affected compared to those that feed on a single species or have very specific habitat requirements that are directly affected by the pesticide.

5.0 GEOGRAPHIC SCOPE OF USES

Geospatial Data and Technology Available For Prometryn Endangered and Threatened Species Assessment

The best available nationally aggregated data for species names, listing status, species locations, and crop locations are required to evaluate the potential effects on threatened and endangered species from the use of prometryn. The available data sources/approaches for geospatial analyses are discussed in the following section. Also, overall summaries of available basic geospatial datasets are available in Table 7 and Figure 9.

5.1 Data Source

5.1.1 Geographic Scope of Registered Prometryn Use Crops

Prometryn has been registered for cotton, celery, and pigeon peas (for Puerto Rico only). Recently, new additional crop uses including carrot, celeriac, cilantro, cardoon, celtuce, Chinese celery, Florence fennel, Swiss chard, okra, parsley, and rhubarb were added. Also, prometryn is permitted for use on a 24(c) label for parsley and dill in Florida, seed carrot, seed parsley, seed parsnip, and seed dill in Washington, and carrots, parsley, and coriander grown for seed in Oregon. Any counties identified as registered crop production counties in the 1997, 2002, or 2007 Census of Agriculture¹ (USDA National Agricultural Statistics Service, NASS, 1997, 2002, 2007) will be included in the assessed area. Cotton and celery are the major use crops for prometryn and Figures 1 and 2 show the maps of average cotton and celery acreages reported in the 1997, 2002, or 2007 Census of Agriculture as an example.

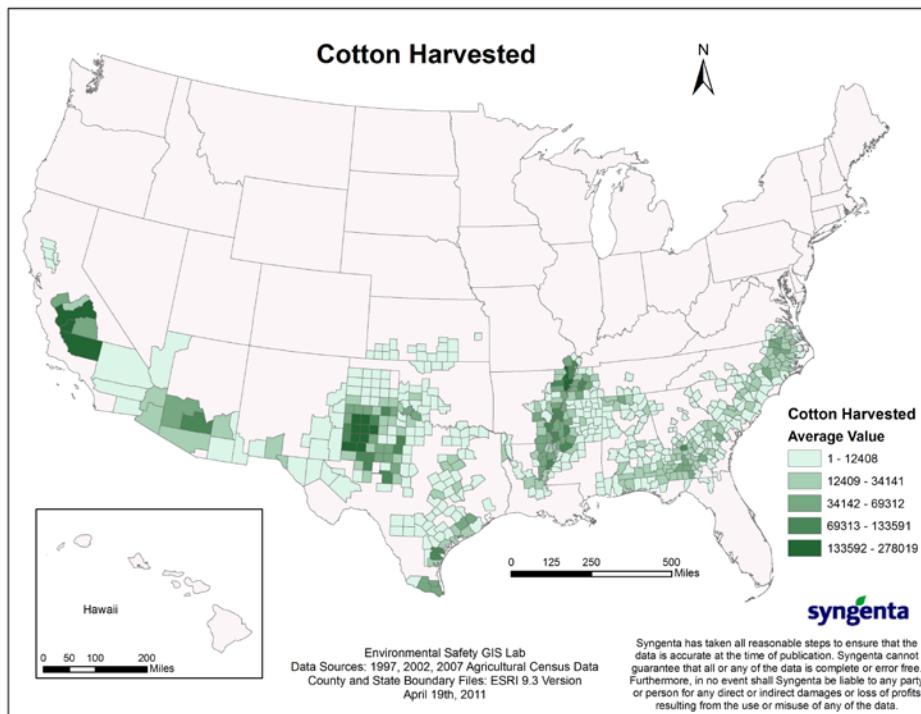


Figure 1. Cotton Growing Counties in the United States

¹ The Census of Agriculture is described by the USDA as “the only source of uniform, comprehensive agricultural data for every state and county or county equivalent in the United States.” The Census is conducted every five years and the 2007 Census was the most recent that had been published [URL: <http://www.agcensus.usda.gov/>]. Data from Censuses spanning over 10 years (1997-2007) can be utilized to account for potential trends in land use and crop rotations.

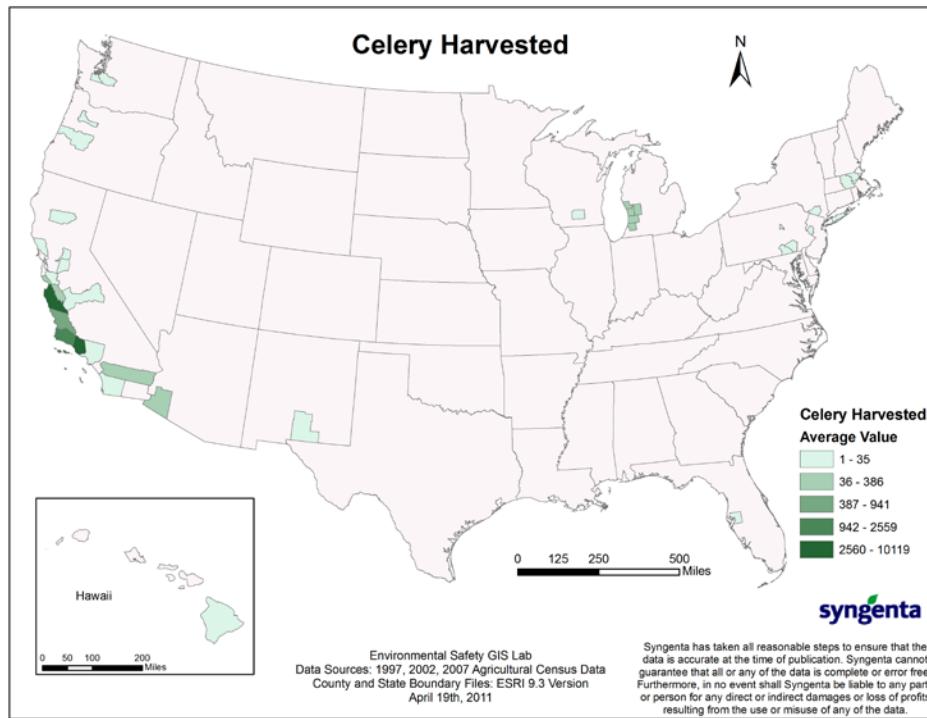


Figure 2. Celery Growing Counties in the United States

1.1 Prometryn Use Pattern

1.1.1 GfK Kynetec Use Survey Data

Commercial use survey data for Prometryn from 2006 to 2010 were collected and summarized in Table 5 and Figure 3. GfK Kynetec (St. Louis, MO; formerly Doane Marketing Research Inc.) provides annual pesticide product use datasets at Crop Reporting District (CRD) level. The data were acquired via a web-based system by Syngenta Crop Protection, LLC, Greensboro, NC (accessed in April 2011).

Table 5. Prometryn crop use data reported in survey database¹ (2006 to 2010)

State	Crop	2006 Use (Lb AI)	2007 Use (Lb AI)	2008 Use (Lb AI)	2009 Use (Lb AI)	2010 Use (Lb AI)
Alabama	Cotton	27,155	9,943	16,234	809	9,226
Arizona	Cotton	24,611	24,904	40,129	39,041	40,278
Arkansas	Cotton	379	3,868	24,017	45,453	1,129
California	Celery	34,108	33,992	41,256	38,373	34,970
	Cotton	71,241	68,693	16,849	8,177	3,330
	Rice	0	0	0	1,740	0
Florida	Cotton	0	0	45	0	0
Georgia	Cotton	86,578	33,790	110,923	133,498	124,899
Louisiana	Cotton	408	0	16,877	1,499	10,464

Michigan	Celery	3,225	2,698	2,330	3,633	3,504
Mississippi	Cotton	14,543	27,089	0	5,406	3,357
Missouri	Cotton	2,232	741	0	4,661	17,259
North Carolina	Cotton	90,435	34,222	12,841	28,894	69,045
South Carolina	Cotton	6,023	772	0	7,581	0
Tennessee	Cotton	68,658	57,723	20,480	53,572	72,793
Texas	Cotton	199,621	330,822	115,427	177,682	298,594
Washington	Carrots	0	0	0	0	775

¹Use data for prometryn was acquired in April, 2011.

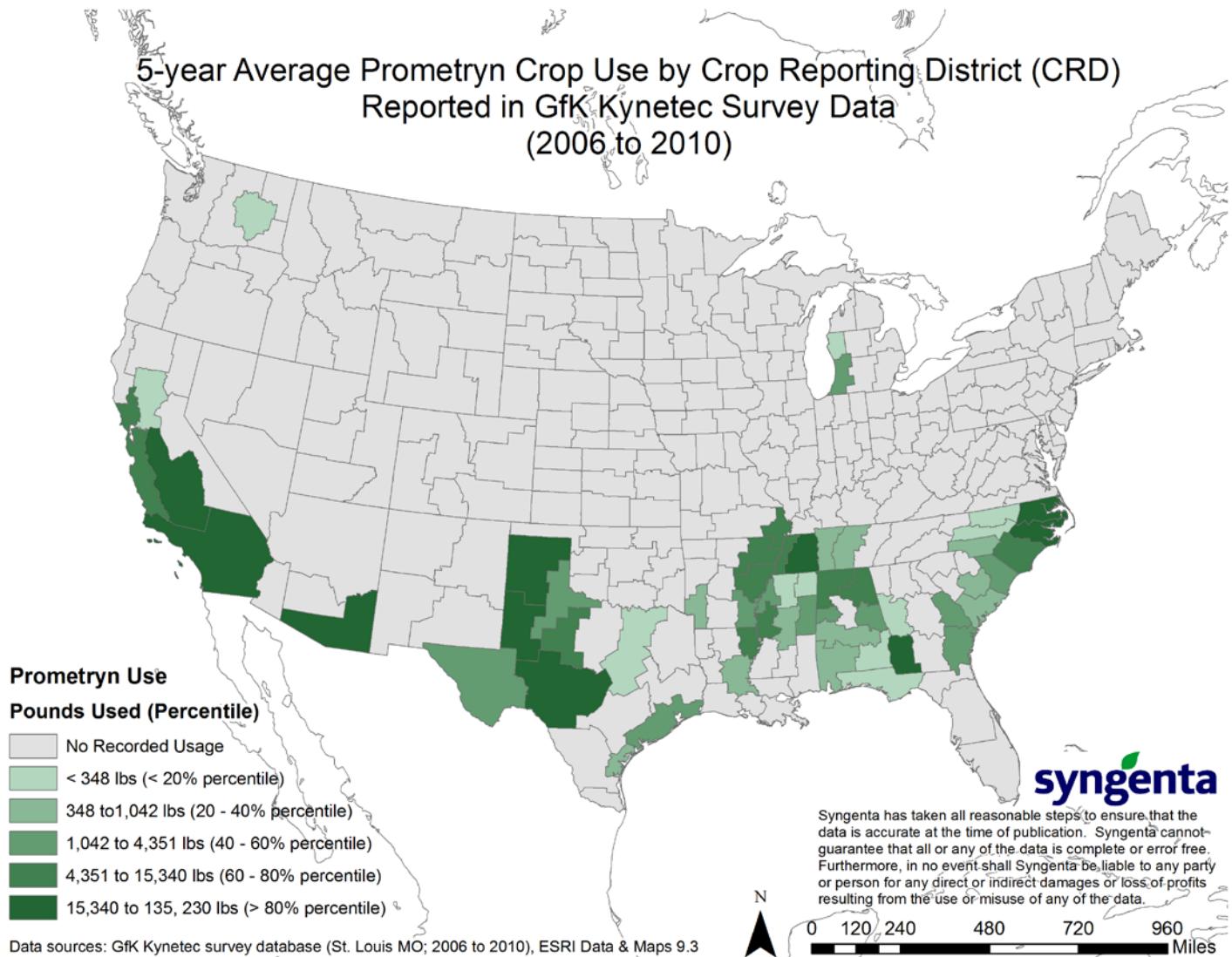


Figure 3. 5-year average prometryn use intensity in US

5.1.2 California Pesticide Use Reporting (PUR) Data

The latest available information for California pesticide use reports is for 2009, and the California pesticide use reporting (PUR) data from 2000 - 2009 were downloaded from the California Pesticide Information Portal (CalPIP) [URL:<http://www.cdpr.ca.gov/docs/pur/purmain.htm>]. Figure 4 presents this 10-yr prometryn use trend in California. Table 6 summarizes all of the prometryn uses in California reported in PUR database from 2005 - 2009.

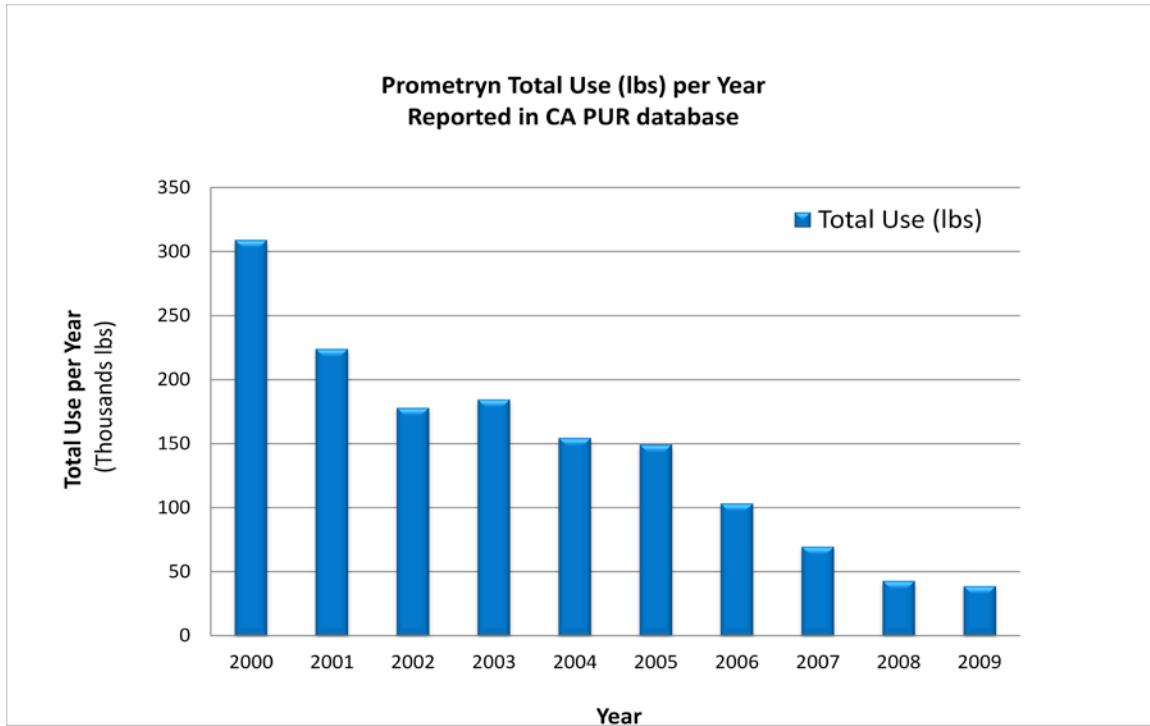


Figure 4. 10-year prometryn use pattern in California (2000 to 2009: PUR data were downloaded from <http://calpip.cdpr.ca.gov/main.cfm> in March, 2011)

Table 6. Prometryn use data reported in California Pesticide Use Reporting (PUR) database (2005 to 2009)¹

Crop Use	2005 Total Use (lb)	2006 Total Use (lb)	2007 Total Use (lb)	2008 Total Use (lb)	2009 Total Use (lb)
Cotton, General	121,274	75,517	44,177	16,687	15,504
Celery, General	23,290	22,873	20,306	23,107	20,420
Parsley (Leafy Vegetable)	2,878	3,824	2,284	1,727	1,663
Fennel (All Or Unspec)	691	798	679	701	604
Dill	78	101	185	455	306
Tomatoes, For Processing/Canning	0.0	0.0	0.0	0.0	96.0
Lettuce, Head (All Or Unspec)	0.0	19.2	0.0	0.0	0.0
Artichoke (Globe) (All Or Unspec)	0.0	6.4	0.0	0.0	0.0

Broccoli	2.5	0.0	0.0	0.0	0.0
Spinach	0.0	0.0	0.0	1.0	0.0
Celeriac (Celery Root)	0.0	0.0	0.0	0.0	1.0

¹PUR data were downloaded from <http://calpip.cdpr.ca.gov/main.cfm> in March, 2011

5.1.3 Marketing Sales Data

Marketing sales data can be used to show current market areas for prometryn as a proxy to identify product use patterns.

5.2 Species Information

5.2.1 Federally Listed Species Information

U.S. Fish and Wildlife Service Threatened and Endangered Species System (TESS, accessible at URL: http://ecos.fws.gov/tess_public/) is available to identify all federally listed (endangered, threatened, and proposed) species.

5.2.2 Critical Habitats

Spatial data files (shape files) of the listed species with final or proposed designated critical habitats are available from the U.S. FWS Critical Habitat Portal [URL: <http://criticalhabitat.fws.gov>].

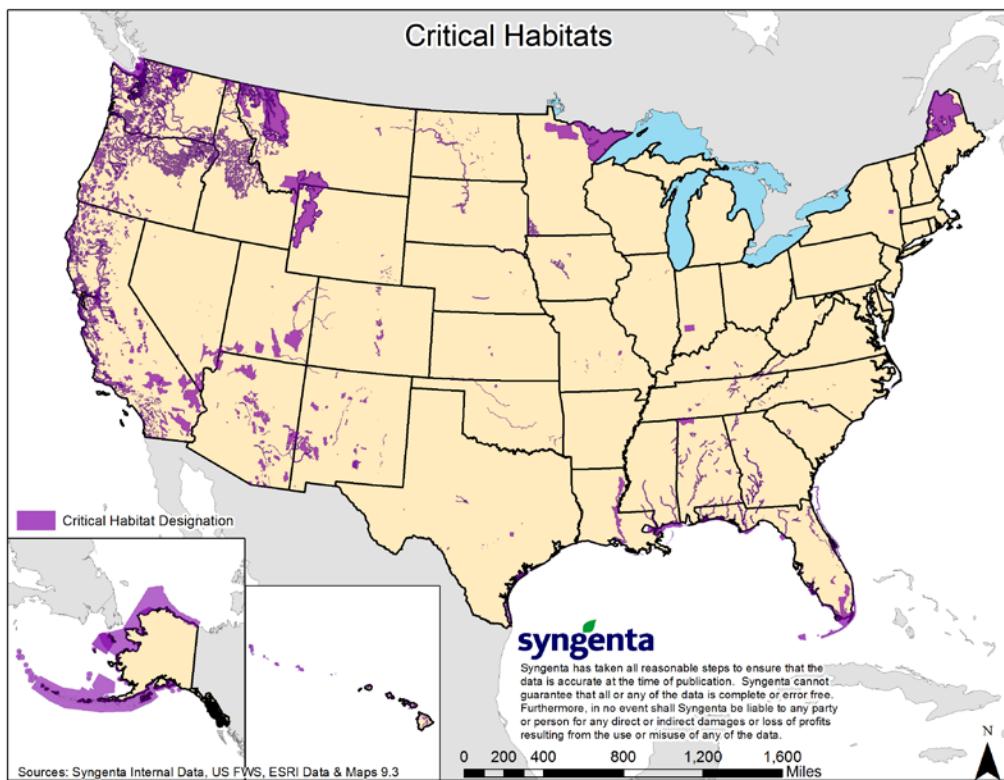


Figure 5. Critical habitat distribution in US including all species available from US FWS

5.3 Work Products of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Endangered Species Task Force (FESTF)

5.3.1 Information Management System (IMS)

The IMS system contains the county-level species data provided from US EPA/US FWS and crop data from the USDA Census of Agriculture. The IMS enables the user to query this information to obtain data relevant to a particular registration objective. For example, for a particular product, a user can choose state(s) of interest, taxa (birds, mammals, dicots, monocots, etc.) of concern, and crops of interest for a particular product. The IMS then generates information regarding which (if any) crops of concern and Threatened and Endangered species (within the chosen taxa) co-occur at a county level. This information can be used to conduct a national-level threatened and endangered species assessment within the IMS.

5.3.2 NatureServe Multi-Jurisdictional Database (MJD)

The FESTF MJD provides an extensive database that contains location-specific information provided by NatureServe, along with its member Natural Heritage Programs and Conservation Data Centers. FESTF MJD contains biological data and spatial data for each Element Occurrence (EO, representing an individual record of species presence in a defined area). Spatial data of species locations in the FESTF MJD are available as a shape file format that can be mapped or overlaid with other spatial data.

FESTF MJD is designed to provide the “best available aggregated data” on federally listed species habitat and occurrence. The most currently available species location data of NatureServe MJD was received by FESTF on July 10, 2009. FESTF has recently received new licensed data from NatureServe (March, 2011) and the new dataset is under review and will be available soon.

5.4 Land Use Information

5.4.1 National Land Cover Database (NLCD)

High-resolution spatial data on the location of cultivated land through the US is available from the USGS 2001 National Land Cover Database (NLCD) (http://www.mrlc.gov/nlcd_multizone_map.php). To conservatively account for potential exposure to pesticide, landcover locations were considered that represented NLCD class 82. This includes all cultivated crop areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and perennial woody crops such as orchards and vineyards. This broad definition of areas of agricultural production has generally been used to identify potential use areas for a product which is registered for any row crop use(s) (Figure 6). As a work product from FESTF, a proximity database including all distance information between a species location (EO) and NLCD 82 locations is available through the FESTF website (<http://www.festf.org/>).

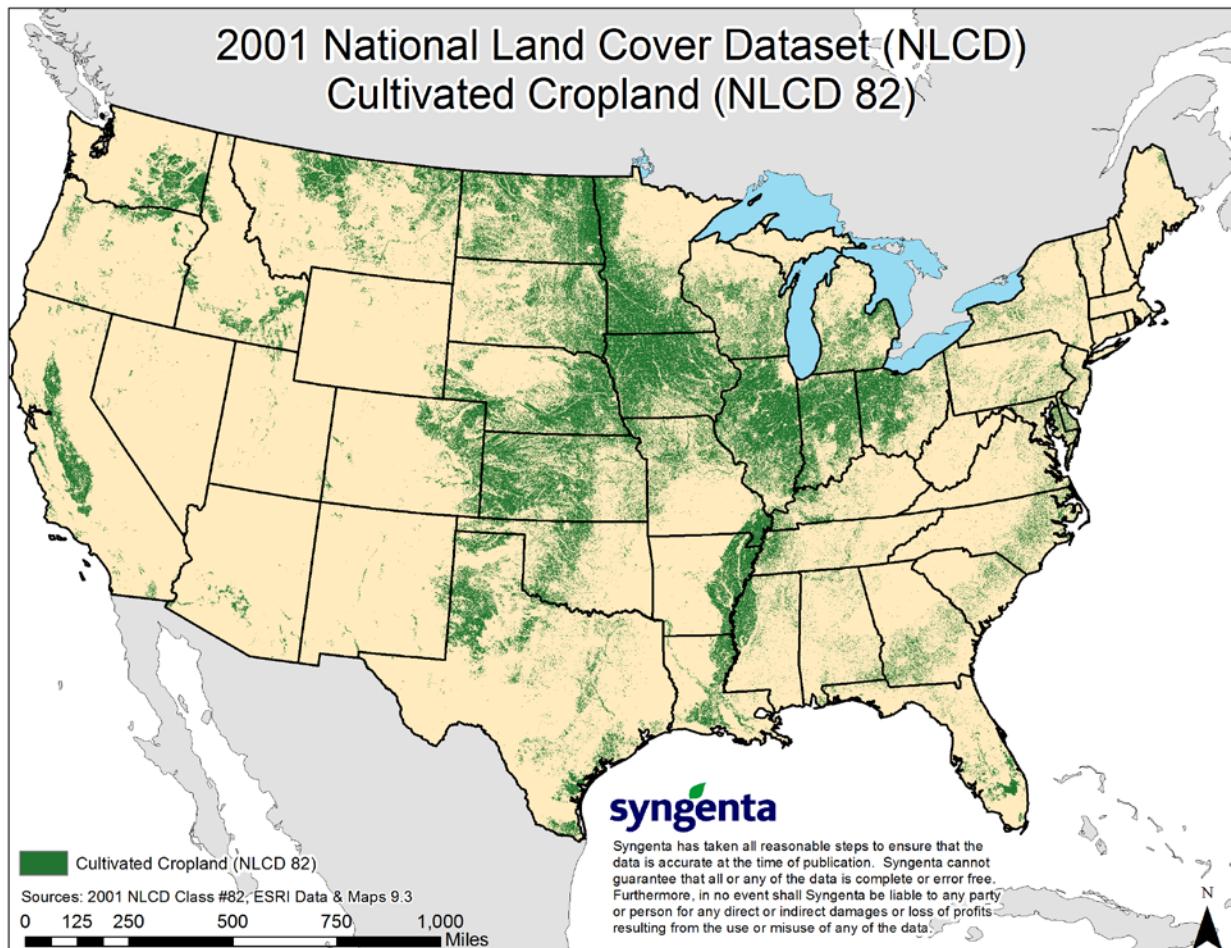


Figure 6. An example map showing cultivated cropland (NLCD 82) distribution in US

5.4.2 Cropland Data Layer (CDL)

Most pesticides are registered for use on specific target crop(s). Therefore, use areas are limited based on the labeled crops, especially for a product which has registrations for limited crop use(s) such as prometryn. Additional refinements of land cover analysis are necessary using more refined spatial information of Cropland Data Layer (CDL) from USDA-NASS. The Cropland Data Layer (CDL) contains crop-specific digital data layers, suitable for use in geographic information systems (GIS) applications. The 2009 and 2010 CDL datasets are currently available for the entire contiguous US from USDA-NASS website (<http://www.nass.usda.gov/research/Cropland/SARS1a.htm>).

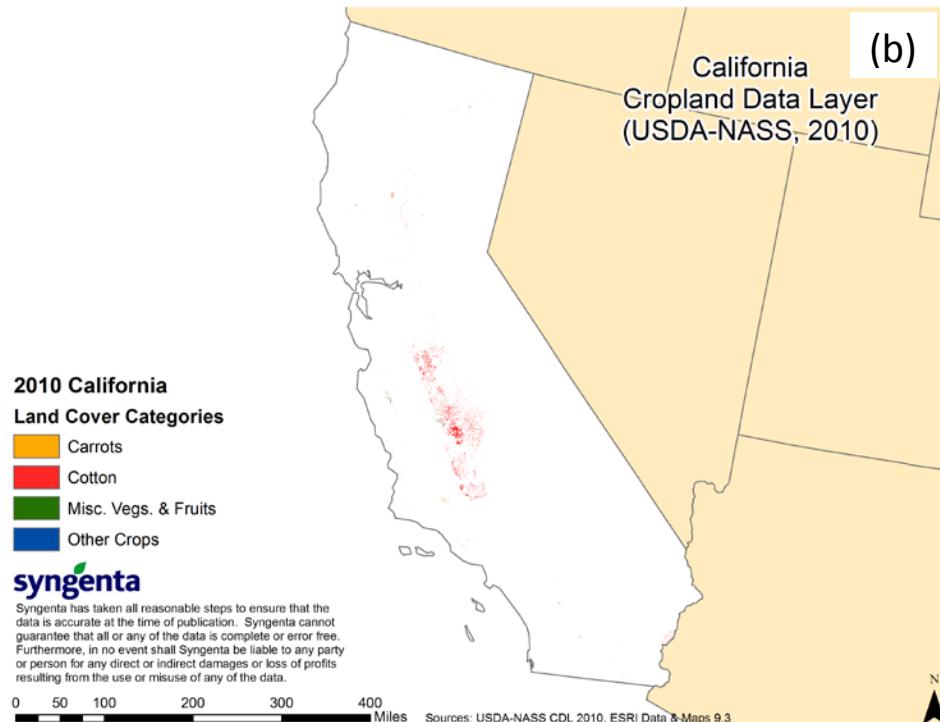
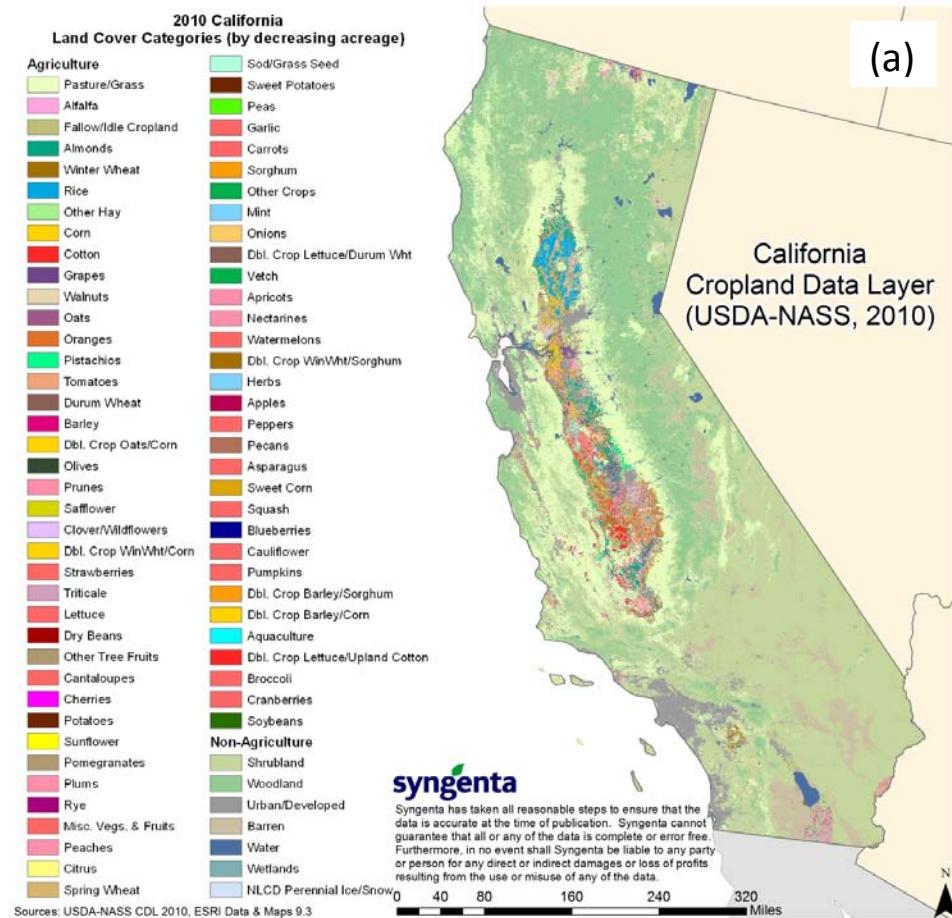


Figure 7. Example maps of all crop classes in 2010 cropland data layer in California (a) and only crop classes applicable for prometryn use (b).

5.4.3 GAP National Land Cover Data

The GAP national land cover datasets are based on the NatureServe Ecological Systems Classification and are currently available for the entire continental US from the GAP analysis website (<http://gapanalysis.usgs.gov/data/land-cover-data/>). GAP land cover data contains all 590 available land use classes including extensive vegetation type classes to characterize vegetation diversity of riparian zones (Figure 8).

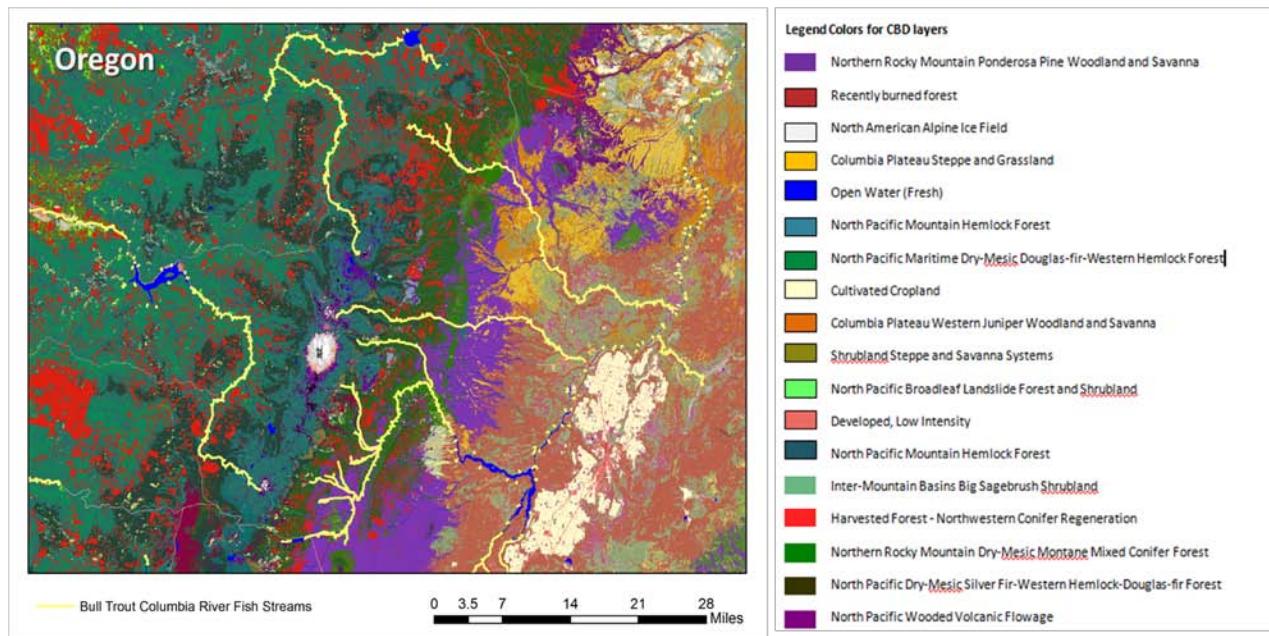


Figure 8. An example map of GAP National Land Cover Data

5.5 Biological Data

Biological and ecological characteristics of some species preclude their presence near potential crop use sites (e.g., cotton or celery). Examples of co-occurrences eliminated based on these attributes include species that are restricted to high elevation habitats where prometryn-labeled crops are not grown; species that are not present in a particular area when prometryn is applied; and any other habitat characteristics and use site conditions that would preclude exposure. Biological and ecological characteristic data from Federal Register Notices, Recovery Plans, NatureServe, species experts (such as State Chief Biologists, USFWS Species Experts, State Data Services Coordinators, State Endangered Species and Natural Heritage Botanists, etc.), and open literature are available under IMS to support such findings.

Table 7. Summary table of available basic geospatial data

Data category	Data Name	Data Source URL
Species Information	U.S. FWS Threatened and Endangered Species System (TESS)	http://ecos.fws.gov/tess_public/
	U.S. FWS Critical Habitat Portal	U.S. FWS Critical Habitat Portal http://criticalhabitat.fws.gov
	FESTF-IMS (Information Management System)	http://www.festf.org/
	FESTF-MJD (NatureServe Multi-Jurisdictional Database)	http://www.festf.org/
	GAP species range maps and distribution models	http://gapanalysis.usgs.gov/data/species-data/
Pesticide Use Information	GfK Kynetec (St. Louis, MO; formerly Doane Marketing Research Inc.)	https://gfk-kynetecsc1.com/
	California Pesticide Use Reporting (PUR) Data	California Pesticide Information Portal (CalPIP) http://www.cdpr.ca.gov/docs/pur/purmain.htm
	Marking Sales Data	Company Internal Database
Crop and Land Use Information	1997, 2002, or 2007 Census of Agriculture	http://www.agcensus.usda.gov/
	National Land Cover Database (NLCD)	USGS 2001 NLCD http://www.mrlc.gov/nlcd_multizone_map.php
	Cropland Data Layer (CDL)	USDA-NASS website http://www.nass.usda.gov/research/Cropland/SARS1a.htm
	GAP National Land Cover Data	http://gapanalysis.usgs.gov/data/land-cover-data/

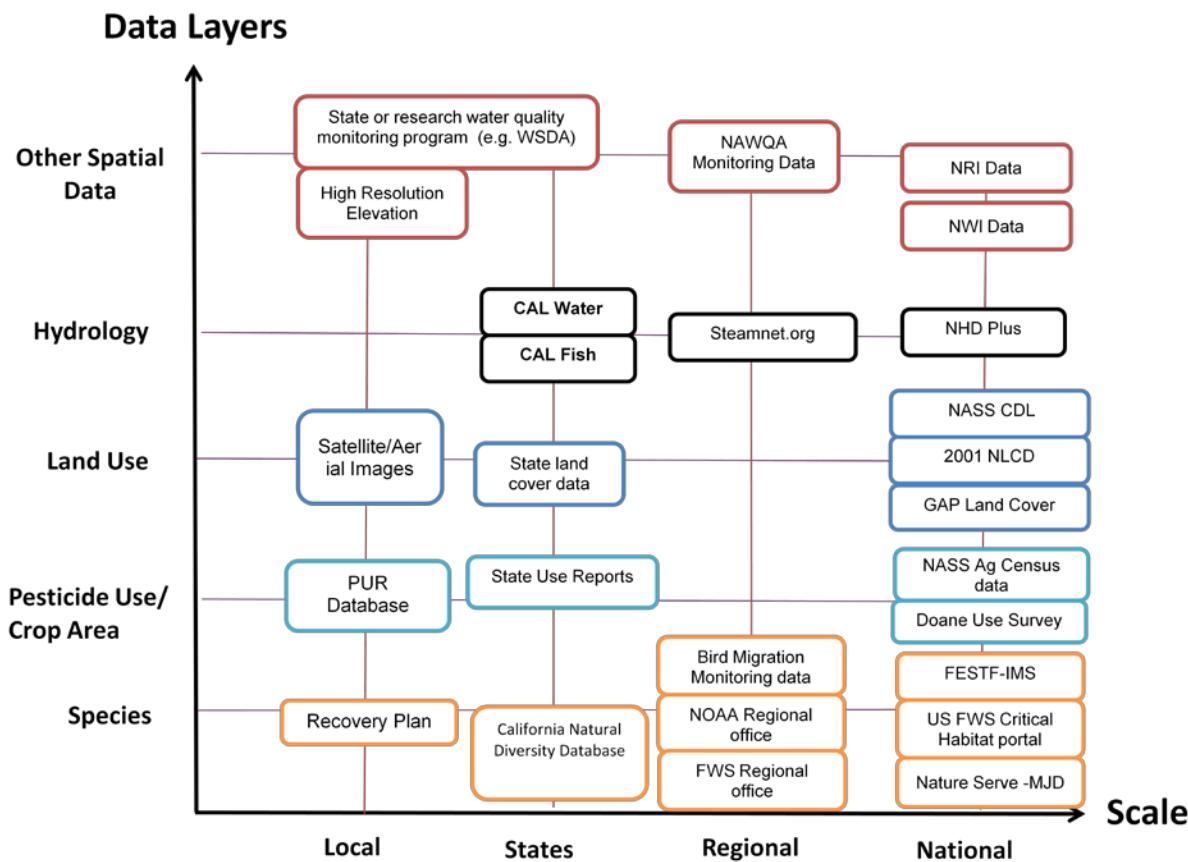


Figure 9. Example of geospatial data matrix showing data availability for geospatial analysis by scale. Use of best scientific and commercial available data is required for ESA. Best available geospatial data option varies depending on scale of data analyses. The geospatial data matrix shows data availability across different scales.

5.6 Geospatial Analyses

5.6.1 County-level Co-occurrence Analysis

County-level screening analysis is conducted to identify listed species within potential use counties. For co-occurrence analysis, crop information from the Census of Agricultural (USDA-NASS) and species county database from FESTF-IMS or other species location information can be utilized (Figures 10 and 11).

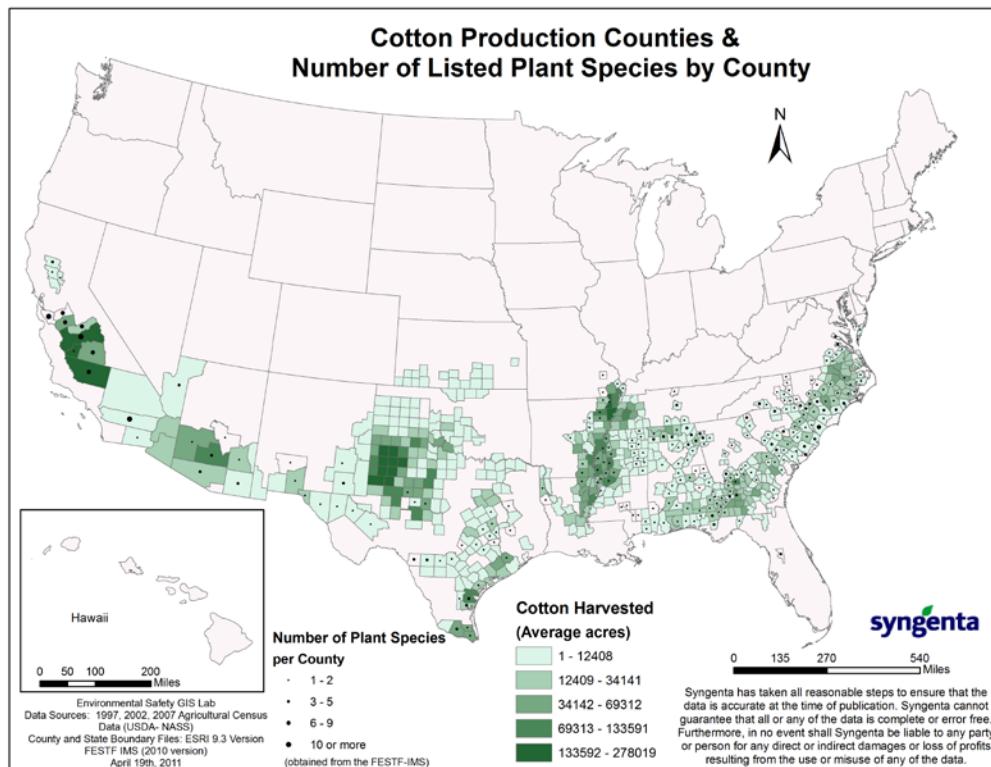


Figure 10. Number of listed plant species by county found in cotton growing counties in the US as an example of county-level co-occurrence analysis

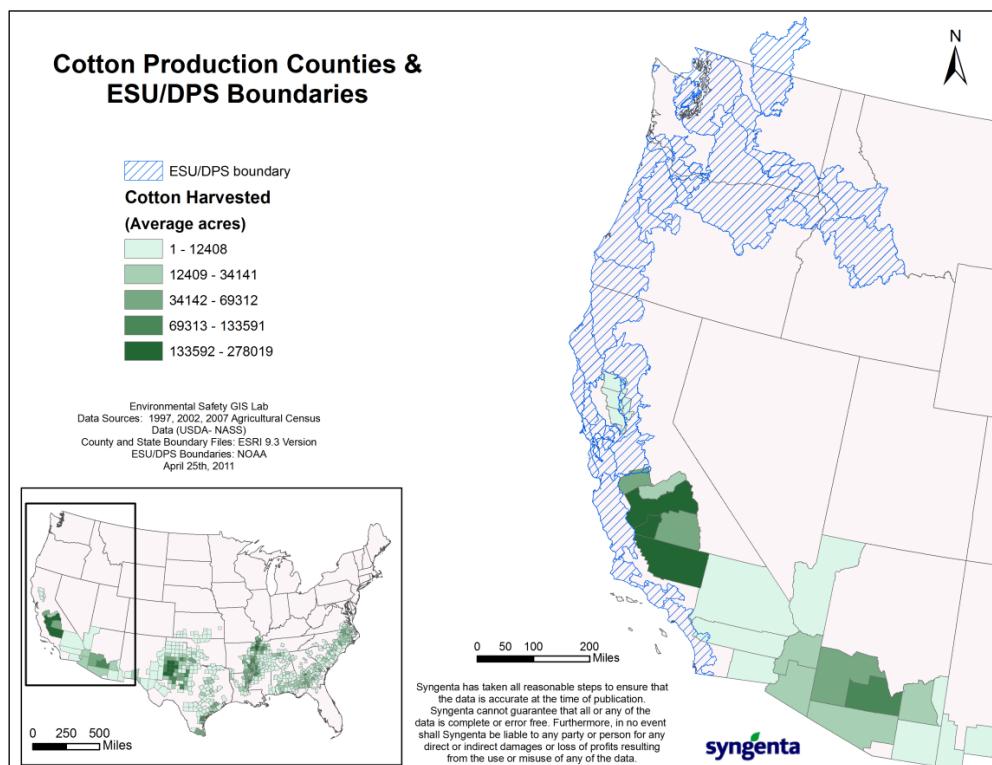


Figure 11. Cotton growing counties in California in relation to the 28 listed evolutionary significant units (ESUs) and distinct population segments (DPSs) related to five salmonid species; chinook, chum, coho, and sockeye salmon, and steelhead trout as an example map of county-level co-occurrence analysis

5.7 Proximity Analysis

For the species found within registered crop production counties, further refined spatial analysis using high resolution species and crop data is required to understand proximity of species locations to potential crop use locations. Site-specific spatial data of species locations from NatureServe MJD database or other species location information (e.g. US FWS critical habitats or salmon habitat stream information from NOAA) can be used to identify the locations of species. Also, land use data from 2001 NLCD (US-EPA) and CDL (USDA-CDL) can be applied to find potentially labeled crop growing areas. For the land use analysis, a proximity database including all distance information between EO and cultivated crop land (NLCD 82) locations can be applied to filter the species that are not near agricultural land. As a work product from FESTF, a proximity database including all distance information between EO and NLCD 82 locations is available through the FESTF website (<http://www.festf.org/>). However, it should be noted that the use of an NLCD 82-based approach to identify pesticide use areas is overly conservative and unrefined, especially for a product with only limited crop use(s). Figure 12 shows the comparison between the potential use areas estimated by using NLCD 82 (cultivated crops including areas used for the production of annual crops) and actual survey data for selected individual crops as an example. The results showed that only 28% of total estimated use areas using NLCD 82 within corn growing counties were identified as actual corn harvested acreages. For cotton, only 17% of total estimated use areas using NLCD 82 within cotton growing counties showed actual cotton harvested acreages. The results confirm that NLCD 82 is a screening-level analysis that exaggerates the actual cropped area, and that refinement using crop specific analysis based on CDL data will be appropriate and more realistic.

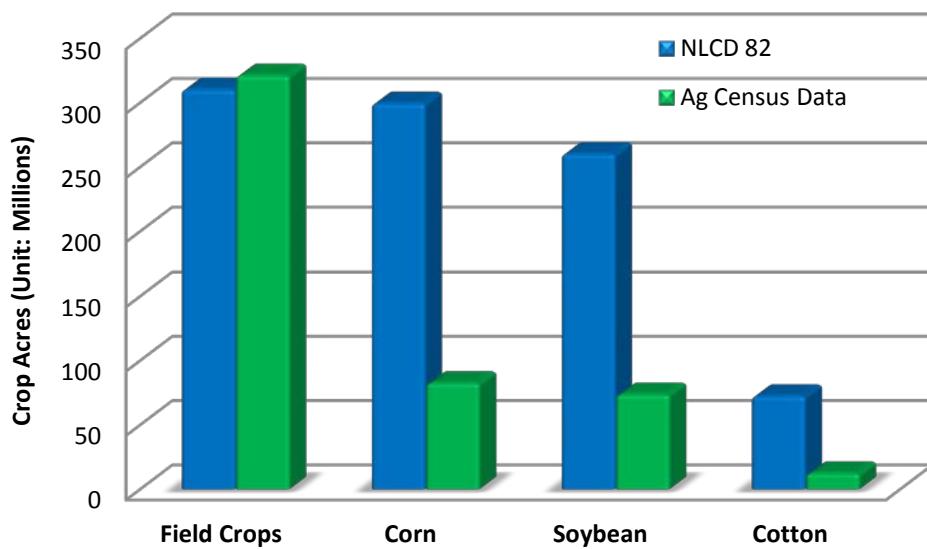


Figure 12. Comparison of potential use areas estimated by using two different land use datasets of NLCD 82 (cultivated crops including areas used for the production of annual crops) and actual survey data for individual crops.

Therefore, crop-specific land use information from CDLs is recommended to examine if there are any potential labeled crop fields near the habitat areas (as an example, see Figure 13). Two years of CDL data (2009 and 2010) are currently available for the entire contiguous US and CDLs can be applied to examine if any use crops as well as potential rotational crops, are located near the species habitats.

Also, the use restrictions for prometryn can be considered for further refinement. Prometryn label use restrictions vary based on use region and soil texture of a product use field. As an example, Caparol 4L cannot be used on any coarse sandy soils in AZ and CA and some listed plant species found in AZ are cactus species, which prefer to live in sandy soil (Figure 14). Also, post-emergence use of Caparol 4L is restricted in the Coachella Valley, therefore, the Coachella Valley species will have very low potential exposure from

postemergence use for prometryn. Also, as discussed above, some listed plant species that only grow at high elevations can be excluded as well (Figure 14).

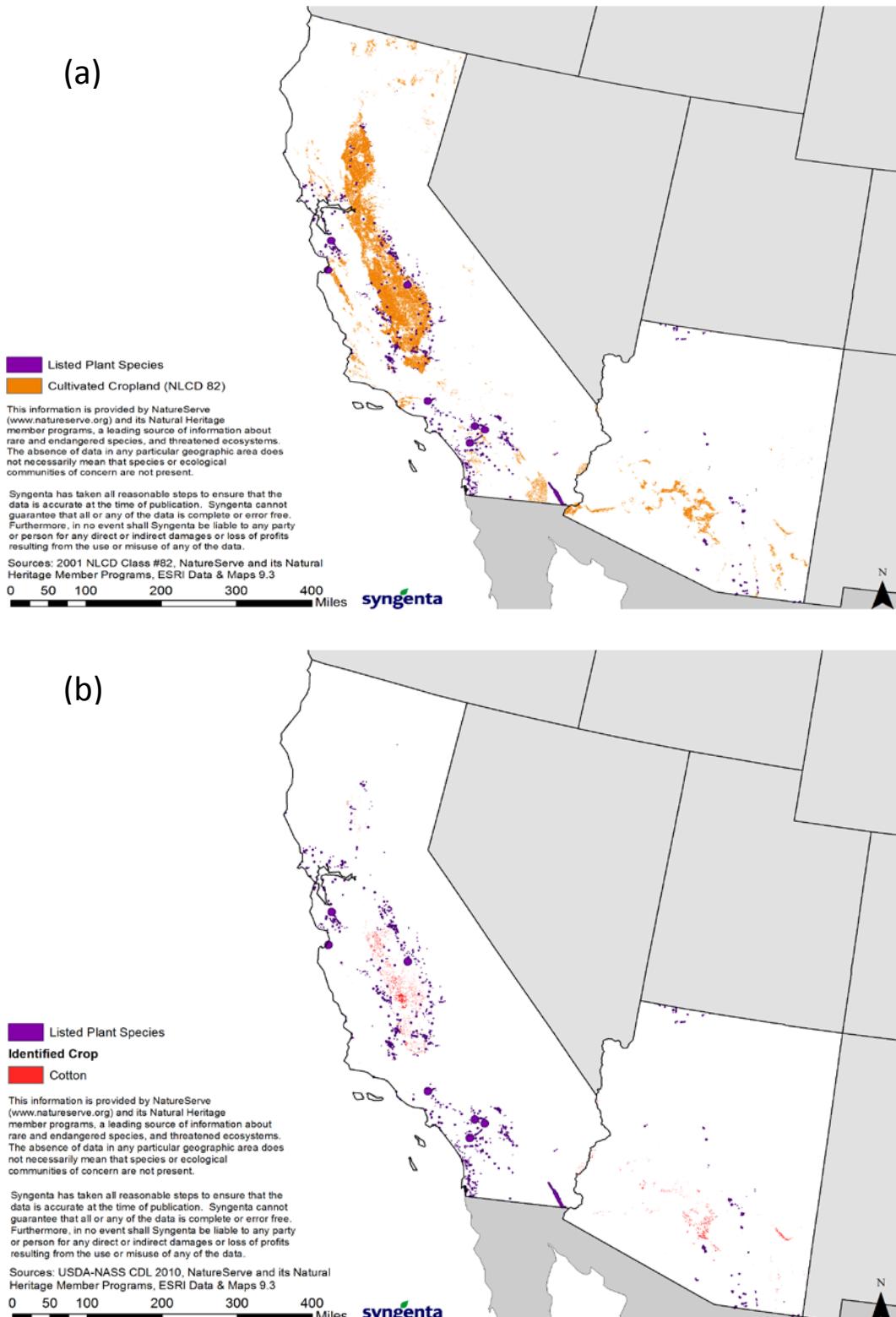


Figure 13. Comparison of potential use areas estimated by using two different land use datasets of NLCD 82 (cultivated crops including areas used for the production of annual crops) (Figure 13a) and actual cotton growing areas from 2010 CDL (Figure 13b) in relation to the listed plant species locations found in cotton growing counties.

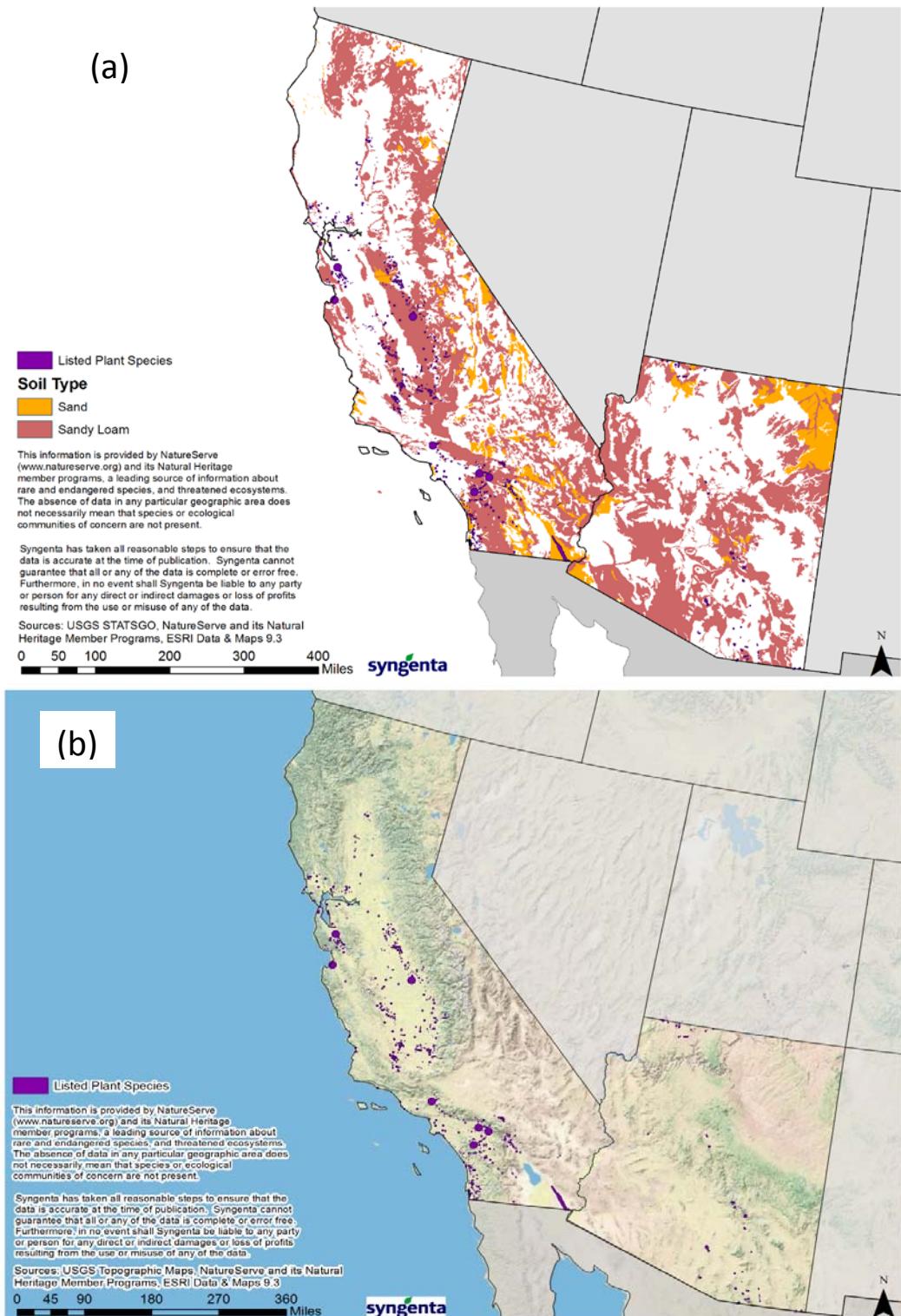


Figure 14. Coarse sandy soil distribution (Figure 14a) and topography (Figure 14b) in relation to the listed plant species locations found in cotton growing counties.

6.0 ENVIRONMENTAL FATE

6.1 Environmental Fate Summary

Environmental fate data, including half-life and mobility information, are used to estimate exposure for endangered species assessments. These types of data and information are typically available from EPA guideline studies, and other best available data may also be found in the primary literature or from other reliable sources. Based on physical-chemical and environmental fate data, the degradation of prometryn is primarily driven by soil aerobic microbial metabolism. EPA guideline laboratory studies indicate that prometryn is stable to hydrolysis and soil and aqueous photolysis. Soil aerobic metabolism can be variable across different soils, geographies, and cultural practices. EPA guideline field-scale terrestrial dissipation studies on dissipation of prometryn were conducted in two representative geographies showing that the prometryn dissipation half-life values in the topsoil (0-15 and 0-6 inches for CA and TX respectively) were between 70 and 103 days (Table 8). Literature sources (Table 9) report aerobic soil metabolism half-life values of 41 and 60 days. An EPA guideline laboratory study reported a soil aerobic metabolism half-life value of 270 days (Table 8). While EPA guideline studies of aerobic and anaerobic aquatic metabolism half-life values are not available, open-literature sources report values of 56 and 38 days respectively (Table 9). Potential prometryn transport mechanisms may include runoff to surface water, leaching, and spray drift. Low volatility potential of prometryn (Table 8) suggests relatively low risk of significant secondary drift of volatilized residues leading to deposition onto adjacent ecosystems.

Available data suggest a broad range of values for transport potential (i.e. mobility) within guideline and other studies. An EPA guideline batch equilibrium soil adsorption-desorption laboratory study using four soils in different counties of KY report sorption coefficient (Koc) values between 117 and 448 mL/g (Table 8). Following the mobility classification approach from McCall et al. (1980), prometryn would be classified as having “medium mobility” (Koc values between 150-500 mL/g). A peer-reviewed EPA report by Rao and Davidson (1982) reported Koc values from 38 diverse soils, the mean Koc value being 614 mL/g (CV=0.99) (Table 9). The publication reported data suggest that soil adsorption of prometryn is related to soil organic carbon and cation exchange capacity (R^2 of 0.61 and 0.60 respectively). The relationship between soil adsorption, soil organic carbon, and cation exchange capacity is particularly important for prometryn because the federal labels describe detailed use restrictions based on soil texture (among other parameters) (See Section 2.3). An EPA guideline soil column leaching study reported that prometryn may be relatively immobile (Table 8). In this study, Koc was not specifically measured; however, prometryn was introduced at the top of three replicated 12-in vertical soil columns (a sandy loam textural class from California) followed by between 21 and 23 inches of water infiltration under saturated soil conditions. No prometryn was detected in the leachate water over the course of infiltration period. Subsequent to infiltration, all prometryn mass was quantified in the top 4 inches of the soil columns. Finally, the terrestrial field dissipation studies reported no detections of prometryn below 17.7 inches below ground surface. Given these data, transport potential of prometryn may be conceptualized as exhibiting relatively low mobility under certain conditions (i.e. relatively high soil organic carbon and/or cation exchange capacity).

In addition to the guideline regulatory studies required by the EPA, significant work has been conducted in the public literature to describe physical-chemical properties and environmental fate characterization (Table 9). The studies were not specifically conducted to meet regulatory guidelines, but may contribute to the characterization of relevant environmental fate and physical-chemical properties of prometryn in context with study-specific research goals. Data in the public literature should be carefully considered to ensure that the quality of any given study is consistent with regulatory standards and requirements.

Table 8: Physical-chemical properties and environmental fate input parameters based on available data

Physical-chemical properties and Environmental Fate Input Parameters	Available Data	Source
Molecular weight (g/mol)	241.35	EPA 2009 DWA ¹
Solubility in water (mg/L)	33	EPA 2009 DWA ¹
Vapor pressure at 25 °C (torr)	1.238E-6	MRID 44339601
Henry's law constant (atm-m ³ /mol)	7.40E-9	Syngenta calculation from submitted vapor pressure and solubility studies, corrected to 22 °C
Hydrolysis half-life (days)	Stable	MRID 40573704
Aerobic soil metabolism half-life (days)	270 (1 soil)	MRID 00148338
Anaerobic soil metabolism half-life (days)	Stable	MRID 41155509 00148338
Soil photolysis	Stable	MRID 40573706
Volatility from soil (laboratory)	Stable	MRID 41875906
Aerobic aquatic metabolism half-life (days)	NA	--
Anaerobic aquatic metabolism half-life (days)	NA	--
Sorption coefficient, Koc (mL/g)	246, 169, 117, and 448,	MRID 41875901 ²
Mobility via column leaching experiment	Immobile ³	MRID 41875904
Aquatic photolysis	Stable	MRID 40573705
Terrestrial field dissipation half-life	CA cotton: 103 days CA bare-ground: 71 days TX cotton: 86 days TX bare-ground: 70 days	MRID 41546401 42253903 41546402 42253904 41546403 42253901 41546404 42253902

1. EPA Drinking Water Assessment: Prometryn (CAS Reg. No. 7287-19-6) Tier I Drinking Water Assessment for the Proposed New Uses on Carrots, Okra, Parsley, Cilantro, Celeriac, and Leafy Petioles. PC Code: 080805. DP Barcode 357096, 357099. Date: June 19, 2009.

2. The four soils used in this study were collected from Fayette County, KY in agricultural soils comprised of USDA soil textural classes: sand, loamy sand, silt loam, and silty clay loam consisting of organic carbon content of less than or equal to 2.6%.

3. Prometryn was not detected in replicated leachate measurements (N=3) after 21 - 23 inches of infiltrated water (12-in soil columns). Post-leaching, nearly all of the applied prometryn was detected (radio-labeling technique) in the top 4 inches of the soil columns.

Table 9: Summary of available literature including description of physical-chemical properties and environmental fate characterization

Physical-chemical properties and Environmental Fate Input Parameters	Available Data
Solubility in water (mg/L)	33 ¹ , 48 ²
Vapor pressure at 25 °C (torr)	9.75E-7 ¹
Henry's law constant (atm·m ³ /mol)	1.22E-8 ¹
Aerobic soil metabolism half-life (days) - Laboratory	41 ¹ and 60 ^{1,4}
Aquatic photolysis half-life (days)	30 ¹ and <1 ⁵
Hydrolysis half-life (days)	Stable ¹
Aerobic aquatic metabolism half-life (days)	56 ¹
Anaerobic aquatic metabolism half-life (days) – Water-sediment	38 ¹
Sorption coefficient, Koc (mL/g)	400 ^{1,4} , 130 ² , 483 ³ , 254 ³ , 432 ³ , 191-617 ⁴ , 50-490 ⁶ , 56.9 ⁹ , 100.0 ⁹ , 194.1 ⁹ , 200.0 ⁹ , 202.9 ⁹ , 207.9 ⁹ , 239.1 ⁹ , 264.7 ⁹ , 272.3 ⁹ , 292.4 ⁹ , 299.4 ⁹ , 320.5 ⁹ , 323.9 ⁹ , 327.3 ⁹ , 348.6 ⁹ , 355.4 ⁹ , 380.4 ⁹ , 386.7 ⁹ , 415.3 ⁹ , 444.4 ⁹ , 471.2 ⁹ , 503.0 ⁹ , 504.4 ⁹ , 507.9 ⁹ , 508.3 ⁹ , 528.9 ⁹ , 606.5 ⁹ , 607.8 ⁹ , 610.0 ⁹ , 637.5 ⁹ , 826.9 ⁹ , 865.4 ⁹ , 918.6 ⁹ , 1067.6 ⁹ , 1362.2 ⁹ , 1775.0 ⁹ , 2388.4 ⁹ , 3013.9 ⁹ (average Koc from Rao and Davidson (1982) is 614)
Freundlich isotherm coefficient, K _f (mL/g)	53.26 (mean of 6 soils) ¹ , 28.9 ⁸ (2.1%OM), 9.95 ⁸ (2.8%OM), 4.9 ⁸ (1.8%OM), 3.49 ⁸ (1.3%OM), 0.66 ⁸ (0.6%OM).
Freundlich isotherm 1/n value (measure of linearity)	0.86 ¹ (mean of 6 soils), 0.79 ⁸ (2.1%OM), 0.83 ⁸ (2.8%OM), 0.76 ⁸ (1.8%OM), 0.80 ⁸ (1.3%OM), 0.77 ⁸ (0.6%OM).
Runoff and leaching in a field soil	Immobile ⁷
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7.0 ECOLOGICAL EFFECTS

Acute and chronic ecotoxicity data are typically available from guideline studies. Data may also be available in the primary literature or from other sources. These toxicity data are used to describe the effects of the active ingredient across a broad range of taxonomic groups including terrestrial wildlife, aquatic organisms, and plants. The ecological endpoints presented in the tables below were identified by USEPA as the lowest endpoints for each taxonomic category.[†] These single-species laboratory study results may or may not be representative of natural populations or communities for the given taxonomic category, as discussed for a few examples below.

Table 10: Lowest Aquatic Organism Toxicity Endpoints as Identified by USEPA (+)

Lowest EPA-Identified Assessment Endpoint	Species	Toxicity Value	Reference
Acute Freshwater (FW) Fish 96-hr Toxicity	Rainbow Trout	LC ₅₀ = 2.9 mg ai/ L	MRID 00070686
Chronic FW 28-d ELS	Fathead Minnow	NOEC = 0.62 mg ai/L	MRID 43801702
Acute FW 48-hr Invertebrate Toxicity	<i>Daphnia magna</i>	EC ₅₀ = 18.6 mg ai/L	MRID 00070146
Chronic FW 21-d Life Cycle	<i>Daphnia magna</i>	NOEC = 1.0 mg ai/L	MRID 40573720
Acute Marine Fish 96 Hour Toxicity	Sheepshead	LC ₅₀ = 5.1 mg ai/ L	MRID 40573717
Acute Marine 48-hr Invertebrate Toxicity	Mysid Shrimp	EC ₅₀ = 1.7 mg ai/L	MRID 40573718

[†] EPA, Office of Pesticide Programs. 2004. Overview of the Ecological Risk Assessment Process in the Office of the Pesticide Programs, 30 -32.

Table 11: Lowest Aquatic Organism Toxicity Endpoints as Identified by USEPA (†)

Lowest EPA-Identified Assessment Endpoint	Species	Toxicity Value	Reference
Acute Avian Dose-Based Toxicity	Mallard Duck	LD ₅₀ > 4640 mg ai/ kg – bw	MRID 00082966
Acute Avian Dietary Based Toxicity	Bobwhite Quail	LC ₅₀ > 5000 mg ai/kg diet	MRID 40457502
Chronic Avian Reproduction	Mallard Duck and Bobwhite Quail	NOEC = 500 mg ai/kg-diet	MRID 41035901
Acute Mammalian Oral Toxicity	Rat	LD ₅₀ = 1802 mg ai/ kg – bw	MRID 00060314
Chronic Mammalian Reproduction	Rat	NOEL = 10 mg/ kg diet †	MRID 41445101
Acute Terrestrial Invertebrate Contact Toxicity	Honey Bee	LD ₅₀ > 96.7 µg / bee	MRID 00036935

† No reproductive effects observed at a feeding concentration of ≥ 1500 mg/kg diet for two successive generations.

Table 12: Lowest Aquatic Organism Toxicity Endpoints as Identified by USEPA

Lowest EPA-Identified Assessment Endpoint	Species	Toxicity Value	Reference
<i>Terrestrial</i>			
Seedling Emergence – monocot	Onion	EC ₂₅ = 0.095 lb ai/A	MRID 41035904
	Oats	EC ₂₅ = 0.049 lb ai/A	EPA, 2009*
Seedling Emergence – dicot	Cabbage	EC ₂₅ = 0.036 lb ai/A EC ₂₅ = 0.02 lb ai/A	MRID 41035904 EPA, 2009*
	Onion	EC ₂₅ = 0.161 lb ai/A EC ₂₅ = 0.18 lb ai/A	MRID 41035903 EPA, 2009*
Vegetative Vigor – monocot	Cucumber	EC ₂₅ = 0.006 lb ai/A	MRID 41035903
	Lettuce	EC ₂₅ = 0.01 lb ai/A	EPA, 2009*
<i>Aquatic</i>			
Non-Vascular FW Plant Toxicity	Diatom (<i>Navicula pelliculosa</i>)	EC ₅₀ = 0.001 mg ai/L	MRID 42620201
Non-Vascular FW Plant Toxicity	Green Alga (<i>Pseudokirchneriella subcapitata</i>)	EC ₅₀ = 0.012 mg ai/L	MRID 42520903
Non-Vascular FW Plant Toxicity	Cyanobacteria (<i>Anabaena flos-aquae</i>)	EC ₅₀ = 0.0401 mg ai/L	MRID 42520902
Non-Vascular Marine Plant Toxicity	Diatom (<i>Skeletonema costatum</i>)	EC ₅₀ = 0.0076 mg ai/L	MRID 42620202
Vascular FW Plant Toxicity	Duckweed (<i>Lemna gibba</i>)	EC ₅₀ = 0.0118 mg ai/L	MRID 42520901

*EPA, EFED (2009), Risks of Prometryn Use to Federally Threatened California Red-Legged Frog (*Ran aurora draytonii*), 63-65.

Single-species algal EC50 values range from 1 µg/L for the standard test species *Navicula pelliculosa*, to greater than 700 µg/L for studies described within the USEPA ECOTOX database. Single-species tests of an organism in isolation are useful for repeatability and comparison of effects data, but do not account for biological interactions in the natural environment, including grazing, predation, competition and other factors.

Microcosm and mesocosm studies can provide a link between benchtop monoculture tests and field studies. In one literature example, the results of single-species studies and an indoor microcosm study with prometryn were compared for phototrophic flagellates (*Cryptomonas sp*, freshwater algae), and for predatory ciliates (*Urotricha furcata*) that feed on the algae (Liebig *et al.* 2008). Single species studies indicated NOEC values of 6.9 µg/L on the flagellates and 15.2 µg/L in the multi-species microcosm. These results reflect that single-species studies are highly conservative estimates of environmental effects. In addition, the results from this study and from the literature demonstrate that *Navicula pelliculosa* (EC50 = 1 µg/L) and some other species

tested in the standard guideline laboratory studies are highly sensitive and may not be representative of the sensitivity of natural populations and communities to prometryn.

Species sensitivity distributions (SSD) are a valuable tool in risk assessment and utilize all the use of single-species laboratory test data in a cumulative frequency distribution. In one study (Schmitt-Jansen and Altenburger 2005), community responses were compared to an SSD for prometryn. In order to determine community response, glass discs were placed into laboratory microcosms and collected 14 days later for periphyton analysis. Structural analysis of periphyton was done via HPLC of pigments, and photosynthetic parameters were measured using a pulse-amplitude-modulated (PAM fluorescence-based method). SSDs were modeled using data from the USEPA ECOTOX database. The EC50s of untreated periphyton communities tested shifted from pre-exposure conditions of 80 µg/L to 320 µg/L, indicating an increased community tolerance to prometryn with equivalent function. For prometryn, community tolerance covered 85% of affected species used in single-species tests, indicating that community function was protected at concentrations that affected the least sensitive of the single species. This suggests that the use of the most sensitive single species results will be overly conservative when the protection goal for algae is population and community function.

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8.0 WATER MONITORING DATABASE

An extensive database of environmental monitoring results are available from federal and state programs, as well as from Syngenta programs and other sources. Under the USGS NAWQA monitoring program (USGS. National Water Quality Assessment Data Warehouse (NAWQA). Retrieved on April 30th, 2011 from <http://infotrek.er.usgs.gov/traverse/f?p=NAWQA:HOME:730336235966267>), prometryn was analyzed in 8676 surface water samples and detected 759 times. A total of 110 samples were greater than 0.1 ppb, and only 10 of these were > 1 ppb. The greatest single detected surface water concentration was 3.73 ppb. NAWQA groundwater samples were analyzed for prometryn 4564 times and prometryn was only detected in 24 samples. All samples with measurable prometryn were < 0.1 ppb, and the greatest single detected groundwater concentration was 0.07 ppb.

The California DPR monitoring database (CA DPR. Surface Water Database Complete Chemical Analysis Results. June 2008. from <http://www.cdpr.ca.gov/docs/emon/surfwtr/surfcont.htm>) contains analytical results for 1312 surface water samples that were analyzed for prometryn. Sixty-four of these contained prometryn above 0.1 ppb, and 5 of these were > 1 ppb. The maximum detected concentration was 3.13 ppb. The South Florida Water Management District performs monitoring for pesticides in Florida surface waters. In one survey of the available data (Pfeuffer and Rand, 2004), prometryn was detected in the Everglades Agricultural Basin at concentrations ranging from 0.025 – 0.59 ppb. A recent review of monitoring data and risk assessment of herbicides in the Everglades and other freshwater ecosystems of South Florida found infrequent detects with a maximum of 1.82 ppb prometryn in 235 samples (Schuler and Rand 2008). The 10th percentile concentration of effects of 0.9 ppb was calculated in a species sensitivity distribution for 8 aquatic plant species tested with prometryn, and the authors concluded that the probability of surface water concentrations exceeding the plant 10th percentile concentrations was low for prometryn.

Syngenta Crop Protection LLC has performed extensive monitoring for herbicides, primarily in corn-growing regions. Prometryn was analyzed for in approximately 315 raw (untreated) drinking water samples and was not detected in any samples (LOQ = 0.1 ppb).

The Washington State Department of Ecology Environmental Information Management System (EIM) database (Washington Department of Ecology, Retrieved on April 30th, 2011 from <http://www.ecy.wa.gov/eim/>) reported 3004 fresh/surface water samples that were analyzed for prometryn. A total of 47 samples (~1.5%) analyzed were found to contain prometryn above 0.1 ppb, and the highest concentration measured was 0.3 ppb (1.5 ppb was detected using an experimental semi-permeable membrane collection device in two additional replicate sample).

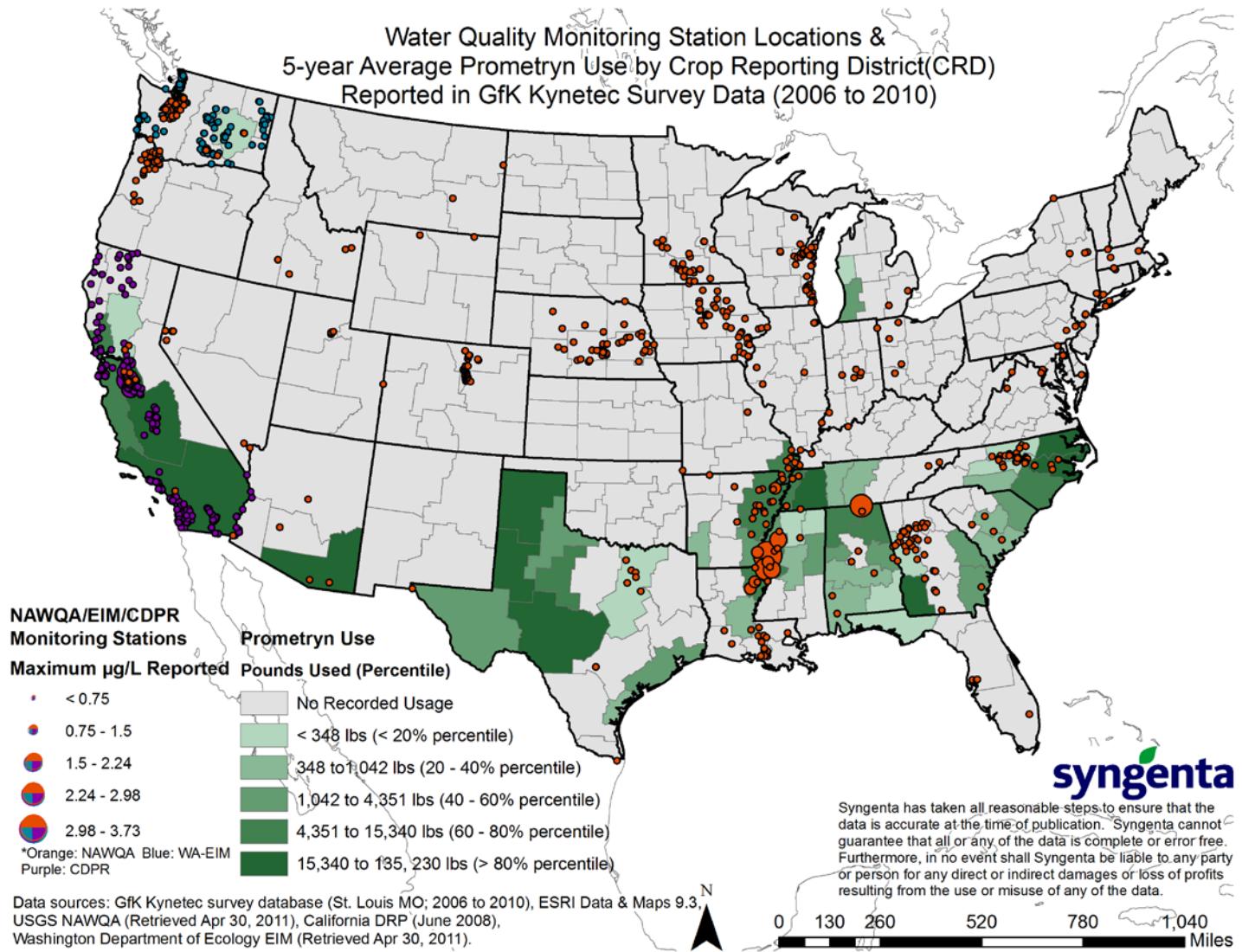


Figure 15. Distribution of water quality monitoring locations from NAWQA, CDPR, and WA EIM.

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9.0 APPENDIX SECTION

9.1 Appendix A: Prometryn Use Data

Prometryn Use Statistics - GfK Kynetec				2009					
Crop	State	CRD	Product	Acres Grown	Base Acres	Product Acres	Pounds AI	Avg. Product Rate (Gal/A)**	Avg. AI Rate (Lb/A)
Cotton	AL	01020	SUPREND (WDG)*	25,770	988	988	196	0.250	0.198
Cotton	AL	01030	CAPAROL 4L	1,225	1,225	1,225	613	0.125	0.500
Cotton	AZ	04080	CAPAROL 4L	140,340	11,216	18,024	10,118	0.140	0.561
Cotton	AZ	04080	COTTON-PRO	140,340	26,515	31,692	22,481	0.177	0.709
Cotton	AZ	04080	PROMETRYNE 4L	140,340	9,203	9,203	6,442	0.175	0.700
Cotton	AR	05030	CAPAROL 4L	278,031	27,246	27,246	20,434	0.188	0.750
Cotton	AR	05060	CAPAROL 4L	119,937	22,712	32,762	22,712	0.173	0.693
Cotton	AR	05070	SUPREND (WDG)*	34,085	11,637	11,637	2,307	0.250	0.198
Cotton	CA	06051	CAPAROL 4L	190,033	5,111	5,111	8,177	0.400	1.600
Cotton	GA	13070	CAPAROL 4L	338,296	21,175	21,175	21,175	0.250	1.000
Cotton	GA	13070	SUPREND (WDG)*	338,296	150,164	150,164	112,323	0.943	0.748
Cotton	LA	22050	CAPAROL 4L	91,235	1,999	1,999	1,499	0.188	0.750
Cotton	MS	28010	CAPAROL 4L	101,501	3,259	3,259	1,630	0.125	0.500
Cotton	MS	28020	COTTON-PRO	32,922	3,029	3,029	1,515	0.125	0.500
Cotton	MS	28040	CAPAROL 4L	96,264	3,015	3,015	2,261	0.188	0.750
Cotton	MO	29090	CAPAROL 4L	274,997	6,366	6,366	4,661	0.183	0.732
Cotton	NC	37060	SUPREND (WDG)*	11,251	514	514	408	1.000	0.793
Cotton	NC	37070	CAPAROL 4L	198,484	10,966	10,966	9,035	0.206	0.824
Cotton	NC	37070	COTTON-PRO	198,484	9,375	9,375	9,375	0.250	1.000
Cotton	NC	37080	CAPAROL 4L	95,929	12,014	12,014	10,076	0.210	0.839
Cotton	SC	45050	SUPREND (WDG)*	39,528	3,832	3,832	3,039	1.000	0.793
Cotton	SC	45080	COTTON-PRO	22,372	4,542	4,542	4,542	0.250	1.000
Cotton	TN	47020	CAPAROL 4L	195,158	33,354	43,846	39,462	0.225	0.900
Cotton	TN	47020	COTTON-PRO	195,158	10,492	10,492	10,492	0.250	1.000
Cotton	TN	47030	CAPAROL 4L	3,618	3,618	3,618	3,618	0.250	1.000
Cotton	TX	48011	CAPAROL 4L	616,583	37,123	37,123	26,365	0.178	0.710
Cotton	TX	48011	COTTON-PRO	616,583	3,268	3,268	3,268	0.250	1.000
Cotton	TX	48012	CAPAROL 4L	2,649,149	80,497	95,538	63,987	0.167	0.670
Cotton	TX	48012	COTTON-PRO	2,649,149	37,417	37,417	33,206	0.222	0.887
Cotton	TX	48012	PROMETRYNE 4L	2,649,149	4,332	4,332	3,032	0.175	0.700
Cotton	TX	48021	CAPAROL 4L	348,593	8,066	8,066	6,050	0.188	0.750
Cotton	TX	48022	CAPAROL 4L	473,950	14,538	14,538	9,058	0.156	0.623
Cotton	TX	48022	PROMETRYNE 4L	473,950	712	712	534	0.188	0.750
Cotton	TX	48070	CAPAROL 4L	180,657	42,671	42,671	30,333	0.178	0.711
Cotton	TX	48090	CAPAROL 4L	120,982	3,697	3,697	1,849	0.125	0.500
Rice	CA	06050	PROMETRYNE 4L	529,130	1,392	1,392	1,740	0.313	1.250
Celery	CA	06040	CAPAROL 4L	12,198	5,344	5,344	6,086	0.285	1.139
Celery	CA	06040	PROMETRYNE 4L	12,198	304	304	456	0.375	1.500
Celery	CA	06040	VEGETABLE PRO	12,198	5,806	5,806	10,841	0.467	1.867
Celery	CA	06080	CAPAROL 4L	14,602	6,052	6,052	9,256	0.382	1.529
Celery	CA	06080	PROMETRYNE 4L	14,602	5,228	5,228	7,502	0.359	1.435
Celery	CA	06080	PROMETRYNE 4L	14,602	444	444	444	0.250	1.000
Celery	CA	06080	VEGETABLE PRO	14,602	2,466	2,466	3,788	0.384	1.536
Celery	MI	26070	CAPAROL 4L	2,000	2,000	3,633	3,633	0.250	1.000

*Suprend WDG also contains the active ingredient trifloxysulfuron. Calculations in table only represent prometryn concentration.

**Suprend WDG is a granular formulation. Product rate listed is in lb/A.

Prometryn Use Statistics - GfK Kynetec				2010					
Crop	State	CRD	Product	Acres Grown	Base Acres	Product Acres	Pounds AI	Avg. Product Rate (Gal/A)**	Avg. AI Rate (Lb/A)
Cotton	AL	01010	CAPAROL 4L	71,532	471	471	471	0.250	1.000
Cotton	AL	01010	SUPREND (WDG)*	71,532	10,277	10,277	8,149	1.000	0.793
Cotton	AL	01030	CAPAROL 4L	4,733	1,211	1,211	606	0.125	0.500
Cotton	AZ	04080	CAPAROL 4L	186,803	3,681	3,681	920	0.063	0.250
Cotton	AZ	04080	COTTON-PRO	186,803	34,007	36,096	39,358	0.273	1.090
Cotton	AR	05060	COTTON-PRO	133,758	1,762	2,259	1,129	0.125	0.500
Cotton	CA	06051	CAPAROL 4L	295,808	6,659	6,659	3,330	0.125	0.500
Cotton	GA	13060	CAPAROL 4L	126,624	20,951	20,951	20,951	0.250	1.000
Cotton	GA	13070	CAPAROL 4L	374,877	37,202	37,202	37,202	0.250	1.000
Cotton	GA	13070	SUPREND (WDG)*	374,877	84,169	84,169	66,746	1.000	0.793
Cotton	LA	22030	SUPREND (WDG)*	122,002	6,797	6,797	8,085	1.500	1.190
Cotton	LA	22050	COTTON-PRO	83,824	4,758	4,758	2,379	0.125	0.500
Cotton	MS	28040	CAPAROL 4L	127,654	4,476	4,476	3,357	0.188	0.750
Cotton	MO	29090	CAPAROL 4L	299,993	23,214	23,214	17,259	0.186	0.743
Cotton	NC	37070	SUPREND (WDG)*	324,821	7,110	7,110	3,947	0.700	0.555
Cotton	NC	37080	CAPAROL 4L	124,336	23,428	23,428	30,457	0.325	1.300
Cotton	NC	37090	SUPREND (WDG)*	100,623	21,842	43,683	34,641	1.000	0.793
Cotton	TN	47010	CAPAROL 4L	94,667	18,073	18,073	18,073	0.250	1.000
Cotton	TN	47020	CAPAROL 4L	290,110	61,896	75,595	54,720	0.181	0.724
Cotton	TX	48011	CAPAROL 4L	683,699	122,945	122,945	93,350	0.190	0.759
Cotton	TX	48011	COTTON-PRO	683,699	13,008	13,008	8,477	0.163	0.652
Cotton	TX	48012	CAPAROL 4L	3,039,037	130,716	130,716	84,904	0.162	0.650
Cotton	TX	48012	COTTON-PRO	3,039,037	99,660	99,660	50,997	0.128	0.512
Cotton	TX	48012	PROMETRYNE 4L	3,039,037	5,417	5,417	2,167	0.100	0.400
Cotton	TX	48021	CAPAROL 4L	388,001	8,500	8,500	6,375	0.188	0.750
Cotton	TX	48022	CAPAROL 4L	579,993	6,817	6,817	3,840	0.141	0.563
Cotton	TX	48060	CAPAROL 4L	16,027	993	993	1,490	0.375	1.500
Cotton	TX	48070	CAPAROL 4L	225,208	69,311	69,311	46,994	0.170	0.678
Carrots	WA	53050	CAPAROL 4L	8,173	775	775	775	0.250	1.000
Celery	CA	06040	CAPAROL 4L	12,489	2,727	2,727	2,926	0.268	1.073
Celery	CA	06040	PROMETRYNE 4L	12,489	303	303	303	0.250	1.000
Celery	CA	06040	PROMETRYNE 4L	12,489	179	179	269	0.375	1.500
Celery	CA	06040	VEGETABLE PRO	12,489	9,110	9,110	13,778	0.378	1.513
Celery	CA	06080	CAPAROL 4L	14,311	4,175	4,175	6,405	0.384	1.534
Celery	CA	06080	PROMETRYNE 4L	14,311	315	315	197	0.156	0.625
Celery	CA	06080	PROMETRYNE 4L	14,311	3,562	3,562	3,562	0.250	1.000
Celery	CA	06080	VEGETABLE PRO	14,311	5,131	5,131	7,530	0.367	1.468
Celery	MI	26040	CAPAROL 4L	40	40	40	81	0.500	2.000
Celery	MI	26070	CAPAROL 4L	1,960	1,960	3,834	3,423	0.223	0.893

*Suprend WDG also contains the active ingredient trifloxsulfuron. Calculations in table only represent prometryn concentration.

**Suprend WDG is a granular formulation. Product rate listed is in lb/A.

9.2 Appendix B: Incident Reports

The following incidents are from:

Risks of Prometryn Use to Federally Threatened California Red-legged Frog, Pesticide Effects Determination, Appendix I. (June 17, 2009) Environmental Fate and Effects Division, EPA; Jim Hetrick; Silvia Termes; Tanja Crk; Stephanie Syslo

There were no reported Terrestrial Animal incidents.

There were no reported Aquatic Animal incidents with a certainty higher than "unlikely."

Plant incidents:

I019130-056 UNDETERMINED LEGALITY

7/31/2007 MO Probable Likelihood

This incident was reported by Syngenta. Corn in an 86-acre field in New Madrid County, MO was damaged due to carryover residues from an application of Suprend product made in a previous growing season. The symptom was described as "uneven height – root".

I007796-005 UNDETERMINED LEGALITY

8/25/1998 TX Possible Likelihood

This incident was reported by Novartis to comply with 6(a)2 regulations. All 600 acres of cotton in Plainview (Hale County), TX, were damaged by Bicep II. The product was applied directly to cotton and resulted in the loss of all the treated cotton plants.

I007796-006 UNDETERMINED LEGALITY

8/17/1998 TX Possible Likelihood

This incident was reported by Novartis to comply with 6(a)2 regulations, and was another complaint from the same source as I007796-005. All 1424 acres of a cotton field in Plainview (Hale County), TX, were damaged by Caparol 4L. As in the previous incident involving cotton, the chemical was applied directly to the cotton plants and resulted in the loss of all the treated cotton plants.

I009573-014 REGISTERED USE

11/12/1999 TX Probable Likelihood

This incident was reported by Novartis to comply with 6(a)2 regulations. A broadcast application of Caparol 4L (formulation code 'F') was applied directly to 48 acres of cotton in Lockhart (Caldwell County), Texas. The application resulted in plant damage in the form of chlorotic yellowing.

I016903-008 REGISTERED USE

7/21/2005 TX Possible Likelihood

This incident was reported by Syngenta to comply with 6(a)2 regulations. Caparol herbicide (formulation code 'EC') was applied directly as a band application to 60 acres of cotton in Uvalde County, Texas. The application resulted in plant damage consisting of chlorotic yellowing of the cotton plant leaves.

I016903-009 REGISTERED USE

9/8/2005 GA Possible Likelihood

This incident was reported by Syngenta to comply with 6(a)2 regulations. Caparol herbicide (formulation code 'EC') was applied as a band application to 26 acres of cotton in Evans County, Georgia. The product was applied directly to the cotton and resulted in plant damage consisting of chlorotic yellowing, necrotic browning, and death of the leaves.

The following additional incident records are included from Syngenta's internal records:

Client Name: Syngenta Crop Protection

Case Number: 1-7512864

Case Created Date/Time: 3/4/2003 9:53:08 PM

Call Type: Exposure

Age/Gender: 71 Years/M

Species/Breed: Human

Exposure Route: Unknown

Symptoms to Date Time From Exposure to Symptom Onset

Nausea 6 hrs or less

Vomiting 6 hrs or less

Diarrhea 6 hrs or less

Duration of Symptoms: Unknown

Management Site: On-site

Severity Assessment: Minor

Product Information

Product Name: Caparol 4L

Active Ingredient: Prometryn

Lot #:

UPC Code:

EPA #: 100-620

FIFRA 6(a)(2) Product: Yes

Aware Date: 3/4/2003

FDA Product: No

Exposed to Concentrate: NA

Circumstances

Exposure Site: Own Residence

Packaging Issues: NA

When Exposure Occurred: 6 Hours ago

Exposure Reason: Unintentional- General

Notes

Date/Time: 3/4/2003 10:23:18 PM

History: Caparol 4L, 100-620

71y/o male c/o nausea, vomiting and diarrhea after using this product all day. Directions in use were followed -- mixed as directed, gloves, clothing, mask worn as directed. States no know route of exposure. Sx developed 4-6 hours after use. Reviewed MSDS, levels & %'s of AI's. With product used as directed, precautions taken, lack of known exposure -- would not expect Sx such as this from product. Suggest contacting pMD if still c/o Sx in am for further evaluation, treatment.

Next follow up date: Call backs complete

Client Name: Syngenta Crop Protection

Case Number: 1-14648000

Case Created Date/Time: 2/20/2007 8:07:26 AM

Call Type: Exposure

Age/Gender: 26 Years/M

Species/Breed: Human **Exposure Route:** Unknown
Symptoms to Date Time From Exposure to Symptom Onset
Vomiting 24 hrs or less
Duration of Symptoms: Unknown
Management Site: HCF
Severity Assessment: Minor

Product Information

Product Name: Product 1: Pramitol
Active Ingredient: **Lot #:**
UPC Code: **EPA #:**
FIFRA 6(a)(2) Product: Yes **Aware Date:** 10/2/1998
FDA Product: No **Exposed to Concentrate:** No

Product Information

Product Name: Prometryn Technical
Active Ingredient: Prometryn **Lot #:**
UPC Code: **EPA #: 100-542**
FIFRA 6(a)(2) Product: Yes **Aware Date:** 10/2/1998
FDA Product: No **Exposed to Concentrate:** No

Circumstances

Exposure Site: Other
Packaging Issues: NA
When Exposure Occurred: 9 Years ago
Exposure Reason: Unintentional- General

Notes

Date/Time: 2/20/2007 8:07:33 AM
History: Case #34
Incident Date / Location: 10/01/1998 / Unknown
Exposure data: 2 quarts of product / 60 minute exposure duration.

Description of incident:

Victim was spraying recommended amount of Pramitol. Flu like symptoms occurred 24 hours after exposure.

Additional Notes:

Victim sprayed a recommended amount of Pramitol. Developed flu like symptoms with vomiting 24 hours later. Victim's medical Doctor suspected lead poisoning. On 10/9/98 father of the victim stated his symptoms were exaggerated. Symptoms and time sequence given are not consistent with an overexposure to this product.

FIFRA reported as H-D

Exposure Data:

Amount of Pesticide: 2 quarts **Exposure duration:** 60 minutes
Next follow up date: Call backs complete

Client Name: Syngenta Crop Protection
Case Number: 1-14653430

Case Created Date/Time: 2/20/2007 2:24:24 PM

Call Type: Exposure

Age/Gender: Unknown/U

Species/Breed: Horse

Weight: Unknown

Exposure Route: Unknown

Symptoms to Date Time From Exposure to Symptom Onset

Other Gastrointestinal Black Tongue Unable to determine

Duration of Symptoms: Persisted until death

Management Site: Unable to determine

Severity Assessment: Death

Product Information

Product Name: Prometryn Technical

Active Ingredient: Prometryn

Lot #:

UPC Code:

EPA #: 100-542

FIFRA 6(a)(2) Product: Yes

Aware Date: 3/5/2001

FDA Product: No

Exposed to Concentrate: Unknown

Circumstances

Exposure Site: Own Residence

Packaging Issues: NA

When Exposure Occurred: 7 Years ago

Exposure Reason: Unintentional- General

Notes

Date/Time: 2/20/2007 2:24:58 PM

History: Case 457

Incident Date: Approx. 3/2000

Incident Location: Harpersville, AL

Description of Incident:

Caller applied Gramoxone & Prometryn to his cotton field. Neighbor's horses got sick shortly after, experiencing "black tongue" symptoms. 1 horse died later. The neighbor alleges the pesticides drifted onto his field causing the horses' illness. Pictures taken shortly after complaint indicated no crop/grass damage. 0.42 ppm paraquat was detected in grass samples taken from the fence row. PROSAR responded to (redacted) in 2000; however, (redacted) called back with this continuing issue.

Additional Notes:

Caller, (redacted), sprayed diluted Gramoxone & Prometryn to his cotton field in April, 2000. His neighbor, (redacted), alleges four of his horses got sick shortly afterwards, experiencing "black tongue" symptoms. This report is a continuation of the incident originally reported to PROSAR on 4/28/2000 by (redacted). One horse died after the initial report. The other three recovered. The neighbor alleges the pesticides drifted onto his field and caused the horses' illness. Caller took pictures of the fence row and pasture shortly after the complaint. The pictures indicated no crop/grass damage. 0.42 ppm paraquat was detected in grass samples taken from the fence row. PROSAR responded to (redacted) in 2000; however, (redacted) called back with this continuing issue.

FIFRA reported as D-A

Next follow up date: Call backs complete

9.3 Appendix C: Caparol 4L, Suprend WDG and 24(c) Labels

PULL HERE TO OPEN ►



Caparol[®] 4L

syngenta.[®]

Herbicide

For selective weed control in carrot, celeriac, cilantro, cotton, leafy petioles crop subgroup 4B (cardoon, celery, Chinese celery, celtuce, Florence fennel, Swiss chard), okra, parsley, pigeon peas, and rhubarb

Active Ingredient:

Prometryn: 2,4-bis(isopropylamino)-	
6-(methylthio)-s-triazine	44.4%
Other Ingredients:	55.6%
Total:	100.0%

Caparol 4L contains 4 lbs. active ingredient per gallon.
Shake well before using.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-620

EPA Est. 070989-MO-001

SCP 620A-L6U 0110
339060

2.5 gallons
Net Contents

TM

FIRST AID	
If inhaled	<ul style="list-style-type: none"> Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
If in eyes	<ul style="list-style-type: none"> Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none"> Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with eyes, skin, or clothing. Do not breathe vapor or spray mist. Remove contaminated clothing and wash clothing before reuse. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves, such as barrier laminate or Viton® ≥ 14 mils

In addition, mixers and loaders supporting aerial applications must wear:

- Chemical-resistant apron
- An air-purifying respirator equipped with an R- or P-series filter (NIOSH approval number prefix TC-84A)

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions exist for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statements

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

continued...

PRECAUTIONARY STATEMENTS (*continued*)

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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.

Environmental Hazards

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 wash water or rinsate. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and the Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, LLC or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions, or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.**

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitation of warranty and of liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

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

Caparol 4L must be used only in accordance with instructions on this label or in separately published Syngenta supplemental labeling instructions for this product.

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

AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours for all crops. Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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
- Chemical-resistant gloves, made of barrier laminate or Viton® ≥ 14 mils
- Shoes plus socks

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR PERFORMANCE, AND/OR ILLEGAL RESIDUES.

PRODUCT INFORMATION

Caparol 4L is a selective herbicide that may be applied either before or after weeds emerge for control of most annual broadleaf weeds and grasses, including groundcherry, lambsquarters, annual morningglory, malva, mustard, black nightshade, pigweed (carelessweed), purslane, Florida pusley, ragweed, smartweed, teaweed (prickly sida), barnyardgrass (watergrass), crabgrass, foxtail, goosegrass, junglerice, *Panicum* spp., signalgrass (and other *Brachiaria* spp.), and wild oats. Caparol 4L also controls shallow-germinating seedlings of cocklebur, coffeeweed, and sandbur. Caparol 4L will also provide partial control of spurred anoda (cottonweed), rough blackfoot (iron-weed, cluster flaveria), and prairie sunflower in NM and western TX. Caparol 4L does not control johnsongrass, bermudagrass, other established perennials, or sprangletop at selective rates.

When applied before weeds emerge, Caparol 4L enters weeds through their roots. Thus, its effectiveness depends on moisture to move it into the soil. Under very dry soil conditions after application, a shallow cultivation or rotary hoeing will generally result in better weed control.

When applied to emerged weeds, Caparol 4L provides foliar knockdown and/or residual control of later germinating weeds, depending on the rate applied.

Following many years of continuous use of this product and chemically-related products, biotypes of some of the weeds listed on this label have been reported which cannot be effectively controlled by this and related herbicides. Where this is known or suspected, and weeds controlled by this product are expected to be present along with resistant biotypes, we recommend the use of this product in registered combinations or in sequence with other registered herbicides which are not triazines. If only resistant biotypes are expected to be present, use a registered nontriazine herbicide. Consult with your State Agricultural Extension Service for specific recommendations.

To avoid spray drift, do not apply under windy conditions. Avoid spray overlap, as crop injury may result.

APPLICATION PROCEDURES

Do not apply this product in a way that will make contact with workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Ground application (All uses): Use conventional ground sprayers equipped with nozzles that provide accurate and uniform application.

Calibrate sprayer before use and recalibrate at the start of each season and when changing carriers. Unless otherwise specified, use a minimum of 20 gal of spray mixture per acre for all preplant incorporated, preemergence, and postemergence applications (with or without surfactant) with ground equipment.

Use a pump with capacity to: (1) maintain 35-40 psi at nozzles, and (2) provide sufficient agitation in tank to keep mixture in suspension. A centrifugal pump which provides propeller shear action is recommended for dispersing and mixing this product. The pump should provide a minimum of 20 gal/minute/100 gal tank size circulated through a correctly positioned sparger tube or jets.

For preplant incorporated or preemergence application, use flat fan nozzle tips. For postemergence band application, use drop extraction tubes off-center nozzle tips. For postemergence broadcast application, use flat fan or off-center nozzle tips. Use flood nozzle tips only in AZ and CA for lay-by treatment in cotton at least 18 inches tall.

Use screens to protect the pump and to prevent nozzles from clogging. Screens placed on the suction side of the pump should be 16-mesh or coarser. Do not place a screen in the recirculation line. Use 50-mesh or coarser screens between the pump and boom, and where required, at the nozzles. Check nozzle manufacturer's recommendations.

For band applications, calculate amount to be applied per acre as follows:

$$\begin{array}{r} \text{band width in inches} \\ \hline \text{row spacing in inches} \end{array} \times \begin{array}{r} \text{broadcast rate} \\ \text{per acre} \end{array} = \begin{array}{r} \text{amount needed} \\ \text{per acre of field} \end{array}$$

Aerial application (Cotton and pigeon peas only): Use aerial application only where broadcast applications are specified. Use a minimum of 5 gal of spray mixture per acre. Avoid applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

Avoid application to humans or animals. Flagmen and loaders should avoid inhalation of spray mist and prolonged contact with skin.

To assure that spray will be controllable within the target area when used according to label directions, make applications at a maximum height of 10 ft. above vegetation, using low-drift nozzles at a maximum pressure of 40 psi, and restrict application to periods when wind speed does not exceed 10 mph. To assure that spray will not adversely affect adjacent sensitive nontarget plants, apply Caparol 4L by aircraft at a minimum upwind distance of 400 ft. from sensitive plants.

SPRAY EQUIPMENT

Spray Drift Management

- Avoiding spray drift at the application site is the responsibility of the applicator and the grower. 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.
- Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.
- Apply only when the wind speed is 2-10 mph at the application site.

Additional requirements for ground boom application:

- Do not apply with a nozzle height greater than 4 feet above the crop canopy.

Additional requirements for aerial applications:

- The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy.
- When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.
- Nozzles must always point backward parallel with air stream and never be pointed downward more than 45 degrees.

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** sections).

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 produces 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.

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 shall not occur during a 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 the movement of 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, nontarget crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Seedbed Preparation

To ensure proper placement of Caparol 4L, seedbeds must be well prepared and as free as possible from trash and clods. A firm seedbed is best for obtaining effective weed control. Uniformity in height and width of seedbed is essential for proper postemergence applications of Caparol 4L. Beds should be low and flat. Take care to avoid planter marks. Wide planter packing wheels or rollers are recommended. Wheel furrows should be uniform in depth. Mount the sprayer so that it follows the same rows as the planter.

MIXING PROCEDURES

All uses: (1) Be sure sprayer is clean and not contaminated with any other materials, or crop injury or sprayer clogging may result. (2) Fill tank 1/4 full with clean water. (3) Start agitation. (4) Be certain that the agitation system is working properly and creates a rippling or rolling action on the liquid surface. (5) Pour product directly from container into tank. (6) Continue filling tank until 90% full. Increase agitation if necessary to maintain surface action. (7) Add tank mix herbicide(s).

Cleaning: Wash sprayer thoroughly with clean water immediately after use. Do not use the same sprayer without thoroughly cleaning on sensitive crops, as even small residues of Caparol 4L in the tank may cause injury to these crops.

CROP USE DIRECTIONS

Carrot

Caparol 4L can be applied preemergence and or postemergence over the top to carrot. Read and follow all directions for use in carrot.

Use Precautions for Pre and Postemergence Applications in Carrot

Apply up to three applications of Caparol 4L at the rate of 2 - 4 pt/A per application.

Do not exceed one preemergence at up to 4 pt/A and two postemergence applications each at up to 2 pt/A or one postemergence application at up to 4 pt/A per crop cycle.

Do not exceed 8 pt/A of Caparol 4L per crop cycle.

Make postemergence applications through the 6 leaf stage of carrot development.

Do not apply within 30 days of harvest.

Make uniform applications of the herbicide in a minimum of 20 gallons of water per acre.

When applying to emerged weeds add 2 qt of a nonionic surfactant (NIS) or wetting agent (approved for intended use) to 100 gal of spray mixture (0.5%) v/v or 1 gal of a non-phytotoxic crop oil concentrate (COC) containing 15-20% approved emulsifier to 100 gal of spray mixture (1% v/v).

Rotational Crops

The following crops may be seeded 5 months after applying no more than 4 pt Caparol 4L per acre on carrots: cabbage, carrots, leafy petioles crop subgroup 4B, corn, cotton, dill, fennel, okra and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L. All other crops may be planted 12 months after applying Caparol 4L.

Celeriac

Do not exceed 4 pt/A of Caparol 4L per crop cycle.

Transplants

Make a single broadcast application at 1.6-4 pt/A in a minimum of 20 gal of water per acre after the crop has 6-8 leaves. Application may be made over the crop. Within the rate ranges given, use the lower rate on relatively coarse-textured soils and soils low in organic matter; use the higher rate on relatively fine-textured soils and soils high in organic matter. Apply before weeds are 2 inches tall. Do not apply to the crop within 60 days of harvest.

Cilantro

Caparol 4L can be applied post planting, preemergence to cilantro. Read and follow all directions for use in cilantro.

Use Precautions for Preemergence Applications in Cilantro

Make one application of Caparol 4L at the rate of 2 – 3.2 pt/A.

Use the lower rates on coarse-textured soils and soils low in organic matter; use the higher rates on fine-textured soils and soils high in organic matter.

Do not exceed 3.2 pt/A of Caparol 4L per crop cycle.

Do not apply within 30 days of harvest.

Make uniform applications of the herbicide in a minimum of 20 gallons of water per acre.

Do not use on sand or loamy sand soil.

Rotational Crops

The following crops may be seeded 5 months after applying no more than 3.4 pt Caparol 4L per acre on cilantro: cabbage, carrots, leafy petioles crop subgroup 4B, cilantro, corn, cotton, dill, fennel, okra and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L. All other crops may be planted 12 months after applying Caparol 4L.

Cotton Caparol 4L Alone

Caparol 4L may be applied preplant incorporated or preemergence and/or postemergence as recommended in the following tables. The postemergence applications may follow preplant incorporated or preemergence treatments of Caparol 4L.

Do not use on glandless cotton varieties, or crop injury will occur.

Note: Do not feed treated forage to livestock, or graze treated areas, or illegal residues may result.

Preplant Incorporation (AZ, CA, and NM)

Apply Caparol 4L at the appropriate rate shown in Table 1 as a broadcast or band treatment. If broadcast, treat the flat soil surface prior to listing. If banded, apply over partially finished or finished beds. Incorporate up to 4 inches deep immediately after application with PTO-driven equipment, double disk, rolling cultivator, rolling cultivators in tandem, or bed conditioner.

Table 1: Preplant Incorporation

Region	Soil Texture	Broadcast Rate Per Acre
AZ, CA, and NM	sand, loamy sand	DO NOT USE
	sandy loam (AZ and CA only)	2.4-3.2 pt
	sandy loam, loams (NM only)	3.2 pt
	silt loam, clay	4.8 pt

Precautions: To avoid crop injury, (1) Do not use Caparol 4L in cut areas of newly leveled fields, in areas of excess salt, or in areas where flooding over the beds is likely to occur. (2) Do not plant cotton in tractor wheel depressions. (3) On mulch planted cotton, water back only after cotton seedlings are well established. (4) In NM, apply either preplant incorporated or preemergence (not both) – see Preemergence section. (5) In CA, do not incorporate with straight-tined bed mulchers/conditioners.

Preemergence

Apply at planting or shortly after planting at the appropriate rate shown in Table 2. Caparol 4L may be used on cotton planted flat, on beds, or in furrows. To avoid concentration of Caparol 4L in the seed furrow, do not make broadcast applications to cotton planted in furrows deeper than 2 inches. Band applications may be made to cotton planted in furrows deeper than 2 inches, but band width should not exceed the width of the bottom of the furrow. If banded, do not cover treated bands with soil while cultivating untreated row middles. To avoid crop injury, do not use on sand or loamy sand, on shallow soils with caliche subsoils, or in areas with caliche outcroppings.

Cotton may be replanted in soil previously treated with Caparol 4L. Do not apply a second preemergence application of Caparol 4L or injury may occur.

Table 2: Preemergence

Region	Soil Texture	Broadcast Rate Per Acre
Mid-South and Southeast, other than Mississippi River Delta in MS	sandy loam	3.2-4 pt
	silt and clay loam	4.8 pt
	Sharkey clay (AR only)	5.6 pt
Mississippi River Delta in MS	sandy loam	4-4.8 pt
	silt and clay loam	5.6 pt
	Sharkey clay	DO NOT USE
Blacklands of OK and TX, TX Gulf Coast, and TX Coastal Bend	Loam	2.4 pt
	clay	4.8 pt
Rio Grande Valley of TX*	loam	3.2 pt
	clay	4.8 pt
High Plains, Rolling Plains, and Edwards Plateau of TX, Southwest TX, and NM** KS	sand, loamy sand	DO NOT USE
	sandy loam	1.6 pt
	loam, sandy clay loam	2.4 pt
	other clay soils	3.2 pt
AZ and CA		DO NOT USE

*Rio Grande Valley of TX – Furrow irrigation cotton – If adequate rain does not fall soon after application, a shallow cultivation will ensure good weed control.

**NM – Apply either preplant incorporated or preemergence (not both) – See Preplant Incorporation section.

Caparol 4L Foundation Program for Planned Two-Pass Weed Control Systems

In the regions and soil textures listed in Table 2, Caparol 4L may be applied at a reduced rate of 1-2 pt/A (sandy loams = 1 to 1.5 pt/A; loams, silts, sandy clay loams, and clay loams = 1.5 to 2.0 pt/A; and clay soils = 2.0 pt/A) to provide reduced competition from labeled weeds for a period of 30 or more days if followed by a planned postemergence weed control treatment. Postemergence treatments may include any product or combination of products labeled to control the specific weeds remaining in the field, broad spectrum examples include Touchdown® or other appropriately labeled glyphosate based products if Roundup Ready® cotton varieties are being grown. Follow all other directions for use, precautions, and restrictions on the Caparol 4L label as well as those specified on the postemergence herbicide product label. In burndown situations, i.e. where weeds are present but the cotton has not yet emerged, Caparol 4L may be tank mixed with a burndown herbicide (e.g. Touchdown, Gramoxone Inteon®, or Roundup®) in both Roundup Ready and conventional cotton for improved control of existing weeds.

Winter Weed Control

Winter and Early Spring Weed Control in AL, AR, LA, MO, MS, and TN

For control of winter and early spring germinating annual weeds (including henbit, common chickweed, sibara, and Palmer amaranth), apply 1.5-2 pt. of Caparol 4L after bedding (e.g., stale seedbed) from November 1 until 14 days before planting cotton. Use the 2.0 pt./A rate for applications made in Nov. or Dec. Use the 1.5 pt./A rate for applications made from Jan. 1 to 30 days before cotton planting. Applications may be made before or after weeds emerge. For control of emerged weeds, preferably less than 2 inches in height, add a suitable and approved crop oil concentrate or surfactant according to its label. In the event weeds exceed 2 inches in height at the time of treatment, apply Caparol 4L in tank mixture with a contact herbicide (e.g., Touchdown, Gramoxone Inteon or Roundup). Refer to the label of the contact herbicide for rates of application, additives, and for weed height restrictions at time of application.

After applying Caparol 4L, do not mechanically till the seedbed prior to the cotton planting process, as this will encourage germination of weed seeds.

Follow with a preemergence herbicide program for cotton. In the event that a subsequent application of Caparol 4L is made, do not exceed the total rate of Caparol 4L that may be applied to a single cotton crop.

Winter Weed Control in TX

For control of winter weeds only, such as henbit (purpletop) and seedling dock on fall-bedded cotton land in the TX Gulf Coast and Blacklands of TX, apply 1.2-1.6 pt. of Caparol 4L per acre in the fall or winter to land that will be planted to cotton the following spring. For best results, apply before weeds emerge. Caparol 4L will give effective control of emerged henbit if applied before it reaches 4-6 inches tall. For postemergence henbit control, add a suitable surfactant, such as X-77®, at 0.5% of spray volume or an emulsifiable oil at 1.0% of spray volume.

Winter Weed Control in CA

For control of winter weeds on fall-bedded cotton land, apply Caparol 4L after bedding either preemergence or postemergence to weeds less than 2 inches tall. Winter weeds controlled include:

chickweed	filarees	mustards	redmaids	sowthistle, annual
fiddleneck	London rocket	pineappleweed	shepherdspurse	

On sandy loam soil, apply 3.2 pt/A; on medium or fine soil, apply 4.8 pt/A. To avoid crop injury, do not use on sand or loamy sand. For postemergence weed control, add a suitable surfactant, such as X-77, at 0.5% of spray volume or an emulsifiable oil at 1.0% of spray volume. Rainfall or sprinkler irrigation is necessary to activate the preemergence activity of Caparol 4L.

After preplant-irrigation in the spring, knock off the top 1/3-1/2 of the seedbed. Then make a preplant application of Caparol 4L over the surface of the seedbed using a power-tiller, rolling cultivator, or similar implement that will provide uniform incorporation. Refer to Table 1 for preplant incorporation rates of Caparol 4L in CA. To avoid crop injury, do not cultivate treated soil back toward the cotton until after cotton emergence and just before the first irrigation.

Precaution: To avoid crop injury, do not use Caparol 4L for winter weed control in areas of excess salt or calcareous soil.

Note: To avoid illegal residues, do not use more than 10.3 pt of Caparol 4L on sandy loam soil or 11.9 pt of Caparol 4L on medium or fine soil per acre per year, including winter weed control, preplant incorporation, chemical hoe, and lay-by applications.

Postemergence-Directed

Be especially careful when applying Caparol 4L postemergence to prevent contact of the spray with cotton leaves, or injury may occur. Use precision application equipment so the spray is accurately directed to the base of the cotton plants and still thoroughly covers the soil and weeds beneath the cotton plants. Apply during calm periods to prevent drift. Use leaf lifters or shields if leaf contact cannot be avoided merely by directing the spray. Apply only when all cotton plants have exceeded the minimum recommended height shown in Tables 3 and 4. Apply to level, well prepared surfaces such as relatively clod-free beds made with bed-shapers.

To avoid crop injury, do not apply to furrow-planted cotton until furrows are leveled (plowed in). Do not treat cotton under stress from drought, cultivator damage, or fertilizer application.

When applying to emerged weeds, add 2 qt. of surfactant per 100 gal of spray mixture. Use a surfactant that is compatible with Caparol 4L when applied in cotton and is approved by EPA for use on food and feed crops. Examples include X-77®, Tronic, and Triton.

Chemical Hoe (Emerged Weeds only): Apply Caparol 4L at the appropriate rate in Table 3, two or three times if necessary. In cotton 3-6 inches tall, be extremely careful to avoid spray contact with cotton leaves by applying Caparol 4L with a precision applicator equipped with fenders or shields, such as Bell Row Shield, Dickey Fenders, or W&A Fenders. In cotton less than 10 inches tall, apply only if cotton is bed or flat-planted.

Table 3: Chemical Hoe

Height of Cotton and Area of Use	Height of Weeds	Broadcast Rate Per Acre
3-6 inches (AR, LA, MO, MS, TN, and TX)	less than 1 inch	1 pt
6 or more inches (all regions)	less than 2 inches	1-1.3 pt

Lay-by (Emerged Weeds and Germinating Weeds): Apply Caparol 4L at the appropriate rate in Table 4, once per season when cotton is at least 12 inches tall (18 inches where flood nozzles are used in AZ and CA). Apply before weeds are 2 inches tall.

Table 4: Lay-by (Cotton at least 12" tall)

Region	Soil Texture	Broadcast Rate Per Acre
Mid-South and Southeast	sandy	2.4 pt
	loam	2.8 pt
	clay	3.2 pt
Blacklands of OK and TX	loam	1.6 pt
	clay	3.2 pt
High Plains of NM and TX	sandy	1.6 pt
	loam and clay	2.4 pt
Southwest TX	loam	2.4 pt
	clay	3.2 pt
Rio Grande Valley of TX	DO NOT USE	
AZ and CA (Do not use in the Coachella Valley)	sand and loamy sand	DO NOT USE
	sandy loam	2.4-3.2 pt
	loam	3.2 pt

Rotational Crops Following Caparol 4L Applied Alone to Cotton

The following vegetable and cover crops may be planted in the fall when Caparol 4L was applied on cotton by no more than one of these methods that year: preplant incorporated, preemergence, or only one chemical hoe treatment. Where lay-by or multiple applications are made, do not plant rotational crops until the following year as indicated.

Vegetables

Cabbage, okra, peas, and sweet corn

Onions and red beets may not be planted within 8 months of applying Caparol 4L.

Cover Crops (must be plowed down and not used for food or feed)

Oats, sorghum, winter barley, winter rye, winter wheat

Spring-seeded crops in AZ and CA and spring-seeded vegetables in the Rio Grande Valley of TX should not be planted until after April 1.

Caparol 4L Combinations for Cotton

Prowl® 3.3 EC (AZ, CA, NM, and the Upper and Lower El Paso Valley of TX)

This preplant incorporated tank mixture controls all weeds listed on this label and on the Prowl 3.3 EC cotton label. Apply prior to listing or over partially finished or finished beds and incorporate immediately. Refer to the Prowl 3.3 EC label for specific mixing, spraying, and incorporation methods. Continuous agitation in the spray tank is required to keep the material in suspension.

Apply the tank mixture at the appropriate rates from Table 5.

Table 5: Preplant Incorporated Tank Mixture With Prowl 3.3 EC

Soil Texture	Broadcast Rate Per Acre	
	Prowl 3.3 EC	Caparol 4L
sand, loamy sand	DO NOT USE	
sandy loam	1-1.5 pt	2.4-3.2 pt
loam	1.5-2 pt	3.2 pt
silt loam, silt, sandy clay loam	1.5-2 pt	3.2-4.8 pt
clay loam, silty clay loam, clay	1.5-3 pt	3.2-4.8 pt

Use the high rate for each soil texture above if heavy weed populations are anticipated. Use the 3 pt. rate of Prowl 3.3 EC for heavy clay soils.

Precautions: To avoid crop injury, (1) Do not use in cut areas of newly leveled fields, in areas of excess salt, or in areas where flooding over the bed is likely to occur. (2) Do not plant cotton in tractor wheel depressions. (3) Do not use this tank mixture when cotton is irrigated up. (4) On mulch-planted cotton, water back only after cotton seedlings are well established.

Note: Do not feed treated forage to livestock, or graze treated areas, or illegal residues may result.

Rotational Crops: If crop treated with Caparol 4L and Prowl 3.3 EC is lost, cotton may be replanted. Do not rework the soil. Refer to the Prowl 3.3 EC label and the Cotton section of this label for rotational crop restrictions.

Treflan™ HFP Tank Mixture (AZ, CA, NM, and the Upper and Lower El Paso Valley of TX)

This combination controls weeds listed on this label and on the Treflan HFP label. This combination also controls shallow-germinating seedlings of cocklebur and coffeeweed.

Follow procedures on the Treflan HFP label for soil preparation and incorporation. Apply the tank mix combination to the flat soil before disking.

Pour Caparol 4L directly into spray tank 1/2-3/4 full of water, allow it to disperse with agitation, add Treflan HFP, and then add the rest of the water. Under conditions of very soft water and low spray volume (5-10 gal/A), compatibility of Caparol 4L + Treflan HFP may be improved by adding the Treflan HFP first, agitate, and then add the Caparol 4L. Continuous agitation in the spray tank is required to keep the material in suspension. Apply the tank mixture at the appropriate rates from Table 6.

Table 6: Tank Mixture With Treflan HFP

Soil Texture	Broadcast Rate Per Acre	
	Treflan HFP	Caparol 4L
sand, loamy sand		DO NOT USE
sandy loam	1 pt	2.4-3.2 pt*
medium soils	1.5 pt	4 pt
fine soils	2 pt	4 pt
muck or peat		DO NOT USE

*Use less than 3.2 pt/A only in AZ and CA.

Precautions: To avoid crop injury, (1) Do not use in cut areas of newly leveled fields, in areas of excess salt, or in areas where flooding over the bed is likely to occur. (2) Do not plant cotton in tractor wheel depressions. (3) On mulch-planted cotton, water back only after cotton seedlings are well established.

Note: Do not feed treated forage to livestock, or graze treated areas, or illegal residues may result.

Rotational Crops: Cabbage, leafy petioles crop subgroup 4B, okra, and peas may be planted in the fall after a spring application of Treflan HFP + Caparol 4L. Onions and red beets may not be planted within 8 months of applying Caparol 4L. Winter barley, rye, and wheat can be planted in the fall if they are plowed down and not used for food or feed. Refer to the Treflan HFP label for other directions and precautions.

Treflan HFP Split Application (AZ and CA)

Apply a preplant-incorporated application of Treflan HFP as directed on that label, except use the appropriate rate from Table 6. Do not apply Treflan HFP before January 1. Follow at planting or just before planting with a preplant-incorporated treatment of Caparol 4L as directed in the **Cotton** section of this label, except use the appropriate rate from Table 6.

Disodium Methanearsonate (DSMA) or Monosodium Methanearsonate (MSMA)

For faster knockdown of emerged weeds controlled by Caparol 4L alone, apply 1-1.3 pt of Caparol 4L plus 3 lbs. active ingredient of Disodium Methanearsonate (DSMA) or 2 lbs. active ingredient of Monosodium Methanearsonate (MSMA) per acre, following the same directions, precautions, and limitations as given on this label for Caparol 4L applied alone postemergence-directed (chemical hoe). If needed, make a second application 1-3 weeks after the first application. Do not apply after first bloom.

Several formulations of Disodium Methanearsonate (DSMA) and Monosodium Methanearsonate (MSMA) are available under various trade names for several manufacturers. Observe the directions, limitations, and precautions on the label of the product used.

Cotton With the Roundup Ready Gene

Postemergence-Directed Applications to Cotton 6" Tall Up to Lay-by (Not for Use in CA or AZ)

To control weeds listed on the Caparol 4L label, apply Caparol 4L at 1-1.3 pt/A tank mixed with the labeled rate of Touchdown or another appropriately labeled formulation of glyphosate to cotton with the Roundup Ready gene once the cotton is 6 inches tall or taller and weeds to be controlled by Caparol 4L are less than 2 inches tall. Applications must be made with a shielded or hooded sprayer to avoid contact of the spray to cotton leaves. Spray which contacts cotton leaves may cause injury. Do not apply to cotton planted in furrows. Apply during calm periods to prevent drift. Do not use on sand or loamy sand soils in CA, AZ, or in Gaines County, TX. Do not use in the Coachella Valley of CA.

Refer to the Touchdown or glyphosate tank mix product label for further restrictions, precautions, and limitations.

Postemergence-Directed Applications to Cotton at Lay-by (12" or Taller)

To control weeds listed on the Caparol 4L label, apply Caparol 4L tank mixed with Touchdown or another appropriately labeled formulation of glyphosate at the appropriate rate as shown in Table 4: Layby, to cotton with the Roundup Ready gene once the cotton is 12 inches tall or taller and weeds to be controlled by Caparol 4L are less than 2 inches tall. Applications must be made with a shielded or hooded sprayer to avoid contact of the spray to cotton leaves. Spray which contacts cotton leaves may cause injury. Apply during calm periods to prevent drift. Do not use on sand or loamy sand soils in Gaines County, TX.

Refer to the Touchdown or glyphosate tank mix product label for further restrictions, precautions, and limitations.

Leafy Petioles Crop Subgroup 4B (except rhubarb)

Seedbeds

Broadcast 1.2-1.6 pt in a minimum of 20 gal of water per acre after the crop has 2-5 true leaves. Application may be made over the crop. Apply only after seedbed covers have been removed from seedbeds for at least one week. Apply only once per year to seedbeds.

Direct-seeded Crop

Apply Caparol 4L at rates given below in a minimum of 20 gal of water per acre. Within the rate ranges given, use the lower rates on coarse-textured soils and soils low in organic matter; use the higher rates on fine-textured soils and soils high in organic matter.

Preamerger: Broadcast 2.4-3.2 pt/A at planting or shortly after planting before crop emerges.

Postemergence: Broadcast 1.6-2 pt/A after crop has 2-5 true leaves. Application may be made over the crop. Apply before weeds are 2 inches tall.

To avoid injury to direct-seeded crop: (1) Make either one preemergence or one postemergence application (not both) per crop. (2) Do not use on sand or loamy sand. (3) Do not apply if crop is under water stress. (4) Do not apply postemergence treatments of Caparol 4L with other pesticides. Apply only after foliar applications of other pesticides are dry. (5) Do not apply within 2 weeks after an application of a herbicidal oil, such as "carrot" oil.

Transplants

Apply one application at the appropriate rate from Table 7 in a minimum of 20 gal of water per acre during the 2 to 6-week period after transplanting. Within the rate ranges given, use the lower rate on relatively coarse-textured soils and soils low in organic matter; use the higher rate on relatively fine-textured soils and soils high in organic matter. A single or split application may be made over the crop, at a total combined rate not to exceed the maximum in Table 7. Apply before weeds are 2 inches tall.

Table 7: Transplanted Crop

State	Soil	Broadcast Rate Per Acre
FL	sandy or muck	1.6-3.2 pt
CA and TX	coarse-textured	2-3.2 pt
	fine-textured	3.2-4 pt
MI and OH	fine-textured or muck	2-4 pt
WI	fine-textured	3.2-4 pt

Do not apply to the crop within 40 days of harvest.

Rotational Crops

The following crops may be seeded 5 months after applying no more than 4 pt of Caparol 4L per acre on the crop: cabbage, leafy petioles crop subgroup 4B, corn, cotton, dill, fennel, okra, and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L. All other crops may be planted 12 months after applying.

Application through Irrigation Systems – Chemigation and Preemergence or Postemergence Application to Leafy Petioles Only

Apply this product only through sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut down and make necessary adjustments should the need arise.

Chemigation Systems Connected to Public Water Systems: If the chemigation system is connected to a public water supply, the following conditions must also be met:

- Public water systems means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ), or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shutdown.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Upon completion of herbicide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.

Sprinkler Chemigation: To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Application Procedures

- Mix in clean supply tank the recommended amount of this product for acreage to be covered and needed quantity of water.
- This product should not be tank mixed with other pesticides, surfactants, or fertilizers unless prior use has shown the combination non-injurious under your conditions of use.
- Follow precautionary statements and directions for all tank mix products.
- Provide constant mechanical agitation in supply tank to keep this product suspended throughout application operations.
- On all crops, use sufficient gallonage of water to obtain thorough and uniform coverage, but not cause runoff or excessive leaching. This will vary depending on equipment, pest problem, and stage of crop growth. Application of more or less than optimal quantity of water may result in decreased chemical performance, crop injury, or illegal residues.
- Meter this product into the irrigation water uniformly during the period of operation.
- Do not overlap application. Follow recommended label rates, application timing, and other directions and precautions for crop being treated.
- If sprinkler irrigation is intended to replace incorporation, use sufficient water to activate herbicide. The exact amount is highly dependent on moisture conditions and soil type, however 1/4 to 1/2 acre inch may be appropriate as a starting point. Pre-irrigation may be beneficial under dry conditions. Additional irrigation may be needed following application if rainfall is scant.

Okra

Apply Caparol 4L preemergence and/or post-directed to okra. Read and follow all directions for use in okra.

Use Precautions for Pre and Post-Directed Applications in Okra

Make a single preemergence broadcast application of Caparol 4L after planting before crop emergence at the rate of 3.0 pt/A.

For two applications make the first preemergence after planting, before crop emergence at the rate of 1.5 pt/A and the second post-directed when okra plants are at 7-9 leaf stage at the rate of 1.5 pt/A. Apply post-directed before weeds are 2 inches tall.

Do not apply within 14 days of harvest.

Do not exceed one preemergence and one post-directed application per crop cycle.

Do not exceed 3 pt/A of Caparol 4L per crop cycle.

Make uniform applications of the herbicide in 20-40 gallons of water per acre.

Rotational Crops

The following crops may be seeded 5 months after applying no more than 4 pt Caparol 4L per acre on okra: cabbage, carrots, leafy petioles crop subgroup 4B, corn, cotton, dill, fennel, okra and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L. All other crops may be planted 12 months after applying Caparol 4L.

Parsley

In California only, make a single preemergence broadcast application of Caparol 4L after planting before crop emergence at the rate of 1.0-4.0 pt/A. If a rate higher than 1.0 pt/A is applied, then only one application is allowed.

In all states (including California), make a single preemergence broadcast application of Caparol 4L up to 14 days after planting at the rate of 1.0 pt/A. For extended weed control, a second application can be made at 1.0 pt/A up to 30 days prior to harvest. A third application at 1.0 pt/A can be made to the regrowth up to 30 days prior to the second (cutting) harvest.

Do not make more than 3 application per year at a maximum of 1 pt/A per application except in California only where a single application up to 4 pt/A is allowed. Do not apply to the crop within 30 days of harvest.

Use the lower rates on coarse-textured soils and soils low in organic matter; use the higher rates on fine-textured soils and soils high in organic matter. Make a uniform application of the herbicide in 20 gallons of water per acre.

Precautions: To avoid injury to parsley: (1) Do not use on sand or loamy sand. (2) Do not apply if parsley is under water stress.

Rotational Crops

The following crops may be seeded 5 months after applying no more than 4 pt Caparol 4L per acre on okra: cabbage, carrots, leafy petioles crop subgroup 4B, corn, cotton, dill, fennel, okra, and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L. All other crops may be planted 12 months after applying Caparol 4L.

Pigeon Peas (Puerto Rico Only)

For preemergence control of annual weeds, such as horse purslane, junglerice, wild spider flower, jimsonweed, spurge, pigweed, and Florida pusley, apply 4 pt of Caparol 4L per acre on loam soils, or 6 pt/A on clay soils. Apply at planting or immediately after planting before the crop or weeds emerge.

Precautions: To avoid crop injury, (1) Make only one application per year. (2) Do not use on sand or loamy sand soils.

Note: Do not graze or feed forage or hay to livestock, or illegal residues may result.

Rotational Crops

The following crops may be seeded 5 months after applying no more than 4 pt of Caparol 4L per acre on pigeon peas: cabbage, leafy petioles crop subgroup 4B, corn, and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L.

Rhubarb

Make a single broadcast application at the appropriate rate to established rhubarb when plants are dormant, before leaves have emerged from the crown. Apply 2.0-3.2 pt/A on coarse-textured soils and 3.2-4.0 pt/A on fine-textured soils. Apply in a minimum of 20 gallons of water per acre.

Within the rate ranges given, use the lower rate on relatively coarse-textured soils and soils low in organic matter; use the higher rate on relatively fine-textured soils and soils high in organic matter.

Do not apply to rhubarb within 40 days of harvest.

Rotational Crops

The following crops may be seeded 5 months after applying no more than 4 pt Caparol 4L per acre on rhubarb: cabbage, carrots, leafy petioles crop subgroup 4B, corn, cotton, dill, fennel, okra, and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L. All other crops may be planted 12 months after applying Caparol 4L.

STORAGE AND DISPOSAL

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

Pesticide Storage

Store in a dry place.

Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

Container Handling [less than 5 gallons]

Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or 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.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

Container Handling [Bulk and Mini-Bulk]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or re-circulate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. If the container is damaged, leaking or obsolete, contact Syngenta at 1-800-888-8372.

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For non-emergency (e.g., current product information) call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:

Syngenta Crop Protection, LLC

P. O. Box 18300

Greensboro, North Carolina 27419-8300

SCP 620A-L6U 0110

339060



Herbicide

For selective weed control in carrot, celeriac, cilantro, cotton, leafy petioles crop subgroup 4B (cardoon, celery, Chinese celery, celtuce, Florence fennel, Swiss chard), okra, parsley, pigeon peas, and rhubarb

Active Ingredient:

Prometryn: 2,4-bis(isopropylamino)-
6-(methylthio)-s-triazine 44.4%

Other Ingredients:

55.6%

Total: 100.0%

Caparol 4L contains 4 lbs. active ingredient per gallon.

Shake well before using.

See directions for use inside booklet.

AGRICULTURAL USE REQUIREMENTS

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

EPA Reg. No. 100-620

EPA Est. 070989-MO-001

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Manufactured for:

Syngenta Crop Protection, LLC

P. O. Box 18300

Greensboro, North Carolina 27419-8300

SCP 620A-L6U 0110

339060

2.5 gallons

Net Contents

KEEP OUT OF REACH OF CHILDREN. **CAUTION**

FIRST AID

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER: For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372.

Precautionary Statements

Hazards to Humans and Domestic Animals

Harmful if absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with eyes, skin, or clothing. Do not breathe vapor or spray mist. Remove contaminated clothing and wash clothing before reuse. Wash thoroughly with soap and water after handling.

Environmental Hazards

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 wash water or rinsate. Drift and run-off may be hazardous to aquatic organisms in neighboring areas. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas.

Storage and Disposal

Pesticide Storage: Store in a dry place.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

Container Handling: Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or 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.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.



BAR CODE # IS
(01) 07 02941 53190
LAST DIGIT IS CHECK DIGIT
UCCEAN 128

PULL HERE TO OPEN ►

SUPREND®

Herbicide

A herbicide for control of certain broadleaf, sedge, and grass weeds in cotton

Active Ingredients:

Prometryn (CAS No. 7287-19-6) 79.30%
2-pyridinesulfonamide,N-[[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]-3-(2,2,2-trifluoroethoxy)-,monosodium salt, monohydrate;
Trifloxysulfuron-sodium (CAS No. 199119-58-9) .. 0.70%

Other Ingredients:

20.00%

Total:

100.00%

EPA Reg. No. 100-1163

EPA Est. 11773-IA-001

BAR CODE # IS
(01) 0 07 02941 40628
LAST DIGIT IS CHECK DIGIT
(Barcode type: UCC/EAN 128)

SCP 1163A-L1B 0909
305021

20 pounds
Net Weight

KEEP OUT OF REACH OF CHILDREN.

CAUTION – PRECAUCIÓN

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.)

See additional precautionary statements and directions for use inside booklet.

PRODUCT ID.

40628

syngenta®

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything my mouth to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
<p style="text-align: center;">HOT LINE NUMBER For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call 1-800-888-8372</p>	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if swallowed. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Some of the materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA Chemical Resistant Chart.

continued...

PRECAUTIONARY STATEMENTS (*continued*)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves, such as barrier laminate or viton

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 Control Statements

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [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,
- 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.

Environmental Hazards

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 cleaning equipment or disposing of equipment wash water or rinsates. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas.

This product is toxic to vascular plants and should be used strictly in accordance with the drift precautions on this label in order to minimize off-site exposures.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended conse-

quences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of the product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitations of Warranty and of Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

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

Suprend should be used only in accordance with recommendations on this label or in separately published supplemental labeling recommendations for this product.

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

AGRICULTURAL USE REQUIREMENTS

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

continued...

AGRICULTURAL USE REQUIREMENTS (*continued*)

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours. Exception: if the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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
- Chemical-resistant gloves, such as barrier laminate or viton
- Shoes plus socks

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR WEED CONTROL, AND/OR ILLEGAL RESIDUES.

GENERAL INFORMATION

Suprend is a herbicide for postemergence control of certain broadleaf, sedge, and grass weeds in cotton. Use post-directed application methods to provide coverage of weed foliage while adjusting nozzles to minimize contact of cotton foliage with spray or drift. Over-the-top application of Suprend in cotton will result in cotton injury and may cause yield reduction.

For a list of weeds controlled, refer to Table 1 in the **Target Weeds** section of this label. The level of control resulting from application of Suprend is primarily dependent upon application rate, weed species, weed size at application, coverage of the weed (including terminal), environmental conditions and growing conditions. For best results, apply Suprend when target weeds are less than 6 inches in height. Weed control is enhanced when emerged weeds have ample soil moisture and weeds are actively growing. Growth of susceptible weeds is inhibited soon after application of Suprend. Complete plant death occurs within a few days after application, depending upon weed species and growing conditions.

HERBICIDE RESISTANCE

Suprend is a mixture of a photosynthetic inhibitor (prometryn) and an acetolactate synthase (ALS) inhibitor (trifloxysulfuron-sodium).

Suprend controls weeds by inhibiting (stopping) a biochemical process that produces certain essential amino acids necessary for plant growth and by inhibition of photosynthesis.

Certain weeds species have naturally occurring biotypes within the population that are resistant to ALS inhibiting herbicides or photosystem II inhibitors. Multiple applications of the same herbicide class in the same areas(s) applied continuously over a number of years, can lead to an increased presence of the resistant biotypes in weed populations. This may reduce the utility of herbicides for controlling specific

target weeds in the population. To prevent or delay the build-up of resistant weed species biotypes, weed management programs should include the use of appropriately registered herbicides within the same or sequential years that: (1) have a different mode of action (MOA), and (2) control of the target weed. Mechanical control by tillage, cultivation, etc., or hand weeding before weeds set seed may also be helpful in reducing the build-up and spread of herbicide resistant weed biotypes.

GENERAL USE PRECAUTIONS OR RESTRICTIONS

- Do not spray over-the-top of cotton or crop injury may result.
- Apply Suprend post-directed using properly adjusted and calibrated precision applicators (e.g., hooded sprayer).
- Do not exceed a total of 2.7 lbs./A of Suprend per season from all applications. Suprend is made of two herbicidally active components, Envoke™ (trifloxysulfuron-sodium) and Caparol® (prometryn). Do not exceed a total of 0.0188 lb. active ingredient of trifloxysulfuron-sodium per acre per season resulting from all applications of Suprend or Envoke. Each pound of Suprend contains 0.007 lb. active ingredient of trifloxysulfuron-sodium and is equivalent to 0.15 oz. of Envoke. Each pound of Suprend contains 0.79 lb. active ingredient prometryn. Do not exceed 5.15 lbs. active ingredient of prometryn per acre per season resulting from all applications of Suprend or Caparol 4L, or other prometryn containing products.
- Due to reduced crop tolerance, do not apply Suprend post-directed on stripper-type cotton varieties.
- Degradation of Suprend in the soil is enhanced by soil with pH <7 and moist conditions. Application of Suprend to soils with pH >7.5 may increase the potential for rotational crop injury and may reduce rotational crop yield. Alkaline soils increase the potential for injury to rotational crops. If severe drought conditions develop (less than 12 inches of rainfall/irrigation within the first five months following application of Suprend and/or less than 1 inch of rainfall/irrigation within the first month after application) rotational crop injury may occur. In areas where soil pH is >7.5 and/or drought occur, a field bioassay prior to planting of the rotational crop is recommended. See Table 2 for recommended crop rotation intervals following normal harvest.
- Do not tank mix Suprend with malathion, profenofos (Curacron®) or emamectin-benzoate containing insecticides (Denim™), acephate, Bidrin®, Capture®, Karate® or unacceptable cotton injury may occur.
- ALS resistant plants or photosystem II resistant plants may not be controlled by Suprend.
- Do not feed treated forage to livestock or graze treated areas.
- To avoid crop injury, do not apply to furrow-planted cotton until furrows are leveled (plowed-in).
- Do not treat cotton under stress caused by adverse environmental conditions, insect or disease damage, chemical or mechanical injury, or nutrient deficiency.
- Do not apply Suprend using liquid fertilizer as the carrier.
- Do not use in the Rio Grande Valley of TX, the Coachella Valley of AZ and CA, nor on sand and loamy sand in AZ and CA.
- Do not apply Suprend within 60 days of cotton harvest.
- Sequential applications of Suprend should be made at least 14 days apart.

MIXING PROCEDURES

MIXING INSTRUCTIONS

1. Clean the spray tank before using. If it is contaminated with other materials, mixing problems and/or clogging may occur which could cause injury to the crop or reduced performance. Prepare no more spray mixture than is required for the immediate application.
2. Fill the spray tank 1/4-1/2 full with clean water and begin agitation. Make certain that the agitation system is working properly and creates a rippling or rolling action on the water surface. Maintain agitation throughout the mixing and spraying process.
3. Add any products packaged in water-soluble film to the tank first. Allow the packets to completely dissolve and the contents of the packets to fully disperse into the mix water. **Important: Water-soluble packets must always be the first material put into the spray tank after water.** 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 thoroughly cleaned (see **Instructions for Cleaning Spray Equipment After Application**).
4. Add the required amount of Suprend to the spray tank while maintaining agitation. Allow the product to wet and thoroughly disperse into the mix water.
5. While maintaining agitation, continue filling the spray tank. When the tank is 3/4 full, add any tank mix partners. Add any water-dispersible granule or other dry formulation first, and allow that material to fully and uniformly disperse. Then add any emulsifiable liquid formulation.
6. Maintain agitation while adding a good nonionic surfactant with a minimum of 80% of the constituents effective as a spray adjuvant, at a rate not greater than 1qt./100 gals. spray mixture (0.25% v/v).
7. Maintain agitation while adding a nonphytotoxic COC containing 15-20% approved emulsifier at 0.5-1.0% v/v of finished spray solution.
8. Complete filling the tank maintaining sufficient agitation at all times to ensure surface action until the spray tank mixture is uniform.
9. An anti-foaming agent may be added to reduce excessive foaming, if it occurs.
10. **Do not leave spray in the spray tank without continuous agitation.** Always maintain agitation to maintain a uniform mixture in the spray tank.
11. Make only sufficient spray mixture that can be used the day in which it was mixed.

APPLICATION PROCEDURES

GROUND APPLICATION EQUIPMENT

Apply Suprend post-directed to prevent contact of the spray with cotton leaves, or crop injury may occur. Use precision application equipment so the spray is directed to the base of the cotton plant and still thoroughly covers the soil and weeds beneath the cotton plant. Apply during calm periods to avoid drift. Use leaf lifters or shields if leaf contact cannot be avoided merely by directing the spray.

For best results, apply to level, well prepared surfaces, such as relatively clod-free beds made with bed-shapers.

To help ensure accuracy, calibrate sprayer at the beginning of the season before use and recalibrate frequently. For ground application, use a minimum of 10 gallons water per acre. Higher volumes (i.e., at least 20 gals./A on a broadcast basis) should be used for severe weed infestations to ensure adequate spray coverage. Always include a nonionic surfactant spray adjuvant, approved for application to growing crops, in the spray mixture (see the **Mixing Procedures** section).

Use a pump with capacity to: (1) maintain at least 25-40 psi pressure at nozzles, and (2) provide sufficient agitation within the tank to keep product in suspension. Lower pressures may be used with extended range or drift reduction flat fan nozzles. A centrifugal pump that provides shear action for dispersing and mixing the product is recommended. The pump should provide a minimum of 20 gallons/minute/100 gallons tank size circulated through a correctly positioned sparger tube or jet agitators. If jet agitators are used, at least two agitators should be aligned on the bottom of the tank pointing toward each end. Agitation during both mixing and application is essential. Screens or strainers placed on the suction side of the pump should be 16-mesh or coarser. Use 50-mesh or coarser screens between the pump and boom, and when required, at the nozzles. Check nozzle manufacturer's recommendations.

Good weed coverage with the spray mixture is essential for optimum weed control. Observe sprayer nozzles frequently during the spraying operation to ensure that the spray pattern is uniform. Avoid spray overlaps that result in excessive rates in the overlap areas. Also, avoid application under conditions when uniform coverage cannot be obtained or when spray drift may occur (see section titled **Instructions to Avoid Spray Drift**).

Avoid all direct or indirect contact (such as spray drift) of this product with crops other than those recommended for treatment on this label, since injury may occur. Always follow the **Instructions to Avoid Spray Drift** and the **Instructions for Cleaning Spray Equipment after Application** sections of this label.

Rainfastness: Suprend is rainfast within 3 hours after application.

Aerial Application Prohibition: Do not apply Suprend aerially.

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

INSTRUCTIONS TO AVOID SPRAY DRIFT

Do not apply under circumstances where possible drift to unprotected persons, or to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use, or consumption can occur. Even small amounts may injure sensitive plants. When drift may be a problem, take steps to reduce spray drift, such as the following.

- Make applications when the wind velocity favors on-target product deposition. Do not spray if wind speed is 10 mph or greater or if winds are gusty. Wind speed must be measured adjacent to the application site on the upwind side immediately prior to application.
- Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased drift. Avoid spraying during conditions of low humidity and/or high temperatures.

- If sensitive crops or other non-target plants are downwind, extreme caution must be used under all conditions. Drift from applications of this herbicide is likely to result in damage to sensitive non-target plants adjacent to the treatment site. This damage can occur at extremely low concentrations.
- Allow adequate distance between target area and non-target areas (e.g., other crops, neighboring plants, or surface water) to prevent drift onto non-target areas.
- Do not apply when a temperature inversion exists. If an inversion condition is suspected, consult with local weather services before making an application.
- Further reductions in drift can be obtained by:
 - Using nozzles that provide a uniform droplet size. Use nozzles that produce medium or coarse droplets (250-400 microns VMD) that are less prone to result in spray drift.
 - Use of precision application equipment with fenders or shields can reduce herbicide contact with cotton foliage.
 - Recalibrate sprayer by reducing spray pressures and by increasing spray volumes to produce larger droplets when conditions favor drift.
 - Applying as close to target plants as practical, i.e., a nozzle height that allows a good spray pattern for adequate coverage according to the manufacturer's recommendations, but minimizes drift potential.

SPRAY EQUIPMENT

INSTRUCTIONS FOR CLEANING SPRAY EQUIPMENT AFTER APPLICATION

Because some crops are extremely sensitive to low rates of Suprend, special attention must be given to cleaning equipment before spraying a crop other than those listed on this label. Mix only as much spray solution as needed. Immediately after spraying, clean equipment thoroughly using the following procedure.

1. Flush tank, sump, hoses, boom, and nozzles with clean water.
2. Prepare a tank cleaning solution of 1 gal. of household ammonia per 50 gals. of water. **Do not** use chlorine-based cleaners, such as Clorox®. Many commercial spray tank cleaners may be used. Refer to the publication "Clean It Up! A Guide to Cleaning Sprayers" from Syngenta for additional information. The guide may be obtained from your local Syngenta Sales Representative.
3. When available, use a pressure washer to clean the inside of the spray tank with this solution. Take care to wash all internal parts of the tank, including the inside top surface. Completely fill the sprayer with the ammonia cleaning solution to ensure contact of the cleaning solution with all internal surfaces of the tank and plumbing. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
4. Flush hoses, spray lines, and nozzles for at least 15 minutes with the cleaning solution.
5. Dispose of rinsate from steps 1-4 in an appropriate manner. Spray the cleaning solution on an untreated crop on which Suprend is registered, or return to a rinsate tank for later use as make-up water for spraying crops on which Suprend is registered, or use other approved disposal.

6. Repeat steps 2-5.
7. Remove nozzles, screens, and strainers and clean separately in the ammonia cleaning solution after completing the above procedures.
8. Rinse the complete spraying system with clean water.

Note: If the tank is equipped with the proper number of correctly mounted 360° tank washing nozzles that are attached to a dedicated rinsing system, less cleaning solution than a full tank may be used. Use sufficient cleaning solution to thoroughly rinse all surfaces. Start the sprayer agitation and recirculate the cleaning solution for at least 15 minutes. Flush the spray boom with the cleaning solution. Repeat the rinsing procedure 1-2 times.

CROP USE DIRECTIONS

COTTON (PICKER AND PIMA VARIETIES ONLY)

Apply Suprend as a directed spray to provide good coverage of weed canopy including weed terminals while minimizing contact of cotton leaves with spray or drift. Directed applications are generally best achieved when cotton is at least 6 inches tall. **DO NOT SPRAY OVER THE TOP OF COTTON OR CROP INJURY WILL RESULT.**

Suprend can be used post-directed on picker and pima cotton varieties in AL, AR, AZ, CA, FL, GA, KS, KY, LA, MS, NM (certain counties), NC, SC, TN, VA, the boot heel area of MO, and portions of OK and TX (east of I-35).

Suprend can be used with all cotton tillage systems.

TARGET WEEDS

For best results, apply when target weeds are less than 6 inches in height. Apply to actively growing weeds listed below.

Table 1: Weeds Controlled or Partially Controlled With Suprend

Weeds Controlled ^{1,2}	Latin Name	Control Level ³	Suprend	
			1.0-1.25 lbs./A	1.5 lbs./A
			Weed Size Ranges for Optimum Control (Inches)	
Barnyardgrass	<i>Echinochloa crus-galli</i>	PC	0.25-1	0.25-1
Bristly starbur	<i>Acanthospermum hispidum</i>	C	1-4	1-6
Broadleaf signalgrass	<i>Brachiaria platyphylla</i>	PC	0.25-1	0.25-1
Carpetweed	<i>Mollugo verticillata</i>	C	0.5-2	0.5-3

continued...

Table 1: Weeds Controlled or Partially Controlled With Suprend (Continued)

Weeds Controlled ^{1,2}	Latin Name	Control Level ³	Suprend	
			1.0-1.25 lbs./A	1.5 lbs./A
			Weed Size Ranges for Optimum Control (Inches)	
Coffee senna	<i>Cassia occidentalis</i>	C	1-5	1-6
Common cocklebur	<i>Xanthium strumarium</i>	C	1-5	1-6
Corn, volunteer (non-IR or IT)	<i>Zea mays</i>	C	1-5	1-6
Copperleaf hophornbeam	<i>Acalypha ostryifolia</i>	PC	1-3	1-3
Crabgrass, large	<i>Digitaria sanguinalis</i>	PC/C	1-5	1-5
Crabgrass, Southern	<i>Digitaria ciliaris</i>	PC	1-5	1-5
Florida beggarweed	<i>Desmodium tortuosum</i>	C	1-4	1-5
Hemp sesbania	<i>Sesbania exaltata</i>	C	1-4	1-5
Horse purslane	<i>Trianthema portulacastrum</i>	PC	0.5-1	0.5-2
Horseweed	<i>Conyza canadensis</i>	PC	1-3	1-4
Johnsongrass (seedling)	<i>Sorghum halepense</i>	C	1-4	1-6
Lambsquarters, common	<i>Chenopodium album</i>	C	0.5-2	0.5-3
Morningglory:				
entireleaf	<i>Ipomoea hederacea</i> var. <i>integriuscula</i>	C	1-4	1-5
ivyleaf	<i>Ipomoea hederacea</i>	C	1-5	1-6
pitted	<i>Ipomoea lacunosa</i>	C	1-5	1-6
red/scarlet	<i>Ipomoea coccinea</i>	C	1-4	1-5
tall morningglory	<i>Ipomoea purpurea</i>	C	1-3	1-4
Nutsedge:				
purple	<i>Cyperus rotundus</i>	PC	2-4	2-4
yellow	<i>Cyperus esculentus</i>	C	2-6	2-6
Peanut, volunteer	<i>Arachis hypogaea</i>	PC	1-2	1-3

Weeds Controlled ^{1,2}	Latin Name	Control Level ³	Suprend	
			1.0-1.25 lbs./A	1.5 lbs./A
			Weed Size Ranges for Optimum Control (Inches)	
Pigweed:				
Palmer amaranth	<i>Amaranthus palmeri</i>	PC	1-2	1-2
redroot pigweed	<i>Amaranthus retroflexus</i>	C	1-4	1-6
smooth pigweed	<i>Amaranthus hybridus</i>	C	1-4	1-5
waterhemp, tall	<i>Amaranthus tuberculatus</i>	C	1-2	1-2
Poinsettia, wild	<i>Euphorbia heterophylla</i>	C	0.5-2	0.5-3
Prickly sida	<i>Sida spinosa</i>	PC	1-4	1-4
Ragweed, common	<i>Ambrosia artemisiifolia</i>	C	1-4	1-6
Redweed	<i>Melochia corchorifolia</i>	C	0.5-2	0.5-3
Soybean, volunteer (Non-STS)	<i>Glycine max</i>	C	1-3	1-4
Sicklepod	<i>Cassia obtusifolia</i>	C	1-4	1-6
Sunflower, common	<i>Helianthus annuus</i>	C	1-4	1-5
Velvetleaf	<i>Abutilon theophrasti</i>	C	1-4	1-4

¹ ALS resistant plants or photosystem II resistant plants may be controlled by Suprend.

² For improved control of grass weeds tank mix with MSMA or glyphosate.

³ C = Control (85-100%) of weeds present at the time of application. C = may require use of higher rates or repeated applications to achieve control. PC = Partial control; partial control means significant activity but not always at a level generally acceptable for commercial weed control.

TANK MIXES WITH OTHER HERBICIDES

Suprend can be tank mixed with Dual MAGNUM®, MSMA, Aim™, diuron, linuron, Cobra®, and Caparol for post-directed applications where use of these products is also registered for use in cotton. Suprend can also be tank mixed with Buctril® for post-directed applications in BXN cotton varieties. Suprend can be tank mixed with Touchdown® (glyphosate) for post-directed use in Roundup Ready® Cotton varieties.

Suprend can be tank mixed with Touchdown (glyphosate) for use in conventional cotton varieties if applied with hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the rear flaps touch the ground to completely enclose the spray solution. Keep the spray and drift off cotton leaves and stems. Spray contacting cotton leaves and stems may cause cotton injury.

For all tank mixtures of Suprend refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled. Spray contacting cotton leaves may cause cotton injury with many of these tank mixtures.

REPLANTING AFTER COTTON CROP FAILURE

If a cotton crop is lost (e.g., due to hail), and adequate growing season remains, and not more than 1.0 lb./A of Suprend has been applied, cotton may be replanted 30 or more days after the Suprend application, or 14 or more days after the first significant rainfall event (≥ 0.5 inches) following the Suprend application. If Suprend has been applied at >1.0 lb./A, cotton may be replanted 30 days after the first significant rainfall event (≥ 0.5 inches) following the Suprend application.

ROTATIONAL CROP RESTRICTIONS FOLLOWING COTTON

The crops listed below may be planted at, or after, the time interval specified from the last application of Suprend. Table 3 shows the amount of trifloxsulfuron-sodium from various application rates of Suprend and Envoke herbicides. Do not exceed a cumulative total of 0.0188 lb. a.i./A of trifloxsulfuron-sodium per season resulting from all applications of Suprend and Envoke.

Suprend contains Caparol, with the active ingredient prometryn. Do not exceed a total of 5.15 lbs. a.i./A prometryn per season resulting from all applications of Suprend or prometryn containing products.

If another herbicide with a longer rotational interval was used, follow the longer rotational limitation.

Table 2. Rotational Crop Restrictions

Rotational Crop	Months
Bell pepper (transplanted)	12*
Cotton	7
Corn, field	7
Corn, sweet	7
Grain sorghum	7
Parsley	12*
Peanut	7
Potato, Irish	12*
Radish	12*
Rice	7
Soybean	7
Sugarcane	1

Rotational Crop	Months
Tobacco (transplanted)	7
Tomato (transplanted)	3
Wheat, winter	3
All other crops	18*

* Field bioassay.

Table 3: Envoke/trifloxsulfuron and Caparol/prometryn Dose Conversion

Suprend lbs. Product/A	Envoke oz. Product/A	Trifloxsulfuron lb. a.i./A	Caparol 4L pts./A	Prometryn lbs. a.i./A
1.00	0.15	0.007	1.58	0.79
1.25	0.19	0.00875	1.97	0.98
1.50	0.23	0.0105	2.37	1.18
2.01	0.30	0.0141	3.18	1.59
2.69	0.40	0.0188	4.25	2.12

STORAGE AND DISPOSAL

Pesticide Storage

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

Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling

Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or 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.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

Caparol®, Curacron®, Denim™, Dual MAGNUM®, Envoke™, Karate®, Suprend® Touchdown®, the Syngenta logo, and the CP Frame  are trademarks of a Syngenta Group Company

Aim™ and Capture® trademarks of FMC Corporation

Bidrin® trademark of Amvac Chemical Corporation

Buctril® trademark of Bayer CropScience

Clorox® trademark of Clorox Corporation

Cobra® is a trademark of Valent Agricultural Products

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For non-emergency, (e.g. current product information), call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for :

Syngenta Crop Protection, Inc.

P.O. Box 18300

Greensboro, North Carolina 27419-8300

SCP 1163A-L1B 0909

305021



Herbicide

A herbicide for control of certain broad-leaf, sedge, and grass weeds in cotton

Active Ingredients:

Prometryn (CAS No. 7287-19-6)	79.30%
2-pyridinesulfonamide,N-[[[4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]-3-(2,2,2-trifluoroethoxy)-,monosodium salt, monohydrate; Trifloxysulfuron-sodium (CAS No. 199119-58-9)	0.70%
Other Ingredients:	20.00%
Total:	100.00%

See additional precautionary statements and directions for use inside booklet.

AGRICULTURAL USE REQUIREMENTS

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

EPA Reg. No. 100-1163
EPA Est. 11773-IA-001

Suprend® and the Syngenta logo are trademarks of a Syngenta Group Company.

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40628
Product ID.

Manufactured for :
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, North Carolina 27419-8300
SCP 1163A-L1B 0909
305021

20 pounds
Net Weight

KEEP OUT OF REACH OF CHILDREN. CAUTION – PRECAUCIÓN

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

CAUTION

Causes moderate eye irritation. Harmful if swallowed. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling.

FIRST AID

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything my mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER: For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**.

Environmental Hazards: 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 cleaning equipment or disposing of equipment wash water or rinsates. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas.

This product is toxic to vascular plants and should be used strictly in accordance with the drift precautions on this label in order to minimize off-site exposures.

Container Handling: Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or 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.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

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

syngenta®



EIERA

Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF CALIFORNIA

Caparol® 4L

**EPA Reg. No. 100-620
EPA SLN No. CA-980017**

For Control Of Certain Weeds In Transplanted Celery

Active Ingredient:

Prometryn: 2,4-bis(isopropylamino)-6-(methylthio)-s-triazine 44.4%

Other Ingredients 55.6%

Total: 100.0%

Caparol 4L contains 4 lbs. active ingredient per gallon

KEEP OUT OF REACH OF CHILDREN

CAUTION

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR PEST CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

DIRECTIONS FOR USE

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

Follow all applicable directions, restrictions, and precautions including statements pertaining to the Worker Protection Standards, on the EPA-registered Caparol 4L label.

This label must be in the possession of the user at the time of pesticide application.

To amend Caparol 4L label to include pre-transplant applications:

Single Pre-Transplant Application

On coarse-textured soils and soils low in organic matter, make one application of 2 to 4 pts. per acre of Caparol 4L in a minimum of 20 gallons of water. On fine-textured soils and soils high in organic matter, make one application of 3.2 to 4 pts. per acre of Caparol 4L in a minimum of 20 gallons of water. Make the application up to 21 days prior to transplanting. Make the application to a weed-free bed and do not disturb the treated area between application and

transplanting. Note: A post-transplant application will not be allowed if the pre-transplant application was made at the maximum allowable use rate (4 pts. per acre).

Split Pre-Transplant and Post-Transplant Application:

On coarse-textured soils and soils low in organic matter, the lower rate range of 2 to 4 pts. per acre of Caparol 4L in a minimum of 20 gallons of water is recommended. The maximum post-transplant application allowable on coarse-textured soils and soils low in organic matter is 3.2 pts. per acre.

On fine-textured soils and soils high in organic matter, the higher rate range of 3.2 to 4 pts. per acre of Caparol 4L in a minimum of 20 gallons of water is recommended.

Make the pre-transplant application up to 21 days prior to transplanting. Make the application to a weed-free bed and do not disturb the treated area between application and transplanting. A second application of Caparol 4L may be made during the 2 to 6 week period after transplanting and before weeds are two inches tall. The total amount of Caparol 4L applied to the crop (pre-transplant plus post-transplant applications) cannot exceed the maximum allowable use rate (4 pts. per acre).

Post Transplant Application

As indicated on the EPA-registered Caparol 4L label make one application of 2 to 3.2 pts. per acre of Caparol 4L on coarse-textured soils and soils low in organic matter in a minimum of 20 gallons of water. Make one application of 3.2 to 4 pts. per acre of Caparol 4L on fine-textured soils and soils high in organic matter in a minimum of 20 gallons of water. Application may be made over-the-top to celery during the 2 to 6 week period after transplanting and before weeds are two inches tall.

NOTE: To avoid possible illegal residues, do not make a Caparol 4L application within 45 days of harvest.

Rotational Crops: The following crops may be seeded five months after applying no more than 4 pts. of Caparol 4L per acre on celery: cabbage, celery, corn, onions, peas, and red beets.

Caparol® 4L is a trademark of Syngenta

24(c) registrant:
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300

EPA SLN No: CA-980017

Label Code: CA0620052AA0204

CAPAROL 4L Herbicide

FOR DISTRIBUTION AND USE ONLY IN THE STATE OF FLORIDA

**WARNING: READ "LIMIT OF WARRANTY AND LIABILITY"
BEFORE USING. IF TERMS ARE NOT ACCEPTABLE,
RETURN AT ONCE UNOPENED. USE OF THIS PRODUCT BY
UNAUTHORIZED PERSONS IS PROHIBITED.**

Supplemental Labeling For Special Local Need
For Distribution and Use Only Within Florida

Caparol 4L Herbicide
EPA Reg. No. 100-620
EPA Est. 070989-MO-001

ACTIVE INGREDIENT:

Prometryn: 2,4-bis(isopropylamino)-6-(methylthio)-s-triazine	44.44 %
INERT INGREDIENTS	<u>55.60 %</u>
TOTAL	100.00 %

Caparol 4L Herbicide contains 4.0 pounds of active ingredient per gallon.

Caparol 4L Herbicide™ is a trademark of Syngenta Crop Protection, Inc.

For control of broadleaf weeds and grass in parsley and dill grown for fresh market.

KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCIÓN

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

All applicable directions, restrictions and precautions on the EPA-registered Caparol 4L Herbicide label are to be followed.

This label must be in the possession of the user at the time of pesticide application.

DIRECTIONS FOR USE

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

Parsley and Dill

Caparol 4L Herbicide is a selective herbicide that may be applied either before or after weeds emerge for control of most annual broadleaf weeds and grasses, including lambsquarter, mustard, pigweeds, and crabgrass.

Dill: **Caparol 4L Herbicide** may be applied post-emergent as a broadcast application at .25 - .5 lb a.i./A (.5 - 1 pint/A) to direct seeded dill. Applications may be made no closer than 30 days prior to harvest. Applications are to be in a minimum of 20 gallons of water per acre. A maximum of 1 lb a.i./A (2 pints/A) of Caparol 4L may be applied to dill per growing season. Crops treated with **Caparol 4L Herbicide** can be sold for fresh market only.

Parsley: **Caparol 4L Herbicide** may be applied post-emergent as a broadcast application at 0.25 - 0.5 lb. a.i./A (.5 - 1 pint/A) to direct seeded parsley. Applications may be made no closer than 30 days prior to harvest. Applications are to be in a minimum of 20 gallons of water per acre. Apply no more than a total of 1.0 lb. a.i./A (2 pints/A of Caparol 4L) per parsley crop. Parsley treated with **Caparol 4L Herbicide** can be sold for fresh market only.

Damage Description

The use of **Caparol 4L Herbicide** may result in stunting and delayed maturity. Climatic conditions during the growing season will affect **Caparol 4L Herbicide** efficacy and phytotoxicity.

LIMIT OF WARRANTY AND LIABILITY

THE LIABILITY OF THIRD PARTY REGISTRATIONS, INC. ("TPR, INC.") FOR ANY NON-PERFORMANCE, INJURY, LOSS OR DAMAGE TO PROPERTY ASSOCIATED WITH THE USE OF THIS PRODUCT UNDER ANY THEORY OF WARRANTY, NEGLIGENCE, OR STRICT LIABILITY SHALL BE LIMITED TO A REFUND OF THE PURCHASE PRICE OF THE PRODUCT.

Neither TPR, Inc., the manufacturer, the formulator nor seller makes any warranty of merchantability, fitness of purpose, or otherwise, expressed or implied, concerning the use of a pesticide in accordance with these provisions. The user and/or grower acknowledges the preceding disclaimer and accepts liability for any possible damage resulting from this use, whether under theories of warranty, negligence, or strict liability which exceeds the purchase price of the product.

The user and/or grower acknowledge that this product may lead to crop injury, loss, or damage, or phytotoxicity to subsequent crops and agrees to test this product in order to determine its suitability for intended use.

TPR and the manufacturer, the formulator and seller make this Product available for use in the manner described in this Supplemental Labeling on the basis that, in the sole opinion of the user, the benefits and utility derived from the use of the Product on the crop outweigh the potential risk of crop injury, crop yield reduction or crop loss. The decision made to use this Product in a manner described in this Supplemental Labeling must be made by each individual user on the basis of the anticipated benefits versus risks of the Product.

If these Conditions and Risks of Use for Special Local Need are not acceptable, the unopened Product may be returned to the seller for a refund or used for a different labeled use in accordance with the label affixed to the Product container.

These Conditions and Risks of Use for Special Local Needs are required by TPR Inc., the manufacturer, the formulator and seller and are not specified by the U.S. EPA or the State of Florida.

Expiration Date: July 31, 2007

24(c) Registrant
Third Party Registrations, Inc.
P.O. Box 948153
Maitland, Florida 32794-8153
(321) 214-5200

EPA SLN No. FL-970011
Date Submitted: 7/20/06
Date Accepted: xx/xx/xx



EIERA

Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF OREGON

Caparol® 4L

**EPA Reg. No. 100-620
EPA SLN No. OR-040002**

This label valid until December 31, 2012 or until otherwise amended, withdrawn, cancelled, or suspended.

**For Control Of Weeds In The Following Crops Grown For Seed:
Carrots, Parsley, and Coriander**

Active Ingredient:

Prometryn: 2,4-bis(isopropyl-amino)-6-(methylthio)-s-triazine 44.4%

Other Ingredients: 55.6%

Total: 100.0%

Caparol 4L contains 4 lbs. active ingredient per gallon

KEEP OUT OF REACH OF CHILDREN

CAUTION

**SYNGENTA'S SPECIAL CONDITIONS, RISKS OF USE AND DISCLAIMER FOR USE
OF CAPAROL 4L ON CROPS ON THIS 24C LABEL**

IMPORTANT- READ BEFORE USE

**THESE CONDITIONS RISKS OF USE AND DISCLAIMER ARE REQUIRED BY
SYNGENTA CROP PROTECTION INC AND NOT SPECIFIED BY U.S. EPA OR THE
STATE OF OREGON**

Labeling may be obtained through the Special Labels link at www.farmassist.com.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, SYNGENTA CROP PROTECTION, INC. INTENDS THAT THE PRODUCT THAT IS THE SUBJECT OF THIS SECTION 24C LABEL BE PURCHASED ONLY BY END USERS WHO AGREE BY ELECTRONIC SIGNATURE ON SYNGENTA CROP PROTECTION'S INTERNET SITE TO THE TERMS AND CONDITIONS REQUIRED BY SYNGENTA CROP PROTECTION, INC. INCLUDING A WAIVER AND RELEASE FROM ALL LIABILITY AND INDEMNIFICATION BY THE USER AND/OR GROWER OF SYNGENTA AND OTHERS FOR FAILURE TO PERFORM AND FOR CROP INJURY, CROP YIELD REDUCTION, AND/OR CROP LOSS FROM USE OF CAPAROL 4L ON CROPS ON THIS 24(C) LABEL. IF SUCH TERMS AND CONDITIONS ARE UNACCEPTABLE, RETURN THE CAPAROL 4L AT ONCE

UNOPENED OR USE THE CAPAROL 4L FOR A DIFFERENT APPROVED USE IN ACCORDANCE WITH THE LABEL AFFIXED TO THE PRODUCT CONTAINER.

USE OF CAPAROL 4L (THE "PRODUCT") ON CROPS LISTED (THE "CROP") FOR THIS SPECIAL LOCAL NEED MAY RESULT IN CROP INJURY, CROP YIELD REDUCTION AND/OR CROP LOSS AS FURTHER DISCUSSED BELOW. READ AND UNDERSTAND THESE CONDITIONS AND RISKS OF USE FOR SPECIAL LOCAL NEED BEFORE USING THE PRODUCT ON THE CROP. SYNGENTA RECOMMENDS THAT THE USER TEST THIS PRODUCT TO DETERMINE ITS SUITABILITY FOR SUCH INTENDED USE.

Syngenta Crop Protection, Inc. makes the Product available for use in the manner described in this Supplemental Labeling on the basis that, in the sole opinion of the user, the benefits and utility derived from the use of the Product on the Crop outweigh the potential risk of Crop injury, Crop yield reduction or Crop loss. The decision to use this Product in the manner described in this Supplemental Labeling must be made by each individual user on the basis of anticipated benefits versus (i) the potential risk of Crop injury, Crop yield reduction and Crop loss, (ii) the severity of the target pest infestation, (iii) the cost and availability of alternative pest controls and (iv) any other relevant factors. Syngenta recommends that the user test this Product to determine its suitability for such intended use.

By purchasing the Product for use, or using the Product in the manner described in this Supplemental Labeling, you acknowledge and accept that, to the extent consistent with applicable law:

- 1) you assume all risk of Crop injury, Crop yield reduction and Crop loss;**
- 2) Syngenta Crop Protection, Inc. do not make, and do not authorize any agent or representative to make, any representations or recommendations regarding the use of this Product on the Crop other than the statements on this Supplemental labeling;**
- 3) Syngenta Crop Protection, Inc. do not make, and do not authorize any agent or representative to make, any warranties, express or implied, with respect to the use of the Product on the Crop and disclaim all warranties, expressed or implied, including any implied warranty of merchantability;**
- 4) Syngenta Crop Protection, Inc. disclaim all liability for any damages, losses, expenses, claims or causes of actions arising out of or relating to Crop injury, Crop yield reduction and/or Crop loss;**
- 5) these conditions and Risks of Use for Special Local Need supersede any contrary representations or recommendations by Syngenta Crop Protection, Inc. or their respective agents or representatives, and any provisions in or on any Product literature or labeling including any provisions on the label affixed to the Product container.**

If these Conditions and Risks of Use for Special Local Need are not acceptable, the unopened Product may be returned to the seller for a refund or used for a different labeled use in accordance with the label affixed to the Product container.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR PEST CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

Environmental Hazards

Do not apply directly to water, to areas where the surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas.

Endangered Species

Certain uses of Caparol 4L may be restricted by a U.S. District Court final order. You may refer to the Oregon Department of Agriculture web site at <http://egov.oregon.gov/ODA/PEST/buffers.shtml> or to the U.S. EPA web site at <http://www.epa.gov/espp/wtc/maps.htm#wtc6> or <http://www.epa.gov/espp/wtc/uselimitation.htm> for information regarding pesticides that may be impacted by the final order.

DIRECTIONS FOR USE

This label and the federal label for this product must be in the possession of the user at the time of pesticide application.

Follow all applicable directions, restrictions, and precautions on this Supplemental label and the main EPA-registered label. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Postemergence Application

Broadcast Application: Apply 2 pints per acre after seed carrots, seed parsley or seed coriander have 3-5 true leaves. Apply before weeds are 2 inches tall.

Notes: (1) To reduce the chance of injury to rotational crops, the field should be disked as deep as possible and irrigated at least twice soon after harvest, (2) Use of Caparol 4L on soils that have excess salts or are highly calcareous may result in crop injury, (3) All applications are to be made by ground equipment with sufficient agitation in tank to keep mixture in suspension, using a minimum of 30 gallons per acre spray volume, and (4) Good spray coverage is required for adequate weed control.

Rotational Crops

A green manure or cover crop can be planted following seed carrots, seed coriander, and seed parsley treated with Caparol 4L, if the crop is plowed down and not used for food or feed.

The following crops may be seeded 5 months after applying no more than 2 pints of Caparol 4L per acre on seed carrots, seed coriander, and seed parsley: cabbage, celery, corn, onions, peas, red beets and sweet corn.

Other rotational crops may be planted 18 months after application of no more than 2 pints of Caparol 4L per acre on seed carrots, seed coriander, and seed parsley.

Restrictions/Precautions:

- **DO NOT** apply more than 2 pints of Caparol 4L per acre
- **DO NOT** apply this product through any type of irrigation system.
- Temporary stunting has been observed following the application of Caparol 4L in combination with other fall-applied herbicides.

Special Crop Use Restrictions

The pesticide applicator, the producer of the crop, and the seed conditioner must be aware that use of this product according to this labeling is deemed a nonfeed/non-food use by the Oregon Department of Agriculture, and is regulated by Oregon Administrative Rule (OAR) 603-057-0535, Pesticide Use On Crops Grown For Seed. If the applicator of this pesticide is not the producer, the applicator should provide a copy of this labeling to the producer of the crop. Producers of this crop who use this product, or cause the product to be used on a field they operate, should provide a copy of this pesticide label to the seed conditioner.

This pesticide does not have an established pesticide residue tolerance for this crop. Consequently, no portion of this seed crop may be used or distributed for food or feed for 1 year (365 days) after the last application of this product. This restriction pertains to, but is not limited to: green chop, forage, hay, pellets, meal, whole seed, cracked seed, straw, roots, bulbs, foliage or seed screenings, and to the grazing of the crop field, stubble or regrowth. All seed screenings shall be disposed of in such a manner that the screenings cannot be distributed or used for food or feed purposes, as indicated in OAR 603-057-0535. Additional regulations concerning seed screenings are stated in OAR 603-057-0535.

Any seed from a field treated with this pesticide product shall bear specific and conspicuous container labeling, or if shipped in bulk, on the shipment invoice or bill of lading. The labeling shall contain the following statement:

"This seed was produced using one or more products for which the United States Environmental Protection Agency has not established pesticide residue tolerances. This seed, in whole, as sprouts, or in any form, may not be used for human consumption or animal feed. Failure to comply with this condition may violate requirements of the Federal Food and Drug Administration, the Oregon Department of Agriculture and other regulatory agencies."

Caparol® trademark of a Syngenta Group Company

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24(c) registrant:
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300

EPA SLN No.: OR-040002

OR0620051BA0108



EIERA

Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF WASHINGTON

Caparol® 4L

**EPA Reg. No. 100-620
EPA SLN No. WA-960014**

For control of weeds in seed carrot, seed parsley, seed parsnip, and seed dill

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

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

Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered Caparol 4L.

This labeling must be in the possession of the user at the time of pesticide application.

DIRECTIONS FOR USE

Postemergence Application Method and Rates

All applications are to be made by ground equipment with sufficient agitation in tank to keep mixture in suspension, using a minimum of 30 gallons per acre spray volume. Good spray coverage is required for adequate weed control. The use of spray adjuvants is restricted to directed spray lay-by application only. Drop nozzles are recommended.

Broadcast Application: Apply 1-2 pints per acre after seed carrot, seed parsley, seed parsnip, or seed dill have 3-5 true leaves. Apply before weeds are 2 inches tall.

Lay-By Application: Apply 1-2 pints per acre preferably as a directed spray.

Restrictions/Precautions:

- (1) **DO NOT** apply more than 4 pints of Caparol 4L per acre per year
- (2) Do not make more than two applications per crop per year
- (3) To reduce the chance of injury to rotational crops, the field should be disked as deep as possible and irrigated at least twice soon after harvest.
- (4) Use of Caparol 4L on soils that have excess salts or are highly calcareous may result in crop injury.
- (5) The Restricted Entry Interval (REI) is 24 hours

Restrictions:

1. All carrots, parsley, parsnip, dill seed screenings shall be disposed of in such a way that they cannot be distributed or used for human food or animal feed. The seed conditioner shall keep records of screening disposal for three years from the date of disposal and shall furnish the records to the director immediately upon request. Conditioner disposal records shall consist of documentation of on-farm disposal, disposal at a controlled dumpsite, incinerator, composter or other equivalent disposal site and shall include the lot numbers, amount of material disposed of, the grower(s), and the date of disposal.
2. No portion of the carrots, parsley, parsnip, dill seed plant, including but not limited to green chop, hay, pellets, meal, whole seed, cracked seed, roots, bulbs, leaves and seed screenings may be used or distributed for food or feed purposes.
3. Carrots, parsley, parsnip, dill seed shall bear a tag or container label, which forbids use of the seed for human consumption or animal feed.
4. Carrots, parsley, parsnip, dill seed may not be distributed for human consumption or animal feed.

Certain uses of prometryn may be restricted by a U.S. District Court final order. You may refer to the WSDA Endangered Species Program website at <http://agr.wa.gov/PestFert/NatResources/Buffers.aspx> for information regarding pesticides that are impacted by the final order.

Rotational Crops

Winter wheat can be planted following seed carrot, seed parsley, seed parsnip, and seed dill treated with Caparol 4L, if the wheat is used for seed or plowed down and not used for food or feed.

The following crops may be seeded 5 months after applying no more than 4 pints of Caparol 4L per acre on seed carrot, seed parsley, seed parsnip, and seed dill: cabbage, celery, corn, and peas. Onions and red beets may not be planted within 8 months of applying Caparol 4L.

Other rotational crops may be planted 18 months after application of 4 pints of Caparol 4L per acre on seed carrot, seed parsley, seed parsnip, and seed dill.

WSDA Container Disposal Guidance: WSDA Container Disposal Guidance: Pesticide containers must be properly cleaned prior to disposal. The best time to clean empty pesticide containers is during mixing and loading, because residue can be difficult to remove after it dries. Triple rinse (or pressure rinse) the pesticide container, empty all pesticide rinse water into the spray tank, and apply to a labeled crop or site. Recycling cleaned containers is the best method of container disposal. Information regarding the recycling of empty and cleaned plastic pesticide containers in Washington is available on the WSDA Waste Pesticide Program web site at <http://agr.wa.gov/PestFert/Pesticides/WastePesticide.aspx>. Cleaned containers may also be disposed of in a sanitary landfill, if permitted by the county. Burning is not a legal method of container disposal in Washington.

Chemigation: For use under this SLN label do not apply this product through any type of irrigation system.

This label for Caparol 4L expires and must not be distributed or used in accordance with this SLN registration after December 31, 2015.

**SYNGENTA'S SPECIAL CONDITIONS, RISKS OF USE AND DISCLAIMER FOR USE
OF CAPAROL 4L ON CROPS ON THIS 24C LABEL**

IMPORTANT - READ BEFORE USE

THESE CONDITIONS, RISKS OF USE AND DISCLAIMER ARE REQUIRED BY SYNGENTA CROP PROTECTION INC AND NOT SPECIFIED BY U.S. EPA OR WASHINGTON STATE DEPARTMENT OF AGRICULTURE

“Specimen labels may be obtained through the Special Labels link at www.farmassist.com. This information is provided for general information only. The information provided on these specimen labels may not reflect the current information, including precautions and instructions for use, that you are required to follow in Washington State.”

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, SYNGENTA CROP PROTECTION, INC. INTENDS THAT THE PRODUCT THAT IS THE SUBJECT OF THIS SECTION 24C LABEL BE PURCHASED ONLY BY END USERS WHO AGREE BY ELECTRONIC SIGNATURE ON SYNGENTA CROP PROTECTION'S INTERNET SITE TO THE TERMS AND CONDITIONS REQUIRED BY SYNGENTA CROP PROTECTION, INC. INCLUDING A WAIVER AND RELEASE FROM ALL LIABILITY AND INDEMNIFICATION BY THE USER AND/OR GROWER OF SYNGENTA AND OTHERS FOR FAILURE TO PERFORM AND FOR CROP INJURY, CROP YIELD REDUCTION, AND/OR CROP LOSS FROM USE OF CAPAROL 4L ON CROPS ON THIS 24(C) LABEL.

IF SUCH TERMS AND CONDITIONS ARE UNACCEPTABLE, RETURN THE CAPAROL 4L AT ONCE UNOPENED OR USE THE CAPAROL 4L FOR A DIFFERENT APPROVED USE IN ACCORDANCE WITH THE LABEL AFFIXED TO THE PRODUCT CONTAINER.

USE OF CAPAROL 4L (THE “PRODUCT”) ON CROPS LISTED (THE “CROP”) FOR THIS SPECIAL LOCAL NEED MAY RESULT IN CROP INJURY, CROP YIELD REDUCTION AND/OR CROP LOSS AS FURTHER DISCUSSED BELOW. READ AND UNDERSTAND THESE CONDITIONS AND RISKS OF

USE FOR SPECIAL LOCAL NEED BEFORE USING THE PRODUCT ON THE CROP. SYNGENTA RECOMMENDS THAT THE USER TEST THIS PRODUCT TO DETERMINE ITS SUITABILITY FOR SUCH INTENDED USE.

Syngenta Crop Protection, Inc. makes the Product available for use in the manner described in this Supplemental Labeling on the basis that, in the sole opinion of the user, the benefits and utility derived from the use of the Product on the Crop outweigh the potential risk of Crop injury, Crop yield reduction or Crop loss. The decision to use this Product in the manner described in this Supplemental Labeling must be made by each individual user on the basis of anticipated benefits versus (i) the potential risk of Crop injury, Crop yield reduction and Crop loss, (ii) the severity of the target pest infestation, (iii) the cost and availability of alternative pest controls and (iv) any other relevant factors. Syngenta recommends that the user test this Product to determine its suitability for such intended use.

By purchasing the Product for use, or using the Product in the manner described in this Supplemental Labeling, you acknowledge and accept that, to the extent consistent with applicable law:

- 1) you assume all risk of Crop injury, Crop yield reduction and Crop loss;
- 2) Syngenta Crop Protection, Inc. do not make, and do not authorize any agent or representative to make, any representations or recommendations regarding the use of this Product on the Crop other than the statements on this Supplemental labeling;
- 3) Syngenta Crop Protection, Inc. do not make, and do not authorize any agent or representative to make, any warranties, express or implied, with respect to the use of the Product on the Crop and disclaim all warranties, expressed or implied, including any implied warranty of merchantability;
- 4) Syngenta Crop Protection, Inc. disclaim all liability for any damages, losses, expenses, claims or causes of actions arising out of or relating to Crop injury, Crop yield reduction and/or Crop loss;
- 5) these conditions and Risks of Use for Special Local Need supersede any contrary representations or recommendations by Syngenta Crop Protection, Inc. or their respective agents or representatives, and any provisions in or on any Product literature or labeling including any provisions on the label affixed to the Product container.

If these Conditions and Risks of Use for Special Local Need are not acceptable, the unopened Product may be returned to the seller for a refund or used for a different labeled use in accordance with the label affixed to the Product container.

Caparol® trademark of Syngenta Crop Protection, Inc.

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24(c) registrant:
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300

EPA SLN No.: WA-960014

WA0620075CA0410



Section 24(c) Special Local Need Label

**FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF
SOUTH CAROLINA**

Caparol® 4L

EPA Reg. No. 100-620
EPA SLN No. SC-050004

For Control of Winter and Early Spring Weeds in Cotton

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL
MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

DIRECTIONS FOR USE

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

Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered Caparol 4L label. This labeling must be in the possession of the user at the time of pesticide application.

Cotton

Winter and Early Spring Weed Control

Apply 1.5-2.0 pints/acre of Caparol 4L in no-till or after bedding (e.g. stale seedbed) from November 1 until 14 days before planting cotton. Length of residual control will be based on product rate and soil type. This treatment will provide limited early season residual weed control and will require a postemergence program for full season weed control.

Avoid use on sandy soils.

Caparol® trademark of a Syngenta Group Company

© 2005 Syngenta Crop Protection, Inc.
24(c) registrant
Greensboro, NC 27419-8300

Label Code: SC0620013AA0905



EIERA

Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY IN THE STATE OF MISSOURI

Caparol® 4L

EPA Reg. No. 100-620
EPA SLN No. MO-05-0004

For Control of Winter and Early Spring Weeds in Cotton

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

DIRECTIONS FOR USE

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

Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered Caparol 4L label. This labeling must be in the possession of the user at the time of pesticide application.

Cotton

Winter and Early Spring Weed Control

Apply 1.5-2.0 pints/acre of Caparol 4L in no-till or after bedding (e.g. stale seedbed) from November 1 until 14 days before planting cotton. Length of residual control will be based on product rate and soil type. This treatment will provide limited early season residual weed control and will require a postemergence program for full season weed control.

Avoid use on sandy soils.

Caparol® trademark of a Syngenta Group Company

© 2005 Syngenta Crop Protection, Inc.
24(c) registrant
Greensboro, NC 27419-8300

Label Code: MO0620012AA0405



EIERA

Section 24(c) Special Local Need Label

**FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF
MISSISSIPPI**

Caparol® 4L

**EPA Reg. No. 100-620
EPA SLN No. MS-050012**

For Control of Winter and Early Spring Weeds in Cotton

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL
MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

DIRECTIONS FOR USE

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

Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered Caparol 4L.

This labeling must be in the possession of the user at the time of pesticide application.

Cotton

Winter and Early Spring Weed Control

Apply 1.5-2.0 pints/acre of Caparol 4L in no-till or after bedding (e.g. stale seedbed) from November 1 until 14 days before planting cotton. Length of residual control will be based on product rate and soil type. This treatment will provide limited early season residual weed control and will require a postemergence program for full season weed control.

Avoid use on sandy soils.

Caparol® trademark of a Syngenta Group Company

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24(c) registrant
Greensboro, NC 27419-8300

Label Code: MS0620022AA0405



EIERA

Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY IN THE STATE OF TENNESSEE

Caparol® 4L

**EPA Reg. No. 100-620
EPA SLN No. TN-050007**

For Control of Winter and Early Spring Weeds in Cotton

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

DIRECTIONS FOR USE

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

Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered Caparol 4L label. This labeling must be in the possession of the user at the time of pesticide application.

Cotton

Winter and Early Spring Weed Control

Apply 1.5-2.0 pints/acre of Caparol 4L in no-till or after bedding (e.g. stale seedbed) from November 1 until 14 days before planting cotton. Length of residual control will be based on product rate and soil type. This treatment will provide limited early season residual weed control and will require a postemergence program for full season weed control.

Avoid use on sandy soils.

Caparol® trademark of a Syngenta Group Company

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Greensboro, NC 27419-8300

Label Code:TN06200142AA0905



EFERA

Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF VIRGINIA

Caparol® 4L

EPA Reg. No. 100-620
EPA SLN No. VA-050003

For Control of Winter and Early Spring Weeds in Cotton

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL
MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

DIRECTIONS FOR USE

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

Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered Caparol 4L.

This labeling must be in the possession of the user at the time of pesticide application.

Cotton

Winter and Early Spring Weed Control

Apply 1.5-2.0 pints/acre of Caparol 4L in no-till or after bedding (e.g. stale seedbed) from November 1 until 14 days before planting cotton. Length of residual control will be based on product rate and soil type. This treatment will provide limited early season residual weed control and will require a postemergence program for full season weed control.

Avoid use on sandy soils.

Caparol® trademark of a Syngenta Group Company

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Label Code: VA0620024AA0605