

STATE OF CALIFORNIA
PESTICIDE EPISODE INVESTIGATION REPORT
 PR-ENF-127 (REV. 8/07) PAGE 1 OF 1

DEPARTMENT OF PESTICIDE REGULATION
 ENFORCEMENT BRANCH

Page 1 of 60

A. GENERAL INFORMATION

RECEIVED BY Andy Calderwood	RECEIVED FROM Jim Downer	REPRESENTING UCANR	DATE/TIME RECEIVED 2 DEC 2022 / 1:55	☐ AM ☒ PM	PERSON NOTIFIED DFA _____ DFG _____ DPH _____ DIR _____ EPA _____ CAC _____ OTHER _____	DATE _____
TYPE OF EPISODE ☐ HUMAN EFFECTS # _____ ☐ PROPERTY LOSS \$ _____		☒ ENVIRONMENTAL EFFECTS ☐ OTHER		PRIORITY INVESTIGATION ☐ YES # _____ ☒ NO		
OTHER I.D. NO. INV-56-20211216-102	COUNTY OF OCCURRENCE Ventura	DATE OF OCCURRENCE MO 2 DAY 21 YR 2021	TIME 8:00	☐ AM ☒ PM		
EPISODE LOCATION 1301 Soule Park Dr, Ojai 93023						

B. INJURED/COMPLAINANT INFORMATION

COMPLAINT SIGNED ☐ YES ☐ NO ☒ N/A	DOCTOR VISITED ☐ YES ☐ NO ☒ N/A	EXTENT OF INJURY/ILLNESS ☐ Fatal ☐ Symptoms ☐ Serious ☐ Exposed Only	ACTIVITY OF PERSON EXPOSED/INVOLVED ☐ Mixer/Loader ☐ Field worker* ☐ Applicator ☐ Public* *Explain Tree damage: _____
NAME N/A	AGE N/A	SEX N/A	WORKDAYS LOST N/A
ADDRESS (Number and Street, City, State, ZIP Code) N/A			PHONE N/A
MEDICAL FACILITY NAME N/A	☐ TREATMENT PROVIDED ☐ OBSERVATION ONLY	HOSPITALIZED ☐ YES ☐ NO	DATE/TIME ADMITTED N/A
PHYSICIAN N/A	ADDRESS (Number and Street, City, State, ZIP Code) N/A		DATE/TIME DISCHARGED N/A
SIGNS/SYMPTOMS EXPERIENCED N/A			PHONE N/A
EMPLOYER N/A	ADDRESS (Number and Street, City, State, ZIP Code) N/A		PHONE N/A

PROTECTIVE MEASURES USED

EYES ☐ Safety Glasses ☐ Goggles ☐ Faceshield ☐ Eye/Sun Glasses ☐ None	HANDS ☐ Cloth/Leather Gloves ☐ Chemical Resistant Gloves ☐ Other _____ ☐ None	INHALATION ☐ Dust Mask ☐ 1/2 Face Respirator ☐ Full Face Respirator ☐ SCBA ☐ None	OTHER ☐ Work Clothes ☐ Coveralls ☐ Chemical Resistant Clothes ☐ Chemical Resistant Boots ☐ Head Covering ☐ Other _____	ENGINEERING CONTROLS ☐ Closed System ☐ Enclosed Cab ☐ Enclosed Cab w/Air Purification ☐ Other _____ ☐ None
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C. ENVIRONMENTAL OR PROPERTY DAMAGE

DESCRIPTION OF DAMAGE Herbicide damage to hardwood trees at Soule Park		AMOUNT/VALUE unknown
OWNER Ventura County GSA - Parks	ADDRESS (Number and Street, City, State, ZIP Code) 11201 C Riverbank Dr, Saticoy, CA 93004	PHONE (805) 672-2019

D. ALLEGED RESPONDENT(S)

☐ PCA ☐ DEALER ☐ PILOT ☐ GROWER ☒ AGENCY ☐ OTHER			
NAME Ventura County GSA - Parks Department	PHONE (805) 672-2019	LICENSE/PERMIT NUMBER 56-21-56P0045	RECOMMENDATION MADE ☐ YES # ☒ NO
ADDRESS (Number and Street) 11201 C Riverbank Dr		EMPLOYER'S NAME N/A	PHONE N/A
City, State, ZIP Code Saticoy, CA 93004		EMPLOYER'S ADDRESS (Number and Street) N/A	
*EXPLAIN City, State, ZIP Code N/A			

PESTICIDE NAME/MANUFACTURER	EPA REGISTRATION NUMBER	CATEGORY	DOSE/DILUTION/VOLUME	TREATMENT DATE	COMMODITY/SITE TREATED
Polaris / Nufarm	228-534	III	2 oz / gallon	21 Feb 2021	Recreation area
Cheetah Pro / Nufarm	228-743	III	2 oz / gallon	21 Feb 2021	Recreation area
Brandt Magnify / Brandt	48813-50014	II	1 oz / 3 gallons	21 Feb 2021	Recreation area

EQUIPMENT TYPE/MAKE/MODEL/DESCRIPTION

North Star hand sprayer with 24 gallon tank

SUMMARIZE THE EPISODE INCLUDING A DETAILED DESCRIPTION OF EVIDENCE TAKEN (Use Pesticide Episode Investigation Supplemental Report form PR-ENF-127A if additional space is needed)

See attached narrative

REPORT PREPARED BY (NAME/TITLE) John Mikesell	DATE PREPARED 6 Jan 2022	REPORT REVIEWED/APPROVED BY (NAME/TITLE)  JPM	DATE APPROVED 25 Jan 2022
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County: Ventura
Inspector: John Mikesell
INV-56-20211216-102

Summary:

On 2 December 2021 at 1:55PM, the Ventura County Agricultural Commissioner's Office (VCAC) received an email complaint from JIM DOWNER, Environmental Horticulture / Plant Pathology Specialist at University of California Agriculture and Natural Resources Cooperative Extension, Ventura County (UCCE). J. DOWNER believed that hardwood trees planted at Soule Park in Ojai were experiencing symptoms of herbicide poisoning. He provided pictures of his findings in the email (Attachment 1). On 21 February 2021, Ventura County GSA – Parks (Operator Identification Number (OIN) 56-21-56P0045) (Attachment 2) applied the herbicides Polaris (EPA Reg. No. 228-534) (Attachment 3) and Cheetah Pro (EPA Reg. No. 228-743) (Attachment 4), and the surfactant Brandt Magnify (CA Reg. No. 48813-50014) (Attachment 5) around the base of the trees at Soule Park. The application of Polaris, active ingredient imazapyr, performed near the root zones may be the cause of irregular growth observed on the Soule Park trees, and may have contributed to their declining health. The VCAC could not determine any violations committed by Ventura County GSA – Parks.

Background:

Pesticide Use Enforcement activities are delegated by the State of California to the Agricultural Commissioner's office of the county where the pesticide use occurs. On 2 December 2021, the VCAC received a complaint that trees in a Ventura County managed park in Ojai may be exhibiting symptoms of herbicide damage. The VCAC investigated pesticide use performed at the location of the complaint, and surrounding areas to determine whether pesticide damage is likely, why the damage may have occurred, and whether any violations of the law occurred. This complaint was assigned to me, Senior Inspector/Biologist JOHN MIKESELL, for further investigation.

Violations:

None

Witnesses:

Ventura County Agricultural Commissioner's Office: 815 E Santa Barba St, Santa Paula, CA 93061, (805) 933-2926

Calderwood, Andy - Deputy Agriculture Commissioner

Mikesell, John - Senior Agricultural Inspector/Biologist

Wilson, Scott - Senior Agricultural Inspector/Biologist

Ventura County GSA – Parks: 11201 C Riverbank Dr, Saticoy, CA 93004, (805) 672-2019

Cobb, Rick - Public Works Maintenance Worker Specialist

Martinez, James - Maintenance supervisor

University of California Agriculture and Natural Resources Cooperative Extension – Ventura County: 669 County Square Dr. Suite 100, Ventura, CA 93003, (805) 645-14851

Downer, Jim - Environmental Horticulture / Plant Pathology Specialist

University of California, Santa Barbara – Santa Clara River Restoration Program: UCSB Marine Science Building 520, Santa Barbara, CA 93106, (805) 893-8062

Lambert, Adam – Restoration Director

Investigation and Statements:

On 2 December 2021 at 1:55PM, the Ventura County Agricultural Commissioner's Office (VCAC) received an email complaint from JIM DOWNER, Environmental Horticulture / Plant Pathology Specialist at University of California Agriculture and Natural Resources Cooperative Extension, Ventura County (UCCE). J. DOWNER believed that hardwood trees planted at Soule Park in Ojai were experiencing symptoms of herbicide poisoning. He provided pictures of his findings in the email (Attachment 1). J. DOWNER hypothesized that the irregular growth found on the Soule Park trees may be symptoms of exposure to 2,4-D, a California Restricted selective herbicide used for the control of broadleaf weeds. This investigation was assigned to me, Senior Agricultural Inspector/Biologist JOHN MIKESELL for further investigation.

At 4:49PM I emailed J. DOWNER informing him I had been assigned to investigate the possible herbicide damage of trees at Soule Park.

On 3 December 2021 at 11:30AM I researched www.calagpermits.org to determine Soule Park pesticide use was managed by Ventura County General Services Agency (GSA) – Parks (Operator Identification Number (OIN) 56-21-56P0045, Site 07) (Attachment 2).

At 12:15PM Senior Agricultural Inspector/Biologist SCOTT WILSON provided two spreadsheets of data from www.calagpermits.org. The first spreadsheet showed all Restricted Material Permits (RMPs) in Ojai with 2,4-D as a registered pesticide for the 2021 calendar year (Attachment 6). The second spreadsheet showed all 2,4-D applications in the Ojai area reported to the VCAC in the 2021 calendar year (Attachment 7). The only 2,4-D applications that occurred near Soule Park

were performed at Soule Park Golf Course (RMP No. 56-21-56V0009, Site 01) (Attachment 8). Soule Park reported using 8 gallons of Speedzone (EPA Reg. No. 2217-835) (Attachment 9) during May 2021.

On 7 December 2021 at 10:20AM I tried contacting JAMES MARTINEZ, Maintenance Supervisor and Authorized Representative for the Ventura County GSA – Parks OIN. I left a voicemail stating I had questions about herbicide use at Soule Park.

On 8 December 2021 at 1:07PM, J. MARTINEZ returned my call. He stated the following: Ventura County GSA - Parks does not apply any herbicides containing the active ingredient 2,4-D. The only herbicides the county has applied at Soule Park in 2021 are Polaris (EPA Reg. No. 228-534) (Attachment 2) and Cheetah Pro (EPA Reg. No. 228-743) (Attachment 3). Their department does not apply herbicides at Soule Park often due to the Ojai community's negative perception of pesticide use. Health of the trees at Soule Park had been in decline for approximately the last five years due to drought conditions. The tree species were mainly ash, sycamore, and maple. In August 2021, Ventura County GSA – Parks ordered soil sample and tree tissue sample analysis from Soule Park to determine why the trees were dying. The lab results showed the trees were stressed from lack of water. County Parks rarely waters the trees because they have a limited amount of water allotted to them by the Casitas Municipal Water District. The lack of water availability was determined to be the cause of general tree health decline at Soule Park.

On 9 December 2021 at 11:59AM, I received an email from J. MARTINEZ containing Soule Park 2020-2021 pesticide use reports (Attachment 10) and the Fruit Growers Laboratory analysis report of tissue and soil samples collected at Soule Park on 20 August 2021 (Attachment 11). The pesticide use reports indicate two herbicide applications were made at Soule Park since 1 January 2020. On 24 April 2020, 20 ounces of Polaris were applied to Soule Park at a rate of 1 ounce per gallon of water. On 21 February 2021, 1.5 gallons of Polaris and 1.5 gallons of Cheetah Pro were applied at Soule Park, both at a rate of 2 ounces per gallon of water. 32 Ounces of the surfactant Brandt Magnify (EPA Reg. No. 48813-50014) (Attachment 5) were also applied on 21 February 2021 at the rate of 8 ounces per 24 gallons of solution.

The Fruit Growers Laboratory tissue analysis was performed on leaves from a Silver Maple tree in Soule Park. Excessive levels of chloride and calcium were reported in the leaves, indicating the tree is water stressed. Phosphorus levels in the leaves are reported as deficient. The soil sample analysis shows a very low level of phosphorus available in the soil, and soil salinity higher than optimum (Attachment 11).

2:15PM, I arrived at Soule Park to observe the trees and their environmental conditions. I made three important observations. The first was that the ground around the base of the mature trees was mostly bare, as was the ground under the fence line at the south end of the park, and the ground bordering the creek on the north end of the park (Attachment 12). This indicated to me herbicides were applied to these areas. The second observation was irregular growth found on dozens of the mature trees (Attachment 13). Odd looking tufted foliage appeared on the trunk and branches. On

some trees, discolored foliage of various size grew in bunches. The third observation was that plants along the north end of the park were exhibiting similar symptoms of irregular tufted growth as the trees. These plants were observed in mostly bare-ground areas that appeared to have been treated with herbicide for management purposes (Attachment 14). The similarity in growth symptoms between the desirable trees and the undesirable treated plants led me to believe herbicide damage may be occurring to the trees at Soule Park.

At 4:00PM I returned to the office to research accidental plant damage caused by imazapyr and glufosinate, the active ingredients found in Polaris and Cheetah Pro, respectively. My research indicated imazapyr can be absorbed through a plants root system from treated soil and cause similar irregular growth symptoms to the ones I observed at Soule Park. The Polaris label states “untreated desirable plants can be affected by root uptake of this product from treated soil” (Attachment 3). The Weed Control Methods Handbook published online by the Nature Conservancy at University of California – Davis states “Care should be taken in applying (imazapyr) around non-target species, as it is readily adsorbed through foliage and roots, and therefore, could be injurious by drift, runoff, or leaching from the roots of treated plants. To avoid injury to desirable trees, do not apply imazapyr within twice the drip line (tree canopy)”. In drought conditions, imazapyr can persist in soils for up to one year (Attachment 15).

At 4:47PM I emailed J. DOWNER pictures of my findings at Soule Park, and asked if he believed the tree symptoms could be caused by imazapyr damage.

On 17 December 2021 at 9:00AM, I interviewed RICK COBB, applicator for Ventura Co. GSA – Parks. R. COBB stated the following: He has worked for Ventura County GSA - Parks for 32 years and has been applying herbicides for almost the entire duration of his employment. He is not a certified applicator. He wears work clothes, coveralls, shoes and socks, chemical resistant gloves, and eye protection when applying herbicides. He receives label training annually from J. MARTINEZ (QAC license No. 107158), and they have safety meetings throughout the year that includes pesticide spill cleanup, personal protective equipment use, washing clothes and other pesticide handler safety. Ventura County GSA - Parks is the only crew that sprays herbicide at Soule Park, they do not contract herbicide work to any pest control business. They do contract a landscaper that mows the park and clears weeds, but the landscaper does not use pesticides. He uses a 24-gallon spray rig with a hand wand to make applications. The spray rig has an electric pump. The rig sits on the back of a golf cart that he can drive around and make spot spraying efficient. He did make an application at Soule Park in February 2021. He was working alone. He used a tank mix of Polaris (EPA Reg. No. 228-534), Cheetah Pro (EPA Reg. No. 228-743) and Brandt Magnify (EPA Reg. No. 48813-50014). Polaris and Cheetah Pro were applied at the rate of 2 ounces per gallon of water. 8 Ounces of the surfactant Brandt Magnify were used in each 24-gallon tank solution. He mostly sprayed around the Soule Park parking lot, spot spraying for weeds in the asphalt and near curbs. When he was done spraying the parking lot areas, he sprayed the same solution in a ring pattern to the weeds and soil around the base of the trees, and along the fence line of the horse trail at the south end of the park. Before February 2021, he estimated the last time he sprayed herbicide at Soule Park was one year prior to then. Before 2020, the county

parks did not spray at Soule Park for about two years due to the public perception of herbicide use in the community of Ojai. Their department used to apply glyphosate products like Roundup ProMax (EPA Reg. No. 524-579) (Attachment 16), but the Ventura County GSA - Parks stopped using glyphosate around 2017-2018.

At 2:00PM I shared the Soule Park tree pictures with ADAM LAMBERT, Restoration Director for the University of California Santa Barbara - Santa Clara River Restoration Program. I did not disclose to A. LAMBERT where or when the pictures were taken. A. LAMBERT stated the following: He uses herbicides containing the active ingredient imazapyr regularly for wildlife restoration projects in Ventura and Santa Barbara counties. The pictures show symptoms consistent with imazapyr damage to non-target trees. Sycamore trees are especially susceptible to imazapyr.

At 4:02PM I was sent an email from J. DOWNER. He stated the following: He had showed the Soule Park tree pictures to BRAD HANSON, University of California – Davis Cooperative Extension Weed Scientist. B. HANSON told him the pictures are consistent with imazapyr damage.

On 21 December 2021 at 3:29PM I emailed J. MARTINEZ. I informed him that when soil is treated with imazapyr near the root zones of desirable trees, trees can absorb imazapyr through their roots, causing significant damage. Based on my findings at Soule Park, testimony from field experts, and the interview with R. COBB, it is my conclusion that Polaris sprayed around the base of trees at Soule Park is likely the cause of their irregular growth and is contributing to the decline of the already water-stressed trees at Soule Park. Although Polaris is approved for use in parks, I advised J. MARTINEZ to stop applying Polaris, or any other imazapyr product, within the root zone of desirable trees that they manage.

On 28 December 2021 at 1:00PM I spoke with J. MARTINEZ at the Agricultural Commissioner's Office in Santa Paula. J. MARTINEZ stated the following: County Parks will cease the use of Polaris around desirable trees, and switch to an alternative product.

Findings:

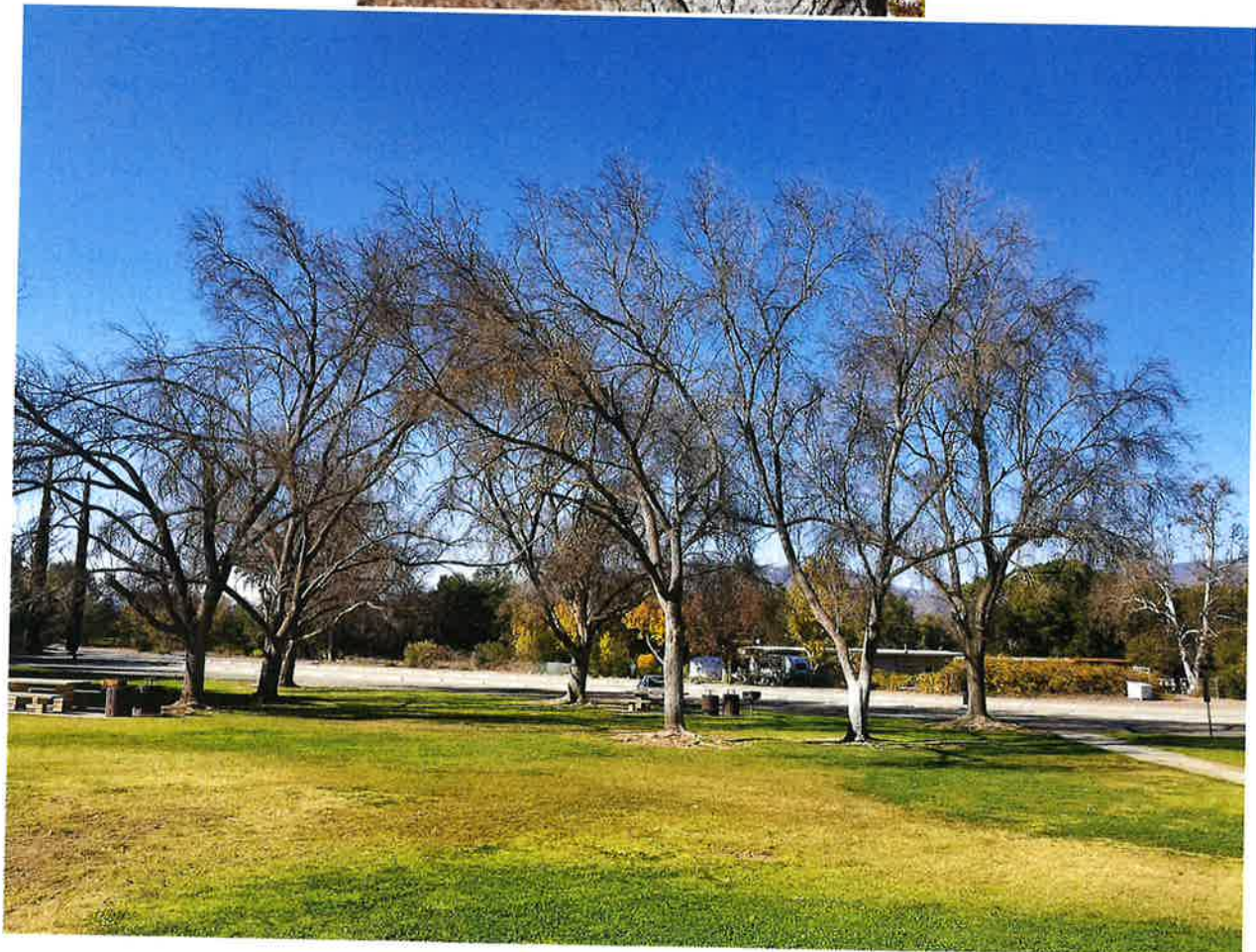
On 2 December 2021 at 1:55PM, the Ventura County Agricultural Commissioner's Office (VCAC) received an email complaint from JIM DOWNER, Environmental Horticulture / Plant Pathology Specialist at University of California Agriculture and Natural Resources Cooperative Extension, Ventura County (UCCE), that trees at Soule Park in Ojai may be experiencing symptoms of herbicide poisoning. Pictures from a site visit to Soule Park on 10 December 2021 show irregular foliage growth on many of the trees, possibly indicative of herbicide damage (Attachment 13). JAMES MARTINEZ, Maintenance Supervisor for Ventura County GSA – Parks (Attachment 2) provided pesticide use reports for applications performed by the parks staff from 2020-2021 at Soule Park. On 21 February 2021, RICK COBB, Public Works Maintenance Worker Specialist, applied a tank mix of Polaris (EPA Reg. No. 228-534) at 2 ounces per gallon, Cheetah

Pro (EPA Reg. No. 228-743) at 2 ounces per gallon, and Brandt Magnify (EPA Reg. No. 48813-50014) at 8 ounces per 24 gallons. The herbicide solution was sprayed around the base of trees for weed control. Imazapyr, the active ingredient in Polaris, is known to cause accidental damage when applied to the soil near the root zone of desirable trees, even in small concentrations. Pictures of Soule Park trees were shared with field experts J. DOWNER and ADAM LAMBERT, who both agreed with the diagnosis of imazapyr damage. All pesticides were applied within their respective label limitations. Any damage that may have occurred to the trees is accidental, and no violations were found by the VCAC. Ventura County GSA - Parks confirmed they will stop using Polaris near the root zones of desirable trees they manage.

Attachments:

- 1: Picture of irregular growth on a Soule Park tree provided by J. DOWNER (1 page)
- 2: Ventura County GSA – Parks Operator Identification Number (56-21-56P0045) (3 pages)
- 3: Polaris label (EPA Reg. No. 228-534) (5 pages)
- 4: Cheetah Pro label (EPA Reg. No. 228-743) (3 pages)
- 5: Brandt Magnify label (EPA Reg. No. 48813-50014) (1 page)
- 6: Spreadsheet of 2021 restricted material permits sites with 2,4-D in Ojai area (2 pages)
- 7: Spreadsheet of 2021 2,4-D applications in the Ojai area (2 pages)
- 8: Soule Park Golf Course restricted material permit (56-21-56V0009) (3 pages)
- 9: Speedzone label (EPA Reg. No. 2217-835) (1 page)
- 10: Pesticide use reports – applications at Soule Park 2020 – 2021 (4 pages)
- 11: Lab analysis of tissue and soil sample from Soule Park (5 pages)
- 12: Pictures of bare ground areas at Soule Park (4 pages)
- 13: Pictures of irregular growth on Soule Park trees (7 pages)
- 14: Irregular growth on other plants at Soule Park (3 pages)
- 15: Imazapyr fact sheet: Weed Control Methods Handbook, The Nature Conservancy (<https://www.invasive.org/gist/products/handbook/17.imazapyr.pdf>) (7 pages)
- 16: Round Up ProMax (EPA Reg. 524-579) label (1 page)

Photos of Soule Park tree irregular growth shared by J. Downer





Ventura County Agricultural Commissioner

PO Box 889

Santa Paula, CA 93061

phone # (805) 933-2926

Fax (805) 525-8922

Operator Identification Number 56-21-56P0045

Operator: VENTURA CO. GSA - PARKS
11201 C RIVERBANK DRIVE
SATICOY, CA 93004

Agent: MARTINEZ, JAMES
11201 C RIVERBANK DRIVE
SATICOY
CA 93004

Certified Applicator: MARTINEZ, JAMES P
701 N MILL ST
SANTA PAULA, CA 93060

Type of Use: Agricultural Use

56P0045-2021-Version: 1

County District #: CM

Issued on: 11/16/2020

Valid as of: 1/1/2021

Expires on: 12/31/2021

Primary Phone: (805) 672-2019

Alternate Phone:

Mobile Phone: (805) 377-8436

Fax: (805) 659-6981

Phone: (805) 377-8436

License #: 107158

Expiration: 12/31/2021

Employees Handle Pesticides

Site Conditions: 5-2020

See condition detail for
code descriptions.

Regulatory Notes:

JAMES MARTINEZ IS MAINTENANCE SUPERVISOR.

I understand this operator identification number does not relieve me from liability for any damage to persons or property caused by the use of pesticides. I acknowledge that duly authorized representatives from the County Department of Agriculture or the Department of Pesticide Regulation may, at reasonable times, enter and inspect fields, areas, structures, greenhouses and equipment (including protective clothing and equipment) where pesticides are handled, stored or applied (ref. 3 CCR 6140).

[Form PR-ENF-125 (Rev 11/06) Pesticide Enforcement Branch]

Applicant:

JAMES MARTINEZ
(Name & Title)

MAINTENANCE SUPERVISOR

Applicant Signature:

[Signature]

Date: 11/16/2020

Issuing Officer:

[Signature]

Date: 16 November 2020

CONTACT LIST

<u>Name</u>	<u>Auth Rep.</u>	<u>Phone</u>	<u>License</u>	<u>Expiration</u>	<u>Contact Type</u>
TURFSCAPES UNLIMITED		(805) 646-6708	32171	12/31/2021	Pest Control Business
TARGET SPECIALTY PRODUCTS		(805) 456-9995	39041	12/31/2021	Pesticide Control Dealer
MARTINEZ, JAMES P	yes	(805) 377-8436	107158	12/31/2021	Qualified Applicator Certificate
VENTURA CO. GSA - PARKS		(805) 525-2230	56P0045		Grower-Permittee
MARTINEZ, JAMES P		(805) 377-8436	72133	12/31/2021	Agricultural Pest Control Advisor

OPERATION-WIDE CONDITIONS

PESTICIDES LIST

<u>Number</u>	<u>Pesticide</u>	<u>Pests</u>	<u>Forms</u>	<u>Methods</u>	<u>Applicators</u>
999	NON-RESTRICTED USE	ALL PESTS	All Reg.	Ground	PCB/Operator

SITES REQUIRING SCHOOLSITE NOTIFICATION

There are currently no sites requiring schoolsite notification

List current as of 11/18/2020 - check with the County Agricultural Commissioner's Office for an updated list.

SITES LIST

<u>Site</u>	<u>Location Site Name</u> <u>Commodity Name/Code</u>	<u>Quantity</u>	<u>District</u>	<u>Section (MTRS)</u>
01	STECKEL PARK / 8080 MISTLETOE ROAD-SANTA PAULA LANDSCAPE/PARK / 30-20	40 ACRES	CM	S04N21W21
Pesticide #s:	999 (NON-RESTRICTED USE)			
04	TAPO CANYON PARK / 4651 TAPO CANYON ROAD-SIMI VALLEY LANDSCAPE/PARK / 30-20	15 ACRES	CM	S03N18W24
Pesticide #s:	999 (NON-RESTRICTED USE)			
06	FOSTER PARK / 438 CASITAS VISTA ROAD- VENTURA LANDSCAPE/PARK / 30-20	60 ACRES	CM	S03N23W08
Pesticide #s:	999 (NON-RESTRICTED USE)			
07	SOULE PARK / 1301 SOULE PARK ROAD- OJAI LANDSCAPE/PARK / 30-20	12 ACRES	CM	S04N22W07
Pesticide #s:	999 (NON-RESTRICTED USE)			
08	DENNISON PARK / 7250 SANTA PAULA-OJAI ROAD & HWY 150 OJAI LANDSCAPE/PARK / 30-20	32 ACRES	CM	S04N22W08
Pesticide #s:	999 (NON-RESTRICTED USE)			



Ventura County

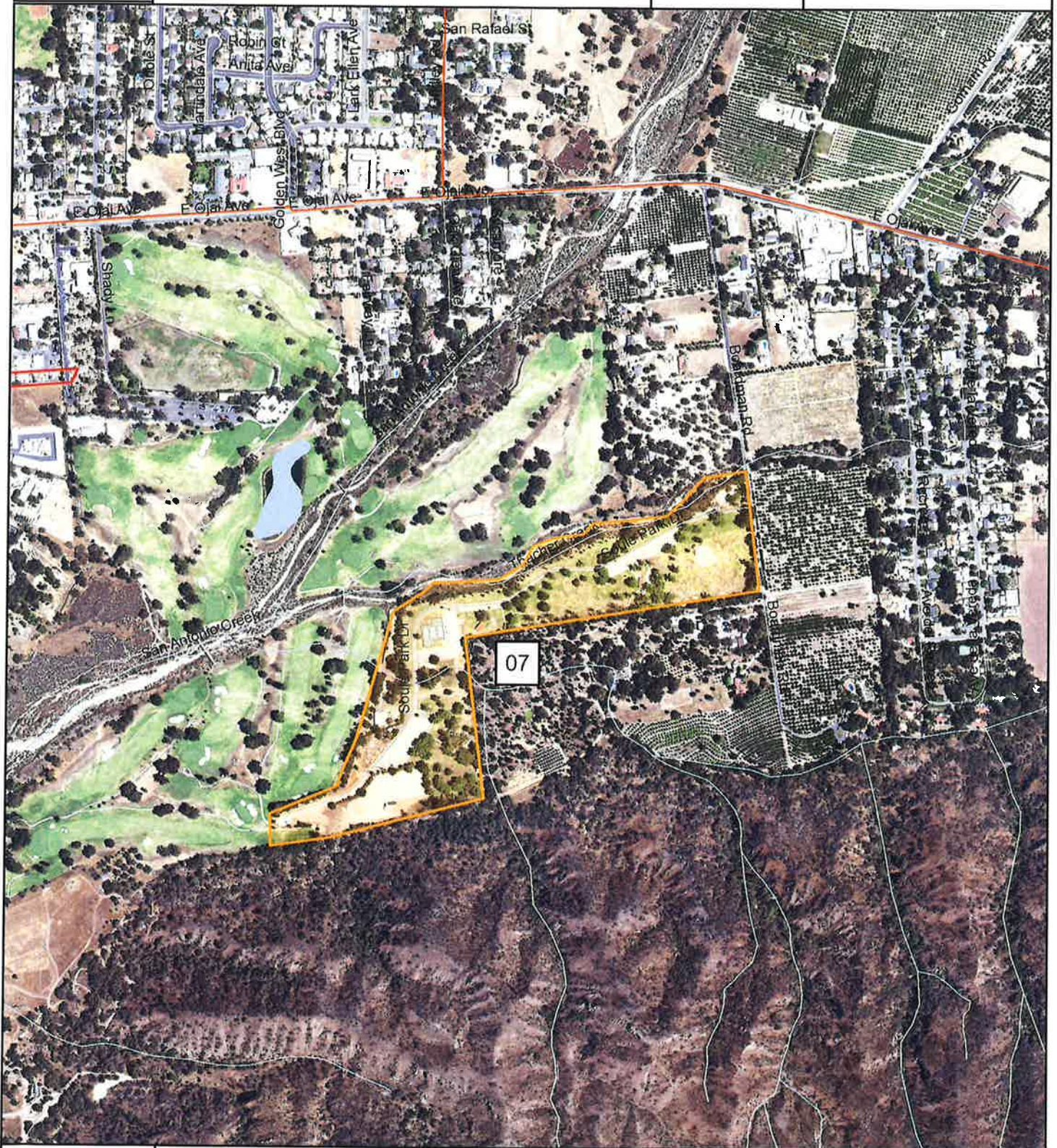
Soule Park

SITE 07

Permit Number: 56P0045

Created On: 11/16/2020

Operator: VENTURA CO. GSA - PARKS



Included Sites: 07



Nufarm

GROUP 2 HERBICIDE

Polaris®

Herbicide

For control of undesirable vegetation growing within certain aquatic sites, forestry sites, pasture/rangeland, nonagricultural lands, establishment and maintenance of wildlife openings, release of unimproved Bermudagrass and Bahiagrass, bareground weed control, for use under certain paved areas, industrial noncropland areas including railroad, utility, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, non-irrigation ditchbanks including grazed or hayed areas within these sites, roads and transmission lines.

ACTIVE INGREDIENT:

Isopropylamine salt of Imazapyr: (2-[4,5-dihydro-4-methyl-4-

(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)*

OTHER INGREDIENTS: 27.7%

TOTAL: 72.3%

* Equivalent to 22.62% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon.

Have the product container label with you when calling a poison control center or doctor or going for treatment.
In the State of New York, Aquatic Uses are Not Allowed.

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 NEXT PAGE BOOKLET FOR ADDITIONAL FIRST AID AND PRECAUTIONARY STATEMENTS

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300
For Medical Emergencies Only, Call (877) 325-1840

EPA Reg. No. 228-534

Manufactured for
Nufarm Americas Inc.
11901 S. Austin Avenue
Alsip, IL 60803



Grow a better tomorrow



1 91662 01337 5

Net Contents
2.5 Gal.
(9.46 L)
Nonrefillable Container

14785000

ATTACHMENT # 3

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION / PRECAUCIÓN**

No human or domestic animal hazard statements are required. Follow the instructions for Personal Protective Equipment and User Safety Recommendations.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material

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

Engineering Controls

Pilots must use an enclosed cockpit that meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (6)].

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. If pesticide gets on skin, wash immediately with soap and water.
- 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.

PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, fiberglass, plastic and plastic-lined steel containers.

DO NOT mix, store or apply this product or spray solutions of this product in unlined steel (except stainless steel) containers or spray tanks.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to plants. Drift and run off may be hazardous to plants in water adjacent to treated areas. DO NOT apply directly to water except as specified on the label. Treatment of aquatic weeds may result in oxygen depletion or loss due to decomposition of dead plants. DO NOT treat more than one half the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas. DO NOT contaminate water when disposing of equipment washwater or rinsate. This pesticide is toxic to vascular plants and must be used strictly in accordance with the drift precautions of the label.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. DO NOT apply this product 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.

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 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material
- Protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

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

DO NOT enter or allow others to enter treated areas until sprays have dried.

PRODUCT INFORMATION

This product is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution to control undesirable vegetation growing within certain aquatic sites, forestry sites, pasture/rangeland, and nonagricultural lands. Aquatic sites consist of standing and flowing water, estuarine/marine, wetland, and riparian areas. Nonagricultural lands include private, public and military land as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights of way and sewage disposal areas), uncultivated agricultural areas – noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditch banks and barrier strips), industrial sites – outdoor (including lumber yards, pipeline and tank farms) and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails). This product may also be used for the release of unimproved Bermudagrass and Bahiagrass, for bareground weed control, and for use under certain paved surfaces.

Herbicidal Activity: This product will control most annual and perennial grasses and broadleaf weeds in addition to many brush and vine species with some residual control of undesirable species that germinate above the waterline. This product is readily absorbed through emergent leaves and stems and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. For maximum activity, weeds should be growing robustly at the time of application, and the spray solution should include a surfactant (see **ADJUVANTS** section for specific use directions). Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into, and kills, underground or submerged storage organs, which prevents regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until two or more weeks after application. Complete kill of plants may not occur for several weeks. Applications of this product are rainfast one hour after treatment.

RESTRICTIONS and LIMITATIONS

DO NOT use on food or feed crops.

DO NOT apply this product to water within 0.5 miles upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 0.5 miles of an active potable water intake in a standing body of water, such as a lake, pond or reservoir.

DO NOT apply to water used for irrigation except as described in USE PRECAUTIONS AND RESTRICTIONS section of this label.

Keep from contact with fertilizers, insecticides, fungicides and seeds.

DO NOT drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the treated soil may be washed or moved into contact with their roots.

DO NOT use on lawns, walks, driveways, tennis courts or similar areas.

DO NOT side trim desirable vegetation with this product unless severe injury and plant death can be tolerated. Prevent drift of spray to desirable plants.

Clean application equipment after using this product by thoroughly flushing with water.

Nonagricultural Lands and Forestry Sites

- DO NOT apply more than 1.5 pounds acid equivalent Imazapyr (equivalent to 6 pints) per acre per year.

Pasture/Rangeland Sites

- DO NOT apply more than 0.75 pound acid equivalent Imazapyr (equivalent to 3 pints) per acre per year.
- DO NOT treat more than 1 /10 of the available area to be grazed or cut for hay.
- For spot treatment only.

Aquatic Sites

- DO NOT apply more than 1.5 pounds acid equivalent Imazapyr (equivalent to 6 pints) per acre per year.
- **No Application to Aquatic Sites in New York State.**

Aerial application - Aerial application to aquatic sites is restricted to helicopter only.

Irrigation water - Application to water used for irrigation that results in residues greater than 1.0 part per billion (ppb) MUST NOT be used for irrigation purposes for 120 days after application or until residue levels of this product are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less. When applications are made within 500 feet of an active irrigation intake, DO NOT irrigate for at least 24 hours following application to allow for dissipation.

Quiescent or Slow-moving Waters - In lakes and reservoirs, DO NOT apply this product within 1 mile of an active irrigation water intake during the irrigation season. Applications less than 1 mile from an active irrigation water intake may be made during the off-season, provided that the irrigation intake will remain inactive for a minimum of 120 days after application or until residue levels of this product are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less.

Restrictions for potable water intakes - DO NOT apply this product directly to water within 0.5 miles upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 0.5 miles of an active potable water intake in a standing body of water such as a lake, pond or reservoir. To make aquatic applications around and within 0.5 miles of active potable water intakes, the water intake must be turned off during application and for a minimum of 48 hours after the application. These aquatic applications may be made only in the cases where there are alternative water sources or holding ponds that would permit the turning off of an active potable water intake for a minimum period of 48 hours after the applications.

NOTE: Existing potable water intakes that are no longer in use, such as those replaced by connections to wells or a municipal water system, are not considered to be active potable water intakes. This restriction does not apply to intermittent, inadvertent overspray of water in terrestrial use sites.

Permitting - Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

Public waters - Application of this product to water can only be made by federal or state agencies, such as Water Management District personnel, municipal officials, and the U.S. Army Corps of Engineers, or those applicators who are licensed or certified as aquatic pest control applicators and are authorized by the state or local government. Treatment to other than non-native invasive species is limited to only those plants that have been determined to be a nuisance by a federal or state government entity.

Private waters - Applications may be made to private waters that are still, such as ponds, lakes and drainage ditches where there is minimal or no outflow to public waters.

Recreational use of water in treatment area - There are no restrictions on the use of water in the treatment area for recreational purposes, including swimming and fishing.

Livestock use of water in/from treatment area - There are no restrictions on livestock consumption of water from the treatment area.

Precautions for Avoiding Injury to Nontarget Plants

Untreated desirable plants can be affected by root uptake of this product from treated soil. Injury or loss of desirable plants may result if this product is applied on or near desirable plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots. When making applications along shorelines where desirable plants may be present, caution should be exercised to avoid spray contact with their foliage or spray application to the soil in which they are rooted. Shoreline plants that have roots that extend into the water in an area where this product has been applied generally will not be adversely affected by uptake of the herbicide from the water.

If treated vegetation is to be removed from the application site, DO NOT use the vegetative matter as mulch or compost on or around desirable species.

MANAGING OFF-TARGET MOVEMENT

Aerial Application

- Applicators are required to use coarse or coarser droplet size (ASABE S572) or if specifically using a spinning atomizer, nozzle applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet. Applicators are required to use a very coarse or coarser droplet size or if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet. Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.
- Applicators are required to use upwind swath displacement.
- The boom length must not exceed 60% of the wingspan or 90% of the rotor blade diameter to reduce spray drift.
- Applications with wind speeds less than 3 mph and with wind speeds greater than 10 mph are prohibited. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.
- Applications into temperature inversions are prohibited.

AERIAL APPLICATION

All precautions must be taken to minimize or eliminate spray drift. Both helicopter and fixed wing aircraft can be used to apply this product, but applications to aquatic sites are restricted to helicopter only. DO NOT make applications by helicopter or fixed wing aircraft unless appropriate buffer zones can be maintained to prevent spray drift out of the target area, or when spray drift as a result of helicopter application can be tolerated. Aerial equipment designed to minimize spray drift such as a helicopter equipped with a Microfoil™ boom Thru-Valve™ boom or raindrop nozzles must be used and calibrated. Except when applying with a Microfoil boom, a drift control agent may be added at the specified label rate. DO NOT side trim with this product unless death of treated tree can be tolerated.

Uniformly apply the specified amount of this product in 2 to 30 gallons of water per acre. A foam reducing agent may be added at the specified label rate.

Immediately after each use of this product thoroughly clean application equipment, including landing gear. Uncoated steel surfaces (except stainless steel surfaces) may result in corrosion and failure after prolonged exposure to the product. The maintenance of an paint (organic coating) may prevent corrosion.

GROUND APPLICATION

Low Volume Foliar:

Use equipment calibrated to deliver 5 to 20 gallons of spray solution per acre. To prepare the spray solution, thoroughly mix in water 0.5 to 5% of this product plus surfactant (see the ADJUVANTS section of this label for specific recommendations). A foam reducing agent may be applied at the label rate, if needed. For control of difficult species (see AQUATIC WEEDS CONTROLLED section and the TERRESTRIAL WEEDS CONTROLLED section for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes but DO NOT apply more than 3 quarts of this product per acre in aquatic sites and nonagricultural lands and 1-5 quarts per acre in pasture/rangeland. Excessive wetting of foliage is not necessary.

For low volume foliar application, select proper nozzles to avoid over-application. Proper application is critical to ensure desirable results. Best results are achieved when the spray covers the crown and approximately 70% of the plant. The use of an even flat fan tip with a spray angle of 40 degrees or less will aid in proper deposition.

Appropriate tip sizes include 4004E, or 1504E. For a straight stream and cone pattern, adjustable cone nozzles such as 5500 X3 or 5500 X4 may be used. Attaching a rollover valve onto a Spraying Systems Model 30 gunjet or other similar spray guns allows for the use of both a flat fan and cone tips on the same gun.

Moisten, but DO NOT drench target vegetation causing spray solution to run off.

Low Volume Foliar with Backpacks:

For low-growing species, spray down on the crown, covering crown and penetrating approximately 70% of the plant.

For target species 4 to 8 feet tall, swipe the sides of target vegetation by directing spray to at least two sides of the plant in smooth vertical motions from the crown to the bottom. Make sure to cover the crown whenever possible.

For target species over 8 feet tall, lace sides of the target vegetation by directing spray to at least two sides of the target in smooth zigzag motions from crown to bottom.

Low Volume Foliar with Hydraulic Handgun Application Equipment:

Use same technique as described above for Low Volume Foliar with Backpacks.

For broadcast applications, simulate a gentle rain near the top of target vegetation, allowing spray to contact the crown and penetrate the target foliage without falling to the understory. Herbicide spray solution which contacts the understory may result in severe injury or death of plants in the understory.

High Volume Foliar:

For optimum performance when spraying medium to high-density vegetation, use equipment calibrated to deliver up to 100 gallons of spray solution per acre (GPA). Spray solutions exceeding 100 GPA may result in excessive spray run-off, causing increased ground cover injury, and injury to desirable species.

To prepare the spray solution, thoroughly mix this product in water and add a surfactant (see ADJUVANT section for specific recommendations and rates of surfactants). A foam-reducing agent may be added at the label rate, if needed. For control of difficult species (see AQUATIC WEEDS CONTROLLED section and the ADDITIONAL WEEDS CONTROLLED section for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes, but DO NOT apply more than 3 quarts of this product per acre in aquatic sites and nonagricultural lands, and 1-5 quarts per acre in pasture/rangeland. Uniformly cover the foliage of the vegetation to be controlled but DO NOT apply to run-off. Excessive wetting of foliage is not necessary.

SIDE TRIMMING

DO NOT side trim with this product unless severe injury or death of the treated tree can be tolerated. This product is readily translocated and can result in death of the entire tree.

GLUFOSINATE-AMMONIUM GROUP 10 HERBICIDE

Cheetah[®] Pro

A COMPLETE BROAD SPECTRUM NONSELECTIVE POSTEMERGENCE HERBICIDE

ACTIVE INGREDIENT:

Glufosinate ammonium* 24.5%**

OTHER INGREDIENTS: 75.5%

TOTAL: 100.0%

*CAS Number 77182-82-2

**Equivalent to 2.34 pounds of active ingredient per gallon

Shake Well, Agitate or Recirculate Before Use

KEEP OUT OF REACH OF CHILDREN CAUTION

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 INSIDE BOOKLET FOR ADDITIONAL FIRST AID AND
PRECAUTIONARY STATEMENTS**

For Chemical Spill, Leak, Fire, or Exposure,
Call CHEMTREC (800) 424-9300

For Medical Emergencies Only, Call (877) 325-1840

FIRST AID

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 to 20 minutes.
- Call a poison control center or doctor for treatment advice.

IF IN EYES

- Hold eye open and rinse slowly and gently with water for 15 to 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 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.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

NOTE TO PHYSICIAN

If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

EPA Reg. No. 228-743

Manufactured for
Nufarm Americas Inc.
11901 S. Austin Avenue
Alsip, IL 60803

 **Nufarm**
Grow a better tomorrow



1 91662 01483 9

Net Contents
2.5 Gal.
(9.46 L)
Nonrefillable Container

15484000

ATTACHMENT #4

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes or clothing. Avoid breathing vapor. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Personal Protective Equipment (PPE)

- All handlers must wear long-sleeved shirt, long pants, shoes and socks and chemical-resistant gloves.

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

USER SAFETY RECOMMENDATIONS

Users should:

- 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 possible, wash thoroughly and change into clean clothing.

ENGINEERING CONTROLS STATEMENT

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.

ENVIRONMENTAL HAZARDS

Do not apply directly to water or to areas where surface water is present. Do not apply to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters or rinsate.

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

Under some conditions, this product may have a potential to run-off to surface water or adjacent land. Where possible, use methods which reduce soil erosion, such as no tillage to reduce pesticide run-off. Use of vegetation filter strips along rivers, creeks, streams, wetlands, etc. or on the downhill side of fields where run-off could occur to minimize water run-off is recommended.

PHYSICAL AND CHEMICAL HAZARDS

Do not mix or allow contact with oxidizing agents. Hazardous chemical reaction may occur.

Combustible. Do not use or store near heat or open flame.

DIRECTIONS FOR USE

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

Do not use this product until you have read the entire label. 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 requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

In the State of New York Only: Not for use in Nassau and Suffolk Counties.

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 intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Restricted entry-interval (REI) 12 hours for all post-application.

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 worn over short-sleeved shirt and short pants;
- Chemical resistant gloves;
- Chemical resistant footwear plus socks;
- Protective eyewear (goggles, face shield or safety glasses).

- Wind

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors including droplet size and equipment type determine drift potential at any given wind speed. AVOID APPLICATIONS DURING GUSTY OR WINDLESS CONDITIONS. Note: Local terrain can influence wind patterns. Every applicator needs to be familiar with local wind patterns and how they affect spray drift.

- Temperature and Humidity

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

- Temperature Inversions

Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of 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.

- Shielded Sprayers

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

NON-AGRICULTURAL USE SITES AND APPLICATION DIRECTIONS

When applied as directed, this product non-selectively controls undesirable plant vegetation on private, public and military lands in the following areas: airfields, airports, alleys, lanes, paths, trails, access roads, around commercial or industrial structures or outbuildings, around farm and ranch structures and outbuildings, around ornamental gardens, around ornamental trees and shrubs (including Christmas trees), site preparation areas for conifer and hardwood, bare ground, beaches*, campgrounds, construction sites, ditch banks, barrier strips, drive-in theaters, driveways and ramps, dry ditches and canals, fences and fencerows, firebreaks, golf courses (excluding greens, tees, aprons, fairways and roughs)*, gravel yards, Conservation Reserve Program (CRP)*, habitat restoration and management areas, highways and roadsides (including aprons, medians, guardrails and right of ways), industrial plant sites, industrial areas, lumber yards, greenhouses and shade houses, landscapes and mulched areas, natural areas, parking areas, parks, paved areas, petroleum and other tank farms, pumping installations, pipeline, power, telephone and utility rights-of-way, sewage disposal areas, fuel storage areas, power stations, preplant to turf and ornamental plants, railroad rights-of way, recreation areas, refineries, resorts, schools, sidewalks, sports areas, storage areas, substations, tennis courts, shelter belts, uncropped farmstead areas, vacant lots, walkways, wastelands, wildlife openings, wildlife habitat areas, wildlife food plots*

*Not for use in CA

RESTRICTIONS

Maximum Rate – Annual

- DO NOT apply more than 246 fl. oz./A per year (4.5 lb. ai/A/year).

Maximum Rate – Single Application

- DO NOT apply more than 82 fl. oz./A per single application (1.5 lb. ai/A/application).

Maximum Number of Applications Per Year

DO NOT apply more than a total of 3 broadcast applications (excluding spot treatments) per year. DO NOT exceed a maximum total of 4.5 lb. ai/A/year.

Re-treatment Interval:

- Minimum re-treatment interval is 5 days.

APPLICATION RATES

Mix 0.5 to 2.0 fl. oz. (0.009 to 0.036 lb. ai) of this product per gallon of spray solution (24 to 82 fl. oz./A (0.44 to 1.5 lb. ai/A) and apply 1 gallon of spray solution to 1,000 square feet to actively growing weeds. Adjust application rate as needed when using spray volumes delivering greater or less than 1 gallon per 1,000 square feet. Determine proper use rate based on weed size in Table 1. Larger weeds will require a higher use rate and see Table 1 for details.

Table 1: USE RATE FOR THIS HERBICIDE

Apply this product at the rates listed below for broadcast applications based on weed size and stage of growth.

Brandt® Magnify

Water Conditioning Agent • Surfactant • Antifoaming Agent



Principal Functioning Agents:

Oligomeric D-glucopyranose decyl octyl glycosides,	
Ammonium sulfate, and Ammonium nitrate.	51.02%
Constituents ineffective as spray adjuvant	48.98%
Total	100.00%

Surfactant content 21%

CA Reg No. 48813-50014-AA

DIRECTIONS FOR USE

BRANDT MAGNIFY is a water conditioning agent / surfactant formulated with ammonium salts, non-ionic surfactants and anti-foaming agents. BRANDT MAGNIFY enhances the biological activity and leaf-surface penetration of herbicides, defoliants and desiccants whose labels specify the addition of ammonium sulfate/ nitrate and/or surfactants. These may include glyphosate-containing products, paraquat-containing products, sulfonyl urea herbicides, and others. BRANDT MAGNIFY may be used on agricultural, aquatic, forestry, turf and ornamental, industrial, and non-cropland sites.

Read and follow the precautions, restrictions and recommendations on the labels of pesticides used with BRANDT MAGNIFY. Use according to the most restrictive label directions for each product in any tank mix.

COMPATIBILITY: BRANDT MAGNIFY is compatible with most pesticides. However, if the desired combination has not been previously used, a compatibility test is recommended.

MIXING: Shake well before using. Fill spray tank 1/2 full of water and begin agitation. Add the recommended amount of MAGNIFY. Add products as directed by label or in the following sequence and continue filling tank: (1) Dry flowables or water dispersing granules, (2) Wettable powders, (3) Flowables, (4) Solutions, (5) Emulsifiable concentrates. Continue agitation until spray solution is completely mixed. Continuous agitation of finished spray is recommended. If spray solution has been allowed to stand, thoroughly agitate and remix before application.

RECOMMENDATIONS: Specific use rates will vary with conditions of application such as water hardness, application method, equipment, spray droplet size, condition of foliage, etc. Also, higher rates than those below may be used if recommended by pesticide labeling. Follow pesticide label directions. However, do not add this product at a rate which exceeds 5% of the finished spray volume. One gallon of BRANDT MAGNIFY contains 2 lbs. of ammonium sulfate.

Air or Ground Application: Use 1-4 quarts per 100 gallons of finished spray solution. For improved efficacy, use at least 1 pint per acre when finished spray volume is less than 20 gallons per acre. For backpack or hand held sprayers, use 1/3 to 1 1/4 fl.oz. per gallon of finished spray solution.

NET CONTENTS: ____ GALLONS / ____ LITERS

KEEP OUT OF REACH OF CHILDREN

WARNING

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING: Causes eye irritation. Wear protective eyewear, long sleeved shirt, long pants, shoes plus socks and chemical resistant gloves made of any waterproof material when mixing or handling concentrate. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

ENVIRONMENTAL HAZARDS

Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

FIRST AID

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

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.

STORAGE AND DISPOSAL

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

STORAGE: Store in original container away from children, animals, foods, feeds, seeds and incompatible materials. Handle in accordance with Precautionary Statements. In the event of spillage or leakage, soak up the material with absorbent clay, sand, sawdust or other absorbent material. Scrape up and dispose in accordance with Product Disposal.

PRODUCT DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. Triple rinse (or equivalent) during mixing and loading. Recycling decontaminated containers is the best option of container disposal. The Agricultural Container Recycling Council (ACRC) operates the national recycling program. To contact your state or local ACRC recycler, visit the ACRC web page at www.acrecycle.org. Decontaminated containers may also be disposed of in a sanitary landfill.

⚠ WARNING: Cancer and Reproductive Harm -
www.P65Warnings.ca.gov

LIMITED WARRANTY: Brandt Consolidated, Inc. ("BCI") warrants that the Product conforms to the chemical description given on this label and is reasonably fit for the purpose stated when used in accordance with label directions under normal conditions of use. BCI and Seller make no other warranties, express or implied, including warranty of merchantability or fitness for a particular purpose. Buyer and User accept all risks arising from any use of this Product. To the extent allowed by law, BCI and the Seller shall not be liable to the Buyer or User of this Product for any consequential, special, incidental or indirect damages.

BRANDT®

Manufactured by:
Brandt Consolidated, Inc.
2935 South Kake Mill Road
Springfield, Illinois 62711 USA
www.brandt.co
800 300 6559

2018-06

Permit Type	Permit Number	Operator	Site-ID	Location Narrative	Size	Units
RMP	56P0273	HALL, JAMES M	01	NORTH OF SANTA PAULA OJAI ROAD AI	15.0000	ACRES
RMP	56P1089	ROLL RANCH	01A	11811 OJAI-SANTA PAULA RD	24.0000	ACRES
RMP	56P1089	ROLL RANCH	01B	11811 OJAI-SANTA PAULA RD	1.0000	ACRES
RMP	56P1089	ROLL RANCH	01C	11811 OJAI-SANTA PAULA RD	30.0000	MISCELLANEOUS
RMP	56P1089	ROLL RANCH	01D	11811 OJAI-SANTA PAULA RD	4.5000	ACRES
RMP	56P1089	ROLL RANCH	01E	11811 OJAI-SANTA PAULA RD	40.0000	MISCELLANEOUS
RMP	56P1089	ROLL RANCH	01F	11811 OJAI-SANTA PAULA RD	7.0000	ACRES
RMP	56P1089	ROLL RANCH	01G	11811 OJAI-SANTA PAULA RD	35.0000	MISCELLANEOUS
RMP	56P1089	ROLL RANCH	01H	11811 OJAI-SANTA PAULA RD	300.0000	ACRES
RMP	56P1089	ROLL RANCH	02	9699 OJAI SANTA PAULA RD	3.0000	ACRES
RMP	56P1089	ROLL RANCH	03	7070 SULPHUR MOUNTAIN ROAD.	7.0000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	13	2244 E. OJAI AVE., OJAI	1.5000	ACRES
RMP	56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,OJAI	350.0000	ACRES
RMP	56P1145	GILLELAND, RICHARD	01B	8434 OJAI-SANTA PAULA RD,OJAI	6.0000	ACRES
RMP	56P1145	GILLELAND, RICHARD	01C	8434 OJAI-SANTA PAULA RD,OJAI	31.0000	ACRES
RMP	56P2596	MCMILLAN, CODY	01	4225 REEVES RD	16.5000	ACRES
RMP	56P2596	MCMILLAN, CODY	03	2788 E OJAI AVE, OJAI	25.0000	ACRES
RMP	56P2596	MCMILLAN, CODY	04	11999 OJAI SANTA PAULA RD, OJAI	11.0000	ACRES
RMP	56P0014	BARNARD, STEVE	1AO	NORTH OF FAIRVIEW ROAD AND EAST	11.0000	ACRES
RMP	56P0014	BARNARD, STEVE	2AO	NORTH OF FAIRVIEW ROAD AND EAST	9.5000	ACRES
RMP	56P0014	BARNARD, STEVE	3AO	NORTH OF FAIRVIEW ROAD AND EAST	12.0000	ACRES
RMP	56P0014	BARNARD, STEVE	4AO	NORTH OF FAIRVIEW ROAD AND EAST	13.5000	ACRES
RMP	56P0014	BARNARD, STEVE	5AO	NORTH OF FAIRVIEW ROAD AND EAST	4.2500	ACRES
RMP	56P0014	BARNARD, STEVE	6AO	NORTH OF FAIRVIEW ROAD AND EAST	2.2500	ACRES
RMP	56P0014	BARNARD, STEVE	7AO	NORTH OF FAIRVIEW ROAD AND EAST	8.2500	ACRES
RMP	56P0014	BARNARD, STEVE	8AO	NORTH OF FAIRVIEW ROAD AND EAST	10.0000	ACRES
RMP	56P0014	BARNARD, STEVE	9AO	NORTH OF FAIRVIEW ROAD AND EAST	7.5000	ACRES
RMP	56P0014	BARNARD, STEVE	1MD	NORTH OF FAIRVIEW ROAD AND EAST	15.2500	ACRES
RMP	56P0014	BARNARD, STEVE	2MD	NORTH OF FAIRVIEW ROAD AND EAST	11.2500	ACRES
RMP	56P0014	BARNARD, STEVE	3MD	NORTH OF FAIRVIEW ROAD AND EAST	4.7500	ACRES
RMP	56P0014	BARNARD, STEVE	F1	NORTH OF FAIRVIEW ROAD AND EAST	8.7500	ACRES
RMP	56P0014	BARNARD, STEVE	F2	NORTH OF FAIRVIEW ROAD AND EAST	11.0000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15A	NORTH EAST BALDWIN & RANCH RD, O	63.2400	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15B	NORTH EAST BALDWIN & RANCH RD O.	20.0000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15C	NORTH EAST OF BALDWIN & RANCH RI	8.0000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15D	NORTH EAST OF BALDWIN & RANCH RI	16.5000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15E	NORTH EAST OF BALDWIN & RANCH RI	48.9400	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15F	NORTH EAST OF BALDWIN & RANCH RI	100.0000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15G	NORTH EAST OF BALDWIN & RANCH RI	25.0000	ACRES

RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15J	NORTH EAST OF BALDWIN AND RANCH	3.0000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15K	NORTH EAST OF BALDWIN AND RANCH	51.0000	ACRES
RMP	56X0076	SOUTHLAND SOD FARMS OPERA	15N	NORTH EAST OF BALDWIN AND RANCH	12.9000	ACRES
RMP	56P1449	FRIENDS BOARDING STABLE & OI	01A	3468 GRAND AVE., OJAI	20.0000	ACRES
RMP	56P1449	FRIENDS BOARDING STABLE & OI	01B	3468 GRAND AVE., OJAI	12.0000	ACRES
RMP	56P2478	SESPE CREEK RANCH	01A	19737 MARICOPA HIGHWAY, OJAI CA	5.0000	ACRES
RMP	56P2478	SESPE CREEK RANCH	01B	19737 MARICOPA HIGHWAY, OJAI CA	1.0000	ACRES
RMP	56P2478	SESPE CREEK RANCH	01C	19737 MARICOPA HWY, OJAI	6.0000	ACRES

Permit #	Permittee	Site ID	Site Location	Application Date	Application Time	Commodity
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/15/2021	4:00 PM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/16/2021	3:00 PM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/17/2021	4:00 PM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/19/2021	4:00 PM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/19/2021	8:30 AM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/22/2021	11:30 PM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/22/2021	8:30 AM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/23/2021	3:30 PM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/23/2021	8:30 AM	FORAGE HAY/SL
56x0076	SOUTHLAND SOD FARMS OPERATI	15F	NORTH EAST OF BALDWIN &	2/24/2021	2:45 PM	OAT
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/24/2021	1:30 PM	FORAGE HAY/SL
56P1145	GILLELAND, RICHARD	01A	8434 OJAI-SANTA PAULA RD,(	2/24/2021	8:30 AM	FORAGE HAY/SL

Permit #	Permittee	Month/Year	Commodity
56V0009	SOULE PARK GOLF COURSE	5/2021	LANDSCAPE MAI

Planted Amount (Ac)	EPA Reg No	Product Name	Quantity Used	Quantity Units	Treated Amount (Ac)
350.0000	71368-1-ZC	NUFARM WEEDAR 64 BROADLEAF HERBICIDE	37,840.0000	Ounce	40.0000
350.0000	71368-1-ZC	NUFARM WEEDAR 64 BROADLEAF HERBICIDE	31,235.2000	Ounce	43.0000
350.0000	71368-1-ZC	NUFARM WEEDAR 64 BROADLEAF HERBICIDE	31,463.1000	Ounce	43.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	755.2000	Ounce	37.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	512.0000	Ounce	37.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	247.4000	Ounce	13.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	736.0000	Ounce	39.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	358.4000	Ounce	24.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	416.0000	Ounce	24.0000
100.0000	34704-120-AA	AMINE 4 2,4-D WEED KILLER	12.5000	Gallon	100.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	393.6000	Ounce	26.0000
350.0000	71368-1-AA-264	WEEDAR 64 BROADLEAF HERBICIDE	483.0000	Ounce	26.0000

	EPA Reg No	Product	Quantity Used	Quantity Units
N	2217-835-AA	SPEED ZONE ST. AUGUSTINE FORMULA BROAD	8.0000	Gallon



Ventura County Agricultural Commissioner

PO Box 889

Santa Paula, CA 93061

phone # (805) 933-2926

Fax (805) 525-8922

RESTRICTED MATERIALS PERMIT: 56-21-56V0009

Operator: SOULE PARK GOLF COURSE

1033 E. OJAI AVE.

OJAI, CA 93023

Agent: JOSE ORTIZ LOPEZ

1033 E. OJAI AVE.

OJAI

CA 93023

Certified Applicator: ORTIZ LOPEZ, JOSE O

1219 ANITA AVE

OJAI, CA 93023

Type of Use: Agricultural Use

Pesticide Possession: Possession and Use

Permit Duration: Multi-Year

Employees Handle Pesticides

Permit Conditions: 1-2021, 2-2021

56V0009-2021-Version: 1

County District #: SP

Issued on: 1/19/2021

Valid as of: 1/19/2021

Expires on: 12/31/2021

Primary Phone: (805) 646-5633

Alternate Phone: (805) 646-5633

Mobile Phone: (805) 421-8715

Fax: (805) 646-2675

Phone: (805) 421-8715

License #: 132667

Expiration: 12/31/2021

Notices Of Intent required 24 hours prior to application of pesticide containing restricted materials

See condition detail for code descriptions.

Regulatory Notes: KEITH BROWN IS THE OWNER/ OPERATOR.

I understand that this permit does not relieve me from liability for any damages to any persons or property caused by the use of these pesticides. I waive any claims of liability for damages against the County Department of Agriculture based on the issuance of this permit. I further understand that this permit may be revoked when pesticides are used in conflict with the manufacturer's labeling or in violation of applicable laws, regulations, and specific conditions of this permit. I authorize inspection at all reasonable times and whenever an emergency exists by the Department of Pesticide Regulation or the County Department of Agriculture of all areas treated or to be treated, storage facilities for pesticides or emptied containers and equipment used or to be used in the treatment. I have considered alternative and mitigation measures pursuant to Title 3, California Code of Regulations, section 6426. Taking into account economic, environmental, social, and technological factors, I have adopted those that are feasible and would substantially lessen any significant adverse impact on the environment.

[Form PR-ENF-125 (Rev 11/06) Pesticide Enforcement Branch]

Applicant:

Jose Ortiz
(Name & Title)

Supervisor

Applicant Signature:

Jose Ortiz

Date:

1-21-2021

Issuing Officer:

Neeraj

Date:

21 JAN 2021

SOULE PARK GOLF COURSE LTD.

Expires: 12/31/2021

and EPA registration number of the fumigant, and a 24-hr response number. Signs must remain in place for 2 days following the completion of treatment.

4) When applied to any outdoor site other than a park or athletic field, the applicator must post a sign at the treated site containing the words DANGER / PELIGRO, the skull and crossbones, the name and EPA registration number of the fumigant, and a 24-hr response number. Signs must remain in place for 2 days following the completion of treatment.

PESTICIDES LIST

<u>Number</u>	<u>Pesticide</u>	<u>Pests</u>	<u>Forms</u>	<u>Methods</u>	<u>Applicators</u>
484	ALUMINUM PHOSPHIDE	GOPHERS	Fumigant	Ground	PCB
626	ZINC PHOSPHIDE	VERTEBRATE	Bait	Ground	PCB
999	NON-RESTRICTED USE	ALL PESTS	All Reg.	Ground	Operator

SITES REQUIRING SCHOOLSITE NOTIFICATION

There are currently no sites requiring schoolsite notification

List current as of 01/19/2021 - check with the County Agricultural Commissioner's Office for an updated list.

SITES LIST

<u>Site</u>	<u>Location Site Name</u> <u>Commodity Name/Code</u>	<u>Quantity</u>	<u>District</u>	<u>Section (MTRS)</u>
01	GOLF COURSE / 1033 E OJAI AVE, OJAI LANDSCAPE MAIN / 30-0	100 ACRES	SP	S04N23W12
Pesticide #s:	484 (ALUMINUM PHOSPHIDE), 626 (ZINC PHOSPHIDE), 999 (NON-RESTRICTED USE)			



Ventura County
SOULE PARK GOLF COURSE
01

Permit Number: 56V0009
Created On: 1/11/2018
Operator: SOULE PARK GOLF COURSE LTD.



Included Sites: 01





SpeedZone
SOUTHERN
BROADLEAF HERBICIDE FOR TURF

ACTIVE INGREDIENTS:

2,4-D, 2-ethylhexyl ester	10.49%
Mecoprop-p acid	2.66%
Dicamba acid	0.67%
Carfentrazone-ethyl	0.54%

OTHER INGREDIENTS:

TOTAL	100.00%
-------	---------

THIS PRODUCT CONTAINS:

0.52 lb. 2,4-dichlorophenoxyacetic acid equivalent per gallon or 6.96%.

0.20 lb. (+)-R-2-(2-methyl-4-chlorophenoxy) propionic acid equivalent per gallon or 2.66%.

0.05 lb. 3,6-dichloro-o-anisic acid equivalent per gallon or 0.67%.

0.04 lb. Ethyl α ,2-dichloro-5-[4(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]-4-fluorobenzenepropanoate or 0.54%.

Contains Petroleum Distillate.

Isomer Specific by AOAC Methods

KEEP OUT OF REACH OF CHILDREN
CAUTION

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.)



**READ THE ENTIRE LABEL FIRST.
OBSERVE ALL PRECAUTIONS AND
FOLLOW DIRECTIONS CAREFULLY.**

PRECAUTIONARY STATEMENTS

Hazards to Human and Domestic Animals

CAUTION: Harmful if absorbed through the skin. Avoid contact with skin, eyes, or clothing. Harmful if swallowed.

Personal Protective Equipment (PPE)

Some materials that are chemical resistant to this product are barrier laminate, nitrile rubber, neoprene rubber or Viton. If you want more options, follow the instructions for category E on a EPA chemical resistance category selection chart.

All mixers, loaders, applicators, flaggers, and other handlers must wear:

- long-sleeved shirt and long pants,
- shoes and socks,
- chemical resistant gloves,
- chemical resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.

See engineering controls for additional requirements.

User Safety Requirements

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

Engineering Control Statements

Containers over 1 gallon and less than 5 gallons: Mixers and loaders who do not use a mechanical system (probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

Containers of 5 or more gallons: Do not open-pour product from this container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems or enclosed cabs 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.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water.
- Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

First Aid

If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Do not induce vomiting unless told to by a poison control center or doctor. • Do not give any liquid to the person. • Do not give anything by mouth to an unconscious person.
If on skin:	• 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 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 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. For additional information in case of emergency, call toll free 1-877-800-5556.

NOTE TO PHYSICIAN: Contains petroleum distillate – vomiting may cause aspiration pneumonia.

Environmental Hazards

This pesticide may be toxic to fish and aquatic invertebrates and may adversely affect non-target plants. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

DIRECTIONS FOR USE

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

Do not apply this product 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.



PARKS DEPARTMENT - COUNTY OF VENTURA

AGRICULTURAL CHEMICALS APPLICATION/RECORD

Start time: 08:00 AM

End Time: 02:00

Date: 4/24/20

Full Chemical Name: NUFARMS POLARIS
COMPANY TRADE NAME

Location of Area Treated: SOULE PARK B.C.

Cross Streets: _____

Amount of Area Treated: _____ SQ.FT. 1 Acres

Formula: 1 OZ. POLARIS/ 1 GAL WATER

Rate of Application: 1 OZ.-1000 SQ. FT.

Total Chemicals Used: 20 oz Water: 20 GAL Other: _____

Special Instructions: Water _____ Days before application

Do Not Water _____ Days Before Application

Do Not Water 1 Days After Application

Results: _____

Probable Cause: _____

Reason for Spraying (Insect, Weeds, Disease, Rodents, other): Annual and perennial weeds

Type of Plants Sprayed: weeds

Weather: Foggy _____ Overcast _____ Hazy _____ Cloudy _____ Bright Sun ☒

Temperature: Wet _____ F° Dry 85 F° Humidity _____ %

Wind: Speed _____ mph (Direction wind blowing from) _____

What Type Equipment Used: 20 GAL SPRAYER

Cleaned and Stored (Where): Saticoy Operations Yard

Person Requesting: James Martinez

Applicator: Rick Cobb

EPA Number: 00228-50015- 00000

CHEMICAL, LOCATION, FORMULA RATE, SPECIAL INSTRUCTIONS MUST BE FILLED OUT BY AUTHORIZED PERSONNEL

GSA/Parks PR-ENF-060-1 (2/10)



PARKS DEPARTMENT – COUNTY OF VENTURA

AGRICULTURAL CHEMICALS APPLICATION/RECORD

Start time: _____ AM

End Time: _____

Full Chemical Name: NEW FARMS AMERICA CHEETAH PRO
COMPANY TRADE NAME

Date: 2/21/21

Location of Area Treated: Soule Park

Cross Streets: Soule Park Rd. - Boardman Rd.

Amount of Area Treated: _____ SQ.FT. 1 Acres

Formula: 48 oz. Cheetah Pro to 24 Gal water

Rate of Application: 2 oz 1000 sq. ft.

Total Chemicals Used: 1.5 gal. Water: 96 GAL Other: _____

Special Instructions: Water _____ Days before application

Do Not Water _____ Days Before Application

Do Not Water _____ Days After Application

Results: _____

Probable Cause: _____

Reason for Spraying (Insect, Weeds, Disease, Rodents, other): _____

Type of Plants Sprayed: WEEDS

Weather: Foggy _____ Overcast _____ Hazy _____ Cloudy _____ Bright Sun ☒

Temperature: Wet _____ F° Dry 65 F° Humidity _____ %

Wind: Speed 2 mph (Direction wind blowing from) W _____

What Type Equipment Used: North Star sprayer

Cleaned and Stored (Where): Soule Park Ojai

Person Requesting: James Martinez

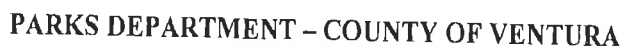
Applicator: Rick Cobb

EPA Number: 00743-00228- -00000

CHEMICAL, LOCATION, FORMULA RATE, SPECIAL INSTRUCTIONS MUST BE FILLED OUT BY AUTHORIZED PERSONNEL

GSA/Parks PR-ENF-060-1 (2/10)

ATTACHMENT # 10



Start time: _____ AM

End Time: _____

Date: 2/21/21

Cross Streets: Soule Park Rd. - Boardman Rd.

Amount of Area Treated: _____ SQ.FT. 1 Acres

Formula: 48 oz.Polaris to 24 Gal water

Rate of Application: 2 oz 1000 sq. ft.

Total Chemicals Used: 1.5 gal. **Water:** 96 GAL **Other:** _____

Special Instructions: Water _____ Days before application

Do Not Water _____ Days Before Application

Do Not Water _____ Days After Application

Results: _____

Probable Cause: _____

Reason for Spraying (Insect, Weeds, Disease, Rodents, other): _____

Type of Plants Sprayed: WEEDS

Weather: Foggy _____ Overcast _____ Hazy _____ Cloudy _____ Bright Sun ☒

Temperature: Wet _____ F° Dry 65 F° Humidity _____ %

Wind: Speed 2 mph (Direction wind blowing from) W

What Type Equipment Used: North Star sprayer

Cleaned and Stored (Where): Soule Park Ojai

Person Requesting: James Martinez

Applicator: Rick Cobb

EPA Number: 00228-00534- -00000

CHEMICAL, LOCATION, FORMULA RATE, SPECIAL INSTRUCTIONS MUST BE FILLED OUT BY AUTHORIZED PERSONNEL

GSA/Parks PR-ENF-060-1 (2/10)

ATTACHMENT # 10

PARKS DEPARTMENT — COUNTY OF VENTURA
AGRICULTURAL CHEMICALS APPLICATION/RECORD

A.M. _____

P.M. _____

FULL CHEMICAL NAME BRADT MAZUF
COMPANY TRADE NAME

DATE 2/21/21

LOCATION OF AREA TREATED SOULE PARK OSAI

AMOUNT OF AREA TREATED _____ SQ. FT./ 4 ACRES

FORMULA 8 oz to 24 gal. WATER

RATE OF APPLICATION _____

TOTAL CHEMICALS USED 32 oz WATER 96 OTHER _____

SPECIAL INSTRUCTIONS: WATER _____ DAYS BEFORE APPLICATION.

DO NOT WATER _____ DAYS BEFORE APPLICATION.

DO NOT WATER _____ DAYS AFTER APPLICATION.

RESULTS _____

PROBABLE CAUSE _____

INSECT, WEEDS, DISEASE, RODENTS YOU ARE AFTER _____

TYPE OF PLANTS SPRAYED _____

WEATHER: FOGGY _____ OVERCAST _____ HAZY _____ CLOUDY _____ BRIGHT SUN _____

TEMPERATURE: WET _____ F° DRY _____ F° HUMIDITY _____ %

WIND: SPEED 2 (DIRECTION WIND BLOWING FROM) _____

WHAT EQUIPMENT USED NORTH STAR SPRAYER

CLEANED AND STORED (WHERE) SOULE PARK

PERSON REQUESTING JAMES MARTINEZ

APPLICATOR RIK COBB

EPA NUMBER 48813-50014-AA-00000

CHEMICAL, LOCATION, FORMULA RATE, SPECIAL INSTRUCTIONS MUST BE FILLED OUT BY AUTHORIZED PERSONNEL.



ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

September 1, 2021

Ventura County Parks

11201 Riverbank Drive, Suite A1
Ventura, CA 93004

Description : Silver Maple Leaf
Project : Soule Park

Lab ID : SP 2111636-003

Customer : 2027477

Sampled On : August 20, 2021

Sampled By : Ben Waddell

Received On : August 20, 2021

Age :

Silver Maple Plant Tissue Analysis

Test Description	Result	Units	Optimum Range	Graphical Results Presentation				
Macro Nutrients				Deficient	Low	Ample	High	Excessive
Total Nitrogen (Leaf)	2.42	%	2.3 - 2.8					
Phosphorus (Leaf)	0.642	%	0.18 - 0.25					
Potassium (Leaf)	0.336	%	1.3 - 1.8					
Calcium (Leaf)	5.22	%	0.65 - 1.3					
Magnesium (Leaf)	0.974	%	0.33 - 0.55					
Micro Nutrients								
Zinc (Leaf)	212	ppm	35 - 95					
Manganese (Leaf)	264	ppm	50 - 500					
Iron (Leaf)	44	ppm	35 - 75					
Copper (Leaf)	32	ppm	4.0 - 8.0					
Boron (Leaf)	90.2	ppm	25 - 55					
Sodium (Leaf)	0.094	%	< 0.25					
Chloride (Leaf)	0.416	%	0.0 - 0.25					

Good  Problem

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

BRW:EHB

Reviewed and
Approved By

Ben Waddell



Digitally signed by Ben Waddell
Title: Director of Ag. Services
Date: 2021-09-01



Corporate Offices & Laboratory

853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory

2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory

563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory

3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory

9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

September 1, 2021

Ventura County Parks
 11201 Riverbank Drive, Suite A1
 Ventura, CA 93004

Description : Soil 0-12"
 Project : Soule Park

Lab ID : SP 2111636-001
 Customer : 2027477

Sampled On : August 20, 2021
 Sampled By : Ben Waddell
 Received On : August 20, 2021
 Depth : 0-12"

General Soil Analysis

Test Description	Result	Units	Optimum Range	Graphical Results Presentation				
				Very Low	Moderately Low	Optimum	Moderately High	Very High
Primary Nutrients								
Nitrate-Nitrogen	53.7	PPM	16 - 36					
Phosphorus	9	PPM	27 - 37					
Potassium (Exch)	170	PPM	54 - 320					
Potassium (Sol)	0.785	meq/L	0.94 - 2.9			3%		
Secondary Nutrients								
Calcium (Exch)	1940	PPM	1700 - 2200					
Calcium (Sol)	13.9	meq/L	2.9 - 9.2				51%	
Magnesium (Exch)	399	PPM	170 - 330					
Magnesium (Sol)	8.14	meq/L	0.84 - 4.0				30%	
Sodium (Exch)	60	PPM	0.0 - 160					
Sodium (Sol)	4.19	meq/L	< 19				16%	
Sulfate	7.4	meq/L	2.0 - 22					
Micro Nutrients								
Zinc	5.2	PPM	1.4 - 40					
Manganese	14.6	PPM	2.8 - 61					
Iron	30.9	PPM	12 - 72					
Copper	1.1	PPM	0.32 - 40					
Boron	0.510	PPM	0.36 - 1.6					
Chloride	2.35	meq/L	0.16 - 6.1					
CEC	13.7	meq/100g	14 - 35					
% Base Saturation								
CEC - Calcium	70.8	%	60 - 80					
CEC - Magnesium	23.9	%	10 - 20					
CEC - Potassium	3.17	%	1.0 - 6.0					
CEC - Sodium	1.99	%	0.0 - 5.0					
CEC - Hydrogen	< 1.00	%	0.0 - 3.0					
pH	6.81		6.5 - 7.5	Strongly Acidic	Moderately Acidic	Near Neutral	Moderately Alkaline	Strongly Alkaline



Corporate Offices & Laboratory
 853 Corporation Street
 Santa Paula, CA 93060
 TEL: (805)392-2000
 Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
 CA ELAP Certification No. 1573

Office & Laboratory
 2500 Stagecoach Road
 Stockton, CA 95215
 TEL: (209)942-0182
 FAX: (209)942-0423
 CA ELAP Certification No. 1563

Office & Laboratory
 563 E. Lindo Avenue
 Chico, CA 95926
 TEL: (530)343-5818
 FAX: (530)343-3807
 CA ELAP Certification No. 2670

Office & Laboratory
 3442 Empresa Drive, Suite D
 San Luis Obispo, CA 93401
 TEL: (805)783-2940
 FAX: (805)783-2912
 CA ELAP Certification No. 2775

Office & Laboratory
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 Visalia, CA 93291
 TEL: (559)734-9473
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September 1, 2021

Ventura County Parks

Description : Soil 0-12"
Project : Soule Park

Lab ID : SP 2111636-001

Customer : 2027477

Sampled By : Ben Waddell

Depth : 0-12"

General Soil Analysis

Test Description	Result	Units	Optimum Range	Graphical Results Presentation							
Others				Satisfactory	Possible Problem	Moderate Problem	Increasing Problem				
Soil Salinity	2.33	dS/m	0.0 - 2.0								
SAR	1.3		0.0 - 6.0								
Limestone	<0.10	%	0.0 - 0.50								
Lime Requirement	0	Tons/AF	---	0	1	2	3	4	5	6	
Gypsum Requirement	<0.50	Tons/AF	---								
Moisture	18.9	%	4.2 - 29	Very Low	Moderately Low	Optimum	Moderately High	Very High			
Saturation	41.6	%	40 - 50	Loamy Sand	Sandy Loam	Loam	Silt Loam	Clay Loam	Clay	Organic	

Good  Problem  Indicates physical and/or phenological and amendment requirements.

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

Note: Soils with gypsum requirements over 10 tons should be applied incrementally at a maximum of 10 tons per acre per year and reanalyzed yearly after each application.

Soil pH & Limestone levels are important to consider when making plant selections. Soil pH levels above 7.0 are not suitable for acid loving plants. Soils containing limestone are not suitable for plants sensitive to Limestone.

BRW:EHB

Reviewed and
Approved By

Ben Waddell



Digitally signed by Ben Waddell
Title: Director of Ag. Services
Date: 2021-09-01

September 1, 2021

Ventura County Parks
 11201 Riverbank Drive, Suite A1
 Ventura, CA 93004

Description : Soil 12-24"
 Project : Soule Park

Lab ID : SP 2111636-002
 Customer : 2027477

Sampled On : August 20, 2021
 Sampled By : Ben Waddell
 Received On : August 20, 2021
 Depth : 12-24"

General Soil Analysis

Test Description	Result	Units	Optimum Range	Graphical Results Presentation				
Primary Nutrients				Very Low	Moderately Low	Optimum	Moderately High	Very High
Nitrate-Nitrogen	5.5	PPM	14 - 34					
Phosphorus	4	PPM	26 - 36					
Potassium (Exch)	122	PPM	56 - 330					
Potassium (Sol)	0.239	meq/L	0.86 - 2.9					
Secondary Nutrients								
Calcium (Exch)	2080	PPM	1700 - 2300					
Calcium (Sol)	6.8	meq/L	2.5 - 8.5				52%	
Magnesium (Exch)	399	PPM	170 - 350					
Magnesium (Sol)	3.35	meq/L	0.60 - 3.6				26%	
Sodium (Exch)	50	PPM	0.0 - 160					
Sodium (Sol)	2.71	meq/L	< 14				21%	
Sulfate	4.8	meq/L	1.2 - 21					
Micro Nutrients								
Zinc	0.8	PPM	1.2 - 41					
Manganese	8.9	PPM	2.5 - 62					
Iron	38.2	PPM	10 - 72					
Copper	1.5	PPM	0.27 - 41					
Boron	0.300	PPM	0.34 - 1.5					
Chloride	0.90	meq/L	0.14 - 6.0					
CEC	14.2	meq/100g	14 - 35					
% Base Saturation								
CEC - Calcium	73.2	%	60 - 80					
CEC - Magnesium	23.1	%	10 - 20					
CEC - Potassium	2.20	%	1.0 - 6.0					
CEC - Sodium	1.45	%	0.0 - 5.0					
CEC - Hydrogen	< 1.00	%	0.0 - 3.0					
pH				Strongly Acidic	Moderately Acidic	Near Neutral	Moderately Alkaline	Strongly Alkaline
pH	7.18		6.5 - 7.5					



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 FAX: (559)734-8435
 CA ELAP Certification No. 2810

September 1, 2021

Ventura County Parks

Description : Soil 12-24"
Project : Soule Park

Lab ID : SP 2111636-002

Customer : 2027477

Sampled By : Ben Waddell

Depth : 12-24"

General Soil Analysis

Test Description	Result	Units	Optimum Range	Graphical Results Presentation						
Others				Satisfactory	Possible Problem	Moderate Problem	Increasing Problem			
Soil Salinity	1.10	dS/m	0.0 - 2.0							
SAR	1.2		0.0 - 6.0							
Limestone	<0.10	%	0.0 - 0.50							
				0	1	2	3	4	5	6
Lime Requirement	0	Tons/AF	---							
Gypsum Requirement	<0.50	Tons/AF	---							
				Very Low	Moderately Low	Optimum	Moderately High	Very High		
Moisture	22.1	%	3.7 - 26							
				Loamy Sand	Sandy Loam	Loam	Silt Loam	Clay Loam	Clay	Organic
Saturation	36.9	%	40 - 50							

Good Problem Indicates physical and/or phenological and amendment requirements.

Note: Color coded bar graphs have been used to provide you with 'AT-A-GLANCE' interpretations.

Note: Soils with gypsum requirements over 10 tons should be applied incrementally at a maximum of 10 tons per acre per year and reanalyzed yearly after each application.

Soil pH & Limestone levels are important to consider when making plant selections. Soil pH levels above 7.0 are not suitable for acid loving plants. Soils containing limestone are not suitable for plants sensitive to Limestone.

BRW:EHB

Reviewed and
Approved By

Ben Waddell



Digitally signed by Ben Waddell
Title: Director of Ag. Services
Date: 2021-09-01

Bare ground surrounding base of trees



Bare ground surrounding base of trees



Bare ground surrounding base of trees



Bare ground surrounding base of trees



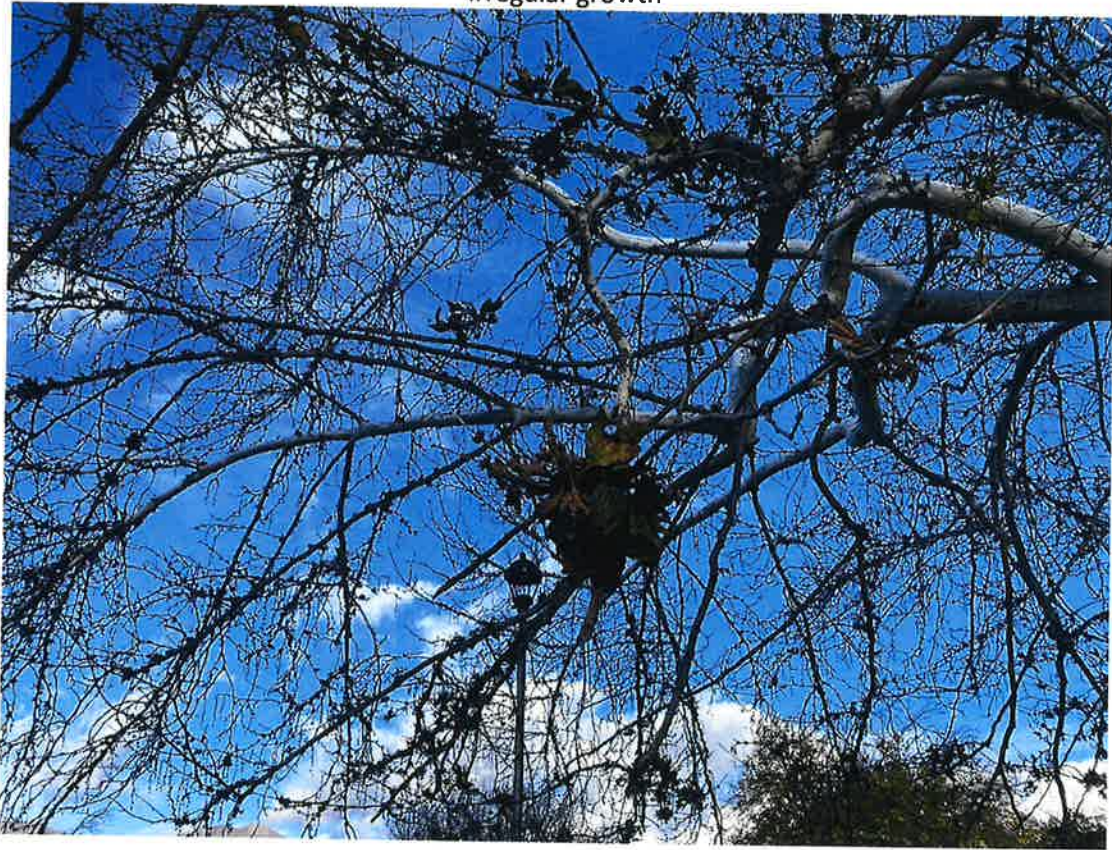
Irregular growth



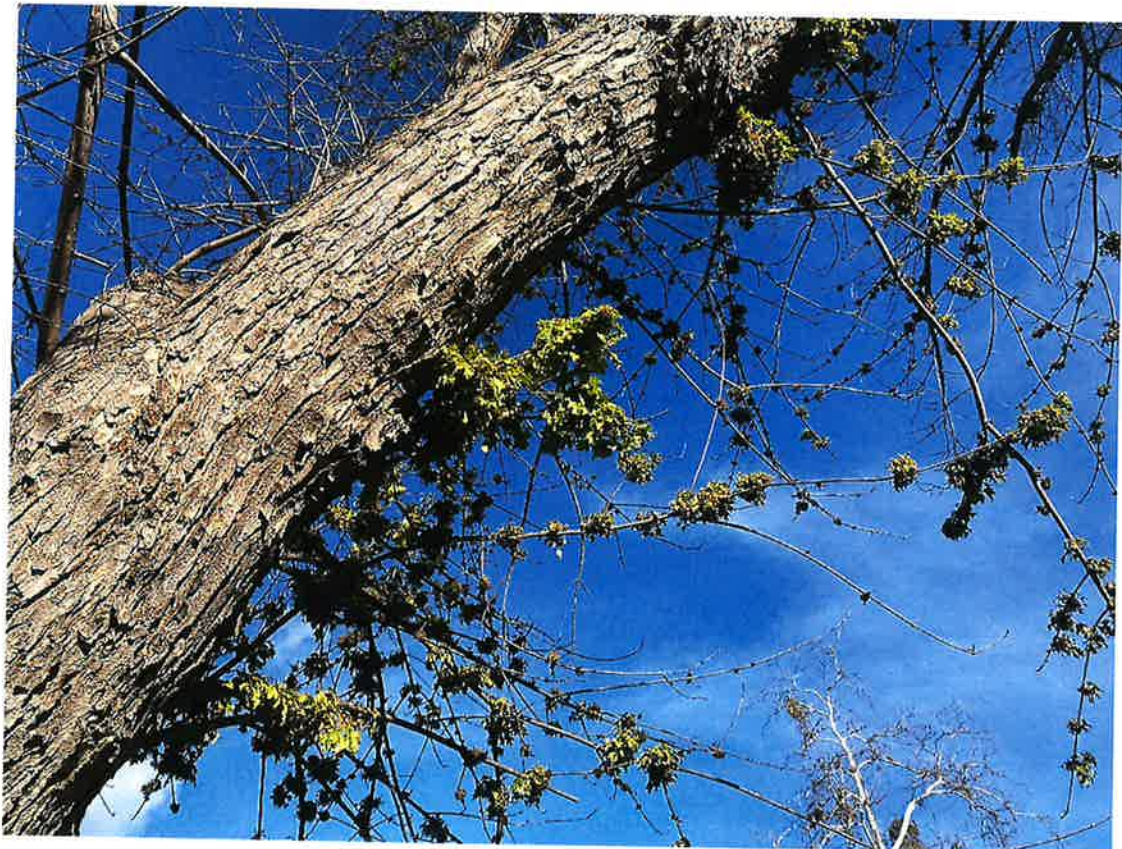
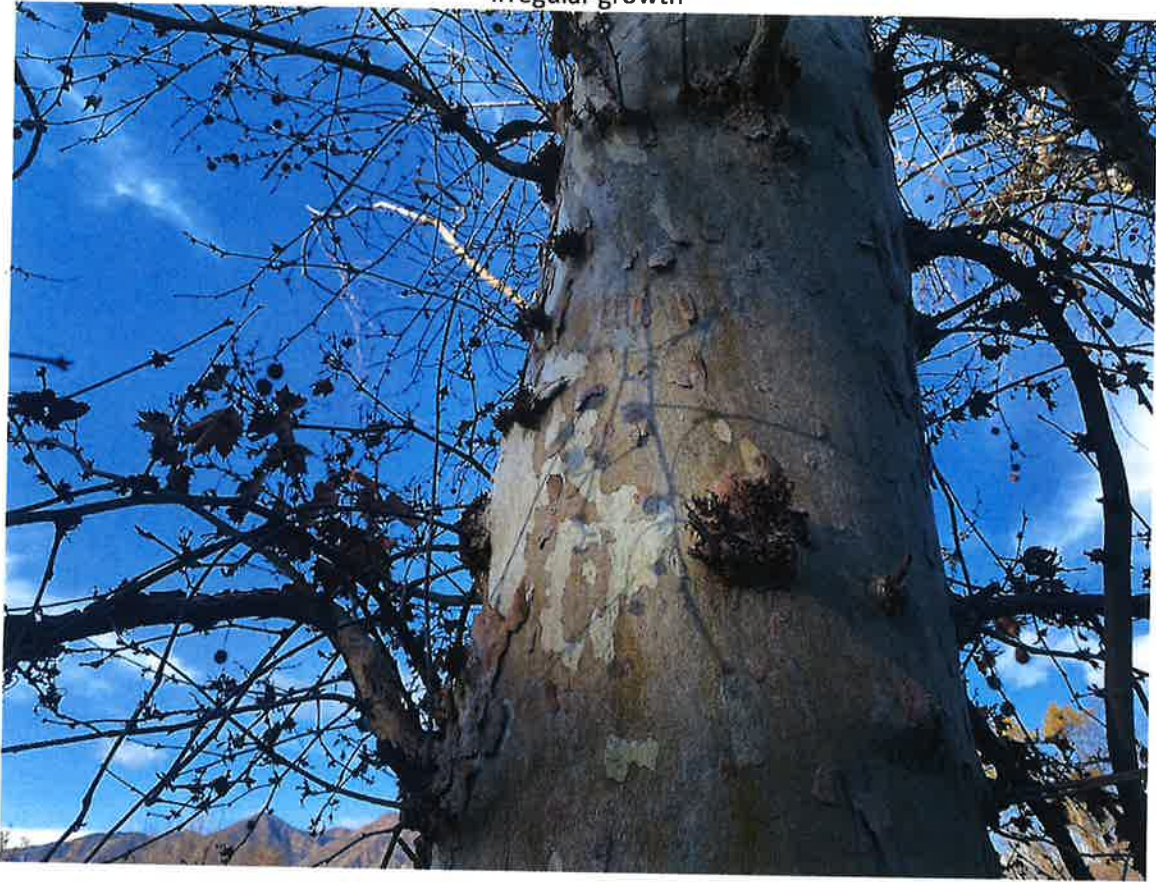
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Irregular growth



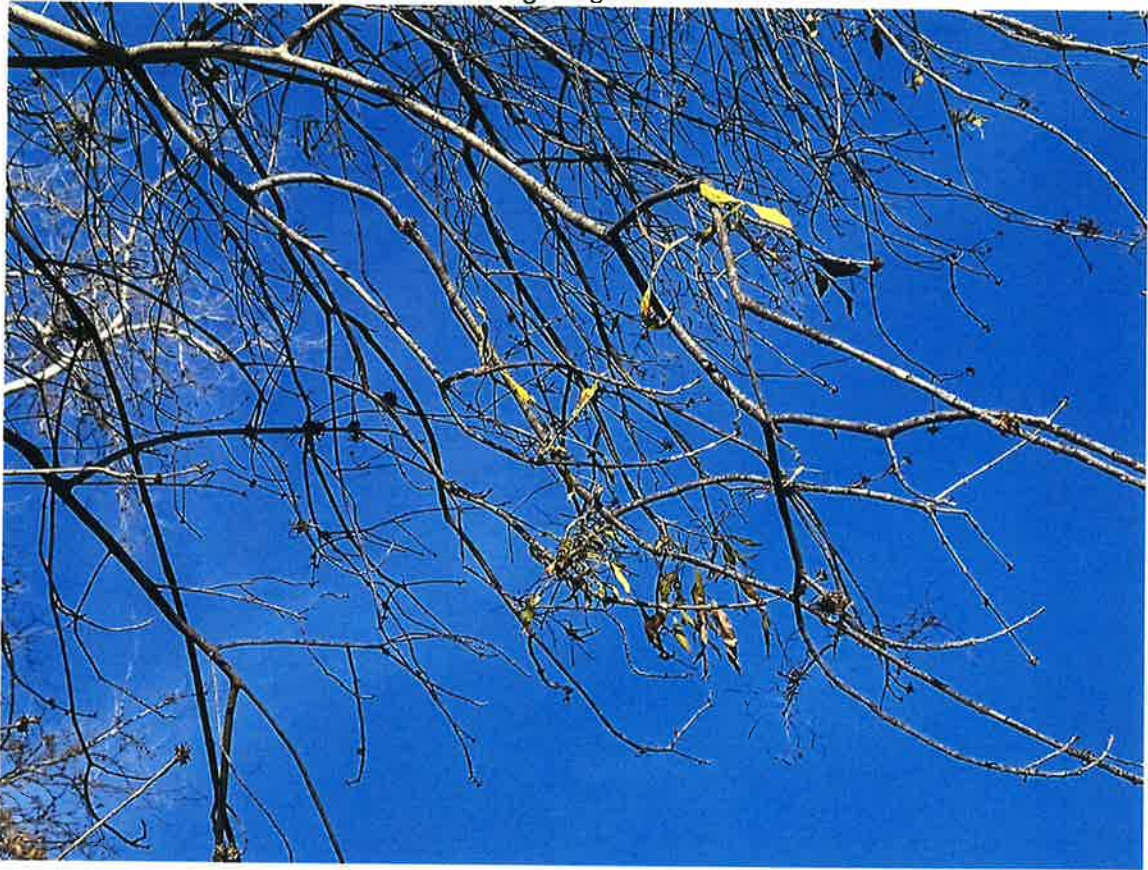
Irregular growth



Irregular growth



Irregular growth



Irregular growth



Other plants at Soule Park with irregular growth



Other plants at Soule Park with irregular growth



Other plants at Soule Park with irregular growth



IMAZAPYR

Herbicide Basics

Chemical formula: $(\pm)$ -2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid

Herbicide Family:

Imidazolinone

Target Species: grasses, broadleaves, vines, brambles, shrubs and trees, riparian and emerged aquatics

Forms: acid & salt

Formulations: SL, GR

Mode of Action: Amino acid synthesis inhibitor

Water Solubility: 11,272 ppm

Sorption potential: low

Primary degradation mech:
Slow microbial metabolism and photolysis

Average Soil Half-life:
25-141 days

Mobility Potential: high

Dermal LD50 for rabbits:
>2,000 mg/kg

Oral LD50 for rats:
>5,000 mg/kg

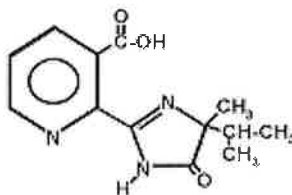
LC50 for bluegill sunfish:
>100 mg/L

Trade Names: Arsenal[®], Habitat[®], Chopper[®], and Stalker[®]

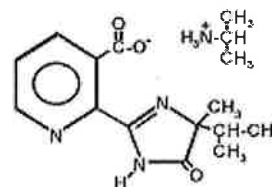
Manufacturer: BASF (previously American Cyanamid Company)

Synopsis

Imazapyr is a non-selective herbicide used for the control of a broad range of weeds including terrestrial annual and perennial grasses and broadleaved herbs, woody species, and riparian and emergent aquatic species. It controls plant growth by preventing the synthesis of branched-chain amino acids. Because imazapyr is a weak acid herbicide, environmental pH will determine its chemical structure, which in turn determines its environmental persistence and mobility. Below pH 5 the adsorption capacity of imazapyr increases and limits its movement in soil. Above pH 5, greater concentrations of imazapyr become negatively charged, fail to bind tightly with soils, and remain available (for plant uptake and/or microbial breakdown). In soils imazapyr is degraded primarily by microbial metabolism. It is not, however, degraded significantly by photolysis or other chemical reactions. The half-life of imazapyr in soil ranges from one to five months. In aqueous solutions, imazapyr may undergo photodegradation with a half-life of two days. Imazapyr is not highly toxic to birds and mammals, but some formulations (for instance, the inert ingredients in Chopper[®] and Stalker[®]) can cause severe, irreversible eye damage. Studies indicate imazapyr is excreted by mammalian systems rapidly with no bioaccumulation. It has a low toxicity to fish, and algae and submersed vegetation are not affected. Because imazapyr can affect a wide range of plants and can remain available, care must be taken during application to prevent accidental contact with non-target species. Further, a few studies have reported that imazapyr may be actively exuded from the roots of legumes (such as mesquite), likely as a defense mechanism by those plants. This exudate and the ability of imazapyr to move via intertwined root grafts may therefore adversely affect the surrounding desirable vegetation with little to no control of the target species.



Imazapyr acid



Imazapyr isopropylamine salt

Herbicide Details

Chemical Formula: $(\pm)$ -2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-3-pyridinecarboxylic acid

Trade Names: Arsenal[®], Chopper[®], and Stalker[®]. As of September 2003, imazapyr has received an EPA aquatic registration for Habitat[®].

Manufacturer: BASF (previously by American Cyanamid Company, which was purchased by BASF in 2000)

Use Against Natural Area Weeds: Imazapyr is a broad-spectrum herbicide that controls terrestrial annual and perennial grasses and broadleaved herbs, woody species, and riparian and emergent aquatic species. It can be used where total vegetation control is desired or in spot applications. Imazapyr is relatively slow acting, does not readily break down in the plant, and is therefore particularly good at killing large woody species. Imazapyr can control saltcedar (*Tamarix ramossissima*), privet (*Ligustrum vulgare*), blackberries (*Rubus* spp.), field bindweed (*Convolvulus arvensis*), bahiagrass (*Paspalum notatum*), and downy brome (*Bromus tectorum*) (American Cyanamid 1986). Caution should be used when applying imazapyr, as a few reports to TNC from the field indicate that imazapyr might be exuded from the roots of target species. Some legume species, such as mesquite, may actively exude imazapyr (J. Vollmer pers. comm.). Imazapyr herbicide can be mobile within roots and transferred between intertwined root systems (root grafts) of many different plants and/or to several species. Movement of imazapyr via root grafts or by exudates (which is a defense mechanism of those plants) may therefore adversely affect the surrounding vegetation. This movement of herbicide may also be compounded when imazapyr is incorrectly overapplied. Movement of soil particles that contains imazapyr can also potentially cause unintended damage to desirable species.

Imazapyr is effective for creating openings for wildlife use. It can be applied pre-emergent, but is most effective when applied as a post-emergent herbicide. Care should be taken in applying it around non-target species, as it is readily adsorbed through foliage and roots, and therefore, could be injurious by drift, runoff, or leaching from the roots of treated plants. To avoid injury to desirable trees, do not apply imazapyr within twice the drip line (tree canopy).

On TNC preserves in Texas, imazapyr provided good control of saltcedar (*Tamarix* spp.) and Chinese tallow tree (*Sapium sebiferum*). In North Carolina preserves, it was effective against oriental bittersweet (*Celastrus orbiculata*), cut-stumps of Chinese privet (*Ligustrum sinense*), and tree-of-heaven (*Ailanthus altissima*). Recent work in California demonstrated that foliar applications of imazapyr effectively controlled jubatagrass and pampasgrass (*Cortaderia jubata* and *C. selloana*) (DiTomaso et al. 1999; Drewitz 2000), and experimental studies in Washington showed that imazapyr provided excellent control of smooth cordgrass (*Spartina alterniflora*) in tidal estuarine habitats (Patten 2002).

Mode of Action: Imazapyr is absorbed quickly through plant tissue and can be taken up by roots. It is translocated in the xylem and phloem to the meristematic tissues, where it inhibits the enzyme

acetohydroxy acid synthase (AHAS), also known as acetolactate synthase (ALS). ALS catalyzes the production of three branched-chain aliphatic amino acids, valine, leucine, and isoleucine, required for protein synthesis and cell growth. The rate of plant death usually is slow (several weeks) and is likely related to the amount of stored amino acids available to the plant. Only plants have ALS and produce these three amino acids, and therefore, imazapyr is of low toxicity to animals (including fish and insects). Animals need these three branched chain aliphatic amino acids, but obtain them by eating plants or other animals.

Dissipation Mechanisms:

Summary: Imazapyr is degraded in soils primarily by microbial metabolism. It will quickly undergo photodegradation in aqueous solutions (photohydrolysis), but there is little to no photodegradation of imazapyr in soil, and it is not readily degraded by other chemical processes. Imazapyr does not bind strongly with soil particles, and depending on soil pH, can be neutral or negatively charged. When negatively charged, imazapyr remains available in the environment.

Volatilization

Imazapyr does not volatilize readily when applied in the field (T. Lanini, pers. obs.). The potential to volatilize, however, increases with increasing temperature, increasing soil moisture, and decreasing clay and organic matter content (Helling et al. 1971).

Photodegradation

Imazapyr is rapidly degraded by sunlight in aquatic solutions. In soils, however, there is little or no photodegradation of imazapyr (WSSA 1994). The half-life of imazapyr due to photodegradation in aqueous solution is approximately two days, and decreases with increasing pH (Mallipudi et al. 1991, Mangels 1991a).

Microbial Degradation

Microbial degradation is the primary mechanism of imazapyr degradation in soils (WSSA 1994). American Cyanamid (1986) reported that the half-life of imazapyr in soils typically ranged from one to seven months, depending on soil type, temperature, and soil moisture (Mangels 1991b). The half-life of imazapyr is shorter at cooler soil temperatures (25° C versus 35° C) and in sandier soils (sandy loam versus clay loam) (American Cyanamid 1986). Degradation rates are decreased in anaerobic soil conditions (WSSA 1994).

In studies of the related compound imazaquin, microbial degradation rates increased with increasing soil moisture content (between 5-75% of field capacity) and increasing soil temperatures (from 15° C to 30° C) (Mangels 1991b). Microbial degradation additionally, was more rapid in soils that did not bind the herbicide strongly. Imazapyr that is bound strongly to soil particles may be unavailable for microbial degradation.

Adsorption

The adsorption of imazapyr to soil particles is generally weak, but can vary depending on soil properties (Mangels 1991b). Adsorption is reversible, and desorption occurs readily (WSSA 1994). Because the exact chemical form of the herbicide is determined by environmental pH, the adsorption capacity of imazapyr changes with soil pH. A decline in pH below 5 increases

adsorption of imazapyr to soil particles. Above pH 5, imazapyr becomes ionized, increasing its negative charge, and limiting its ability to bind with soils (Mangels 1991b). Vizantinopoulos and Lolos (1994) found that adsorption decreased with increasing soil temperature, and Dickens and Wehtje (1986) found that adsorption increased with time and decreased soil moisture. In general, imidazolinone herbicides show an increase in soil adsorption capacity with an increase in soil clay content and organic matter, but studies of imazapyr have been conflicting (Dickens and Wehtje 1986, Wehtje et al. 1987, Mangels 1991b, McDowell et al. 1997, Pusino et al. 1997, El Azzouzi et al. 1998).

Chemical Decomposition

Imazapyr changes form readily with changes in pH, but is not necessarily degraded in this process. It does not readily undergo hydrolysis (Mangels 1991a), and no other chemical degradation mechanisms have been reported.

Behavior in the Environment

Summary: Imazapyr is slowly degraded by microbial metabolism and can be relatively persistent in soils. It has an average half-life in soils that range from one to five months. At pH above 5, it does not bind strongly with soil particles and can remain available (for plant uptake) in the environment. In water, imazapyr can be rapidly degraded by photolysis with a half-life averaging two days. There have been a few reports from the field of unintended damage to desirable, native plants when imazapyr has either exuded out of the roots of treated plants into the surrounding soil, or when intertwined roots transfer the herbicide to non-target plants. Make sure to not overapply imazapyr, and also confirm that soil particles with imazapyr are not moved in-contact with desirable species.

Soils

Depending on environmental conditions, imazapyr has an average half-life in soils of several months (Vizantinopoulos and Lolos 1994, El Azzouzi et al. 1998). El Azzouzi et al. (1998) reported half-lives between > 58 to 25 days in two Moroccan soils. In a laboratory study, the half-life of imazapyr ranged from 69-155 days, but factors affecting degradation rates were difficult to identify because the pH varied with temperature and organic content (McDowell et al. 1997). In a more extreme example, Vizantinopoulos and Lolos (1994) found that in loam and clay loam soils with pH 7-8, half-lives ranged up to 50 months. The manufacturer reports that persistence in soils is influenced by soil moisture, and that in drought conditions, imazapyr could persist for more than one year (Peoples 1984).

Lee et al. (1991) reported that imazapyr residues in soil following postemergent application increased eight days after initial application and continued to increase until a peak of 0.23 ppm at day 231 post-treatment. The authors attributed these increases to runoff of residues from plant surfaces following rainfall and to the release of residues from decaying plant matter.

Under most field conditions imazapyr does not bind strongly to soils and can be highly available in the environment. Above pH 5, the herbicide will take on an ionized form, increasing the risk of herbicide runoff. McDowell et al. (1997) found that heavy rainfall caused significant movement

of the herbicide (or more likely, moved the soil particles that the imazapyr was adsorbed to), and leaching up to 50 cm deep in soils have been reported (WSSA 1994).

Water

Despite its potential mobility, imazapyr has not been reported in water runoff, and we found no reports of imazapyr contamination in water. If it enters the water column, imazapyr can be photodegraded by sunlight with an average half-life of two days (Mallipudi et al. 1991).

Vegetation

Because imazapyr kills a wide variety of plants and can be relatively persistent and remain available in soils, damage to desirable non-target plants is possible. When imazapyr is applied in high rates, directly to soil, it can result in season-long soil activity. Plant species that are resistant to imazapyr apparently metabolize it to an immobile form that cannot be translocated to the meristematic tissues (Shaner & Mallipudi 1991).

Environmental Toxicity

Birds and Mammals

Imazapyr is of relatively low toxicity to birds and mammals. The LD50 for rats is > 5,000 mg/kg, and for bobwhite quail and mallard ducks is >2,150 mg/kg (WSSA 1994). American Cyanamid reports that studies with rats indicate that imazapyr was excreted rapidly in the urine and feces with no residues accumulating in the liver, kidney, muscle, fat, or blood (Miller et al. 1991). Imazapyr has not been found to cause mutations or birth defects in animals, and is classified by the U.S. EPA as a Group E compound, indicating that imazapyr shows no evidence of carcinogenicity.

Aquatic Species

Imazapyr is of low toxicity to fish and invertebrates. The LC50s for rainbow trout, bluegill sunfish, channel catfish, and the water flea (*Daphnia magna*) are all >100 mg/L (WSSA 1994). As of September 2003, imazapyr (tradename Habitat®) is registered for use in aquatic areas, including brackish and coastal waters, to control emerged, floating, and riparian/wetland species. A recent study from a tidal estuary in Washington showed that imazapyr, even when supplied at concentrations up to 1600 mg/L, did not affect the osmoregulatory capacity of Chinook salmon smolts (Patten 2003). Similarly, the Washington State Department of Agriculture reported that the 96-hour LC50 for rainbow trout fry to be 77,716 mg/L (ppm) -22,305 ppm of the active ingredient- which represents a greater concentration of imazapyr than found in commercially-sold containers (J. Vollmer, pers. comm.).

Other Non-Target Organisms

Limited information was found on the effects of imazapyr on other non-target organisms such as soil bacteria and fungi. The manufacturers report that Arsenal® is non-mutagenic to bacteria (Peoples 1984).

Application Considerations:

Imazapyr is a slow acting herbicide that is not readily metabolized in plants. It can be very effective against woody species. Due to its persistence in the environment, it may be preferable to

apply imazapyr directly to vegetation (using a low-volume backpack, cut-stump, or basal bark application) instead of using a broadcast spray method. When using a cut-stump application, be careful to avoid overapplication of imazapyr on the stump, as this may lead to excess imazapyr to be transferred between root grafts or movement by soil particles. When completing a cut-stump treatment, apply imazapyr only to the outer cambium layer of the stump (versus applying herbicide to the entire cut-stump), and this should sufficiently kill the tree (J. Vollmer, pers. comm.).

A study of wipe-on applications to the reed *Phragmites australis*, however, found that this method provided some suppression of reeds in the short-term, but failed to control them in the long term (Kay 1995). Malefy and Quakenbush (1991) reported better results when imazapyr was applied at 21° C rather than 32° C. Rainfall is considered important for good activity following soil application (Malefy and Quakenbush 1991) but can increase movement of imazapyr in the soil column. A non-ionic surfactant can improve the efficacy of imazapyr.

Safety Measures:

Some formulations of imazapyr can cause severe irreversible eye damage. Care should be taken to prevent accidental splashing or other exposure of eyes to the herbicide.

Human Toxicology

Imazapyr is of relatively low toxicity to mammals, and shows no mutagenic or teratogenic potential. It can be an eye and skin irritant, but is not a dermal sensitizer (American Cyanamid 1986; Cyanamid Ltd. 1997).

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