

UF UNIVERSITY OF FLORIDA

# Broomsedge Management in Bahiagrass Pastures

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## Broomsedge

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- Tufted perennials
- 3 to 5 yrs
- ~18 species present
- Extremely evident this time of year



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## What's in a Name?

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## Previous Research



- Broomsedge disappeared from NPK fertilized fescue plots over a 5-yr period (Peters and Lowance 1974)
- Tillage (3" depth) + 100 lb N/A decreased broomsedge density in bermudagrass
- Most research has indicated that broomsedge infestation is a result of low fertility
- Many have implicated soil pH

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## Broomsedge



- Soil pH is not necessarily the reason

Location	pH	P	Cu	Zn
			-----ppm-----	
Hardee	5.9	42	0	1.46
Polk	5.1	1	0	0.74
Polk**	6.0	105	1.37	19.39
Polk	4.5	3	0	7.34
Okeechobee	5.4	0	0	3.38
Highlands	4.1	2	0	3.97
Manatee	5.6	0	0	0.43
Ona	4.3	2	0	0.95
Glades	5.8	0	0	6.55
DeSoto	7.8	40	0	0.54

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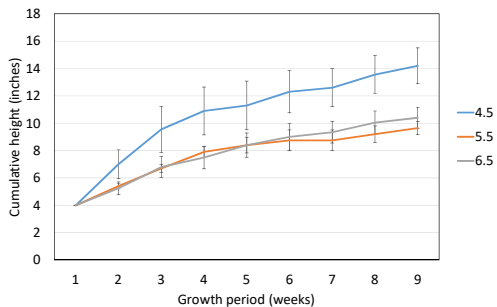
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## Cumulative Purple Bluestem Height



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## Circumstantial Evidence



- Optimize soil pH
- Does P have a role?
- Does Cu have a role?
- Does something else have a role?

Location	pH	P	Cu	Zn
		-----ppm-----		
Hardee	5.9	42	0	1.46
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## Methods



- 3 locations
  - Ona (2012)
  - Arcadia (2012)
  - St. Cloud (2013)
- Annual application
  - 10-5-10
  - Frit 503-G (micros)
- Broomsedge counts annually
- Soil and tissue samples - fall

Rep 4	0Lime	0NPK	0Lime	0Lime	Lime	Lime	0Lime	Lime	0Lime
	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro
Rep 3	0Lime	0NPK	0Lime	0Lime	0Lime	0Lime	0Lime	0Lime	0Lime
	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro
Rep 2	0Lime	0NPK	0Lime	0Lime	0Lime	0Lime	0Lime	0Lime	0Lime
	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro
Rep 1	0Lime	0NPK	0Lime	0Lime	0Lime	0Lime	0Lime	0Lime	0Lime
	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro	Micro

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## Methods – Location Information



Location	Soil pH	P	K	Mg	Ca	Cu	Mn	Zn	Species
		-----PPM-----							
Arcadia	7.7	13	10	69	1879	0	2	2	Bushy bluestem
Ona	4.3	2	19	24	116	0	0	0	Purple bluestem
St. Cloud	5.5	2	22	44	281	0	0	0	Broomsedge bluestem

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## Plot Layout



	0Lime 0NPK	Lime 0NPK	0Lime NPK	Lime NPK	0Lime 0NPK	0Lime 0NPK	Lime NPK	0Lime NPK
Rep 4	Micro	0Micro	Micro	0Micro	Micro	0Micro	Micro	0Micro
	0Lime NPK	Lime 0NPK	0Lime NPK	Lime NPK	0Lime 0NPK	0Lime NPK	Lime 0NPK	0Lime NPK
Rep 3	0Micro	Micro	0Micro	Micro	0Micro	Micro	0Micro	0Micro
	0Lime NPK	0Lime 0NPK	0Lime NPK	0Lime NPK	Lime NPK	Lime 0NPK	Lime NPK	Lime 0NPK
Rep 2	Micro	0Micro	0Micro	0Micro	Micro	0Micro	0Micro	Micro
	Lime NPK	0Lime NPK	0Lime NPK	Lime NPK	0Lime NPK	0Lime NPK	Lime 0NPK	Lime 0NPK
Rep 1	Micro	Micro	Micro	Micro	0Micro	0Micro	0Micro	0Micro

- Ona = Lime (2012, 2018); Arcadia = S; St. Cloud = None

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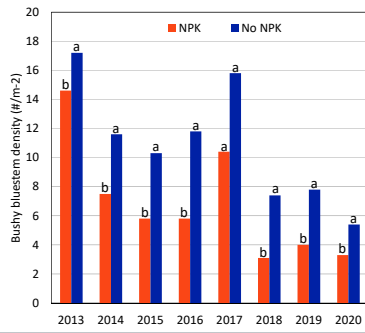
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## Results - Arcadia



- NPK response
- No response:
  - S
  - Micros




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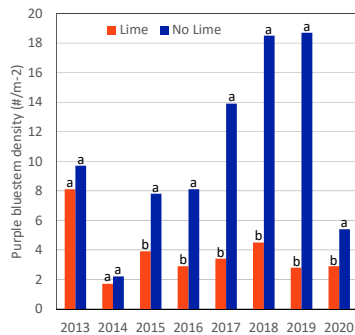
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## Results - Ona



- Lime response
- No response:
  - NPK
  - Micros




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## Macronutrient Study - 2017



- Lime applied as needed
- Rates:
  - N – 50 lb/A
  - P – 25 lb/A
  - K – 50 lb/A
- Locations
  - Ona
  - Buck Island

	N+P	UNT	P	N+K	K	N+P+K	N	P+K
Rep 1								
Rep 2								
Rep 3								
Rep 4								

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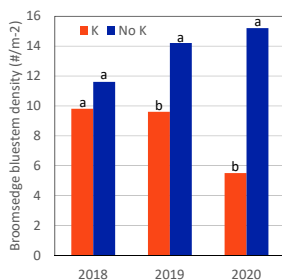
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## Results – Buck Island



- K response
- No response:
  - P
  - N




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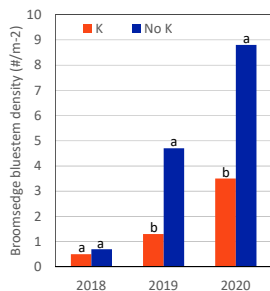
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## Results - Ona



- K response
- No response:
  - P
  - N
- Hexazinone




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## Discussion



- St. Cloud location: why no impact?
- Why is P having an impact in other states, but not here?
- Liming: soil test first!
- Multi-pronged approach:
  - Fertility
  - Defoliation
  - Tillage
  - Herbicide (spot-treat or wiping)

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## Using a Wiper



- Usually a 10% v/v solution (glyphosate)
- Wipe in two directions
- Practice makes perfect
  - Use of foam marker solution?



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## Wiping Broomsedge



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## Wiping Broomsedge – 2 years



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## Summary



- In some aspects, increasing soil fertility will help
- This approach will take years
- Wiping is an alternative
- More research
  - Roller chopping followed by fertilization?
  - Multiple mowing cycles?
  - Increased grazing pressure?

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## Questions



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