2012 Herbicide Evaluation on Hawaii Turf

Joe DeFrank - UH-Manoa
Kai Umeda – AZ Turf Extension
Kaipo Bernie HC&C
Sean Demello Pali GC
Topics Covered

• Summer 2012 herbicide related activities
• Pali G.C. - S.P. Transition greens to apron
• Aiea Field - Tribute herbicide for Dallis Gr.
• Herbicides on sedge at Waipio
• Aiea summer herbicide tune up – 2 yrs. case study
• Improved herbicide wiper for turf
Visiting Scientist July – Nov. 2012
Kai Umeda
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Pali Golf Course
Transition Seashore paspalum on green into aprons and fairways
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6 Herbicides treatments half with salt (1000 lb/a) to enhance seashore spreading into aprons

1. Tribute: 3-way mix = Revolver, Sledgehammer & Thiencarbezone for post on Gr.&Bl. weeds

2. Revolver: single product for goose grass & cool season grass.

3. Blindside: 2-way mix = Dismiss & Blade/Manor for paspalum gr. & many Bl. & sedges

4. Dismiss: sulfentrazone a single product for goose grass and sedges


Response – 21 DAS
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Response – 120 DAS
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Results – Pali G.C. – 4 mo. 2 apps. Chems only.
Pali Golf Course
Transition Seashore paspalum on green into aprons and fairways

Dominate weedy grasses

Australian carpet grass
Pali Golf Course
Transition Seashore paspalum on green into aprons and fairways

Dominate weedy grasses

Hilo grass
Pali Golf Course
Transition Seashore paspalum on green into aprons and fairways

Dominate weedy grasses

Hilo grass
A. Carpet grass
Salt at 1000 lb/a = 50% reduction in Bermuda Gr.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate#/a</th>
<th>Hilo Gr %</th>
<th>Carpet Gr %</th>
<th>Max Gr. Color % 3 wks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tribute</td>
<td>3.2 oz - D</td>
<td>50-65</td>
<td>95-98</td>
<td>60</td>
</tr>
<tr>
<td>Revolver</td>
<td>26 oz - L</td>
<td>70</td>
<td>75</td>
<td>93</td>
</tr>
<tr>
<td>Blindside</td>
<td>10 oz - D</td>
<td>70</td>
<td>90</td>
<td>95</td>
</tr>
<tr>
<td>Dismiss</td>
<td>8 oz - D</td>
<td>80</td>
<td>50</td>
<td>95</td>
</tr>
<tr>
<td>Celsius</td>
<td>4.9 oz – D</td>
<td>85-90</td>
<td>85-90</td>
<td>60</td>
</tr>
<tr>
<td>Monument</td>
<td>.53 oz - D</td>
<td>85-90</td>
<td>85-90</td>
<td>60</td>
</tr>
<tr>
<td>Un-treated</td>
<td>-</td>
<td>0</td>
<td>0</td>
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Results – Pali G.C. – 4 mo. 2 apps. Chems only.

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W/mostly Carpet Gr.: TRI > BLS > REV > DIS

Both Hilo & Carpet Gr.: MON = CEL

S. Paspalum injury 3-wks.: TRI = CEL = MON >> REV = BLS & DIS
Aiea Field
Dallis Grass Response to Tribute

1. Tribute (2.0 oz/a) + NIS = Incite, apply 1X.

2. Tribute (3.0 oz/a) + NIS = Incite, apply 2X.

3. Tribute (3.2 oz/a) + MSO + AMS (AMONIUM SULFATE 1.5 LB/A), 2x’s

4. Tribute (3.2 oz/a) + MSO + AMS (1.5 LB/A) + Sencor (2.7 oz/a), 2x’s

5. Untreated

Trt. #1 applied 1X, #2-4 applied 2x’s 20 days apart.
1. Tribute (2.0 oz/a) + NIS = Incite, apply 1X.
2. Tribute (3.0 oz/a) + NIS = Incite, apply 2X.
3. Tribute (3.2 oz/a) + MSO + AMS (AMONIUM SULFATE 1.5 LB/A), apply 2X.
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5. Untreated
Aiea Field
Dallis Grass Response to Tribute – 42 DA2S

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4. Tribute (3.2 oz/a) + MSO + AMS (1.5 LB/A) + Sencor (2.7 oz/a).
5. Untreated
Aiea Field
Dallis Grass Response to Tribute – 42 DA2S

#5: T + MSO + AMS + SEN

TRB-2X’S
W/
SENCOR
85-90%
CONTROL
Waipio Soccer Complex
Green Kyllinga in common Bermuda

1. Tribute: 3-way mix = Revolver, Sledgehammer & Thiencarbezone (3.2 oz/a)
2. Dismiss: single product Sulfentrazone (8.0 oz/a)
3. Blindside: 2-way mix = Dismiss & Blade/Manor (6.5, 8.0 & 10.0 oz/a)
4. Celsius: 3-way mix Dicamba, Thiencarbezone & Iodosulfuron (4.9 oz/a)

All treatments 2X’s 55 days apart
1. Tribute: (3.2 oz/a) - 80-95%
2. Dismiss: (8.0 oz/a) – 65-70%
3. Blindside: (6.5, 8.0 & 10.0 oz/a) - 95-98% HIGHEST RATE
4. Celsius: (4.9 oz/a) 65-75%
1. Tribute: (3.2 oz/a) - 80-95%
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Unt. – BLINDS 2x’s

Unt. – BLINDS 2x’s
08/13/10 Start growth activation

.4 acres

25 gallons on .65 acre total
Aiea Highschool Baseball Field

**Turf type:** common Bermuda

**Weeds:** Goosegrass, Dallis Grass, Love Grass, Seashore paspalum, Henry’s crabgrass, Blanket crabgrass, Star Grass, Creeping indigo, Sprawling Horseweed, Purple nutsedge.

**Irrigation:** good coverage with overhead

**Mowers:** rotary only at start followed by reels.
Dallisgrass
Dallisgrass adapted to turf height
Henry’s Crabgrass
Blanket Crabgrass
Blanket Crabgrass
Star Grass
Star Grass
Star Grass
Creeping indigo
Sprawling Horse Weed
(Calyptocarpus vialis)
<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
<th>Day of year</th>
<th>Days after previous activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-Foliar Feed Ca &amp; K Nitrate, w/Fe</td>
<td>08/13/10</td>
<td>225</td>
<td>0</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; herbicide spray (Barricade/Celsius/Revolver)</td>
<td>09/01/10</td>
<td>244</td>
<td>19</td>
</tr>
<tr>
<td>*Thatch breakup + dry app. of K nitrate</td>
<td>09/23/10</td>
<td>266</td>
<td>22</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; herbicide spray (Sencor)</td>
<td>10/14/10</td>
<td>287</td>
<td>21</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; herbicide spray (Celsius/Monument)</td>
<td>11/10/10</td>
<td>314</td>
<td>27</td>
</tr>
<tr>
<td>02-Foliar Feed Ca &amp; K-nitrate, w/Fe</td>
<td>11/24/10</td>
<td>328</td>
<td>14</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt; herbicide spray (Sencor)</td>
<td>12/08/10</td>
<td>342</td>
<td>14</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt; herbicide spray (Celsius/Monument)</td>
<td>12/29/10</td>
<td>363</td>
<td>20</td>
</tr>
<tr>
<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>
</tr>
<tr>
<td>Silica sand top-dress</td>
<td>02/08/11</td>
<td>39</td>
<td>18</td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; herbicide spray (Revolver spot-2 oz/gal)</td>
<td>02/09/11</td>
<td>40</td>
<td>43-DA-C/M SPRAY</td>
</tr>
<tr>
<td>2 gallons total on .4 acres</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7&lt;sup&gt;th&lt;/sup&gt; herbicide spray (Specticle/Revolver)</td>
<td>04/12/11</td>
<td>102</td>
<td>62 DA Rev-spot</td>
</tr>
</tbody>
</table>
Herbicides provide openings for BG to fill in.
DG control improves as temp rises more sunshine

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

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

LG control improves as temp rises more sunshine
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
LG looks normal w/flowers but roots severely pruned and easily removed.
1. Continued close reel mowing w/hand weeding, LG well control within infield near home plate.
Current update: 05/16/12
400 DA-Spec/Rev of 04/12/11
Current update: 05/16/12
400 DA-Spec/Rev of 04/12/11
DG, small but dark green and healthy

SP, isolated patches, ? Spreading w/ close mowing

GG, small/larger plants w/isolate hot spots

C. Ind.- in spots

Current update: 05/16/12
400 DA-Spec/Rev of 04/12/11
### Aiea Highschool Baseball Field Summer 2012 tune up

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<td>7th herbicide spray (Specticle/Revolver)</td>
<td>04/12/11</td>
<td>102</td>
<td>62 DA Rev-spot</td>
</tr>
<tr>
<td>8th herbicide spray (Dismiss/Specticle/Revolver)</td>
<td>06/18/12</td>
<td>170</td>
<td>433</td>
</tr>
<tr>
<td>9th herbicide spray (Celsius/Monument)</td>
<td>07/11/12</td>
<td>193</td>
<td>23</td>
</tr>
<tr>
<td>Mechanical removal - grasses</td>
<td>08/03/12</td>
<td>216</td>
<td>23</td>
</tr>
<tr>
<td>10th herbicide spray (Sencor)</td>
<td>08/30/12</td>
<td>243</td>
<td>50 AS/27 SW</td>
</tr>
<tr>
<td>Withhold water, controlled drought stress</td>
<td>09/15 to 10/19/2012</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**For complete written protocol 2010 & 2011**

http://www.ctahr.hawaii.edu/deFrankJ/index.htm

Click: Streaming Media Content

Click: Weed control update…. (posted 01/19/2012)
Compare:

Verticutting To Sweeper For Weed removal

Mowers for mechanical pickup of weeds
1st pass w/sweeper
Mowers used to pick grass

Verticut + pickup

Sw + pickup
Sweeper + pickup = GG & LG stilling living in soil
Failure due to excess water after herbicides, roots still strong
October 19, 2012 – 40-50 days water off. Improve grass kill with drought stress
Outfield grass area-untreated

Infield & Outer arc-treated

October 19, 2012
40-50 days water off.
11/19/12
40-50 days
water off.
Love grass - Outfield

11/19/12
40-50 days water off.

Love grass - infield
To make herbicides & mechanical removal work

Irrigation needed
For crown death

Followed by
Advantitious root growth & see root pruning

= Queue to stop watering

1. LG root stunting = begin water stress.
2. Timing = 35-45 days post 3rd application.
3. Follow water stress w/mechanical removal
4. Sencor after mechanical grass pickup
1st base side still w/heavy Love grass
12/10/2012
Non-selective Wiper in non-crop areas
Selectivity based on height
Wiper for tall weeds in turf
Improved weed wick for stubborn grasses
Factors for wiper applications
1. Pre application growth activation of weeds and turf.
2. Sufficient height of weeds above turf.
3. Glyphosate at 15-20% for wiping weeds.
4. 2-3 day delay mowing and irrigation after app.
Selectivity based on height Wiper for tall weeds in turf
For more information on topics covered

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FAX: 808-956-3894
For more information on topics covered

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WEED CONTROL IN HAWAII WITH DR. JOE DEFRANK
Professor of Weed Science - University of Hawaii Department of Tropical Plant and Soil Science

Weed Science 481-Fall 2011 - Lecture notes and handouts
Weed ID Gallery - Economically Important weeds in vegetables, turf and potted ornamentals in Hawaii
Streaming Media Content
Plants for People, Beverage Crops, Fall 2011 with Dr. Skip Bittenbender
ASHS 2011 WORKSHOP, Propagation Techniques of Select Tropical Ornamentals, Specialty Crops, and Native Plants in Hawaii
TPSS 491/711 Digital Tools for Scientific Content Fall 2012
For more information on topics covered

http://www.ctahr.hawaii.edu/deFrankJ/index.htm

Web based resources for weed I.D. and control, problems weeds in warm season turf & Purple nutsedge control for gardens and ornamental nursery beds. (posted 10/16/2012)
Weed control recommendations-home turf, landscapes and gardens (posted 06/01/2012)
Weed control in Aiea ball field, Waipio Soccer Field issues and new rules for Aquatic weed control - CPS 12th Annual Seminar and Tradeshow (posted 05/22/2012)
Weed control update for warm season turf in Hawaii - Pacifica Ag. Tradeshow (posted: 01/19/2012)
Weed control Considerations for Potted Tropical Ornamentals and Turf (posted: 02/09/2011)
Aiea Baseball field weed cleanup - 2010 (posted: 01/31/2011)
Pili Grass as a Living Mulch in Tropical Vegetable Crop Production in Hawaii 2009.
Weed Control in Native Hawaiian Plants
Native Plants on Hawaii’s Roadways
Restoring Native Habitats in Hawaii
Student presentations for Weed Science Lab, TPSS/PEPS 481
Herbicide and Growth Regulator Studies in Potted Ornamentals 2005 to 2007
Non-Weed Control Presentations (posted 06/21/2011)
HOME
For more information on topics covered

Viewing tips for live seminar presentations – Open 2 browser windows 1- for video and 1 – for high resolution slides as pdf
For more information on topics covered

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Weed Control In Gardens, Landscapes And Turf.

Dr Joe DeFrank Dept. of Tropical Plant and Soil Science CTAHR - UH, Manoa