Dealing with Johnsongrass, Sericea, and Other Problem Weeds

Sarah Kenyon
University of Missouri Extension
Agronomy Specialist
417-256-2391
Kenyons@missouri.edu
**Johnsongrass**
*Sorghum halepense*

- Perennial that grows 6-8 ft tall
- Warm season grass
- Prolific rhizome producer
- Introduced as a forage from Turkey into S. Carolina about 1830
  - William Johnson – Farmer propagated it in Alabama about 1840
Johnsongrass
*Sorghum halepense*

**The Good**
- Quality
- Tonnage
- Persistence
- Drought Tolerance

**The Bad**
- Invasive
- Fast growing
- Difficult to Control

**The Ugly**
- Prussic Acid
- Nitrate Toxicity
### Johnsongrass - The Good

<table>
<thead>
<tr>
<th>Forage</th>
<th>Yield Range Ton/Acre</th>
<th>Crude Protein %</th>
<th>TDN %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnsongrass</td>
<td>2-5</td>
<td>10-14</td>
<td>55-60</td>
</tr>
<tr>
<td>Pearl Millet</td>
<td>2-6</td>
<td>8-12</td>
<td>50-58</td>
</tr>
<tr>
<td>Tall Fescue</td>
<td>2-5</td>
<td>10-15</td>
<td>55-60</td>
</tr>
<tr>
<td>Hybrid Bermuda</td>
<td>5-8</td>
<td>10-14</td>
<td>55-60</td>
</tr>
</tbody>
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Source: Ball et al., 2007  Southern Forages, 4th Edition
• Noble Foundation, Ardmore OK
• Palatability Study (1999-2001)
  – Averaged 11.6% Crude Protein; 58% TDN
  – Among 16 grasses studied, Johnsongrass ranked 1\textsuperscript{st} for CP and 2\textsuperscript{nd} for TDN, slightly lower than bermudagrass
• Grazing Preference During AM Grazing (2007)
  – Yearling steers had access to 14 species
  – 1\textsuperscript{st} Place - 9,200 bites from Alamo Switchgrass
  – 2\textsuperscript{nd} Place - 6,000 bites from Johnsongrass
Invasive/ Fast Growing/ Difficult to Control

- Reproduces from seed and rhizomes
- Rhizomes have been found 5 ft deep
- Rhizomes can develop within 19 days of seedling emergence
- 275 ft of rhizomes from one plant
- 80,000 seeds from one plant that can remain viable for 10 years
- Robs desirable species of light, nutrients and water
Johnsongrass
The Ugly

- Prussic Acid
- Nitrate Toxicity
**Johnsongrass: The Ugly**

- **Prussic Acid**
  - Caused by cyanide in immature or frost damaged leaves
    - Avoid grazing until plant reaches 24”, especially during dry weather
    - Avoid for 14 days after killing frost
  - Present only in Johnsongrass and some sorghum lines
  - No problem for pearl millet
  - Not an issue in cured hay

- **Nitrate Toxicity**
  - Accumulates in lower stalks during dry weather or high rates of N fertilizer
  - Can test if grazing safety is a concern
  - Present mainly in sorghums, millets and Johnsongrass
  - Remains toxic in hay
  - Dissipates around 50% in silage
Johnsongrass Control Options

• Heavy Grazing / Low Mowing
  – Reduced seed production
  – Depletes carbohydrates in rootstocks
    • The growing point sits 4-8” above ground; Rhizome development reduced if plant height is kept below 12-15”
Johnsongrass Control Options

- Weed Wiper, Spot Treatment, or Full Renovation using Glyphosate
  - Effective but will not eliminate it with one pass.
- Herbicide (expect stunting)
  - Bermudagrass, Native Grass, Fescue
    - Outrider ($sulfosulfuron$)
  - Bermudagrass
    - Pastora ($nicosulfuron$)
  - Bermudagrass, Native Grass
    - Panoramic / Impose ($imazapic$)
Johnsongrass Control Options

• Rotation to Roundup-Ready Corn, Soybean, or Alfalfa
• Poast Plus, Assure II, Select & Fusilade in Soybeans
• Select in Alfalfa
• Accent & Beacon in Corn
• Ignite on Liberty-Link Corn
• Lightning on Clearfield Corn
• “When life gives you lemons, make lemonade”

• Grazing Management
  – Graze at 12-18”
  – Pull off at 6-8”
  – Good grazing or an occasional clipping can keep seed from developing

• Hay Management
  – Harvest in the boot stage or before
  – A hay conditioner is necessary

• Be cautious of nitrate rates (40-50 lbs max.)
Sericea Lespedeza
Lespedeza cuneata

- Introduced to US in 1890s for wildlife food source and erosion control; MO in 1930s
- Tolerates very acidic soils
- First recognized as a high-quality forage because of its protein levels
  - Found to contain tannins, which bind proteins
  - Cattle will eat 2-3” growth
- Prolific seed producer
  - Some seed can be viable for 20-30 years
- Allelopathic
Sericea Lespedeza Control Options

• 2 pts PastureGard has been the most consistent treatment across all years of research, regardless of application timing
• Remedy Ultra
• Cimarron

• Apply when sericea is 12” or taller
• Or, from bud to flowering
Sericea Lespedeza
Control Options
Broomsedge Bluestem
Andropogon virginicus

- Grazed in early spring becomes unpalatable with maturity
- Used for wildlife feed and erosion control
- Indicator of poor fertility
Fertilizer and/or lime application
Take a soil test
Allows pasture to ‘Out Compete’ many annuals
Allows pasture to shade out many low growing annuls
Broomsedge Bluestem Control Options

Picture taken 3 years after P addition

Low Bray-1 P

30 lb P/acre Bray-1 P

Source: Dr. Dale Blevins and Dr. Kevin Bradley, MU
• Glyphosate through a weed wiper
• Renovate to Roundup-Ready Crop
Perilla Mint

(Perilla frutescens (L.) Britton)

- Poisonous
- Found in moist areas along streams or wooded areas
- Mint odor
- Mow
- 2, 4-D, Grazon P+D, Remedy, GrazonNext, Brash, Chapparal, Metsulfuron
- Apply when plant is actively growing, late April to early June
Maypop Passionflower

- Fast growing perennial vine
- Sometimes sold as an ornamental
- Very little information is available on control
  - Surmount (4-6 pt)
  - Cimarron
  - Grazon P+D & Remedy
  - Grazon Next
Horsenettle/Bullnettle
(*Solanum carolinense* L.)

- Perennial
- Resistant to grazing spines present
- Fertility
- Frequent mowing
- Herbicides
Horsenettle

- Chaparall & Grazon Next, Grazon P+D & Remedy, Milestone, Surmount
- Apply at mid-bloom through fruiting
- Control will take multiple years due to prolific seed production.
- Spray for 3 consecutive years to achieve 90 – 100% control
Thistles

- Biennial
- Rosette
  - 90% of life span
- Spines deter grazing
  - Reduced pasture yield by 23% if left uncontrolled
• Best results during the rosette stage (fall or early spring)
  – Weedmaster/ Rangestar (a.i. 2,4-D + Dicamba)
  – Grazon P+D (Picloram + 2,4-D)
  – Milestone (Aminopyralid)
  – GrazonNext (Aminopyralid + 2,4-D)
  – PastureGard (Triclopyr + Fluoxypyr)
  – Surmount (Picloram + Fluoxypyr)
  – Tordon 22K (Picloram)
Musk Thistle Biological Control

• Flower head weevil (Rhinocyllus conicus Forelich)
  – Introduced from Europe in 1975

• Rosette weevil (Trichosiropicalus horridus Panzar)
  – Introduced from Italy in 1979
1975

Introduction of flower head weevil

1985
Biological Control of Musk Thistle

- Scout for weevil eggs on outside of flower bracts
- 3 weevils per bloom will eat 100% of the seed
- Black, drooping flowers also indicates weevil feeding
An Integrated Approach

- Spray in the fall or early spring
- Mow in late summer
- Let weevils do the rest!
Bull Thistle...an increasing problem

- 2 Different growth forms
  - 2\textsuperscript{nd} year growth forms vertical ridges along the stem, called wings
- Same mechanical control strategy
- Same chemical control strategy
- Does not have biological control
Thistle Chemical Control

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  - PastureGard (Triclopyr + Fluoxypyr)
  - Surmount (Picloram + Fluoxypyr)
  - Trodon 22K (Picloram)
Thistle Chemical Control

Too late to spray

Treat at this stage
Honey Locust
(*Gleditsia triacanthos* L.)

- Multiple mowings
- Small sprouts
  - Grazon P+D
  - Total coverage of the leaves is needed
- Large trees
  - Basal Bark treatment with Pathfinder II
  - Cut Stump treatment with Tordon RTU
Spotted Knapweed

- Biennial
- Allelopathic (Catechin)
- Prolific Seed Production
- A 63% reduction in cattle grazing (Butcher, 1984)
Replacement of Grass by Spotted Knapweed Over Time

Chemical Control

- 1 pt/A Tordon 22K
- 5 oz/A Milestone

- Apply at late bud or rosette stage

Chemicals will provide control for 2 - 3 years but spotted knapweed will reinvade the area unless other control techniques are adopted.

Montana State University & Colorado State University
Cultural Control

• Irrigation to allow the forage to outcompete the knapweed
  – Not tolerant of flooding or shade

• Grazing
  – Colorado State University found that cattle grazing diffuse knapweed twice during the spring decreased seed production by 50%

• Mowing *alone* is not recommended. The plant can produce seed below the mowing height.

• For small areas hand pull/dig plant making sure to remove as much root stock as possible
Biological Control

- Knapweed Root Weevil
- Knapweed Flower Weevil
- UV Knapweed Seed Head Gall Fly
Biological Control
Biological Control

- Spotted knapweed weevils can be purchased online: weedbustersbiocontrol.com

  - Knapweed Root Weevil
    - $140/100 insects
    - July to mid September
  
  - Knapweed Flower Weevil
    - $80/200 insects
    - June to late July
Yellow Nutsedge

- Can graze before seed production
- Usually occur in wet areas
- Permit: 2/3 to 1 1/3 ozs/A; no grazing restriction, 37-day harvesting interval
- Yukon: 4 to 8 ozs/A; no grazing restriction, 37-day harvesting interval
Weed Publication

- $15 – Any MU Extension Center

- A guide for identifying weeds and selecting and comparing herbicides
- Color photos of 75 weeds in various stages of development
- Tables provide details on weed response to herbicides
Chemical Control

- Removal of legumes
  - White Clover
  - Red Clover
  - Alfalfa
  - Birdsfoot Trefoil

- Some herbicides have longer legume replant intervals which needs to be considered before you spray for weeds.
• Many herbicides have grazing, haying, and replanting restriction

• ALWAYS READ THE LABEL!
Thank you!

Questions?