

Cool Season Grass Establishment

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Introduction

- Smooth Brome and tall fescue are important cool season grasses for eastern Kansas
 - Well adapted
 - High production
 - Quality
 - Expand grazing season
- Other cool season grasses can survive to Kansas environment
 - Orchard grass, timothy, perennial ryegrass, etc.

Cool Season Grass Performance

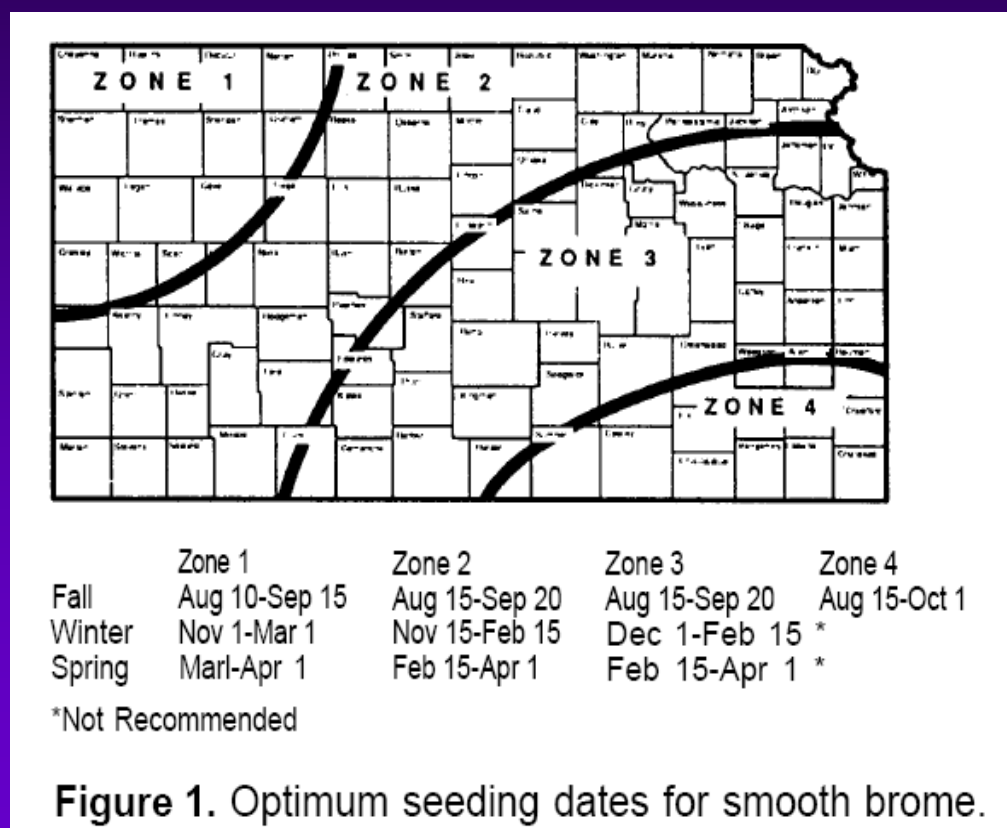
Yield of cool season grasses in 1982-1984 at Parsons (Moyer).

Species	Yield 3-yr ton/a
Tall fescue	4.3
Smooth brome	4.2
Reed canarygrass	4.0
Orchardgrass	3.5
Western wheatgrass	3.4
Perennial ryegrass	3.2

- Brome and fescue have good drought tolerance and adaptability to our clay-type soils
- Other perennial cool season grasses not as adapted
 - Less yield
 - Less drought tolerance

Timing of Brome Seeding

- Late summer or early fall optimum time to seed
- Can be seeded in the winter - spring but heat and dry of summer can be problematic
- Good weed control
 - Tillage vs. no-till
- Conserve moisture at planting



Seeding Rates/Methods

- Brome needs 10-15 lbs of PLS / acre
 - Lbs x purity x germination = PLS
 - 100lbs x 0.95 purity x 0.95 germ = 90.25 lbs PLS
- Seeding methods include
 - No-till seeding
 - Depth of seeding is important (1/4" deep)
 - Broadcast shallow incorporation (harrow)
 - Bump up seeding rate 15-20 lbs PLS/a
 - Broadcast plus drilled cover crop
 - Cool season cereal hay harvest in spring

Seedling Fertility

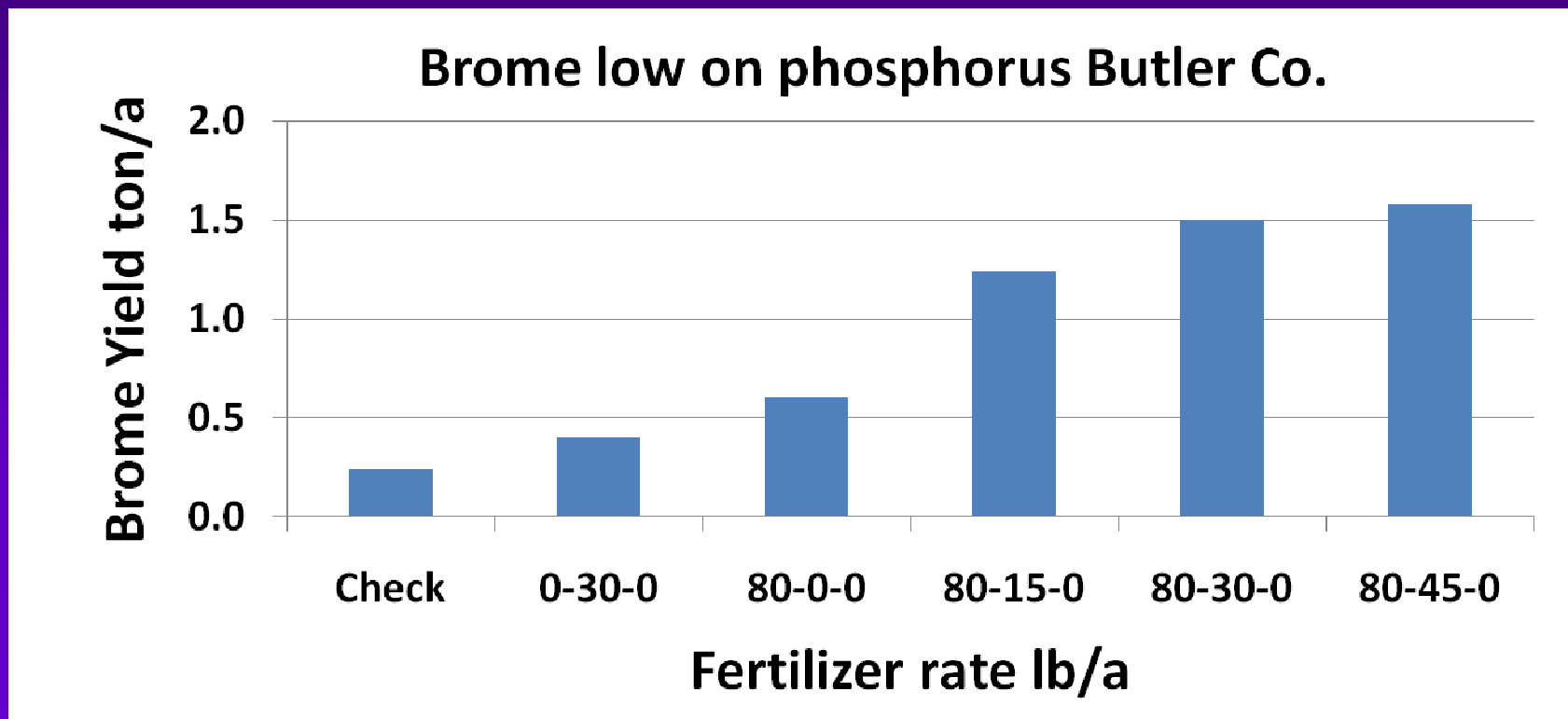
- Soil test!
- Brome can tolerate lower pH
 - Long stand life so correct it as much as possible at planting
- Fertilization
 - New stand of brome needs 30-40 lbs N/acre
 - Phosphorus and Potassium based on soil test

New Brome and Fescue P and K Recommendations

Phosphorus Sufficiency Recommendations for Brome and Fescue ¹						Potassium Sufficiency Recommendations for Brome and Fescue ¹					
Bray P1 Soil Test	Yield Goal (Ton/A)					Exch. K	Yield Goal (Ton/A)				
	2	2.5	3	3.5	4		2	2.5	3	3.5	4
(ppm)	----- Lb P ₂ O ₅ /A -----					(ppm)	----- Lb K ₂ O/A -----				
0-5	80	85	90	95	100	0-40	100	110	115	120	130
5-10	55	60	65	65	70	40-80	65	70	75	75	80
10-15	35	35	40	40	40	80-120	30	30	30	35	35
15-20	15	15	15	15	15	120-130	15	15	15	15	15
20+	0	0	0	0	0	130+	0	0	0	0	0
Crop Removal ²	24	30	36	42	48	Crop Removal ²	80	100	120	140	160

Established Brome Fertility

- Nitrogen is not the only nutrient brome needs!
- Brome yields can be significantly increased with additional P on low fertility soils
- Initial P soil test was 7ppm



Grazing / Haying

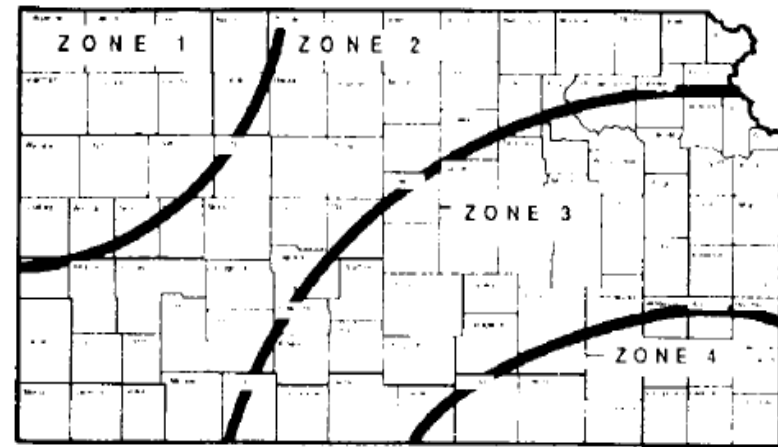
- Fall seeded stands of brome can be grazed the next spring
 - Keep 4-6” of forage height first spring to ensure successful establishment
- Fall seeded brome should be hayed at the bloom stage
- Spring seeded brome should be safe to hay or graze the following spring

Fescue Establishment

- Fescue establishment very similar to brome
- Fescue is an excellent choice for cool season grass
 - More hardy and grazing tolerant than brome
 - Can be utilized for fall and winter grazing
- Endophyte toxicity can be a concern with some fescue varieties
 - Fungus helps survival of fescue
 - Fungus produces endotoxin harmful to livestock
 - Endophyte-free fescue varieties are available
 - Max-Q, endophyte-free KY31, etc.

Fescue Seeding

- In general, fescue seeding is similar to brome
- Seeding rates 12-20lbs PLS / acre depending on seeding method
 - No-till: lower rate ~12lbs
 - Broadcast incorporation: high range ~20lbs
- Fertility similar to brome



	Zone 1	Zone 2	Zone 3	Zone 4
Fall	Aug 10-Sep 10	Aug 15-Sep 15	Aug 20-Sep 20	Aug 15-Oct 1

Spring	Mar 1-Apr 1	Feb 15-Mar 15	Feb 15-Mar 15	*
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*Not Recommended

Figure 1. Planting dates for cool-season grasses.

Interseeding Legumes Into Fescue

- Legumes are a benefit in fescue
 - Dilute endotoxin
 - Increased animal gains
- To establish, reduce grass competition in spring to favor legumes
- Adequate P, K, and pH are CRITICAL for legume establishment
- Careful grazing management to suppress grass but allow new legume seedlings to compete
 - Legumes should be big enough to resist physical root removal by grazing

Interseeding Legumes into Fescue

- No-Till, broadcast, or light incorporation with cool season grass
- Split seedings between spring and fall
- Reseed annually or biannually
- Seeding rates for common legumes:
 - White Ladino Clover 3 - 5 lbs/a
 - Annual Lespedeza 10 - 15 lbs/a
 - Red Clover 10 - 15 lbs/a
 - Alfalfa 10 - 12 lbs/a
 - Birdsfoot Trefoil 8 lbs/a

Converting Endophyte Infected Pastures

- Endophyte fungus will survive in the seed up to 14 months
 - Prevent seed production on established endophyte pasture for 14 months
 - Any volunteer that emerges will not have viable fungus
- Kill existing endophyte fungus
 - Glyphosate at 32-64oz/a when new growth is ~4" tall
 - Fall easier to control fescue than spring
 - Grow a row crop for one year to allow use of herbicides to control volunteer fescue
- Replant field to endophyte free KY 31 or a novel endophyte variety such as Max Q

Summary

- Brome and fescue are the most adapted cool season perennial grass to grow in eastern KS
 - Fescue is a good option if considering winter grazing in addition to spring and fall
- Good soil moisture and seedbed preparation at the time of planting is critical
- Fertilize with 30-40 lbs of N and apply P, K, and lime based on soil test recommendations

Questions?