



**Weed Control  
In Gardens, Landscapes And Turf.  
11/16/2022**

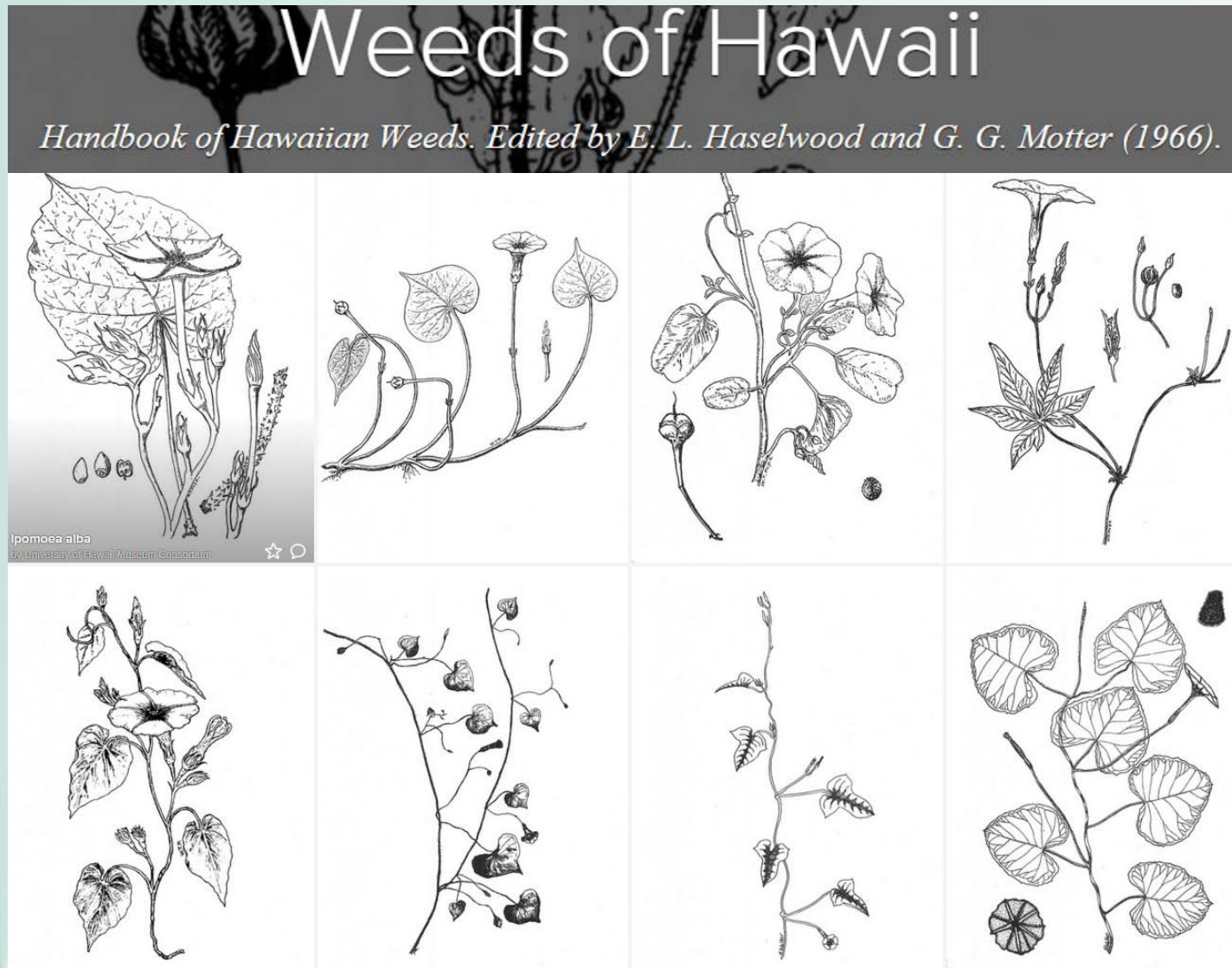
**Dr Joe DeFrank  
Dept. of Tropical Plant and Soil Science  
CTAHR - UH, Manoa**



**Tropical Plant & Soil Sciences Department**  
University of Hawaii at Manoa

# Web resources for weed control. On-line Handbook of Hawaiian Weeds

<https://scholarspace.manoa.hawaii.edu/handle/10125/6806> - download pdf of entire book



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## Web resources for landscape weed control.

<https://scholarspace.manoa.hawaii.edu/handle/10125/6806> - download pdf of entire book



[University of Hawaii Muse...](#)

+ Follow

*Ipomoea obscura*

MORNING-GLORY

### Description:

A twining plant. Leaves ovate to heart-shaped, sharp pointed, entire, nearly smooth, 1 to 4 inches long. Flowers bell-shaped, about 1 inch long, on long stalks; sepals ovate; corolla yellow or cream with yellow bands, and with a purple base. Seeds velvety (1 1, 15).

### Propagation:

By seed.

### Habitat:

A weed in wastelands.

### History:

Native to southern Asia and Mascarene Islands.



# Web resources for weed control.

## Weeds of Hawaii Pastures

URL: <http://www.ctahr.hawaii.edu/invweed/weedsHi.html>



HOME | NREM | CTAHR | UH

Info for Homeowners

Info for Conservation

Info for Farmers

Info for Ranchers

Weeds of Hawaii

Videos

Links

### Contact CTAHR Scientists

Dr. James Leary

Dr. Joe DeFrank

Dr. Ted Radovich

### Weeds of Hawaii

Weeds of Hawaii's Pastures and Natural Areas; An Identification and Management Guide by P. Motooka, L. Castro, D. Nelson, G. Nagai, and L. Ching. ©2003, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa.



Available for sale from CTAHR, this book includes a quick visual key to help quickly identify weedy trees, shrubs, vines, herbs and grasses found in Hawaii. Individual fact sheets from the publication are available below (.pdf).

- *Abrus precatorius*, Precatory bean, black-eyed susan, bead vine, rosary pea
- *Acacia confusa*, Formosa koa, small Philippine acacia, yanangi (Belau)
- *Acacia farnesiana*, Klu, huisache
- *Acacia mearnsii*, Black wattle
- *Ageratina adenophora*, Maui pamakani
- *Ageratum conyzoides*, Tropic ageratum
- *Amaranthus spinosus*, Spiny amaranth, pigweed
- *Andropogon virginicus*, Broomsedge
- *Ardisia elliptica*, Shoebutton ardisia
- *Arthrostemma ciliatum*, Arthrostemma
- *Asclepias physocarpa*, Balloon plant
- *Asystasia gangetica*, Chinese violet, coromandel
- *Axonopus fissifolius*, Narrowleaved carpetgrass
- *Bambusa vulgaris*, Feathery bamboo, common bamboo
- *Batis maritima*, Pickle weed, akulikulikai
- *Bidens pilosa*, Hairy beggartick, Spanish needle
- *Blechnum occidentale*, Blechnum fern
- *Bocconia frutescens*, Bocconia, plume poppy, tree poppy
- *Boerhavia coccinea*, Red spiderling
- *Brachiaria mutica*, Paragrass, californiagrass, panicumgrass, buffalograss
- *Buddleia asiatica*, Dog tail, huelo ilio
- *Buddleia madagascariensis*, Smoke bush
- *Caesalpinia decapetala*, Catsdaw, popoki, wait-a-bit, Mysore thorn, puakelekino
- *Casuarina equisetifolia*, Ironwood, Australian pine, horsetail casuarina, coast she-oak, whistling pine, horsetail beefwood, Australian oak, swamp oak, toa (Samoa)
- *Cenchrus ciliaris*, Buffelgrass
- *Cenchrus echinatus*, Common sandbur

## Buddleia asiatica

### Dog tail, huelo 'ilio

*Buddleia asiatica* Lour.

Family: Buddleiaceae

**Description:** Shrub to 20 ft tall. Young stems hairy. Leaves opposite, alternate higher on the stem, 2–12 inches long by 3 inches wide, margins finely serrate. Flowers small, white or lavender, or greenish, in drooping tail-like inflorescence. Fruits are dry capsules, 0.2 inches long. Seeds tiny, winged on both ends. Genus named in honor of Rev. Adam Buddle, 17<sup>th</sup>–18<sup>th</sup> century English vicar and botanist<sup>(70)</sup>; *asiatica*, of Asia<sup>(69)</sup>.

**Distribution:** Native to south Asia, Taiwan, and Malaysia. Very common in mesic to wet pastures, forests, roadsides, and waste areas of O'ahu, Moloka'i, Maui, and Hawai'i up to 4000 ft elevation. Collected on O'ahu in 1908<sup>(70)</sup>.

**Environmental impact:** Invades disturbed areas of forests.



**Management:** Sensitive to glyphosate and hormone-type herbicides. Very sensitive to triclopyr ester applied to basal bark (10% product in oil) and triclopyr amine in foliar application at 2% product in water.



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## Web resources for Ag-crops weed control.

Greenbook.net for herbicide labels and safety info (<https://www.greenbook.net/>)



Q Search by label, manufacturer, ingredient, pest...



## Crop protection label data

Your complete crop protection reference

Q Search by label, manufacturer, ingredient, pest, crop, state...

- Filter results ×
- Active ingredient =
- Manufacturer =
- Pest =
- Crops =
- State =



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## Web resources for landscape weed control.

CDMS-easy location of pesticide labels - <http://www.cdms.net/>

**CDMS** | Applied Intelligence

HOME

SERVICES +

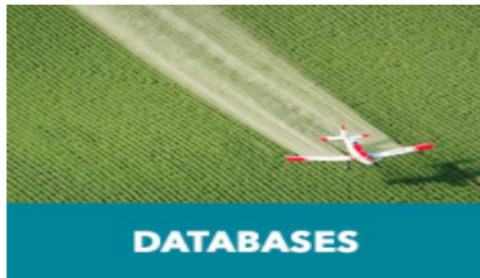
PRODUCT DATABASES +

CDMS INSIDE

CUSTOMER SERVICE


CONTACT US

Select "CDMS Advanced Search"



## Web resources for landscape weed control.

CDMS Adv. Search - <http://www.cdms.net/Label-Database/Advanced-Search>



SEARCH

Product Name

OR

Common Name

OR

Product Type

Crop

Pest 1

Pest 2

Manufacturer

State

Organic Products Only





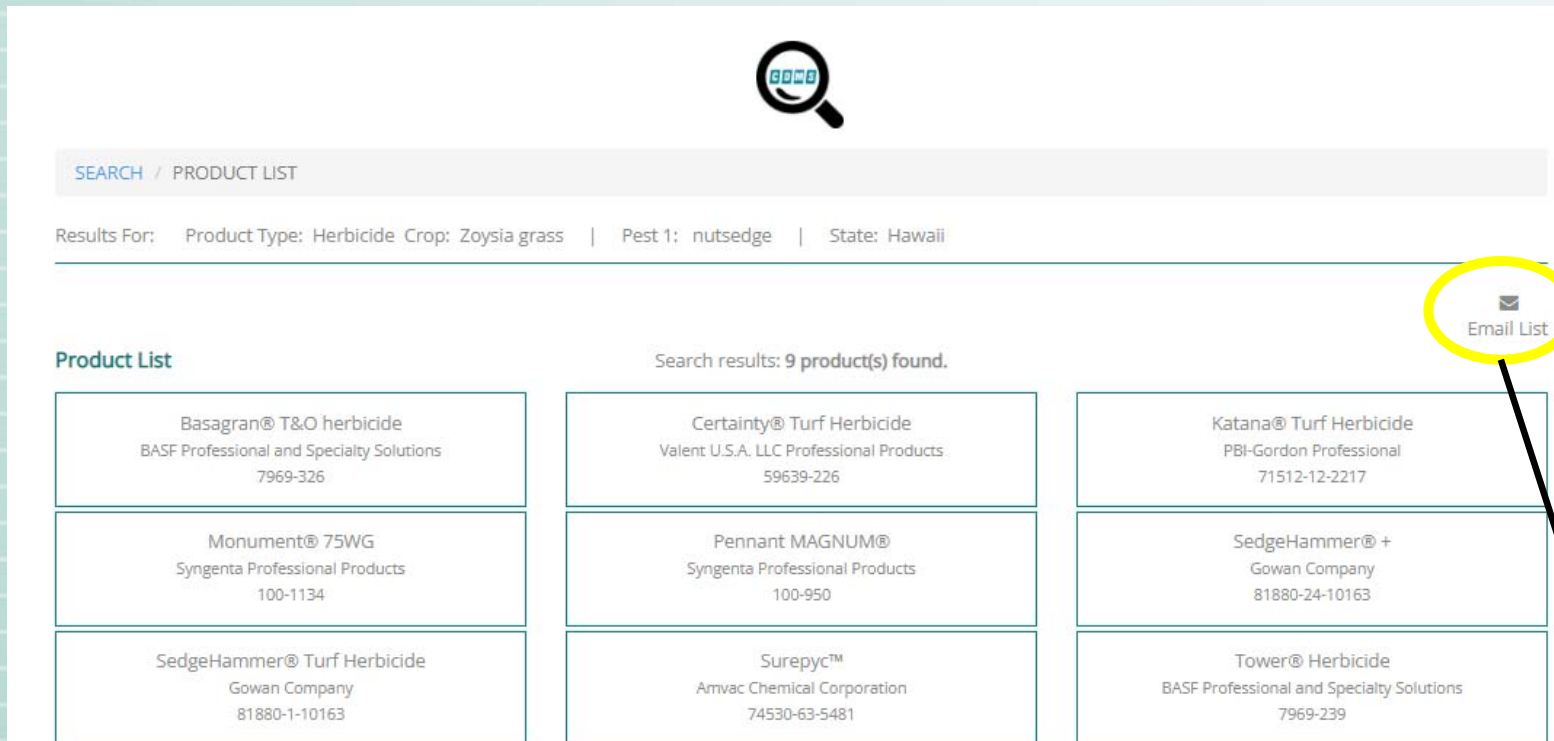
# Web resources for landscape weed control.

CDMS-easy location of pesticide labels - <http://www.cdms.net/>

Amur River Grape <input type="checkbox"/>	Annual Bluegrass <input type="checkbox"/>	Bahiagrass <input type="checkbox"/>
Barn Grass <input type="checkbox"/>	Beach Grass <input type="checkbox"/>	Bentgrass <input type="checkbox"/>
Bermudagrass <input type="checkbox"/>	Bluegrass <input type="checkbox"/>	Bromegrass <input type="checkbox"/>
Buffalograss <input type="checkbox"/>	Burmese Grape <input type="checkbox"/>	Canarygrass <input type="checkbox"/>
Carpetgrass <input type="checkbox"/>	Centipedegrass <input type="checkbox"/>	Cherry-Of-The-Rio-Grande <input type="checkbox"/>
Colonial Bentgrass <input type="checkbox"/>	Conservation Reserve Program (Crp) <input type="checkbox"/>	Fountain Grass <input type="checkbox"/>
Fragrant Manjack <input type="checkbox"/>	Fragrant Olive <input type="checkbox"/>	Fresh Grape <input type="checkbox"/>
Grain Amaranth <input type="checkbox"/>	Grain Lupine <input type="checkbox"/>	Grain Sorghum <input type="checkbox"/>
Grains Of Paradise <input type="checkbox"/>	Granadilla <input type="checkbox"/>	Grand Fir <input type="checkbox"/>
Grape Leaf Ivy <input type="checkbox"/>	Grapefruit <input type="checkbox"/>	Grass Forage/Hay <input type="checkbox"/>
Grasses <input type="checkbox"/>	Kentucky Bluegrass <input type="checkbox"/>	Kikuyugrass <input type="checkbox"/>
Lemongrass <input type="checkbox"/>	Mondograss <input type="checkbox"/>	Napier Grass <input type="checkbox"/>
Orchardgrass <input type="checkbox"/>	Oregon Grape <input type="checkbox"/>	Pampas Grass <input type="checkbox"/>
Pangola Grass <input type="checkbox"/>	Pomegranate <input type="checkbox"/>	Raisin Grape <input type="checkbox"/>
Rangegrass <input type="checkbox"/>	Red Top Grass <input type="checkbox"/>	Ribbon Grass <input type="checkbox"/>
Ryegrass <input type="checkbox"/>	Sea Grape <input type="checkbox"/>	St. Augustine Grass <input type="checkbox"/>
Star Grass <input type="checkbox"/>	Stored Grain <input type="checkbox"/>	Sudan Grass <input type="checkbox"/>
Switchgrass <input type="checkbox"/>	Tufted Hairgrass <input type="checkbox"/>	Turfgrass <input type="checkbox"/>
Wheatgrass <input type="checkbox"/>	Wine Grape <input type="checkbox"/>	Zoysia Grass <input checked="" type="checkbox"/>

# Web resources for landscape weed control.

## CDMS-easy location of pesticide labels - <http://www.cdms.net/>



The screenshot shows the CDMS website search results for herbicides in Hawaii. The search criteria are: Product Type: Herbicide, Crop: Zoysia grass, Pest 1: nutsedge, State: Hawaii. The results show 9 products found, displayed in a grid. A yellow circle highlights the 'Email List' button in the top right corner of the product list area.

SEARCH / PRODUCT LIST

Results For: Product Type: Herbicide Crop: Zoysia grass | Pest 1: nutsedge | State: Hawaii

**Product List**

Search results: 9 product(s) found.

Basagran® T&O herbicide BASF Professional and Specialty Solutions 7969-326	Certainty® Turf Herbicide Valent U.S.A. LLC Professional Products. 59639-226	Katana® Turf Herbicide PBI-Gordon Professional 71512-12-2217
Monument® 75WG Syngenta Professional Products 100-1134	Pennant MAGNUM® Syngenta Professional Products 100-950	SedgeHammer® + Gowan Company 81880-24-10163
SedgeHammer® Turf Herbicide Gowan Company 81880-1-10163	Surepvc™ Amvac Chemical Corporation 74530-63-5481	Tower® Herbicide BASF Professional and Specialty Solutions 7969-239

**Email List** [x]

To:



From:

Subject:



# Web resources for landscape weed control.

CDMS-easy location of pesticide labels - <http://www.cdms.net/>  
Search results can be sent to an email address

Zoysia herbicides for nutsedge (11/16/2021) External  

support@cdms.net  
to me ▾

2:06 PM (0 minutes ago)

Search Parameters:  
Product Type: Herbicide  
Crop: Zoysia Grass  
Pest1: nutsedge  
State: Hawaii

Product	EPA	Manufacturer	AI
Basagran® T&O herbicide	7969-326	BASF Professional and Specialty Solutions	Bentazon
Certainty® Turf Herbicide	59639-226	Valent U.S.A. LLC Professional Products	Sulfosulfuron
Katana® Turf Herbicide	71512-12-2217	PBI-Gordon Professional	Flazasulfuron
Monument® 75WG	100-1134	Syngenta Professional Products	Trifloxysulfuron-Sodium
Pennant MAGNUM®	100-950	Syngenta Professional Products	S-metolachlor
SedgeHammer® +	81880-24-10163	Gowan Company	Halosulfuron-methyl
SedgeHammer® Turf Herbicide	81880-1-10163	Gowan Company	Halosulfuron-methyl
Surepypc™	74530-63-5481	Amvac Chemical Corporation	Sulfentrazone
Tower® Herbicide	7969-239	BASF Professional and Specialty Solutions	Dimethenamid-P

\*\* Data supplied pursuant to the 'Terms of Use' at [www.cdms.net](http://www.cdms.net)



# Web resources for landscape weed control.

Bioadvanced – products for homeowners <https://www.bioadvanced.com/> )

The screenshot shows the BioAdvanced website interface. At the top, there is a navigation bar with the BioAdvanced logo, a search bar, and links for 'SHOP' and 'SOLUTION CENTER'. Below the navigation bar is a large banner image of a house with a porch and a tree with vibrant autumn foliage. To the left of the banner is a product image of a BioAdvanced 'Tree & Shrub Protect & Feed' container. Below the banner is the heading 'Advanced innovation' followed by seven category tiles: 'Lawn Care', 'Rose & Flower Care', 'Tree & Shrub Care', 'Insect & Pest Control', 'Weed, Grass & Brush Control', and 'Garden, Fruit & Citrus Care'. On the right side of the page is a 'Weed Kill List' sidebar with a search box and a list of weeds. 'Spotted Spurge' is selected with a blue checkmark. Below the list is a grid of product cards, each showing a product image, name, star rating, price, and an 'ADD TO CART' button. An arrow points from the 'Spotted Spurge' selection in the sidebar to the 'Lawn Care' tile and another arrow points from the same selection to a product card in the grid.

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SHOP SOLUTION CENTER

Search by Product, Keyword, or Problem

### Weed Kill List

Search

- Plantain
- Sandbur
- Sorrel
- Sowthistle
- Spotted Spurge
- Spurge
- Spurweed
- Thistle
- Virginia Creeper
- Wild Mustard

### Advanced innovation

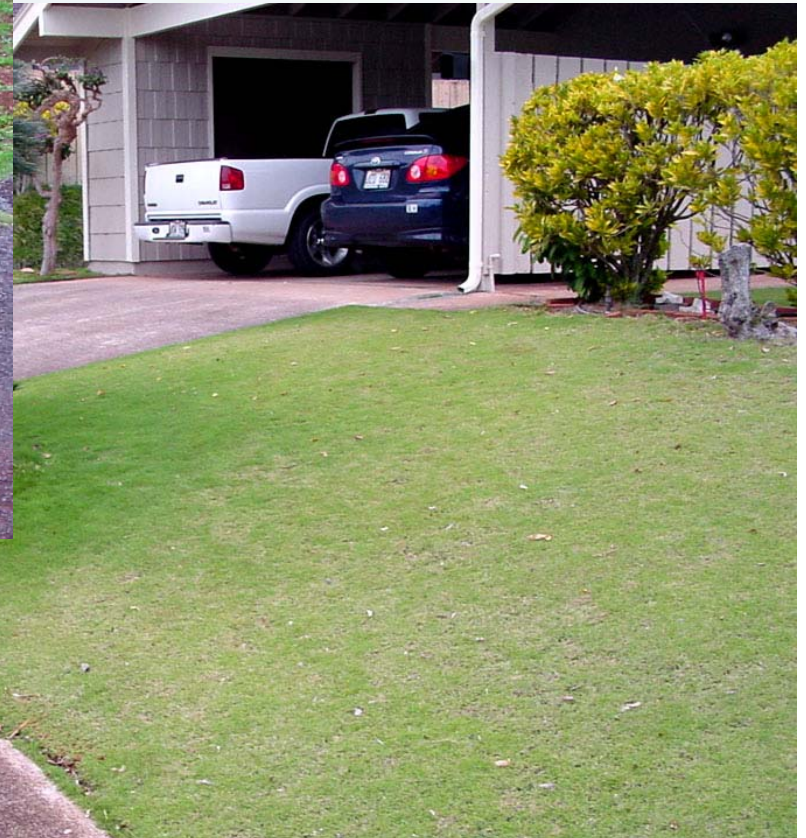
- Lawn Care**  
LEARN MORE
- Rose & Flower Care**  
LEARN MORE
- Tree & Shrub Care**  
LEARN MORE
- Insect & Pest Control**  
LEARN MORE
- Weed, Grass & Brush Control**  
LEARN MORE
- Garden, Fruit & Citrus Care**  
LEARN MORE

Product	Price	Rating	Action
8.4-in-One Lawn Weed & Crabgrass Killer Ready-To-Use	\$13.99	★★★★★	ADD TO CART
8.4-in-One Lawn Weed & Crabgrass Killer Ready-To-Use	\$21.99	★★★★★	ADD TO CART
8.4-in-One Lawn Weed & Crabgrass Killer Ready-To-Use	\$6.49	★★★★★	ADD TO CART
8.4-in-One Lawn Weed & Crabgrass Killer Concentrate	\$13.99	★★★★★	ADD TO CART
8.4-in-One Lawn Weed & Crabgrass Killer Ready-To-Use	\$13.99	★★★★★	ADD TO CART
Lawn Weed Killer-32 oz Concentrate	\$11.99	★★★★★	ADD TO CART
Lawn Weed Killer-32 oz Ready-To-Spray	\$11.99	★★★★★	ADD TO CART
Southern Weed Killer for Lawns Ready-To-Use-1 Gallon Bottle	\$11.99	★★★★★	ADD TO CART

# Factors for a healthy lawn

A healthy lawn is the best form of weed control

Automated irrigation essential to a healthy lawn



# Factors for a healthy lawn

## Proper growth:

- **Water - automated, amount, coverage**
- **Water quality - salty or fresh**
- **Light - full sun vs shade**



# Factors for a healthy lawn

Adaptions of Turfgrasses in Hawaii - 1998

<https://www.ctahr.hawaii.edu/oc/freepubs/pdf/TM-4.pdf>

## WATER QUALITY - SALTY OR FRESH

HIGHEST



SALT

LOWEST

seashore paspalum

St. Augustinegrass

*Zoysia japonica*

bermudagrasses

buffalograss

carpetgrass

*Zoysia matrella*

centipedegrass



# Factors for a healthy lawn

Adaptions of Turfgrasses in Hawaii - 1998

<https://www.ctahr.hawaii.edu/oc/freepubs/pdf/TM-4.pdf>

## LIGHT - FULL SUN VS SHADE

*HIGHEST*



**SHADE**

*LOWEST*

St. Augustinegrass

zoysiagrasses

carpetgrasssss

centipedegrass

seashore paspalum

bermudagrasses

buffalograss





# PROBLEM BROADLEAF WEEDS

**Legumes :creeping indigo, desmodiums, clovers**

**Spurges: prostrate, garden and graceful**

**Misc brd lf.: Amaranths, ground ivy, oxalis**





**Creeping indigo**  
*Indigofera spicata*

**Alyce Clover - *Alysicarpus vaginalis***



**Desmodium triflorum – beggar weed**





Yellow wood sorrel  
*Oxalis corniculata*





**Khaki weed**  
*Alternanthera pungens*



Graceful spurge *Euphorbia hypericifolia*

Garden spurge  
*Euphorbia hirta*

Prostrate spurge *Euphorbia prostrata*



**Ground ivy**  
*Glechoma hederacea*



## Commonly used Postemergence Broadleaf herbicides

# Confront

- Mixture of 2 herbicides, trade names of Lontrel and Turflon
- Use on Bermuda, zoysia grass and centipedegrass
- Seashore paspalum not on label
- User can determine suitability for species not on label
- Good activity on legume type weeds



## Commonly used Postemergence Broadleaf herbicides

# Trimec Southern

- Mixture of 3 herbicides, no MSMA
- Use on Bermuda, zoysia grass, St. Aug. & Centipedegrass
- Seashore paspalum not on label



## Commonly used Postemergence Broadleaf herbicides

# SpeedZone Southern

- Mixture of 4 herbicides, less 2,4-D for reduced injury to warm season turf
- Common and hybrid Bermuda, zoysia grass, Centipede, Kikuyugrass, Seashore paspalum and St. Aug. (see label for excluded cultivars)



## Commonly used Postemergence Broadleaf herbicides

# MSM Turf Herbicide

- Single product-metsulfuron methyl
- Use on Bermuda, St. Aug., zoysia grass and centipedegrass
- Seashore paspalum not on label
- Very good activity on sparges & oxalis.
- Controls Bahiagrass, a paspalum species related to Seashore



# Sedge Weeds in Hawaiian Landscapes

**Purple nutsedge**  
**Yellow nutsedge**  
**Green Kyllinga**  
**White Kyllinga**





## Purple Nutsedge

*Cyperus rotundus*

- Brown narrow spikes in flower head
- Tubers in chains
- Seed not viable
- Spreads by vegetative parts = tubers





**PURPLE NUTSEGE**

**Yellow Nutsedge** - *Cyperus esculentus*

- Yellowish-Brown or straw colored flower head
- Round tubers at the end of rhizomes, sweet
- Does not form chains, seed not viable
- Spreads by vegetative parts= tubers



# Yellow Nutsedge - *Cyperus esculentus*



A refreshing beverage is made by mixing the ground tubers with water, cinnamon, sugar, vanilla and ice. The ground up tuber can also be made into a plant milk with water, wheat and sugar. An edible oil is obtained from the tuber. It is considered to be a superior oil that compares favorably with olive oil. [Facciola. S. *Cornucopia - A Source Book of Edible Plants.*]







# White Kyllinga

- **White single round flower heads**
- **No tubers**
- **spreads by seed and underground stems**





**White kyllinga**  
*Kyllinga nemoralis*



# Green Kyllinga

- **Green single round/oval flower heads**
- **No tubers**
- **Spreads by seed and underground stems**



Green kyllinga – *Kyllinga brevifolia*









*Eleocharis* spp.



Forest and Kim Starr

**Commonly used herbicides for selective sedge control in turf**

**Sandea/SedgePro/SedgeHammer**  
**Certainty**  
**Monument**



## Commonly used Postemergence Sedge herbicides

# Sandea/Sedge Pro

- Single product
- Use on Bermuda, St. Aug., zoysia grass, centipede grass, Seashore paspalum and Kikuyugrass
- Primarily used for purple nutsedge
- Less effective on Kyllingas
- Little to no injury on turf – OK for residential use.



## Commonly used Postemergence Sedge herbicides

### Certainty

- Single product, very low use rate .25 – 2.0 dry oz/a
- Use on Bermuda, St. Aug., zoysia grass, centipedegrass, Seashore paspalum and Kikuyugrass
- Used for purple nutsedge and Kyllingias
- Controls some selected /grass & broadleaf weeds (Wth. Clover, Crowfoot Grass, Ground Ivy, Dandelion)
- Little to no injury on turf
- Root absorbed, citrus very sensitive be aware of tree roots, Residential OK.



## Commonly used Postemergence Sedge herbicides

# Monument

- Single product
- Use on Bermuda, zoysia grass, St. Augustine-sod production only.
- Controls sedges and selected grass and broadleaf weeds
- Suppression of Crab, Dallis and Torpedograss
- Controls Creeping Indigo, Khakiweed, Oxalis and Black medic
- OK for residential, sold in .5 gram pack (2gal/1000 ft<sup>2</sup>)
- With caution near tree roots.



# Grassy Weeds in Hawaiian Turf

**Australian Carpet Grass**

**Hilo Grass**

**Goose grass**

**Dallisgrass**

**Love grass**

**Henry's CG**

**Tropical Signal Grass**

**Star Grass**

**Smut grass**

**Pitted Beardgrass**

**Torpedo Grass**





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# Australian carpet grass

*Axonopus compressus*



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# Hilo grass

*Paspalum conjugatum*



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# Similar looking weedy grasses



**Hilo grass**

**A. Carpet grass**



# Goose grass

*Eleusine indica*



# Dallisgrass

*Paspalum dilatatum*





# Love grass

*Eragrostis amabilis*  
*Eragrostis tenella*



# Carolina Love grass

*Eragrostis pectinacea*



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# Henry's Crabgrass

*Digitaria ciliaris*



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# Tropical signal grass

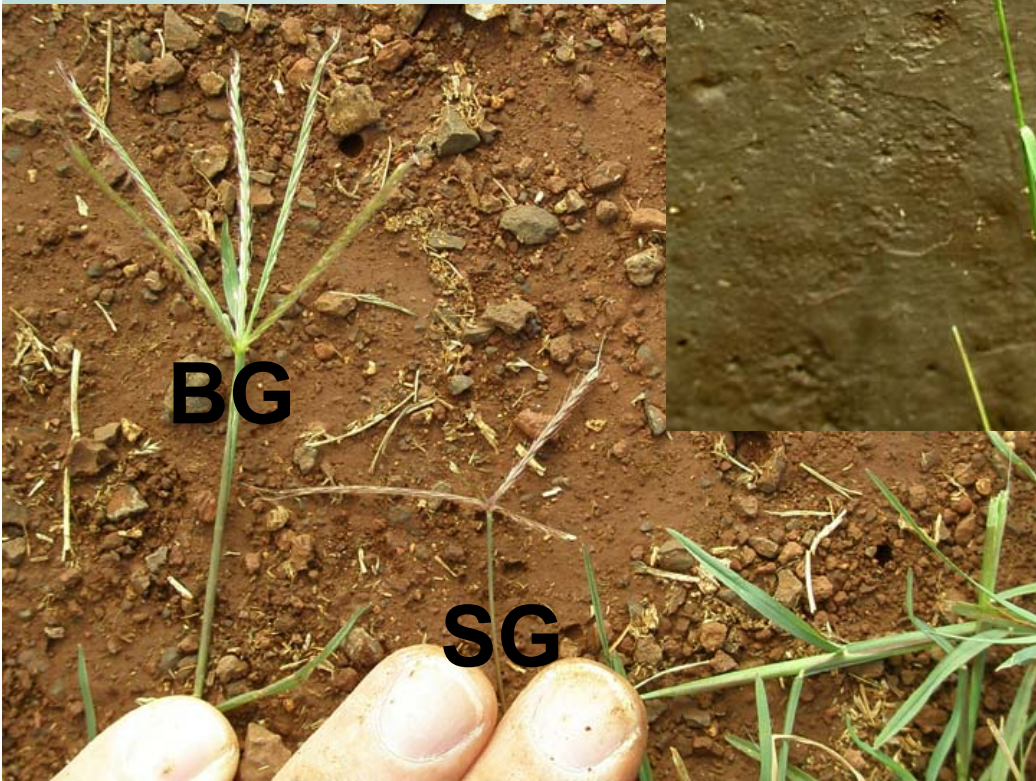
*Urochloa subquadriflora*



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# Star Grass

*Chloris divaricata*



# Star Grass





# Smutgrass

*Sporobolus indicus*



# Pitted beardgrass

*Bothriochloa pertusa*



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**Torpedo Grass**  
*Panicum repens*



# Commonly used herbicides for Post-emergence Grassy Weed in Bermuda (BG), Zoysia (Z) & Seashore Paspalum (SP)

1. MSMA – (MSMA 6.6, MSMA 6 PLUS & other names) BG, Z
2. Metribuzine (Sencor, Tricor) – BG, Z
3. Mesotrione (Tenacity) – BG, Z, SP
4. Topramezon (Pylex) – BG, Z, SP
5. Thiencarbazone, iodosulfuron, dicamba (Celsius WG) – BG, Z
6. Thiencarbazone + foramsulfuron + halosulfuron) (Tribute Total) BG, Z
7. Foramsulfuron (Revolver) BG, Z
8. Trifloxysulfuron (Monument) – BG, Z
9. Sulfentrazone (Dismiss) BG, Z, SP.
10. Pinoxaden (Manuscript) – BG, Z

**Comprehensive list of herbicides for weeds in turf, pastures, forest, most crops**

2022 North Carolina Agricultural Chemicals Manual

<https://content.ces.ncsu.edu/north-carolina-agricultural-chemicals-manual>



# Revolver for Goose grass control in Hawaii. A silver bullet that lost it's shine.



- Revolver (foramsulfuron) registered early part of 2003.
  - Marketed for Goose grass control with very good safety on named Bermuda Grass cultivars and Meyer Zoysia.
  - Label rate of 17.4 – 26.2 oz/a
- 
- Repeated Revolver application for 2 years at Maui golf course
  - Product failure on Goose Grass summer/fall 2005
  - No preemergence used to control seedlings of Goose Grass
  - UH tolerance study initiated 09/20/05



Fall- 2005



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# Revolver-Goose Grass Survival Mechanism

## Rooting At Nodes.

Large Goose grass survives Revolver Injury by rooting at stem node with main root mass dead!



# Combating Goose Grass Survival Mechanism

## Rooting At Nodes.

Goose grass survives Revolver Injury by rooting at stem node



Root pruning  
herbicide  
needed to stop  
roots from  
entering soil





## Summer of 2014 – Long term approach to large, well established Goose grass/Love grass control - Waipio Soccer Fields

1. Summer season starts with C19 foliar feed with Specticle Flo (3.5 dry oz./a)
2. 2 apps of Revolver + Celsius (R+C) tank mix applied 17-20 days apart.



- At 35-40 days after 2xs R+C - Old roots are dead
- New *root* growth from Goose and Love grass starts
- CUE to follow up w/spray using different mode of action, 83 DA-Specticle.



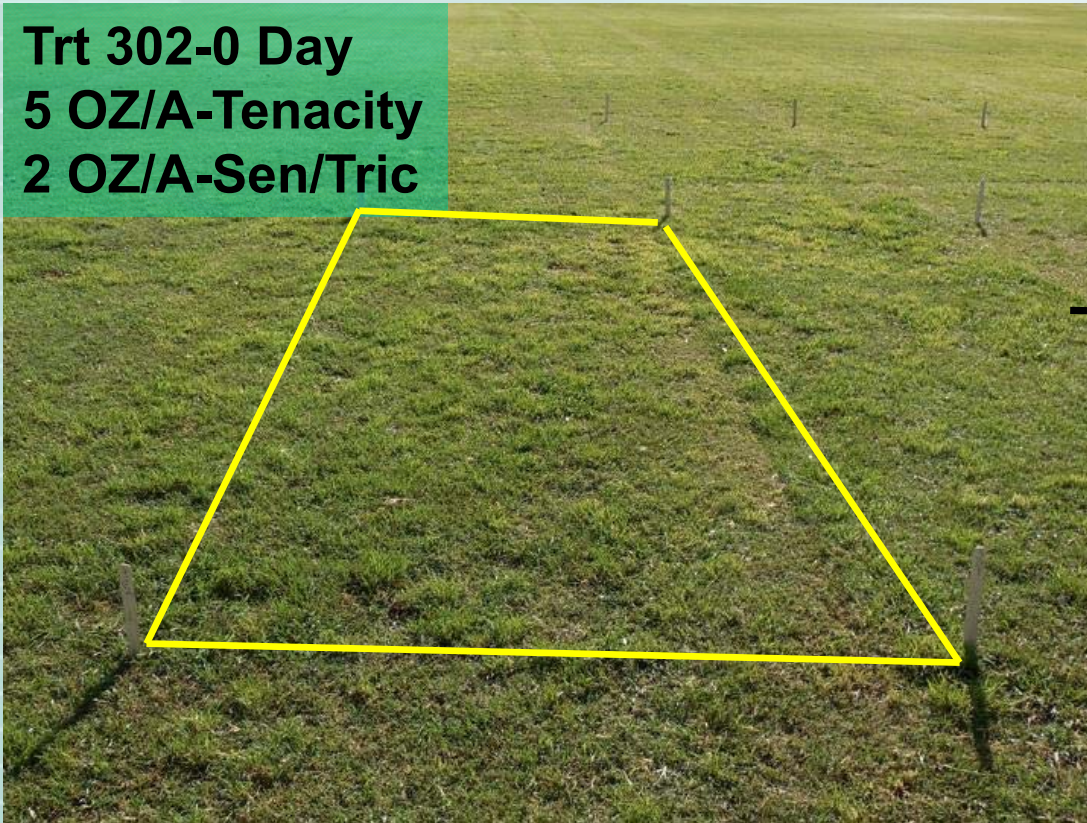
30-40 days after 2xs R+C



- **Compromised main roots cause flush of new roots at stem nodes. Monitor for this stage to start next phase of program.**
- **Specticle Flo below treated weeds prevents rooting.**
- **W/Pre in-place = wider window for post herbicide application and preemergence control of weed seed germination.**
- **Low dose Tenacity + Sencor/Tricor to complete weed control process after **setup** with Revolver + Celsius.**



**Trt 302-0 Day**  
**5 OZ/A-Tenacity**  
**2 OZ/A-Sen/Tric**



**54 days from start**

**2xs T + S/T**

**Trt 302-38 DAS2**  
**5 OZ/A-Tenacity**  
**2 OZ/A-Sen/Tric**

- Pre-treatment with Specticle
- 2 apps of Revolver + Celsius weakens Goose and Love grass
- 2 apps Low dose of Tenacity + Sencor/Tricor can finish the clean up.
- Alternating Mode Of Actions.
- 5 treatments total



## 2014- Putting it all together

To control Love and Goose grass in – HI, start-Spring/Summer  
Bermuda grass damage must be minimized

1. Starting in Apr.-Aug.
2. Foliar feed N and Specticle Flo (3.5 oz./a)
3. 40 days uniform irrigation & mowing.
4. Revolver (26 oz./a) + Celsius (3 dry-oz./a) + NIS .25%
5. 2 applications 21 days apart – see new leaf growth as cue for 2<sup>nd</sup> app.
6. See growth cue 35-40 DAS2 = new root growth.
7. Tenacity (5 oz./a) + Sen/Tric (2-4 oz./a) + NIS .25%.
8. Reapply Specticle prior to start of rainy season.

Sen/Tric: 2 apps per year no more than 2 lb./yr.; Tenacity: no more than 16 oz. per acre pre year



# Comprehensive list of herbicides for weeds in turf, pastures, forest, most crops

2022 North Carolina Agricultural Chemicals Manual

<https://content.ces.ncsu.edu/north-carolina-agricultural-chemicals-manual>

## Chemical Weed Control

Chapter VII—2021 N.C. Agricultural Chemicals Manual

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**Table 7-14. Chemical Weed Control in Lawns and Turf**

Herbicide and Formulation	Amount of Formulation Per 1,000 sq ft	Amount of Formulation per Acre	Pounds Active Ingredient per Acre	Precautions and Remarks
<b>Postemergence Control, Purple and Yellow Nutsedge, Kyllinga Species (continued)</b>				
MSMA, MOA 17 (6 SL, 6.6 SL)		several concentrations	2 to 3	See remarks for MSMA above. Will require at least 2 applications 7 to 10 days apart.
sulfosulfuron, MOA 2 (75 DG)	0.017 to 0.029 oz	0.75 to 1.25 oz	0.035 to 0.059	May be applied to certain ornamental native grasses and also bermudagrass species, zoysiagrass, centipedegrass, St. Augustinegrass, and kikuyugrass grown on sod farms, golf courses (excluding greens), commercial and residential turf that is highly managed, and other noncrop areas. Use 0.75 to 1.25 ounces per acre, and repeat in 4 to 10 weeks if needed. Use a nonionic surfactant at 0.25% by volume.

# Perennial Grassy Weeds in Bermuda grass

- Australian carpet grass (*Axonopus compressus*)
- Torpedo Grass (*Panicum repens*)
- Tropical Signal Grass (*Urochloa distachya/ Brachiaria subquadripara*)

**ENABELING SOIL CONDITION = HIGH TO EXCESSIVE SOIL MOISTURE**

**MUST BE ADDRESSED FOR LONG TERM CONTROL IN ALL TURF GRASS SETTINGS**



# Search: “Hawaii Weed Control”

<https://www.ctahr.hawaii.edu/deFrankJ/index.htm>

## 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 2015](#)

[TPSS 491/711 Digital Tools for Scientific Content Fall 2012](#)

[Establishing Native Plants on Hawaii's Roadways](#)



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STREAMING MEDIA CONTENT

FOR WEED CONTROL PRESENTATIONS

[Problem grassy weeds in Hawaiian Turf, 2022 HGCSA meeting, Hawaii \(posted 10/08/2022\).](#)



[Agricultural Spray Equipment, lecture for TPSS/PEPS 481 in fall of 2022 \(posted 10/08/2022\).](#)

[Nutsedge management in tropical crops and Turn The Page Farming: A no-till method for organic farmers. Lecture for Weed Science Lab PEPS/TPSS 481 Fall 2022.](#)

[What was \(2005\) and what's up now \(2022\): grassy weed control in Hawaiian turf \(posted 05/13/2022\)](#) also see an addendum to the original webinar posted on **07/10/2022.**

[Weed Control for warm season turf in Hawaii PEPS 421 \(posted 02/18/2022\)](#)

[Weed Control in Lawns, Landscapes and Turf Grass in Hawaii, Intro lecture for TPSS/PEPS 481.](#)

[Yellow and Purple Nutsedge Management and No-till farming for Organic Farmers \(posted 10/02/2021\)](#)

[UAS \(drones\) for Precision Agriculture \(posted 05/06/21\)](#)

[UH Turf/Landscape Webinar-Update on Grassy Weed Control in Bermuda sport turf. \(posted 04/26/21\)](#)

[Introduction to weed control in Hawaiian turf grass for PEPS-421 2021 \(posted 02/22/21\)](#)



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**Improved weed wick for  
fast growing weeds in new  
turf plantings**



# Factors for wiper applications

1. Pre application growth activation of weeds and turf.
2. Sufficient height difference between weeds & turf.
3. Glyphosate at 15-20% (20-25 oz/gal) for wiping weeds.
4. 2-3 day delay mowing and irrigation after app.





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# Hoakalei wiper cleanup of 8 acres



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