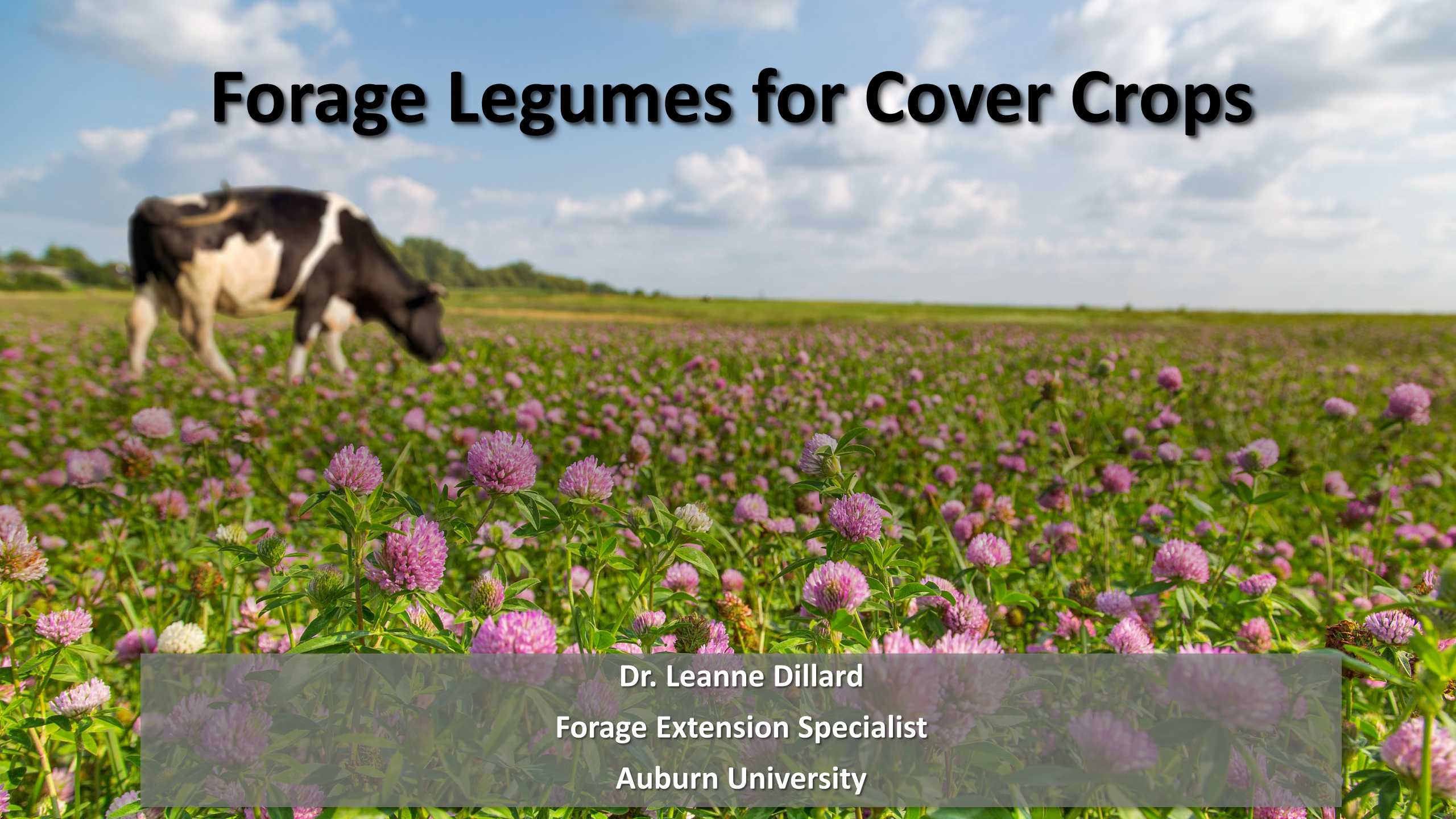
Forage Legumes for Cover Crops



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Why Add Forage Legumes to Cover Crops?

- Provide ground cover
  - Reduces soil erosion
- Increase forage nutritive value
  - Provides increased animal performance
- Better Growth Distribution
  - Lengthens the grazing season
- Increase available N in the system
  - Reduces some fertility needs

What are the Options?

Crimson Clover

- High yield potential
  - Plant as early as possible to maximize yields
- Great for grazing and haying
- Mid-spring maturity
- Tolerates lower pH, but not poor drainage
- Grows well in mixtures with small grains, grasses, and other covers
- Common Varieties:
  - Dixie, AU Robin

Ball Clover

- Tolerates heavy grazing
- Excellent reseeder
- Yield production is about 1 month later than crimson clover
- Short growing season
- Forage yield is less than crimson
- Tolerates ‘wet feet’ better than other clovers
- Varieties
  - AU Don, Grazer, Select

Red Clover

- Not actually an annual, but will not over summer South of I-20
- Works well in mixtures with small grains
- Tolerates grazing well, difficult to dry for hay
- Tolerates some soil acidity, poor soil drainage, and drought
- Varieties:
    - Barduro, Red Ace, Southern Belle

Arrowleaf Clover

- Productive annual clover
- Grows best on well-drained loam or sandy loam soils
- Low bloat potential
- Can struggle with *Fusarium* diseases dependent on variety tolerance
- Varieties
  - Apache, Blackhawk, Yuchi (most susceptible to crown/stem rot)

Berseem Clover

- Best uses are grazing and hay
- High forage nutritive value
- Non-bloating
- Requires high fertility and Boron
- Not tolerant of over grazing (4” stubble height)
- Can handle poor drainage better than other legumes
- Productive into late spring (Late May or early June)
- Varieties
    - Bigbee, Frosty

Austrian Winter Pea

- Viney, winter annual
- Well drained loam or sandy loam soil
- Not well suited for pastures
  - Stems can be damaged by treading
- Work well with small grains for silage production
- Difficult to cure for hay

Common and Hairy Vetch

- Can be used for grazing, hay or silage
- Most often planted with small grains to provide structural support
- Vines can reach 2-4 ft long
- Good for weed suppression because makes a thick mat
- Overly mature plants can be toxic to older livestock
- Recommend keeping pastures <10% hairy vetch
    - Varieties: AU Merit (early maturing)

Forage Yield and Nutritive Value of Cover Crop Legumes

Legume Species	Yield Potential	Crude Protein	Total Digestible Nutrients (TDN)
	lb/acre	%	%
Crimson Clover	3,569	15.4	61
Ball Clover	2,763	22.0	--
Red Clover	3,897	15.0	61
Arrowleaf Clover	3,472	17.9	67
Berseem Clover	4,275	18.0	69
Winter Pea	2,935	25.0	70
Common Vetch	4,461	21.7	63
Hairy Vetch	3,853	19.2	64

Pedersen and Ball, AAES Circular 307; Anderson et al., 2022; Aguilar-Lopez et al., 2013; Freeman et al., 2016; Ensimnger et al., 1990

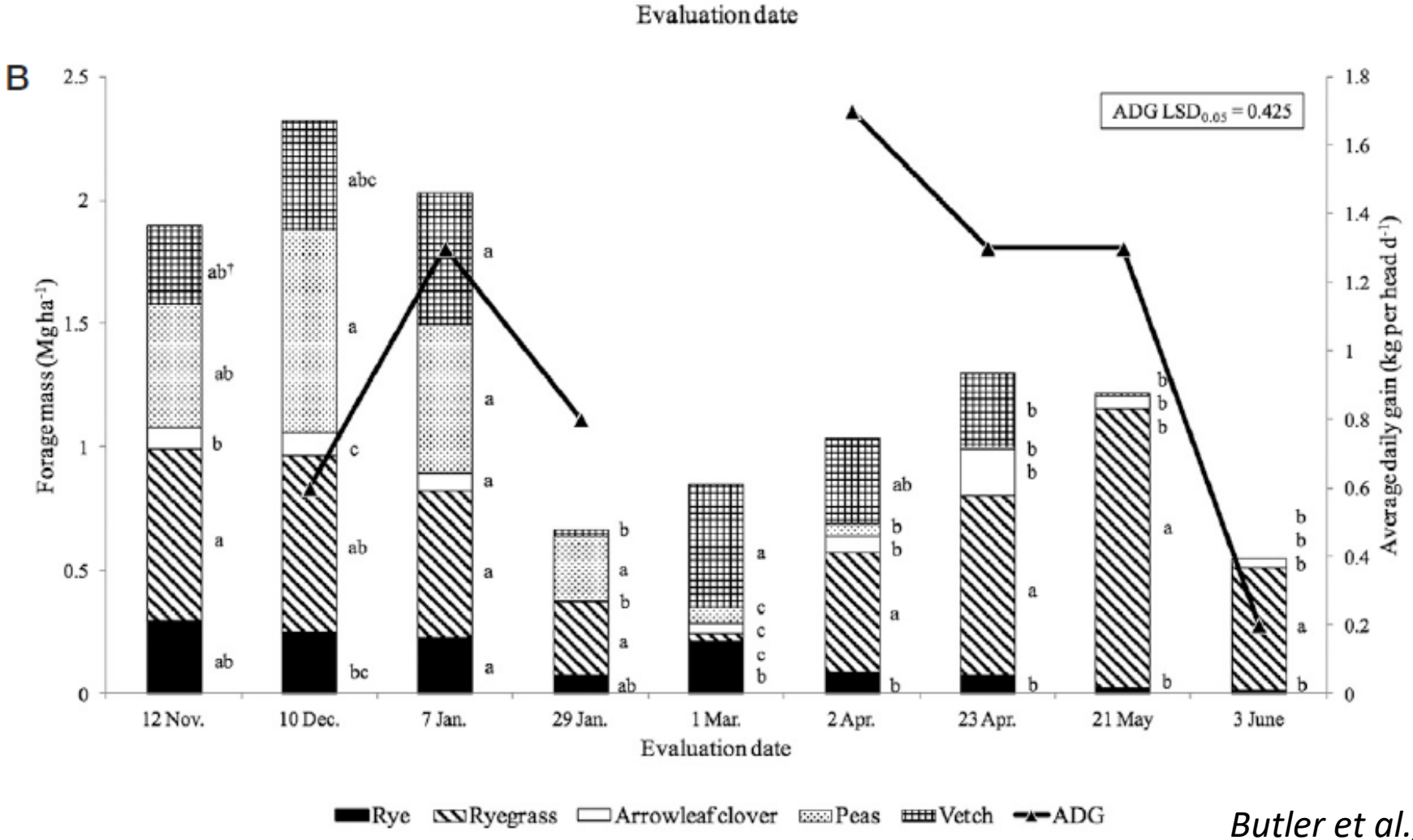
Should cover crop legumes be used alone or in mixtures?

- Plant with a companion grass to maximize forage yield and growing season length
- Reduces potential bloat
- Can mix multiple legume species in one mixture

Example mixtures

- Simple Mixture
  - Oats + Crimson Clover
- Complex Mixture
  - Austrian Winter Pea + Oats + Triticale+ Hairy Vetch + Crimson Clover

Seasonal changes in forage species composition in a grazed cover crop



Butler et al., 2012

Grazing Performance of Steers grazing a cover crop system with and without legumes

	Rye-Ryegrass-N Fertilizer	Rye-Ryegrass-Legumes
Steer Grazing Days, d/acre	155	141
ADG, lb/d	2.3	2.4
Total Gain, lb/acre	363	333

Butler et al., 2012

Economic values of inputs and outputs of grazing a cover crop system with and without legumes

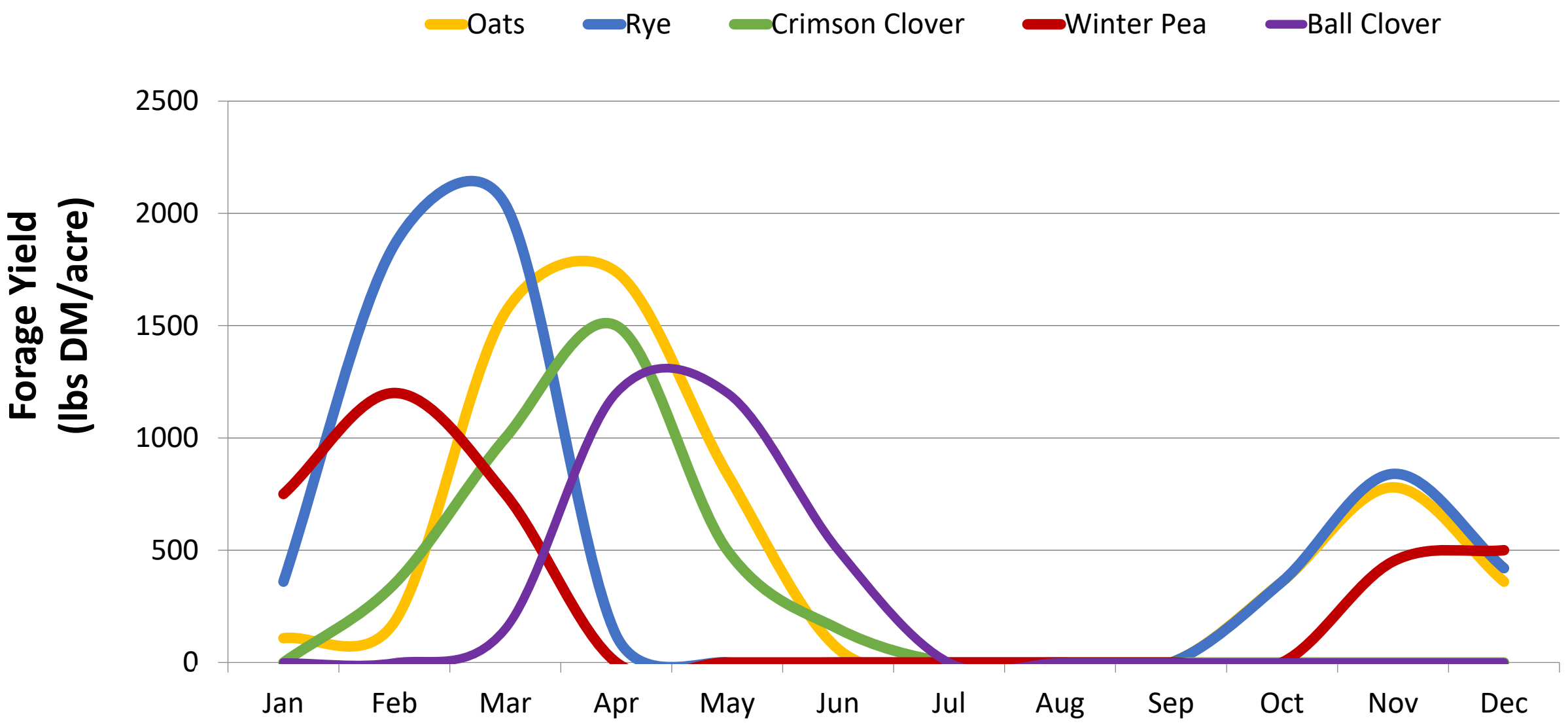
Economic Variable	Rye-Ryegrass-N Fertilizer	Rye-Ryegrass-Legumes
Seedbed Prep, $/acre	35.97	35.97
Establishment Cost, $/acre	61.80	95.25
N Fertilizer, $/acre	39.27	0.00
P Fertilizer, $/acre	25.78	25.78
Pest Mgt, $/acre	6.62	
Interest on operating capital, $/acre	61.19	58.95

Butler et al., 2012

Building the System

- There is no perfect forage
- Will take multiple forages in a mixture to achieve goals
- Determine growth curve of forages in the system and make them compliment each other
- Determine if nutritive value profiles compliment each other
  - Match to nutritional needs of livestock

Southern Alabama Grass Distribution



Know The History

- Know the soil test history
  - Legumes are sensitive to low pH
- Know the herbicide history
  - Legumes are sensitive to many common herbicides

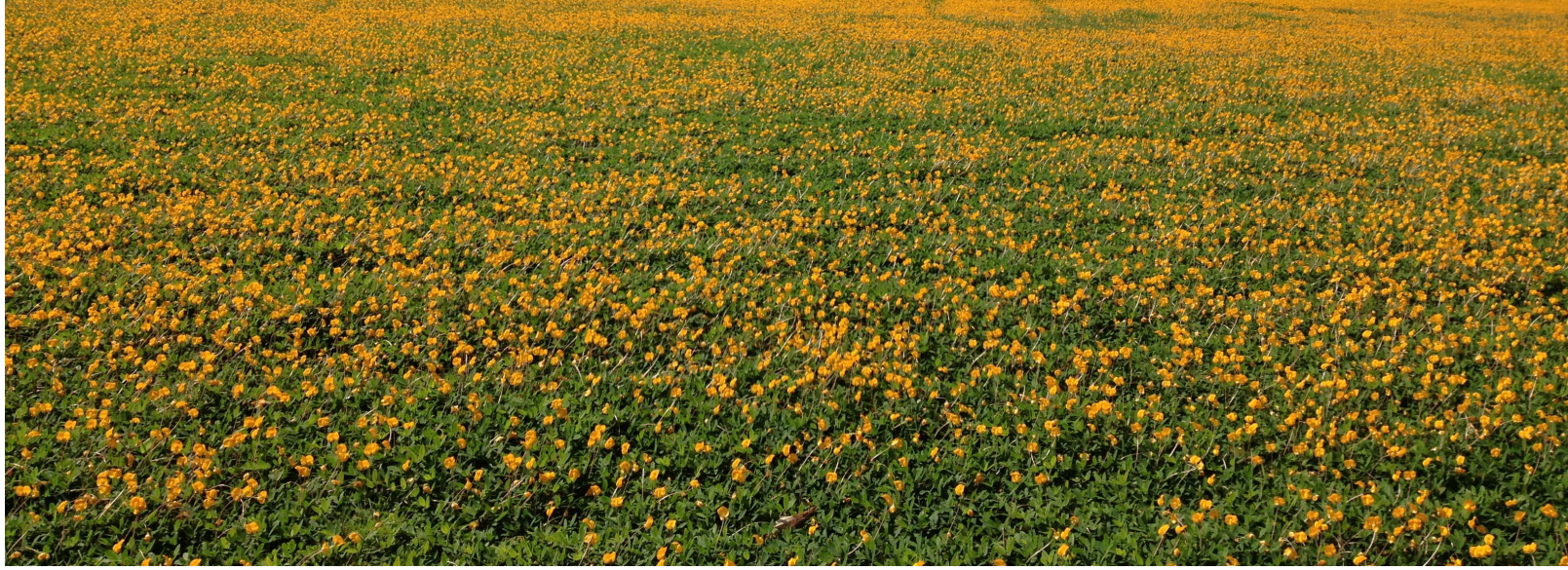
Goal is a Management System

- No one-size-fits-all
- Takes multiple approaches to have successful program
- Forage Selection, Soil Fertility, and Cattle Management

Number one rule is FLEXIBILTY

Coming Soon

Forage Legumes in the Southeast



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- Topics: Establishment, Management, Production, Producer Experiences, Ecosystem Services, Economics

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