2012 Turf Grass Weed Control Update

Joe DeFrank - UH-Manoa
Tropical Plant and Soil Science
With Honolulu City & County Parks and Rec.
Under supervision of Kaipo Bernie
Advisement from Rey Ito-The Green Doctor
Topics Covered

• Review Aiea ball field cleanup 2010-2012
• Weed control lessons for Waipio soccer fields
• New ruling for aquatic weed control in HI
.4 acres

25 gallons on .65 acre total
Turf type: common Bermuda


Irrigation: good coverage with overhead

Mowers: rotary only at start followed by reels.
Goose grass
Dallisgrass
Dallisgrass adapted to turf height
Love grass

Carolina Love grass
Henry’s Crabgrass
Blanket Crabgrass
Blanket Crabgrass
Star Grass
Star Grass
Creeping indigo
Sprawling Horse Weed
(Calyptocarpus vialis)
Purple nutsedge
Large GG management with Revolver
Revolver-Goose Grass Survival Mechanism

Rooting At Nodes.

Large Goose grass survives Revolver Injury by rooting at stem node.
Goose grass survives Revolver Injury by rooting at stem node.

Root pruning herbicide needed to stop roots from entering soil.
Start 08/13/2010 – nutrient activation
1st Herbicide spray 09/01/10
1st Herbicide spray 09/01/10
<table>
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<tbody>
<tr>
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For complete written protocol
http://www.ctahr.hawaii.edu/deFrankJ/index.htm
Click: Streaming Media Content
Click: Weed control update…. (posted 01/19/2012)
Rational for 1\textsuperscript{st} herbicide application

1. Barricade, amount added to 26 gallon tank is .3 lb (136 g)
   ROOT PRUNER, pre to grass and broadleaf weeds

2. Celsius (3-way mix), amount added to 26 gallon tank is 3.2 dry oz (91 g)
   POST for “Gopher” Lovegrass, Large crabgrass, Bull paspalum & Dallisgrass
   Also controls many broadleaf weeds such as Morning Glory, Plantains,
   Bittercress, Sprawling horseweed and Oxalis

3. Revolver, amount added to 26 gallons is 17.0 oz (775 ml)
   SYSTEMIC Goosegrass – kill main plant, use Sencor for surviving parts

4. MSO (methylated seed oil) 1\% v/v , amount to 26 gallons is 33.3 oz (945 ml)
   use to penetrate leaf surface.

After the 1\textsuperscript{st} application, the volume of herbicide spray was doubled using 2 26-gallon batches in crisscross pattern.
09/23/10 - 27 Days 1st spray
09/23/10 - 27 Days 1\textsuperscript{st} spray
09/23/10 - 27 Days 1st spray
H-Crabgrass flashes yellow
Goosegrass = green, Love grass yellow
Due to Rev.+Cels+Baric
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Spray to control Goosegrass, pre for seeds
43 DA 1<sup>st</sup> spray
Rational for Sencor herbicide application

Sencor amount to 26 gallon tank is .22 lb (103 g), apply 2Xs = 2/3 lb-Sencor/a
Contact kill of Goose grass and pre-to grass and broadleaf weeds

Rational for Monument/Celsius herbicide application

Celsius amount to 26 gallon tank is 1.6 dry oz (45 g), apply 2Xs = 3.2 dry-oz/a
Systemic kill of grass and broadleaf weeds = LG, DG & SP
+ Monument amount to 26 gallon tank is 5 gram packet, apply 2X's = 15g (0.53oz)/a
Systemic suppression of DG, SP, CG & control Purple nutsedge
Day of Sencor spray 10/14/10
43 DA-1st spray

GG + nutsedge
2nd Herbicide Spray
Sencor
2/3 lb/a
10/14/2010
5 Days after Sencor spray 10/19/10
5 Days after Sencor spray 10/19/10
8 Days after Sencor spray 10/22/10

GG drying up
8 Days after Sencor spray 10/22/10

Lovegrass drying up, injury enhanced by previous applications
8 Days after Sencor spray 10/22/10

Lovegrass drying up, Dallis OK
8 Days after Sencor spray 10/22/10

GG/LG drying up Seashore Paspalum OK
## Aiea Highschool Baseball Field

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**Spray to control Goosegrass, pre for seeds**

43 DA 1<sup>st</sup> spray
Creeping Indigo germinated
Rational for Sencor herbicide application

Sencor amount to 26 gallon tank is .22 lb (103 g), apply 2Xs = 2/3 lb-Sencor/a
Contact kill of Goose grass and pre-to grass and broadleaf weeds

Rational for Monument/Celsius herbicide application

Celsius amount to 26 gallon tank is 1.6 dry oz (45 g), apply 2Xs = 3.2 dry-oz/a
Systemic kill of grass and broadleaf weeds = LG, DG & SP

Monument amount to 26 gallon tank is 5 gram packet, apply 2X’s = 10g (0.53oz)/a
Systemic suppression of DG, SP, CG & control of CI & Purple Nutsedge
Available in .5 gram packs – includes home lawns.
20 Days after Mon/Cels spray 11/30/10

6 Day as after 02-FF
Weed response requires alternating herbicide control spectrum

**GG regrows = Sencor, contact kill and preemergence to seeds**

**DG/SP/PN/LG regrows = Celsius+ Monument Weakens weeds BG fills in**
## Aiea Highschool Baseball Field

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<td>2010 year ends</td>
<td>12/31/10</td>
<td>365</td>
<td>3</td>
</tr>
<tr>
<td>Start close mowing with reel mowers</td>
<td>01/21/11</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>Apply 15-0-15 1% Ronstar 250 lb/a, infield only</td>
<td>02/04/11</td>
<td>35</td>
<td>14</td>
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<tr>
<td>Silica sand top-dress</td>
<td>02/08/11</td>
<td>39</td>
<td>18</td>
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<tr>
<td>6th herbicide spray (Revolver spot-2 oz/g) 2 gallons total on .4 acres</td>
<td>02/09/11</td>
<td>40</td>
<td>43-DA-C/M SPRAY</td>
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<tr>
<td>7th herbicide spray (Specticle/Revolver)</td>
<td>04/12/11</td>
<td>102</td>
<td>62 DA Rev-spot</td>
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01/28/11

31 days after Mon/Cel spray of 12/29/10

DG control improves as temp rises more sunshine
DG control improves as temp rises more sunshine

31 days after Mon/Cel spray of 12/29/10
LG control improves as temp rises more sunshine

31 days after Mon/Cel spray of 12/29/10
BG fills in w/close mowing and warmer temps

Top-dress needed to improve fill in

31 days after Mon/Cel spray of 12/29/10
8 Days after top-dress with silica sand 02/16/11
8 Days after top-dress with silica sand 02/16/11
Herbicides provide openings for BG to fill in
GG still alive but roots stunted
LG looks normal w/flowers but roots severely pruned and easily removed
Conclusions

1. Carpet crabgrass, Creeping Indigo, Purple nutsedge other broadleafs controlled.

2. LG, DG & GG reduced cover by 90-95%

3. StarGr. emerges in gaps, present since start

4. LG & GG require some mechanical removal: weighted drag, light verticutter, hand weeding in combo with **strategic drought stress**.
1. * Continued close reel mowing w/hand weeding, LG well control within infield.
2. Remaining weeds= GG, DG, SP and C. Indigo
3. Star Gr. Present but lacks vigor
4. Consider additional procedures to tune up weed control and Bermuda grass fill in.
1. Continued close reel mowing w/hand weeding, LG well control within infield near home plate.
1. Continued close reel mowing w/hand weeding, LG well control within infield.
2. Remaining weeds= GG, DG, SP and C. Indigo
3. Star Gr. Present but lacks vigor
4. Consider additional procedures to tune up weed control and Bermuda grass fill in.
Current update: 05/16/12
400 DA-Spec/Rev of 04/12/11
Summer 2012 tune up

1. Nutrient activation w/irrigation - 2 wks
2. Revolver + Specticle for GG + pre contr. – 3-4 wks
3. Celsius + Monument for C.I., DG, SP & LG - 3 wks
4. Sencor for GG and weakened LG. -2 wks.
5. Impose strategic water stress & mech. Removal
6. Fert. w/top dress for fill in & water -.5 inch 2X/wk.
Take away points used for Waipio cleanup-2011

1. Combine Foliar feed CN 9-0-0 w/Specticle, apply w/booms = weed/turf activation/pre-RP.

2. 35 DA#1, Tank mix Rev./Cels. for GG, LG & DG control/weaken.

3. Needed fewer irrg. w/drying of surface to stress weeds with weakened roots.

4. 24 DA#2 foliar feed w/CN 9-0-0.

5. 14 DA #4 Sencor use 2/3 lb/a & repeat 14-20 Days

6. So far GG gone, LG weak but still alive.

7. Final large scale LG removal needed.
Waipio after: Foliar-N + Specticle (2.5 oz/a)  
3 weeks  
Then Celsius + Revolver 06/06/2011
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Waipio after: Foliar-N + Specticle (2.5 oz/a)
3 weeks
Then Celsius + Revolver 06/06/2011
With reduced irrigation, 2X-Sencor 2/3 lb/a, reel mowing and fertilization with both foliar and granular fertilizer - 07/07/2011
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With reduced irrigation, 2X-Sencor 2/3 lb/a, reel mowing and fertilization with both foliar and granular fertilizer - 07/07/2011

LG still alive but roots weak - ? – spot trt. ?
Waipio Soccer Fields
2012 Update
Some body dropped the ball

Progress made in summer of 2011 practically gone in 2012
Waipio Soccer Fields
2012 Update
Somebody dropped the ball
Summary of Current Conditions
1. Reel mowing changed to rotary – weedy grass to high = Bermuda stand reduced.
2. Uneven irrigation with dusty dry and adequate moisture in same field.
3. Nutrition levels OK but cultural conditions (compaction/dryness) favor weeds
Suggestions for Waipio turf recovery

1. Wanted – One control Freak with authority (water/soil/spray) for performance compliance
2. Upgrade irrigation system for coverage uniformity w/controls compatible with supply.
3. Reel mowers with back up systems, close mowing favors Bermuda.
4. Facility policy: close fields for restoration, relief from compaction, user understanding.
5. Weed control, restore soil for turf health, reseeding to enhance turf density
6. User fees go back to facility = management/employee recognition and pride.

• Waipio Facility is too important to community and youth sport development to ignore.
• Income for city with tournaments.
• Hawaii as soccer Mecca/tourism.
• Local pride.
New permit (NPDES) requirements for Aquatic pesticide applications
Based on court decision on 10/31/2011

1. Applies to pesticide applications to, over or near waters of the state of HI = point source pollution, violation of the CWA.
2. Runoff from land based surfaces is exempt = non-point source.
3. Drainage ditches, ponds and reservoirs required as part of water pollution control system are excluded.
4. Permits will be issued by HI DOH Clean Water Branch.
5. All current aquatic pesticide uses banned.
New permit (NPDES) requirements for Aquatic pesticide applications
Based on court decision on 10/31/2011

What is needed for permitted applications
New permit (NPDES) requirements for Aquatic pesticide applications
Based on court decision on 10/31/2011

Information requirements prior to Management Measure Usage
• Identify areas to be treated
• Identify target pests
• ID factors causing or contributing to pest problem
• Establish action threshold, when is pesticide use required
• Evaluate all options for control = mechanical, cultural, biological and chemical

W/pesticide:
1. survey prior to spray to determine threshold limit exceeded
2. Reduce impact to Env. Timing for applications = best for control
New permit (NPDES) requirements for Aquatic pesticide applications
Based on court decision on 10/31/2011

Hearing for proposed rules:
When: June 4, 2012 at 9:30 a.m.
Where: 919 Ala Moana Blvd. 5th Floor Conf. Room
Video Conference locations on Kauai, Maui & Hilo:

<table>
<thead>
<tr>
<th>Location</th>
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<tbody>
<tr>
<td>Kauai</td>
<td>Kauai District Health Office, Conference Room, 3040 Umi Street, Lihue, 96766</td>
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<tr>
<td>Maui</td>
<td>Department of Health, BT Conference Room, 210 Imi Kala Street, Suite 204 (in Millyard), Wailuku, 96793</td>
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<tr>
<td>Hilo</td>
<td>Hawaii District Health Office – Hilo, Conference Room, 1582 Kamehameha Avenue, Hilo, 96720</td>
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For more information on topics covered

Contact
Dr. Joe DeFrank
3190 Maile Way Rm. 102
Honolulu, HI 96822

Email: defrenk@hawaii.edu

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FAX: 808-956-3894