Native Grass Establishment: Site Selection and Advanced Weed Control

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P. Keyser
Center for Native Grasslands Management and UT Beef and Forage Center
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/Iuka (upland; <yield, >cattle preference); Highlander (lowland; >yield, <cattle acceptance)
  - 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)
  - lower 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

- **Indianagrass:** 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
  - 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)**
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 labeled options
- Good seedbed/comp control is important – ahead of time!!
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Herbicides at Planting

- Spray pattern is important with imazapic
  - avoid 2X rates, avoid skips
- Boomless sprayers???
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
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

August 11, 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 aggressive, 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
First Year Management

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

- Must keep weed canopy from over-topping seedlings. (key is sunlight, not moisture)
- As long as seedlings are at or above canopy, they can compete...
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
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Once they have tillered, seedlings are much more tolerant of herbicides
Plant Population Must Be There...

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

Planted June 19, 2008
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

J. Shultz MS Thesis data, 2013
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...