Pasture Plant Selection

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Planning a Pasture System

High quality pastures available for grazing throughout the growing season.
Plant Maturity Determines Forage Quality

- Younger plants have higher forage quality than older plants.

Source: Understanding Forage Quality

Bill Verheeten Cornell Cooperative Extension
Take Home Points

• *Different* **grasses** should be planted in **different pastures**.

• Plant maturity varies *within* grass species and *between* grass species.

• Planting grasses with *different maturities* increases the time when pastures have the **highest forage quality**.
Grasses

- Kentucky bluegrass
- Orchardgrass
- Smooth bromegrass
- Meadow bromegrass
- Meadow fescue
- Tall fescue
- Reed Canarygrass
- Ryegrasses
- Festulolium
- Timothy
Orchardgrass

- One of the first grasses to mature (May 4- May 21)
- Higher yielding grass (5-7 ton DM/acre)
- Some varieties tolerate close grazing, others better for hay
- Very leaf and good summer regrowth

Source: extension.missouri.edu
Kentucky bluegrass

- Grows earlier than most other grasses, stops growing first in summer. (Matures May 12-17)

- Very common in lawns and unimproved pastures. Some varieties available.

- Lower yielding grass~4-5 tons DM/acre

- Survives continuous grazing

Source: John M. Randall / The Nature Conservancy
Smooth Bromegrass

- Mid maturity grass (May 18-26)

- Large range in yield potential (4-8 tons DM/acre)

- Vulnerable if grazed during stem elongation

- Forms a sod and can make a good long term pasture

Source: Grass Info Sheet 10 Cornell

Source: extension.missouri.edu
Meadow Bromegrass

- New grass to NY
- Late maturity (May 23–June 1)
- Yields similar to smooth bromegrass
- Less vulnerable than smooth bromegrass during stem elongation.
- Widely grown in Great Plains & Canada

Source: ponderosaslaes.com
Meadow Fescue

- Medium maturity (May 18-22)
- Lower yielding in pure stands (4-5 tons DM/ac)
- Very high quality
- Very palatable to livestock
- Very popular with Midwestern grazing dairies.

Source: Bill Verbeten
Tall Fescue

- Medium maturity (May 13 – May 30)
- Highest yielding cool-season grass (6-8 ton DM/acre)
- Endophyte-free and higher palatability varieties available
- Forms a dense sod and can handle high nutrient loads
- Adapted to drought, wet conditions, and low pH soils

Source: Grass Info Sheet 7 Cornell

Source: extension.missouri.edu
Reed Canarygrass

- Medium to late maturity (May 15-30).
- High yielding (4-6 tons DM/acre)
- Most tolerant grass of wet and droughty soils, very winter hardy, and tolerates low pH
- Slow to establish

Source: Grass Info Sheet 6 Cornell
Source: extension.missouri.edu
Ryegrasses

- Medium to late maturity (May 10 to June 3)
- Annual, perennial types
- Very short lived in NY
- High quality and palatable, but lower yielding (4-5 tons DM/acre)
- Best used as a nurse crop—very competitive growth
Festulolium

- Hybrid between meadow fescue and a ryegrass
- Very well adapted to grazing systems
- Medium maturity and yield

Source: dlfis.com
Timothy

- Late maturity (May 25-June 10)
- Medium yields (4-6 tons/DM)
- Very palatable and easy to establish
- Doesn’t regrow well alone in pastures, often planted with another grass

Source: Grass Info Sheet 9 Cornell

Source: extension.missouri.edu
Legumes

- White clover
- Red clover
- Alsike clover
- Kura clover
- Sweet clover
- Birdsfoot trefoil
- Alfalfa
- Vetches
White Clover

- Well adapted to wet soils
- Not drought tolerant
- Ladino types higher yielding (2-3 tons DM/acre) than common types (~1 ton DM/acre)
- Generally will persist well in NY pastures

Source: extension.missouri.edu
Red Clover

- Higher yielding than white clover (up to 4-5 tons DM/acre)
- Not persistent, usually only lasts 2-3 years
- Can easily frost seed over existing pastures

Source: extension.missouri.edu
Alsike Clover

- Very well adapted to low, wet areas

- Best grown with low growing grasses (Kentucky bluegrass, meadow fescue)

- Does not persist more than 3-4 years

- Causes photo sensitivity in horses

Source: extension.missouri.edu
Kura Clover

• Most persistent legumes (stands 20+ years old)

• Grows well in wet areas, and survives drought

• Difficult to establish & expensive seed

• Excellent honey crop

Source: extension.missouri.edu
Sweet Clover

- Biennial legume
- Not often used for pasture
- Moldy silage led to the discovery of rat-poison (Warfarin)

Source: www.dnr.wi.edu
Birdsfoot Trefoil

- Non-bloating legume adapted to wet conditions

- Requires a long rest period (60 days) after first grazing to persist

- Improved varieties (Pardee) have improved disease resistance

Source: extension.missouri.edu
Alfalfa

- Highest yielding, most drought tolerant legume
- Branched root types available
- Typically grown for silage and hay, but can be pastured.
- Not suited for shallow, wet soils in parts of NY

Source: extension.missouri.edu
Vetches

- Non-traditional legumes in pastures
- Able to persist with rotational grazing
- Typically planted in soil conservation projects
- Most growth in the spring

Source: extension.missouri.edu
Other Pasture Species

- Forage Chicory
- Forage Plantain
- Forage Turnip, Kale, Swedes
- Small Grains
- Sudangrass
- Eastern gamagrass
Forage Chicory

- Drought tolerant forage broadleaf

- Very high forage quality
  - 20-30% CP
  - 90% Digestibility

- Will bolt if not grazed/cut in spring

Source: bestforage.com
Forage Plantain

• Forage broadleaf

• Similar to forage chicory

• Not currently winter-hardy for NY

• Can be grown alone or in mixtures with grasses and/or legumes

Source: bestforage.com
Forage Turnip, Kale, Swede

• Forage brassicas, annual crop

• Generally planted as emergency forage or prior to pasture renovation

• Plant when soil is at least 50 F

• Fed other forages with forage brassicas. Grazing dairy cattle taints the milk.

Source: ampacseeds.com
Small grains

- Oats, triticale, wheat, rye, barley
- Can be grazed fall or spring.
- High quality silage if harvested by flag leaf stage
- Many farmers growing after wheat or corn silage for supplemental feed
Sudangrass

- Warm season grass, plant in June
- Emergency crop
- Do not graze until plants are over 2 ft. tall (prussic acid poisoning)
- Sorghum crosses, BMR varieties available

Source: ag.ndsu.edu
Eastern gamagrass

- Warm season grass, tolerant of wet areas
- Perennial, stands 50+ years old
- Very palatable, plant pure stands, leave 8-10 inch stubble
- Very high quality forage

Source: Bill Verbeten
Methods of plant selection

Pasture plants adapted to local farm conditions & needs

Forage Species Selection Tool
Example Farm
Soil types
Soil types

- Angola
- Darien
- Nunda
- Palmyra
- Remsen
- Wayland
- Madalin

Yield Potential by Soil Type

<table>
<thead>
<tr>
<th>Pasture</th>
<th>Angola</th>
<th>Darien</th>
<th>Nunda</th>
<th>Madalin</th>
<th>Remsen</th>
<th>Palmyra</th>
<th>Wayland</th>
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<td>4.6</td>
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<td>N/A</td>
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<td>Reed Canarygrass</td>
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<td>3.3</td>
<td>4.6</td>
<td>2.6</td>
<td>3.0</td>
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<tr>
<td>Tall Fescue</td>
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<td>2.4</td>
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How to chose pasture mixtures?

• Start with 3-4 grasses that have different maturities planted with 1 or 2 legumes

• Try specialty pasture plants on a small scale before adding to the whole pasture system

• Identify niches where specialty pasture plants are well suited
What seeding rates to plant?

• 50 to 75 seeds per ft² are enough to establish forage stands

• Most farmers seed more (100-200 seeds per ft²) “cheap insurance” and “quicker establishment”

• High seeding rates reduce the establishment of some species (often legumes)
What seeding rates to plant?

- Different species have different seed sizes

- Use [Pasture and Hay Seeding Rate Calculator](http://www.uwex.edu/ces/forage/pubs/seeding_rate_calculator.xls)
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Questions?

Source: wallpaperdreams.com