

Weed Control in Pastures

Brent Sellers UF-IFAS Range Cattle REC and Agronomy Department, Ona, FL



What is a weed?

- a plant out of place and not intentionally sown
- a plant growing where it is not wanted
- a plant whose virtues have not yet been discovered
- plants that are competitive, persistent, pernicious, and interfere negatively with human activity

Albany

Fix Points Prior to Application (7/8-7/29)

- Treated – 53% (250 fixes)
- Untreated – 47% (225 fixes)



©Dr. Kevin Bradley, University of Missouri

Albany

Fix Points for All 4 Months After Application

- Treated -72% (2,718 fixes)
- Untreated -28% 969 fixes



©Dr. Kevin Bradley, University of Missouri

Grazing Interference



Grazing Interference



Grazing Interference

UF UNIVERSITY OF FLORIDA



Grazing Interference

UF UNIVERSITY OF FLORIDA



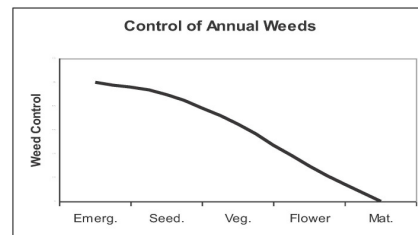
Methods to Weed Management

UF UNIVERSITY OF FLORIDA

- Preventative
- Cultural
- Chemical
- Biological
- Mechanical

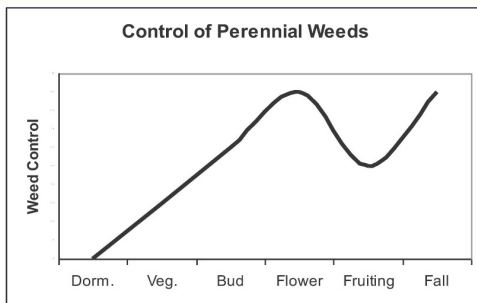
Control of Annual Weeds

UF UNIVERSITY OF FLORIDA



Control of Perennial Weeds

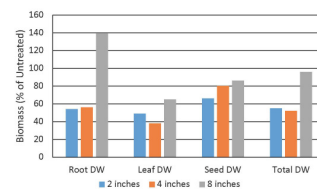
UF UNIVERSITY OF FLORIDA



Impact of Mowing on Weeds-Annuals

UF UNIVERSITY OF FLORIDA

- Broadleaf weeds
 - Releases apical dominance – lateral shoot production
 - Regrowth depends on clipping height



Coffee Weed Example



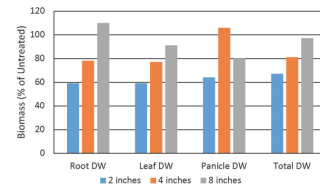
- 4,000 A ranch in Dade City
- Client observed calves losing weight August & September
- Chemical rep informed producer of creeping indigo
- Creeping indigo not found, but coffee weeds prevalent
 - Mow pastures 3 to 4 times/year
 - Plants <8 inches had seed pods
- Advice in this case
 - Park the mower
 - Use GrazonNext HL
 - 24 oz/A
 - 16 oz/A fb 16 oz/A



Impact of Mowing – Annual Weeds



- Grasses
 - Generally results in increased tillers
 - Clipping height doesn't always matter (changes growth pattern)



Impact of Mowing - Perennials



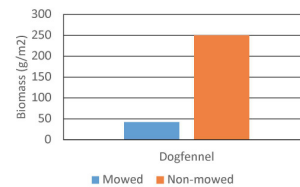
- One mowing is typically not enough, BUT may be species & timing dependent
- Timed appropriately, will reduce seed production for the year
- Simple vs creeping perennials
- Several times to reduce carbohydrate reserves



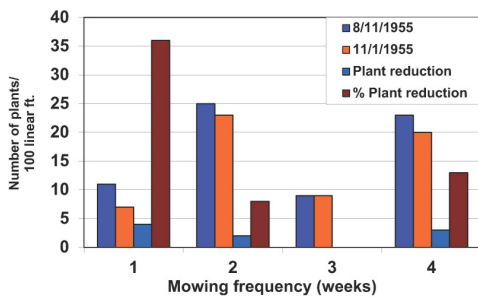
Impact of Mowing - Dogfennel



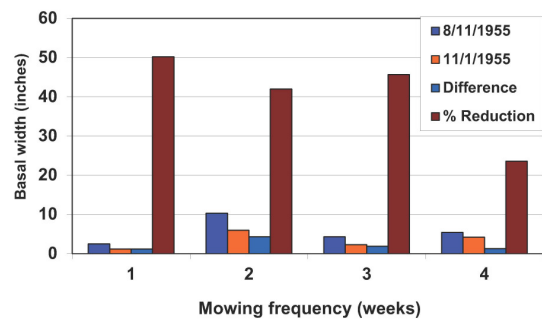
- Prevent seed production by mowing August or later, but before flowering
- New moon vs. full moon?



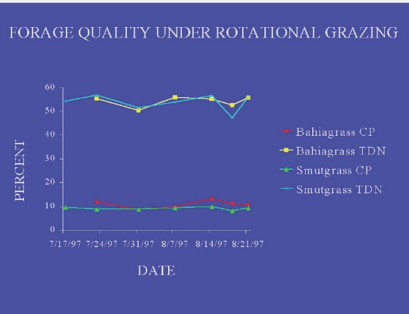
Impact of Mowing-Small Smutgrass



Impact of Mowing-Small Smutgrass



Smutgrass Forage Quality



Cogongrass CP after burning

Weeks after burning	Crude protein (%)
2	10
3	8
4	7
5	6
6	6
7	6
8	4
9	4
10	4



Benefits of Mowing

- Increase forage quality of rank grass
 - Bahiagrass
 - Smutgrass
 - Cogongrass

Days of Bahia Regrowth	Crude Protein (%)
14	17
28	10
42	7
56	6

- Decrease grazing patterns

Grazing Patterns



Disadvantages of Mowing

- Annuals – seed spread, purely cosmetic
- Can impact grass persistence (except bahiagrass)
- Potential weed shifts
 - Shift from mowing-susceptible to mowing-tolerant species
- Cost

Costs



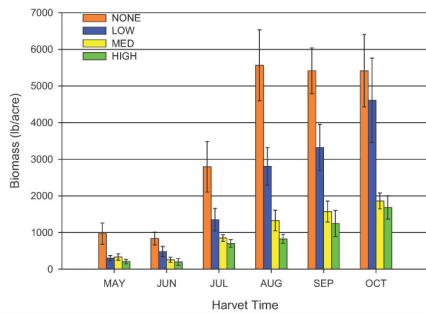
- Batwing, 125 hp tractor = \$22.50/A

Chemical	Cost for Total Acres 75 HP 25ft BL Sprayer	Cost for Total Acres 75 HP 40ft BL Sprayer
Grazon Next HL	\$ 13.55	\$ 13.32
2,4-D	\$ 11.50	\$ 11.27
Milestone	\$ 11.35	\$ 11.12
Banvel	\$ 20.05	\$ 19.82
PastureGard HL	\$ 21.55	\$ 21.32
Remedy Ultra	\$ 23.55	\$ 23.32
RoundUp	\$ 5.13	\$ 4.90
Velpar	\$ 40.30	\$ 40.07
WeedMaster	\$ 13.55	\$ 13.32

How Does This Affect Bahia Yield?



Monthly Bahia Yield



Blackberry Species in Florida



highbush blackberry
Rubus argutus



sand blackberry
Rubus cuneifolius

Thistle Growth Stages



Rosette



Bolting

Flattop Goldenrod



Tropical Soda Apple

UF UNIVERSITY OF FLORIDA



Goatweed

UF UNIVERSITY OF FLORIDA



Teaweeds

UF UNIVERSITY OF FLORIDA



White Head Broom

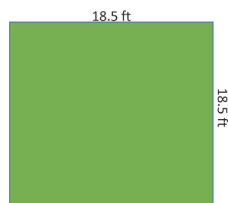
UF UNIVERSITY OF FLORIDA



Hand Sprayers

UF UNIVERSITY OF FLORIDA

- Calibration area = 18.5 x 18.5 ft
- Spray area uniformly with clean water and record time
- Spray water into clean bucket for the amount of time it took to spray calibration plot
- Measure the amount of water in the bucket in ounces; this equals sprayer output in gallons per acre
- Determine tank volume (gallons)
- Divide tank volume by output = number of acres treated per tank
- Multiply herbicide application rate times number of acres treated per tank

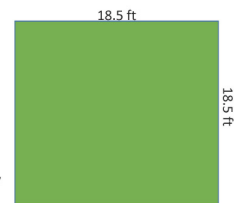


<https://edis.ifas.ufl.edu/wg217>

Hand Sprayers - Example

UF UNIVERSITY OF FLORIDA

- Calibration area = 18.5 x 18.5 ft
- 45 seconds to spray
- Amount of water in bucket = 78 oz; this equals 78 GPA
- My tank holds 5 gallons of water
- 5 gal/78 GPA = 0.064 Acres
- 24 oz/A GrazonNext HL X 0.064 A = 1.54 oz GrazonNext HL should be added to my tank = 46 ml or 46 cc



<https://edis.ifas.ufl.edu/wg217>

Table



Step 1	Measure a calibration plot that is exactly 18.5 feet by 18.5 feet.		
Step 2	Spray the calibration plot uniformly with water. Repeat 3 times and record the average number of seconds needed to spray the entire plot.	Time Required	___ seconds
Step 3	Spray into a clean bucket for the amount of time recorded in Step 2.		
Step 4	Measure the number of ounces of water in the bucket.	Volume Sprayed	___ Ounces
Step 5	The number of ounces collected from the bucket is equal to the number of gallons per acre the sprayer is delivering.	Output Volume	___ Gallons/Acre
Step 6	Determine the volume of the spray tank.	Tank Volume	___ gallons
Step 7	Divide tank volume (Step 6) by output volume (Step 5).		___ Acres/tank
Step 8	Multiply herbicide rate by number of acres per tank to obtain amount of herbicides to be added to tank.		___ Amount of herbicide to be added to tank

Broadcast Sprayers



1/128th Acre Method



- Based on 128 fl oz/gallon
- 1/128th of an acre = 340 ft²
- Determine how long (seconds) it takes one nozzle to cover 1/128th of an acre
- The number of ounces from a nozzle in that number of seconds = gallons per acre!
- Almost no math!!!!

1/128th Acre Method



- Example: 20 inch nozzle spacing
- 20 inches = 1.67 ft
- DISTANCE (ft) = 340 ft²/nozzle spacing (ft)
- 340 ft²/1.67 ft = 204 ft
- So, one nozzle covers 1/128th of an acre in 204 ft

1/128th Acre Method



- Say it takes 29 seconds to spray 204 ft
- Nozzle discharge in 29 seconds = 19.8 oz
- = 19.8 GPA!

Boomless sprayers



- Same principles involved
- Measure output of all nozzles
- Measure swath width; I usually subtract about 5 feet from total spray swath to have some overlap
- Measure time it takes to travel a desired distance (usually 100 ft or so)



Boomless sprayers



- Swath width = 30 ft
- Distance traveled = 100 ft
 - $3,000 \text{ ft}^2 / 43,560 \text{ ft}^2 = 0.07 \text{ Acres}$
- 50 seconds to travel 100 ft
- Collected 224 oz of water in 50 seconds from all nozzles
- $224 \text{ oz} / 128 \text{ oz} = 1.75 \text{ gallons}$
- $1.75 \text{ gallons} / 0.07 \text{ Acres} = 25 \text{ GPA}$
- Tank volume/GPA = # of acres/tank



Pasture Management



- Check soil pH
 - Bahiagrass = 5.5
 - Bermudagrass = 6.5
- Fertility
 - Soil test
 - Tissue test (bahiagrass)
- Grazing Management

Grazing Management



- 1,000 lb horse consumes 1.5-2.5% of its weight/day
- 1 horse per 2 – 2 ½ acres
 - Depends on supplementation
 - Rotational grazing: Give pastures a rest
 - Try to keep stubble height at a minimum of 3"

Source: edis.ifas.ufl.edu/aa216

More Information



- weedext.ifas.ufl.edu (uflweed.com)
- sellersb@ufl.edu