

# Forage grasses are not all created equal

Everett D. Thomas

Miner Institute/Oak Point Agronomics

# Farmer selection criteria for alfalfa and corn

- What genetic traits are available that I need and want?
- How has the variety/hybrid done in yield trials?
- For corn, what is the relative maturity I need?
- For alfalfa, how persistent is the variety/cultivar?

# Farmer selection criteria for grass

- What do you have in stock?
- What do you have that's cheap?
- What did I plant last year?
- What did my father/grandfather plant?

# Grass or legume-grass?

- Your choice of grass species and variety may depend on whether you're seeding straight grass or a legume-grass mixture.
- Straight grass: Maturity of grass species and variety.
- Legume grass: Need to match maturity of grass species/variety to the maturity of the legume.

# First cut alfalfa-reed canarygrass in an alfalfa-grass stand

	Alfalfa	Reed canarygrass
Dry matter, %	21.9	20.8
ADF, %	31.5	36.0
NDF, %	41.0	61.0
30-hr NDF digestibility, %	47.0	66.0

# Grass NDF at the boot stage

	Boot stage	NDF, %
Bastion ryegrass	May 15	50
Select tall fescue	May 16	59
Bravo bromegrass	May 16	64
Intensiv orchardgr	May 18	60
Sunset timothy	May 20	63
Palaton reed canary	May 21	68

# Grass NDF, head fully emerged

	Harvest date	NDF, %
Extend orchardgrass	May 20	65
Bull tall fescue	May 20	61
Bastion ryegrass	May 25	61
Palaton reed canary	May 25	71
Summit timothy	May 27	68

# Canarygrass

# Tall fescue



Same field, same seeding date

# Cornell recommendations for alfalfa-grass seeding rates

Lbs/acre	1965	1985	2008
Alfalfa	8-12	8-12	8-12
Timothy	4-6	4-6	4-6
Bromegrass	5-8	5-8	5-8
Orchardgrass	4-6	4-6	4-6
Canarygrass	--	--	6-8
Tall fescue	--	--	--

# Timothy



- + High yield, good quality.
- + Adapted to varying soil types.
- + Tolerant of ice sheets.
- + The only species many horse owners recognize.
- Poor drought resistance, "goes to sleep" during the summer.
- A bunchgrass—less protection against soil erosion.

# Bromegrass



- + High yield, long stand life.
- + Holds quality well as it matures.
- + Good cold and drought tolerance.
- + A sod-former—fills in bare spots.
- Light, fluffy seed doesn't work in many grain drills and seeders.
- Not tolerant of wet soils or intensive harvest management.

# Orchardgrass



- + High yield.
- + Drought tolerant.
- + Good summer production.
- Can winterkill under extreme conditions.
- Very susceptible to ice sheet injury.
- Poorly adapted to wet soils.
- Loses quality fast.
- A bunchgrass, less protection against soil erosion.

# Perennial ryegrass



- + High yield under intensive management.
- + Fast establishment.
- + Good forage quality.
- Poor heat, cold, & drought resistance.
- Rapid quality loss after heading.
- Short-lived compared to other grass species.

# Reed canarygrass



- + Well adapted to wet soils; wide soil drainage tolerance.
- + Vigorous root system, very tough sod.
- + Long stand life.
- + Will handle very high manure rates.
- Slow germination and seedling growth.
- Loses quality fast after heading.
- Shuts down early in fall.

# Tall fescue



- + Tolerant of moist to wet soils & flooding.
- + High yield, good winter survival.
- + Keeps growing into the fall.
- Past problems of low palatability forage, especially during the summer.
- Endophyte fungus can cause livestock problems. (Endophyte-free varieties now widely available.)

# Festulolium



New kid on the block, a hybrid of Italian ryegrass and meadow fescue.

- + In Penn State trials, 1 variety held up well for 3 years.
- In Penn State trials, 3 varieties yielded very poorly in the 3<sup>rd</sup> year.
- Poor winter survival with low snow cover.

# Grass variety and species differences

- There are quality differences between species.
- Timothy is usually higher in NDF-d than orchardgrass at the same stage of maturity, while orchardgrass is 1% or so higher in protein.
- Fiber digestibility differences between varieties of the same species are small at the same stage of maturity.

# Summary

- There is much more quality difference between species than for varieties within species. But...
- ...there are huge differences in maturity (heading date) in some but not all species.
- Intake is important, so for dry cows look at NDF and NDF-d as well as % K.