Pasture Establishment and Extending the Grazing Season

Yoana (Joanna) Newman – Forage Specialist
How do we go from here...
Use regionally adapted species

• Adapted to Soil type: pH, texture, fertility, drainage
• Tolerant to grazing
• Winter hardy
Forage Calendar – Wisconsin

- Corn stocks
- Winter Rye/Oats
- Annual Summer grass/legumes
- Orchardgrass
- Timothy
- KY bluegrass
- Smooth Brome
- Quackgrass / Reedcanary
- Alfalfa
- Red/white clover
- Sweet clover

Adapted from Rohweder
Growth Pattern of Forages

Source: Ball et al
Key legumes for the Upper Midwest

- Red clover
- White clover
- Alsike clover
- Kura clover (cold adapted)
- Birdsfoot trefoil (not for horses)
- Alfalfa
Kura clover

- Adaptation: Poorly drained soil
- Soil pH: 5.1 to 7.3
- Slow to establish:
- Grazing tolerant
Time of Planting

- Most fields are planted in Spring. Plant when adequate rainfall and optimum temperatures for germination.
- **Spring vs. Fall (late summer) planting**
- **Spring advantages**
  - More dependable moisture
  - Optimum temperatures for germination
  - Less risk of frost (legumes)
- **Late summer advantages:**
  - Fewer weed problems
  - Drier soils
  - Less seedling ‘damping-off’
• Fertilizing and liming provide good yields
• Most clover’s require pH > 6.8
• Improves forage quality
• Reduces weed problems
• Minimum investment ($12)
Planting Scenarios for Pastures

A. Frost seeding  
B. No-till or minimum tillage seeding  
C. Prepared Seedbed
## A. Frost Seeding

<table>
<thead>
<tr>
<th>Species</th>
<th>Effectiveness</th>
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<tbody>
<tr>
<td>Red clover</td>
<td>Good</td>
</tr>
<tr>
<td>Birdsfoot trefoil</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>Poor</td>
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<tr>
<td>Perennial RG, Orchardgrass</td>
<td>Good</td>
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<td>Timothy</td>
<td>Intermediate</td>
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<tr>
<td>Smooth bromegrass</td>
<td>Poor</td>
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</tbody>
</table>
B. No-till seeding

✓ Reduces risk of soil erosion
✓ Keeps moisture in the soil

• Into harvested annual crops or cover crops
B. No-till seeding

• Grass into perennial crops (alfalfa)

Orchardgrass overseeding into 4-yr old alfalfa (requires a reduced rate than when seeding monocultures)
B. No-till seeding

- Overseeding grass into perennial crops (alfalfa)
B. No-till seeding

• Into established pastures:
  Requires control of pre-existing vegetation:
  Fall: mow/graze short
  Spring: seeding

• It’s usually challenging.
# Mechanical Control

## Mowing times

### Mowing times for common invasive species in southern Wisconsin

<table>
<thead>
<tr>
<th>Species</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
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<tbody>
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<td>Dame's rocket</td>
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**Legend:**

- **MOW**
- **DO NOT MOW**
- •••• Indicates best mowing time
C. Prepared Seedbed

• Usually for very small seed
• Preparation of seedbed is essential
• Ideal seedbed:
  Smooth
  Firm
  free of clods
Seeding Depth

• Most forages (except for small grains) are very small seed with limited reserves (carbohydrates)
• Plant shallower than grain crops
• Usual depth: $\frac{1}{4}$ to $\frac{1}{2}$ inch (for clay and loam soils)
• Deeper in sandy soils: $\frac{1}{2}$ to 1 inch
Placement of seed (< ¼ inch)
Firm seed bed is important
Rates vary (wide range) due to size and weight differences

- **Small seeds** (1.5 mm or smaller): 2-6 lb/acre
  - White clover, Alsike
  - Kentucky bluegrass, reed canary,
- **Medium seeds** (1.6 to 2.4 mm): 15-20 lb/acre
  - Alfalfa, red clover, Kura clover, Birdsfoot trefoil, Sweet clover, Orchard grass, Tall fescue
- **Large** (2.5 mm or larger): 16 lb/acre
  - Crown vetch, Smooth brome, Quackgrass

Small (¼ inch or smaller, grasses)
Medium (¼ inch, grasses)
Large (3/8 in or larger, grasses)
## Pasture seeding mixtures

### Species information

<table>
<thead>
<tr>
<th>Grass species</th>
<th>Growth habit</th>
<th>Weed suppression</th>
<th>Drought</th>
<th>Traffic</th>
<th>Seed alone (lb/a)</th>
<th>Seed mixture (lb/a)</th>
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<td>bunch</td>
<td>P</td>
<td>P</td>
<td>G</td>
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<td>sod</td>
<td>G</td>
<td>F</td>
<td>VG</td>
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<td>4</td>
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<td>Orchardgrass</td>
<td>bunch</td>
<td>G</td>
<td>F</td>
<td>G</td>
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<td>G</td>
<td>VG</td>
<td>G</td>
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<td>VG</td>
<td>VG</td>
<td>G</td>
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<td>5</td>
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<td>VG</td>
<td>VG</td>
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<td>bunch</td>
<td>P</td>
<td>P</td>
<td>F</td>
<td>8</td>
<td>2–4</td>
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</table>

Abbreviations: **VG** = very good, **G** = good, **F** = fair, **P** = poor.
**Pasture seeding mixtures**
*(Select column based on water drainage)*

<table>
<thead>
<tr>
<th>Mixture</th>
<th>Well-drained soils</th>
<th>Less well-drained soils</th>
<th>Poorly drained</th>
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<td>Alsike clover</td>
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<td>Birdsfoot trefoil</td>
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<td>Ladino clover</td>
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<td>Cover crop</td>
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**Appearance**

<table>
<thead>
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<th>Mixture</th>
<th>Appearance</th>
<th>Yield</th>
<th>Traffic</th>
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<td>fair</td>
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<tr>
<td>2</td>
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<td>excellent</td>
<td>good</td>
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<td>fair</td>
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<td>4</td>
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<td>fair</td>
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<td>11</td>
<td>fair</td>
<td>excellent</td>
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Summer Forage Options

- Teff
- Crabgrass
Teff Grass (Eragrostis tef)

- C4 Warm-season bunch grass
- Tolerant of high $T^\circ$ and drought

Cereal grain in Africa, gluten free
Teff Grass (*Eragrostis tef*)

- Excellent erosion control:
  - 1. Fast germination: 3-5 d
  - 2. Fibrous root

**Soil:** Sands to clay; pH: 4.5 – 7.0

**Temperature:** 50 – 80°F

**Planting date:** Late spring (after frost)

**Seeding rate:** 7 to 10 lb/acre (coated)

**Planting depth:** 1/8 to 1/4 inch - Brillion

**Utilization:** 45 – 55 DAP; 30 days

**Production:** 3,000-5,000 lb/A

**Cutting height:** Leave a 4-5 in stubble
Teff Grass Quality

- Fine stems
- Very palatable
- Quality similar to timothy
- No prussic acid concerns

- Excellent aa composition (lysine is higher than wheat or barley)
- High in fiber, calcium, zinc, iron, phosphorus, copper, thiamin
- Sour taste similar to millet

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<thead>
<tr>
<th></th>
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<th>Timothy</th>
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<tr>
<td>CP (%)</td>
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<td>TDN (%)</td>
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<td>NDF (%)</td>
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<td>ADF (%)</td>
<td>55-64</td>
<td>57-65</td>
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</table>

Source: Miller, 2009 (UC Extension)
**Teff** (drought and heat tolerant)

- **Soil:** Sands to clay; pH: 4.5 – 7.0
- **Temperature:** 50 – 80°F
  - Lacks cold tolerance
- **Planting date:** Late spring (after frost)
- **Seeding rate:** 7 to 10 lb/acre (coated)
- **Planting depth:** 1/8 to 1/4 inch
  - Brillion
- **Utilization:** 45 – 55 DAP; 30 days
- **Production:** 3,000-5,000 lb/A
- **Cutting height:** Leave a 4-5 in stubble

Photo: MSU
Crabgrass (*Digitaria sanguinalis*)

- Warm-season grass (C4)
- Sod forming with runners

Varieties:
- Quick N Go  (for Upper midwest)
- Red River
- Common
Crabgrass (highly palatable)

- **Soil**: Sandy loam - clay
  pH: 5.5 – 7.0
- **Temperature**: Lacks cold tolerance
- **Planting Date**: early Summer – Jun 1
- **Seeding Rate**: 3 to 5 lb/acre
- **Planting depth**: 1/4 inch
- **Production**: 4,000 to 12,000 lb/A
- **Grazing height**: 6 to 18 in,
- **Haying height**: 18 to 24 in
  Stubble 4-5 inches
Crabgrass Quality

(highly palatable)
CRABGRASS SEED GERMINATION DATES

Approximate Date

- After May 30
- After May 10
- After April 20
- After March 20
- Jan. 1 - March 20
• Use regionally adapted species
• Soil test and adjust as needed
• Time of planting
• Seeding depth
• Seeding rate
60-90 days later do a light grazing
Thank You!

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