

Itchgrass Management

Doug Spaunhorst

February 13, 2020



Several difficult to control weed species in sugarcane



Vasey grass
Paspalum urvillei
Photo by Vic Ramey
© 1999 University of Florida

Itchgrass (raoulgrass)



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Ardoyne Research Farm Houma, LA

Itchgrass (raoulgrass)

- Been a problem in cane for a long time – 1950s
- Annual C4 grass that reproduces by seed
- Germinates year-round (large flushes germinate at day/night temps of 80/60 F)
- Sunlight influences germination

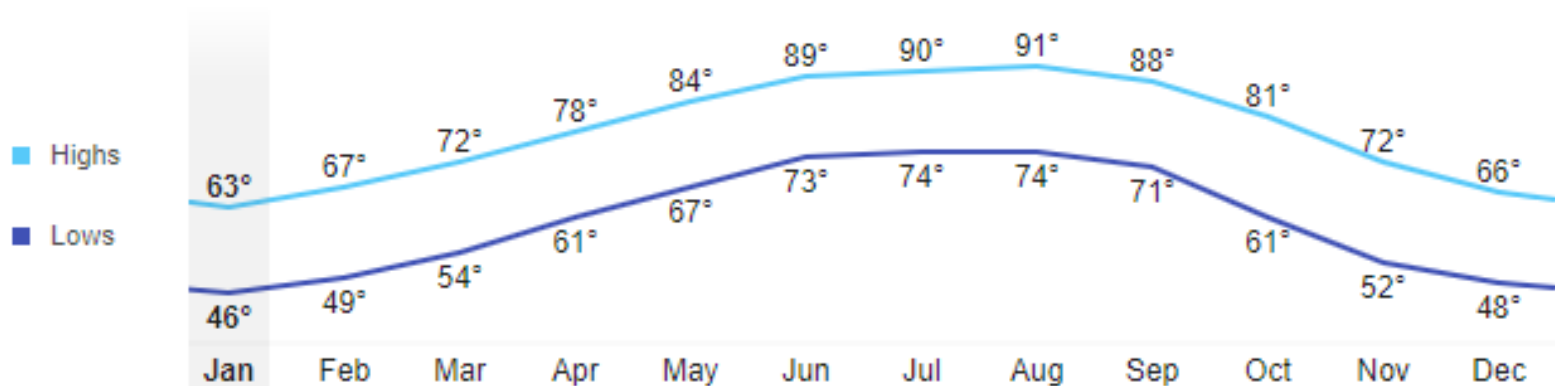


Temperature

Houma, LA
Weather averages

Overview **Graphs**

Temperatures (°F)

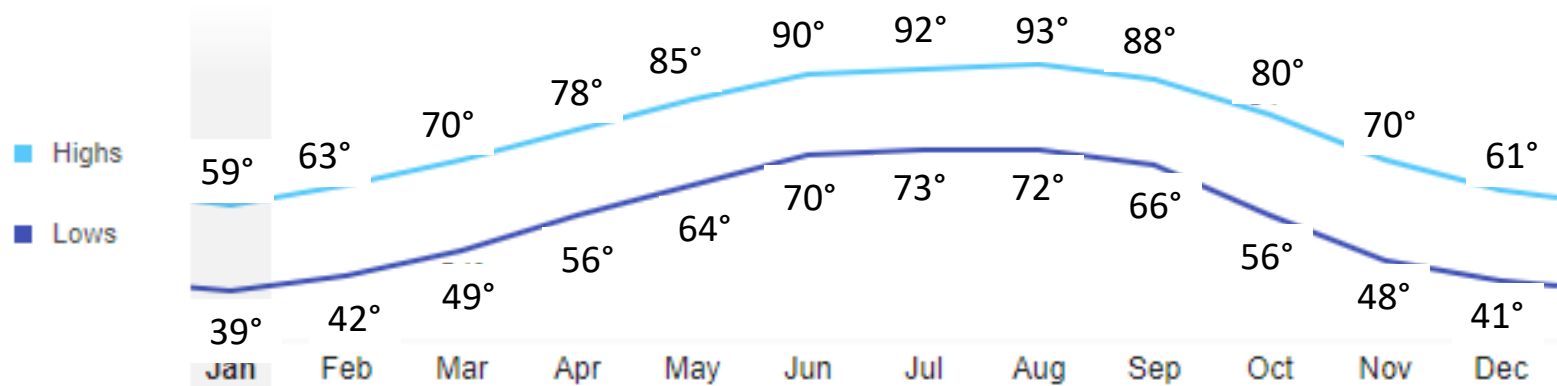


Temperature

Bunkie , LA
Weather averages

Overview **Graphs**

Temperatures (°F)



Light

- Light/dark – on top of or near the soil surface
- Dark – 1" or more below the soil surface

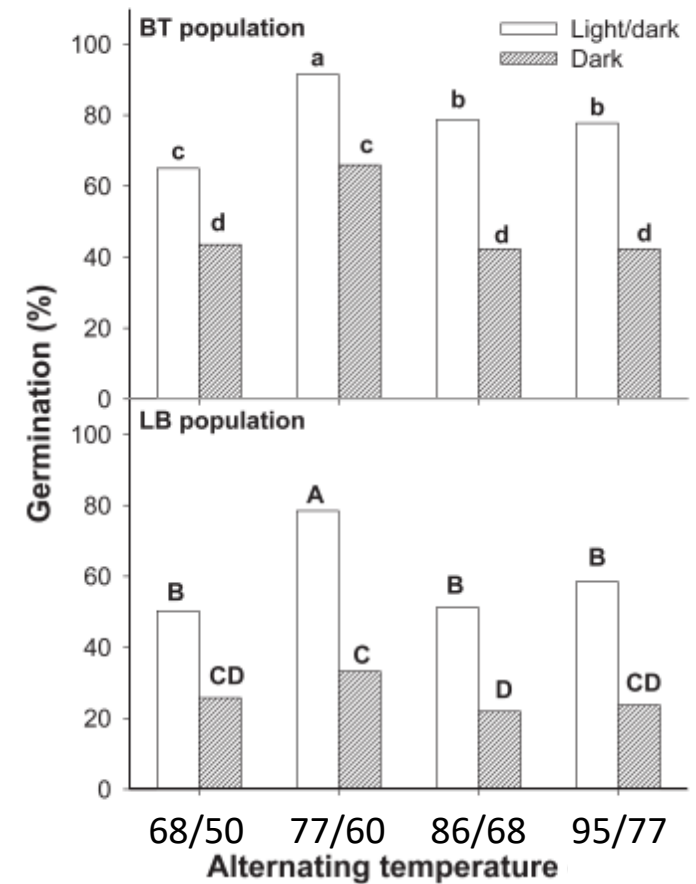


Figure 2. Effect of alternating day/night temperatures (20/10, 25/15, 30/20, and 35/25 C) and light (light/dark and dark) on cumulative germination of two populations (Batangas [BT] and Los Baños [LB]) of itchgrass seeds. Means with the same letter (lowercase for BT population, and uppercase for LB population) are not significantly different based on arcsine-transformed means.

Current PRE labeled herbicides

- Pendimethalin (Prowl) – 2.1 to 3.6 qt/ac (rate is formulation dependent)
 - Trifluralin (Treflan) – 1 to 2 qt/ac
 - Clomazone (Command) – 2.7 to 3.3 pt/ac
-
- Hexazinone (Velossa) – 1.5 to 2.9 pt/ac
 - Metribuzin – 1.5 to 3 lb/ac

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Current POST labeled herbicides

- Asulam (Asulox) – 4 qt/ac
- Trifloxysulfuron-sodium (Envoke) – 0.3 to 0.6 oz/ac



- None





Cade, LA - 2019




No PRE

Command

Cade, LA – 2019

Is there a fit for paraquat?

RESTRICTED USE PESTICIDE
DUE TO ACUTE TOXICITY
FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.



HELMQUAT 3SL


A Weed, Grass and Harvest Aid Desiccant/ Defoliant Herbicide

| | |
|---|---------------|
| ACTIVE INGREDIENT: | (% by weight) |
| Paraquat dichloride (1,1'-dimethyl-4,4'-bipyridinium dichloride)..... | 43.8% |
| OTHER INGREDIENTS: | 56.2% |
| TOTAL: | 100.0% |

Contains 3.0 pounds paraquat cation per gallon as 4.14 pounds salt per gallon.
Contains stench (odor) and emetic.

EPA Reg. No. 74530-48
EPA Est. No. 62171-MS-001

KEEP OUT OF REACH OF CHILDREN
ANGER/PELIGRO
POISON



See label booklet for First Aid, Precautionary Statements and Directions for Use including Storage and Disposal.

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

- NEVER PUT INTO FOOD, DRINK, OR OTHER CONTAINERS.
- IF SWALLOWED, TAKE IMMEDIATE ACTIONS AS PRESCRIBED IN FIRST AID, SYMPTOMS ARE PROLONGED AND PAINFUL.
- DO NOT REMOVE CONTENTS EXCEPT FOR IMMEDIATE USE.
- THE ODOR OF THIS PRODUCT IS FROM THE STENCHING AGENT WHICH HAS BEEN ADDED, NOT FROM PARAQUAT.
- DO NOT USE OR STORE IN OR AROUND THE HOME.

NET CONTENT
2.5 Gallon

Manufactured For
HELM Agro US, Inc.
401 E. Jackson St., Suite 1400
Tampa, FL 33602
Phone: 813.621.8846
Fax: 813.621.0763
info@helmagro.com
helmagro.com

Is there a fit for paraquat?

- Plant-cane and let them come.

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Is there a fit for paraquat?

- Plant-cane and let them come.
- A non-conventional and risky approach.
 - Wet year like 2018 – can I get back in the field?
 - Timely – if itchgrass gets too large = poor control
 - Willing to accept crop injury?
 - Certifications – Paraquat training

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Plant-cane experiment

Table 1. List of herbicide treatments and rates.

| Treatment | Rate ac ⁻¹ |
|--------------------------------------|--------------------------------------|
| Nontreated | |
| Asulox | 2 qt ^{ab} |
| Helmquat | 1.35 pt |
| Helmquat + prowl | 1.35 pt + 2.6 qt |
| Asulox + prowl | 2 qt + 2.6 qt |
| Helmquat + prowl fb helmquat + prowl | 1.35 pt + 2.6 qt fb 1.35 pt + 2.6 qt |
| Asulox + prowl fb asulox + prowl | 2 qt + 2.6 qt fb 2 qt + 2.6 qt |

^a COC was added at 1% v/v.

^b Sprayer was calibrated to deliver 20 GPA at 18 psi using XR11002 flat-fan nozzles.



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| Asulox + prowl fb asulox + prowl | 2 qt + 2.6 qt fb 2 qt + 2.6 qt |

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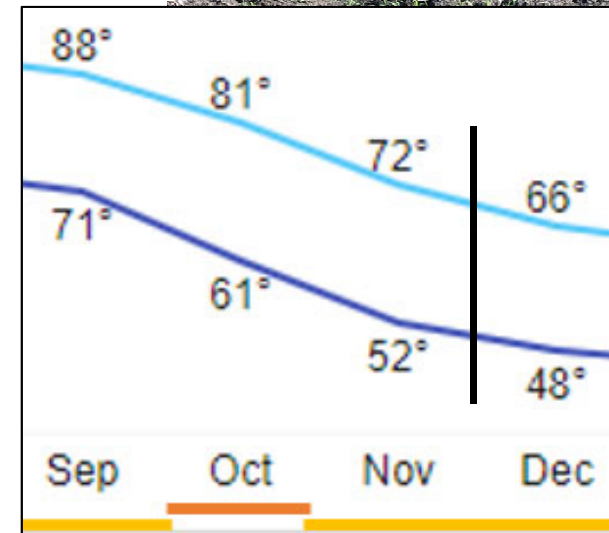
^b Sprayer was calibrated to deliver 20 GPA at 18 psi using XR11002 flat-fan nozzles.



Plant-cane experiment

- L 01-299 planted on 9/8/19.
- No PRE herbicide
- 1st POST treatments 10/1/19
 - Itchgrass stage – V1 and 1”
 - Approximately 3% sugarcane emergence

- 2nd POST treatments 10/23/19
 - Itchgrass stage – cotyledon to V3 and 1 to 2”
 - 0.5 to 1” sugarcane dewlap height



Results

Table 2. Itchgrass density at the sequential herbicide treatment timing and 21 d after sequential treatment.^a

| Treatment | Density 21 d after herbicide treatment | Density 21 d after sequential herbicide treatment |
|------------------|--|---|
| | No. m ⁻² | |
| Nontreated | 68 a ^b | |
| Asulox | 25 b | |
| Helmquat | 23 b | |
| Helmquat + prowl | 9 b | |
| Asulox + prowl | 13 b | |

^a The sequential herbicide treatment was applied on 10/23/19.

^b Means followed by the same letter are not significantly different (P = 0.05).

^c A freeze event occurred 1 d before the 21 d after sequential herbicide treatment counts.

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| Treatment | Density 21 d after herbicide treatment | Density 21 d after sequential herbicide treatment |
|--------------------------------------|--|---|
| | No. m ⁻² | |
| Nontreated | 68 a ^b | 73 a ^c |
| Asulox | 25 b | 24 b |
| Helmquat | 23 b | 24 b |
| Helmquat + prowl | 9 b | 0 b |
| Asulox + prowl | 13 b | 3 b |
| Helmquat + prowl fb helmquat + prowl | 9 b | 0 b |
| Asulox + prowl fb asulox + prowl | 15 b | 3 b |

^a The sequential herbicide treatment was applied on 10/23/19.

^b Means followed by the same letter are not significantly different (P = 0.05).

^c A freeze event occurred 1 d before the 21 d after sequential herbicide treatment counts.

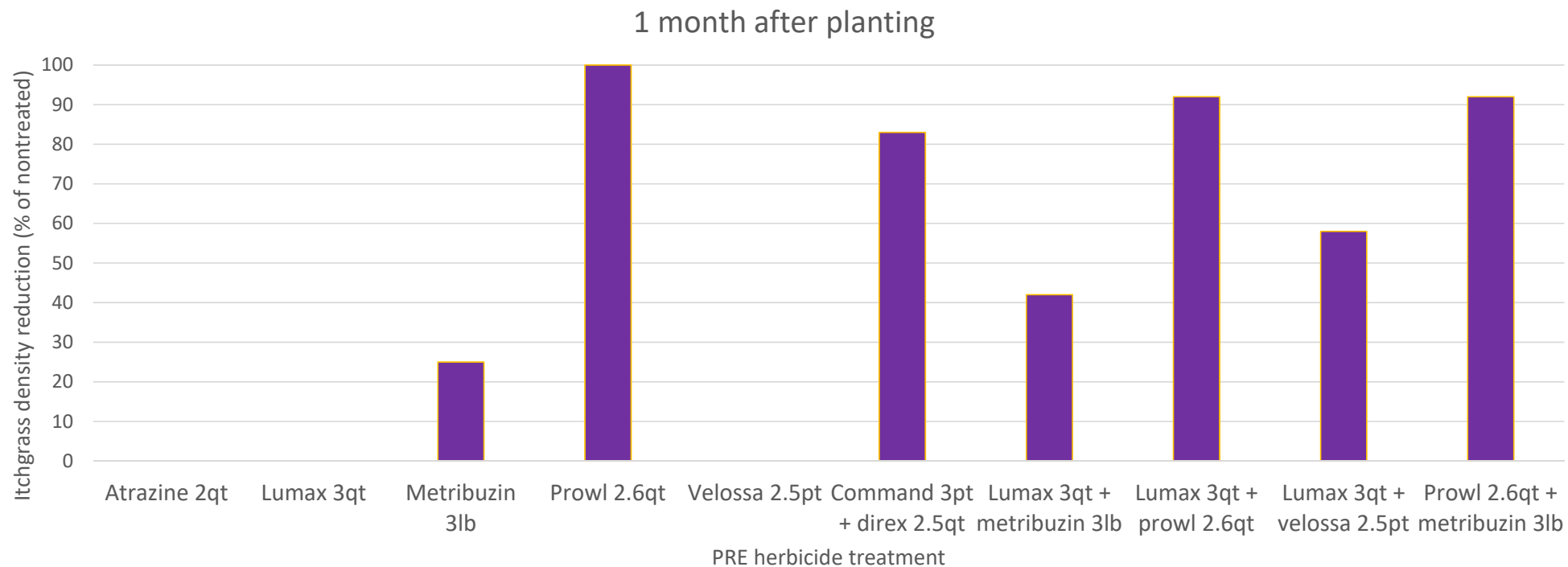
Results

| 73 plants m ² [a] | 24 plants m ² [b] | 0 plants m ² [b] |
|--|---|--|
|  |  |  |
| Nontreated | Helmquat | Helmquat + prowl |

Initial findings

- Crop injury from the second paraquat application was difficult to assess because of the November 13th freeze.
- Field conditions were dry for the first application, but wheel furrows were quite tacky for the second application.
- Itchgrass densities were similar for asulox and gramoxone treatments when compared to asulox + prowl and gramoxone + prowl treatments. **What if there was no freeze?**
- **Gramoxone + prowl treatments had 0 itchgrass by mid-November.**
- **Sequential applications did not reduce itchgrass densities when compared to a single application. Cool Nov – Dec temps.**

PRE herbicide treatments – itchgrass



OK kids let's kick it up a notch

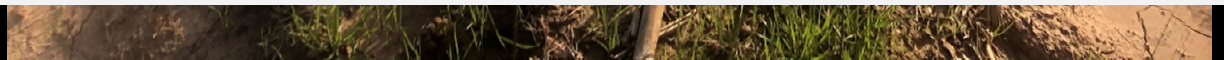


Italian ryegrass control with paraquat?

Bunkie, LA – 2020



Italian ryegrass control with paraquat?



Gramoxone SL 2.0 + 0.25% v/v NIS

Bunkie



C
h
e
c
k

Gramoxone SL 2.0 + 0.25% v/v NIS

Bunkie

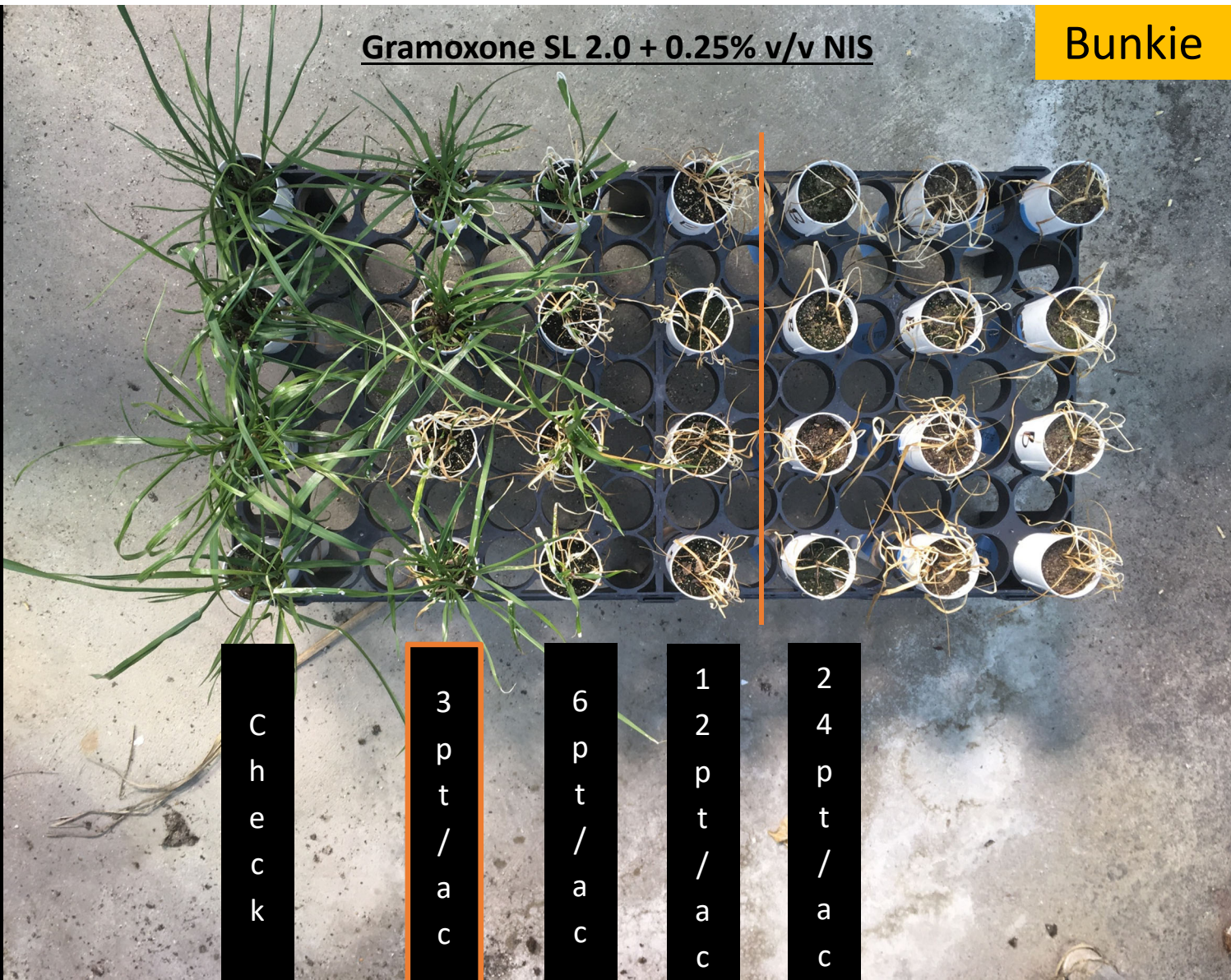


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Gramoxone SL 2.0 + 0.25% v/v NIS

Bunkie



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c

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c

2
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c

Gramoxone SL 2.0 + 0.25% v/v NIS

Sweet River



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c
k

Gramoxone SL 2.0 + 0.25% v/v NIS

Sweet River



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/
a
c

Gramoxone SL 2.0 + 0.25% v/v NIS

1 pt/ac gramoxone

2 pt/ac gramoxone

3 pt/ac gramoxone

+ 3 lb/ac diuron

+ 3 lb/ac diuron

+ 3 lb/ac diuron



Initial findings

- Is there resistance to gramoxone?
- Unsatisfactory Italian ryegrass control for 3 populations treated with gramoxone (3 pt/ac).
- Tank-mixing diuron (3 lb/ac) with gramoxone (3 pt/ac) didn't increase control.



Questions?

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