Native Grass Establishment: Site Selection and Advanced Weed Control



USDA CARE In-service Training Lewisburg, TN - August 8, 2017

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Site Selection

Natives, are "native" to our region, and can do well on a wide variety of sites/conditions, depending on species and variety:

- >Wet-natured = switch or gama, maybe big blue
- >Well-drained, productive = any will be fine
- ➢Poor = OK, except gama
- Very poor = little blue







Species/Variety Selection

Switchgrass: Alamo (TN and south); Cave-in-Rock is best upland variety

High CC, >drought tolerance, good animal performance (growing animals or dry cows); most resilient to poor management

E. Gamagrass: Pete/luka (upland; <yield, >cattle preference); Highlander (lowland; >yield, <cattle acceptance)</p>

High CC, >drought tolerance, fair animal performance (bred heifers or dry cows); very responsive to N





Species/Variety Selection II

Big Bluestem: KY Ecotypes (>yield), OZ-70 & Rountree (>establishment)

Iower CC & drought tolerance, >>animal preference & performance (growing animals); least resilient to poor management

Little bluestem: Aldous, others

Lowest CC, >>animal preference & performance (growing animals); least resilient to poor management

>Indiangrass: Americus (availability?), Rumsey, KY Eco.

Intermediate CC, lower drought tolerance, excellent animal performance (growing animals); more resilient to poor management





Field Selection

- Soybeans/small grains = best situation
- New ground = also very good
- >Corn = good situation
- Hayfields = many potential weeds
- Pasture = Pandora's Box!
- Bermuda = special case, tough to control





It's "the Competition, Stupid"

THE issue for successful establishment of natives!

- Warm-season perennials
- Cool-season perennials
- Annual grasses
- Advanced weed control is THE solution
 - \succ site selection, crop history both play a role...





Competition Control

Start Early!!!

>Warm-season perennials control Aug – Sept

- broomsedge, johnsongrass, dallisgrass

≻Cool-season perennials control Oct – Nov

-fescue, orchardgrass

- >2 qts glyphosate or up to 16 oz clethodim
- Need follow-up treatments to control other weeds released by spraying sod





Competition Control - Bermuda

Few options once native grasses are planted, critical to thoroughly control ahead of time!!

Spray initially in August

- 4 qts glyphosate could tank mix 8 oz clethodim
- Spray again Oct Nov, pre-dormancy
 - 4 qts glyphosate

Spray third time in spring (>spring dormancy break, ~ mid-May)





Competition Control (cont)

Summer annual grasses are a huge problem in switchgrass and gamagrass

Delay planting until initial flush of crabgrass, goosegrass, signalgrass

- Disc or spray (2-3X)
- Probably mid- to late-June (soil moisture)





Herbicides at Planting

≻Big blue, indiangrass, little blue

-Impazapic (Plateau @ 4 - 6 oz/ac, Journey 12 - 18 oz/ac)

-10+ oz/ac = stress or dead seedlings

- Switch and gama = virtually no lableled options
- Good seedbed/comp control is important <u>ahead of</u> <u>time!!</u>





Herbicides at Planting







ney 12 - 18

<u>ahead of</u>

otions

Herbicides at Planting

Spray pattern is important with imazapic

➢avoid 2X rates, avoid skips

>Boomless sprayers???







Winter Annuals?

Could consider winter annuals to:
1) smother grass seedlings
2) reduce nitrogen levels in soil
3) minimize erosion threat, and
4) provide forage





Dormant-season Planting

Springfield

Knoxville







Keyser et al., 2016. Crop Science 56:1-10

Dormant-season Planting



No difference in planting dates (March = April = June)



Keyser et al., 2016. Crop Science 56:2062-2071



Field Study

Preliminary results (2016) – browntop millet nurse crop



-millet reduced weed pressure, but provided excessive competition to native grass seedlings

- study being repeated in 2017





Fertility Management

No N in year of establishment
-Feeds weeds more than seedlings
P & K at least above "Low" soil test
>pH >5.2

Est. typically easier on poorer sites (competition)





Too Many Weeds – But still a Stand...



Rainfall – the Other Big Issue

Two mid-April plantings, 2016

Pictures taken June 7, 2016









Batesville, AR



April 2014 planting; courtesy John Jennings, UA Extension





Summary

Pay attention to detail:

- Select sites that have low weed pressure
- ≻Match species to site
- Employ agressive, advanced, competition control
- Manage first year weed pressure
- >Plan for production in year two (limit)





Take Homes:

- With good attention to weed control, we can achieve >85% success rate on first attempt at establishment
- Second-year production is a reasonable goal
- We must quit sending the message that this is "almost impossible" and/or takes "3-5 years"!!!!





Questions?

Planted April 20, 2012, @ 10 PLS lb/ac BB (6)/IG(3)/LB(1); picture taken Sept 28, 2012





Native Grass Establishment: Seedling Year Weed Management



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First Year Management

Native grass seedlings are typically very small for 6-8 weeks post planting, therefore:

- Must keep weed can (key is sunlight, not r
- As long as seedlings compete...



seedlings

by, they can





First Year Management

Managing weed pressure:

Clipping ABOVE seedlings will often be fine

May need to clip 1-3X June - early August

Do not worry about competition after mid- to late-August







Other Alternatives

➤Harvest hay (cut high, 1X only)

➢Graze (palatable "weeds" only – crabgrass, johnsongrass)









Seedling Year Herbicides

➤ imazapic 4-5 oz/ac PRE

> can re-apply >4 leaf stage (<12 oz/ac for season)

> 2,4-D >4-leaf stage (in emergency, >2-leaf)

reduces/eliminates subsequent germination

- > metsulfuron/chlorsulfuron (Cimarron Plus) >4-leaf
- ≻dicamba (Brash) > 4-leaf
- >aminopyralid (GrazonNext HL), triclopyr (PastureGard) – NOT unless seedlings very large









Plant Population Must Be There...

Seedlings not started in first year (first 6-8 weeks), not likely to be there later...







Yield vs. Density (2nd year stand)







Keyser et al., 2016. Crop Science 56:1-10

Second-year Harvests

June harvest yields in year three based on second-year harvest frequency



Questions?



Alamo switchgrass planted June 1996 (21-year old stand), Charlotte Co., VA; picture taken July 18, 2017 at 3 PM, 92°; ~250 momma cows...



