UF IFAS
UNIVERSITY of FLORIDA

II Small Ruminant Short-Course – Sep 29, 2023

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FORAGE TEAM

Forage management in small ruminant production systems

Concepts and applications

Outline

- Quick presentation on some important concepts based on last year's **questions to producer panel**
  - **Forage species**
    - Annuals and Perennials
    - Differences between varieties
  - **Grazing management**
    - Intensive grazing
    - Grazing and parasites
- **Question and answer**

Forages for small sheep and goat – what do they like?

Animal Species	Type of Diet (%)		
	Grasses	Legumes	Browse
Cattle	65-75	20-30	5-10
Horses	70-80	15-25	0-5
Sheep	45-55	30-40	10-20
Goats	20-30	10-30	30-50
White-tailed deer	30-60	40-50	10-30

Slide: Dennis Hancock - USDA

Sheep nutrient requirement	Protein (CP)	Energy (TDN)
*Rams (220 lb, maintenance)	7%	53%
*Dry ewe (132 lb)	7%	53%
Late gestation (twins) 2.75% BW	10%	66%
Early lactation (twins) 3% BW	15%	67%
Weanling (4 mon, 66 lb, max ADG)		
Early maturing - 5% BW	12%	79%
Late maturing - 3% BW	19%	66%
*Yearling ewes (88 lb)	8%	66%

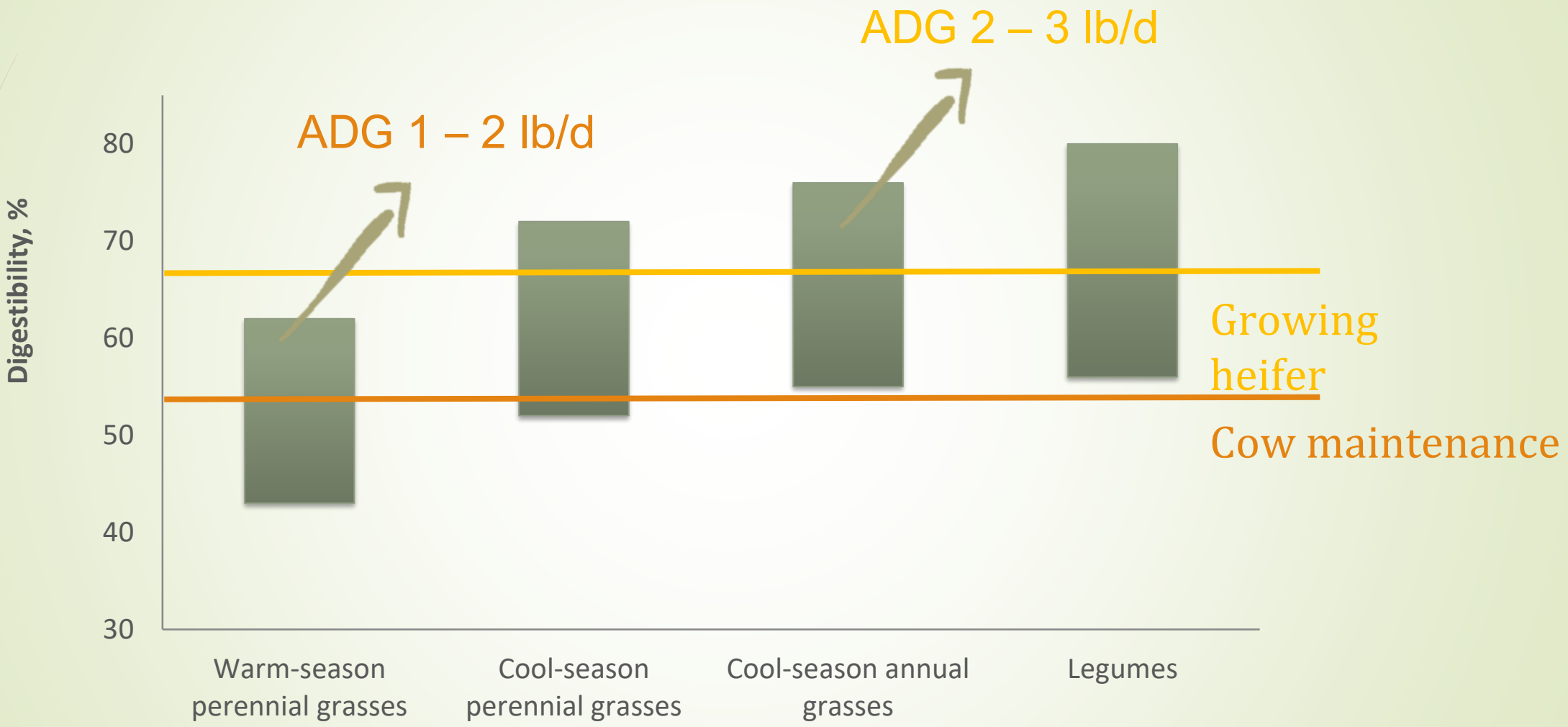
*Based on dry matter intake of *around* 2% of body weight (NRC, 2007) unless otherwise noted; from Dr. Niki Whitley, Fort Valley State University

Slide: Dennis Hancock - UGA

Goat nutrient requirements	Protein (CP) (40%UIP)	Energy (TDN)
Bucks (110-220 lb) 2% BW	7%	54%
Dry doe (88 - 154 lb) 2% BW	7%	53%
Late gestation (twins) 2.5% BW	13%	66%
Early lactation (twins) 3% BW	13%	53%
****Growing kid (30 lb; 0.44 lb/day)**		
Boer (4.0% BW)	25%	90%
Local (3.6% BW)	21%	89%
Yearlings (66 lb Boer, avg growth, 2.5%BW)	15%	66%

*% BW is all feed/forage eaten on dry matter basis as % of their body weight (NRC, 2007)
**Kids gaining less than 0.44 lb/day would require less; from Dr. Niki Whitley, Fort Valley State University

Slide: Dennis Hancock - SUDA



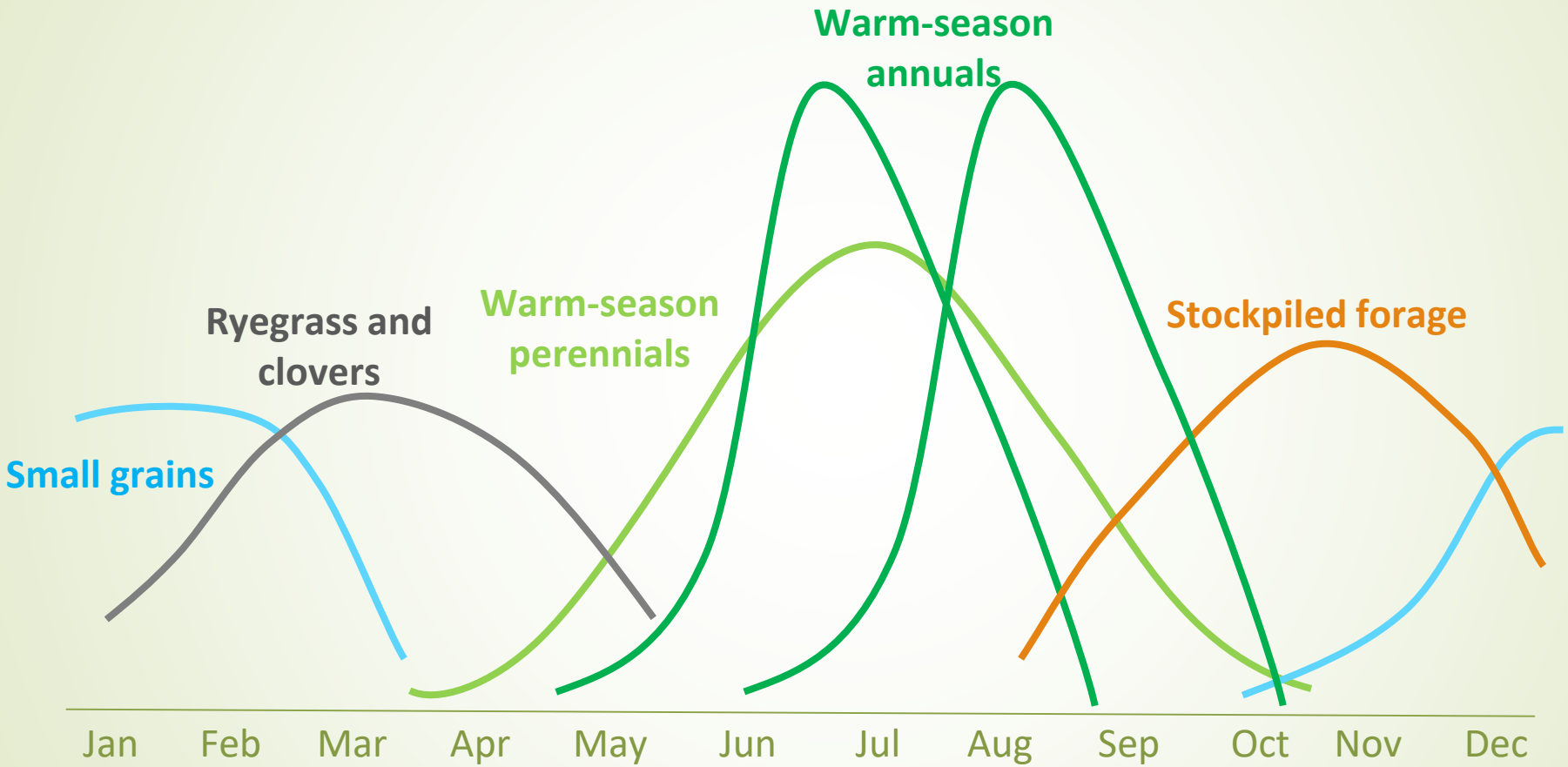
Adapted from Lippke and Riewe (1976) and Ball et al. (2015)

What should we feed them?

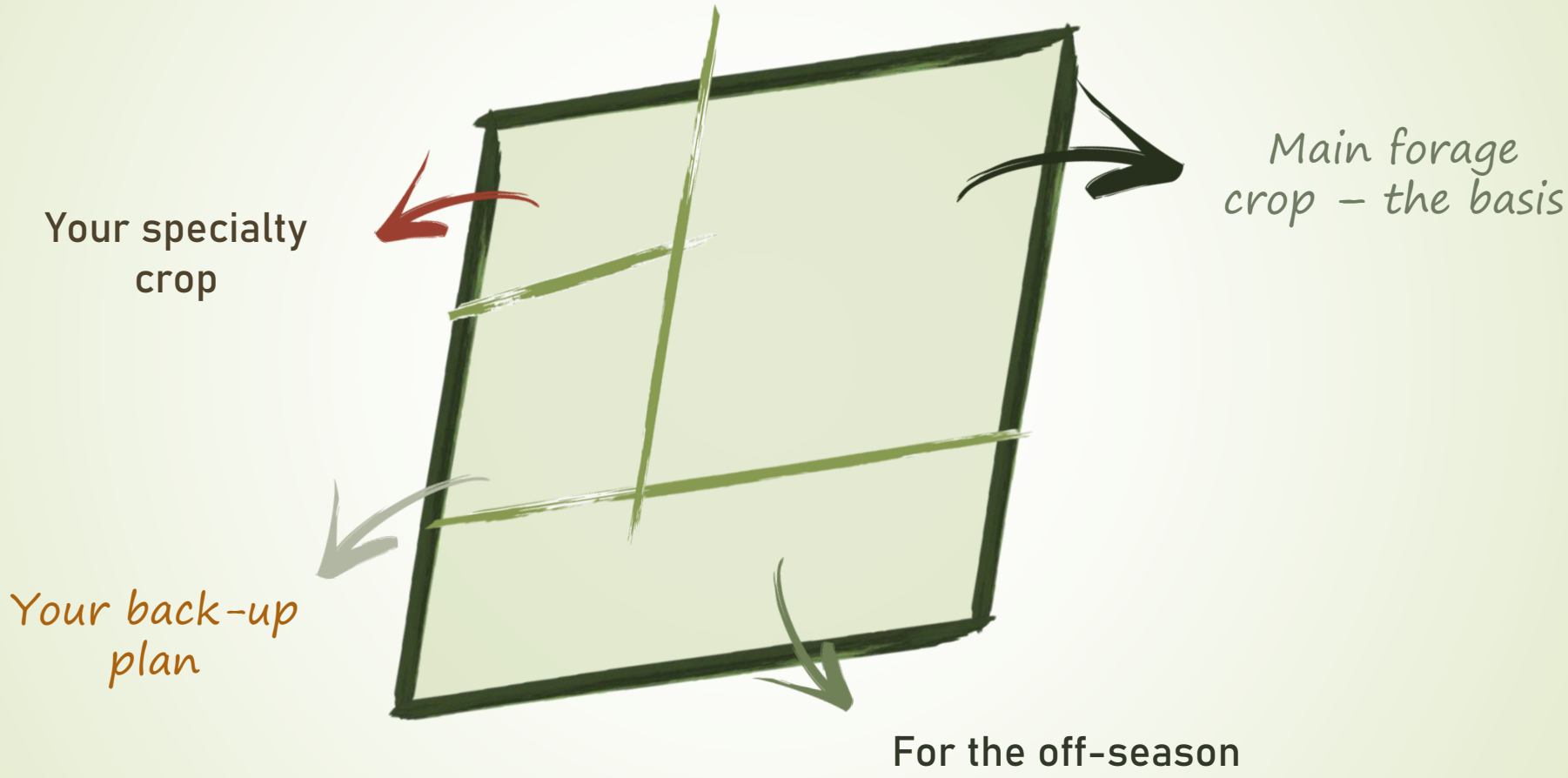
Forages that are high in quality!

(and that grow in your farm!!!!)

Think of what can grow in your area, and when



Think how to distribute different forages in space



Pasture choices

Summer forages

Perennials

Bahiagrass

Bermudagrass

Perennial peanut

Annuals

Millets

Sorghums

Sunn hemp

Cowpea

Buckwheat

Aeschynomene

Alyce clover

Cool season forages

Annuals

Small grains (rye, oat, triticale)

Annual ryegrass

Clovers (crimson, arrowleaf, ball, …)

Other legumes (winter peas, vetch,

Brassicas (chicory, turnips, rapeseed)

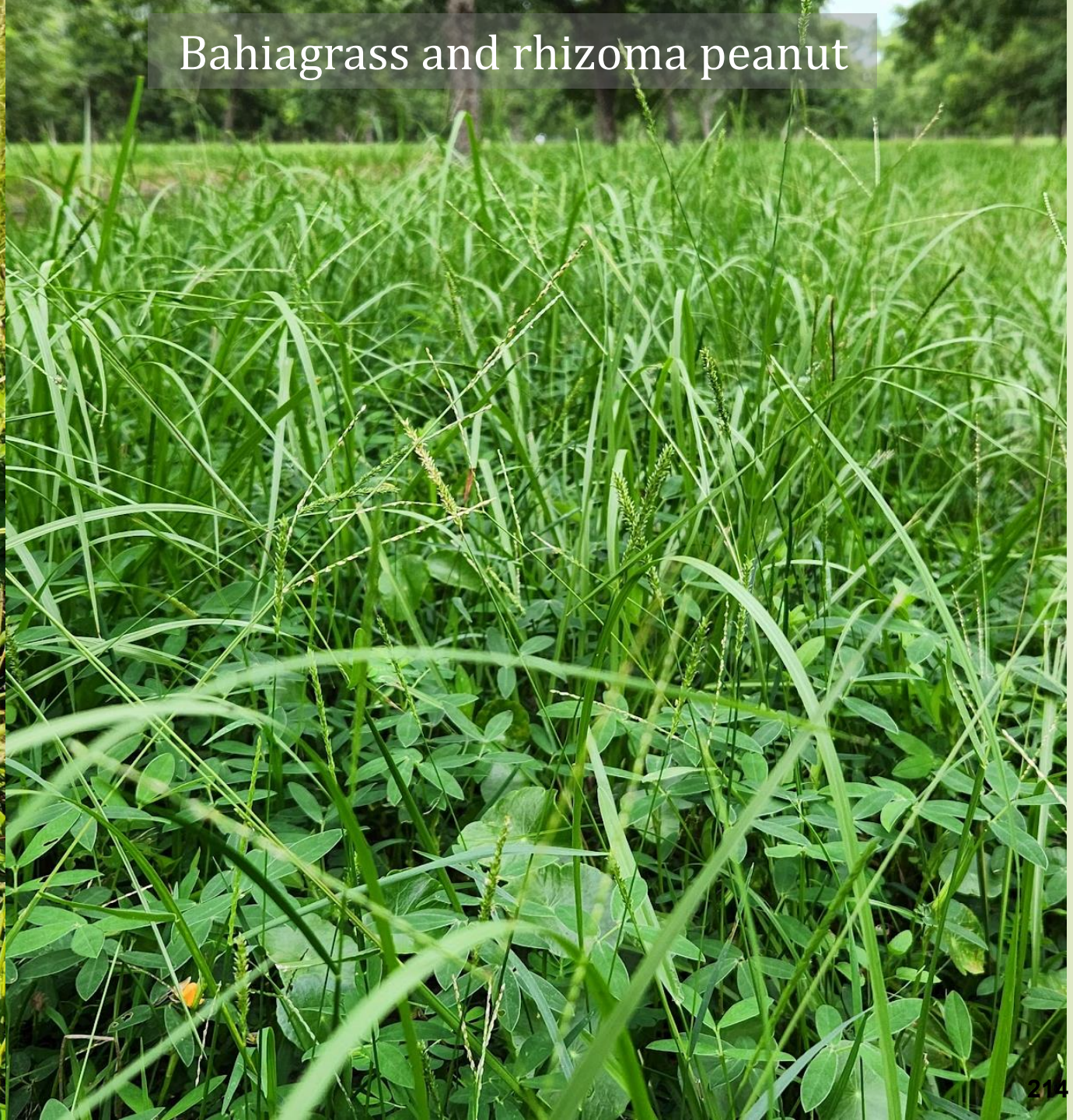
Perennials

Red and white clover

Summer mix

- Sunn hemp (crescent sun)
- Cowpea (Iron and Clay)
- Pearl millet (Epic)


Bahiagrass and alyce clover


Bahiagrass and rhizoma peanut

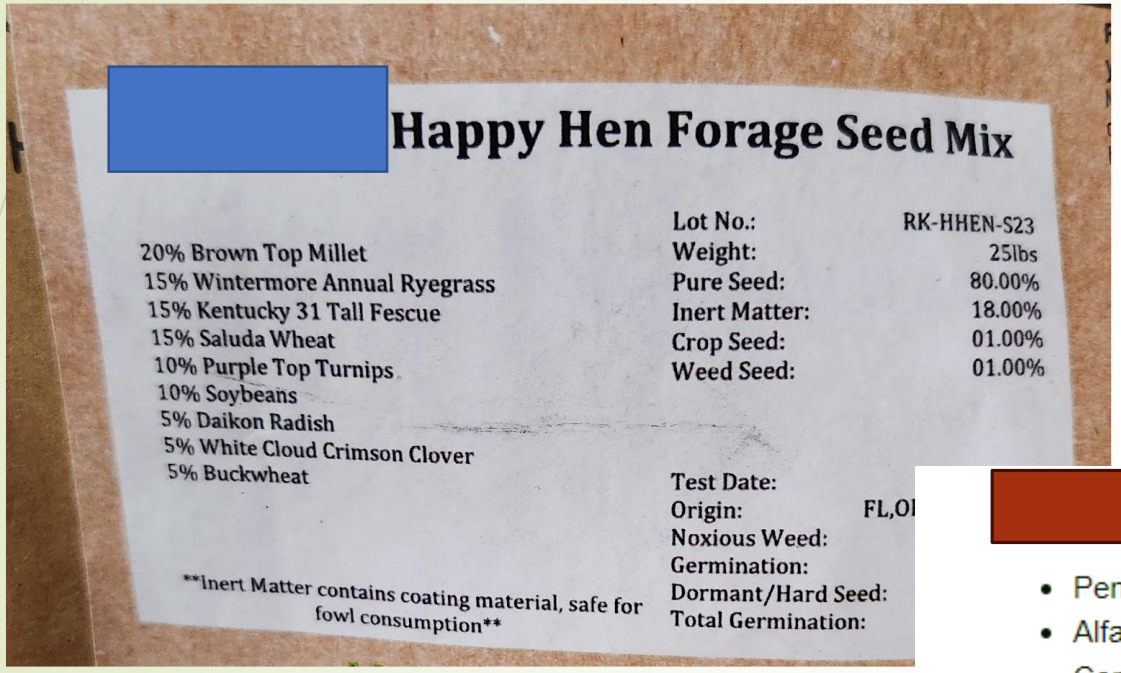
Oat

Ryegrass and crimson clover

Ryegrass

Winter forage – variety trial

Buying seeds



Happy Hen Forage Seed Mix

20% Brown Top Millet
15% Wintermore Annual Ryegrass
15% Kentucky 31 Tall Fescue
15% Saluda Wheat
10% Purple Top Turnips
10% Soybeans
5% Daikon Radish
5% White Cloud Crimson Clover
5% Buckwheat

Lot No.: RK-HHEN-S23
Weight: 25lbs
Pure Seed: 80.00%
Inert Matter: 18.00%
Crop Seed: 01.00%
Weed Seed: 01.00%

Test Date:
Origin: FL,O
Noxious Weed:
Germination:
Dormant/Hard Seed:
Total Germination:

Inert Matter contains coating material, safe for fowl consumption

Pasture Mix South Spring & Summer

30% Pensacola Bahia Coated
30% Common Bermuda - Ctd & Unhulled
15% Wintermore Annual Ryegrass
15% Brown Top Millet
5% White Cloud Crimson Clover
5% Kentucky 32 Tall Fescue

Lot No.: RKPAST-SS-2023
Weight: 25lbs
Pure Seed: 70.00%
Inert Matter: 28.00%
Crop Seed: 01.00%
Weed Seed: 01.00%
Inert matter contains coating material

Test Date: 02/23
Origin: FL,CA,OR,AL
Noxious Weed: NONE
Germination: 85%
Dormant/Hard Seed: 00%
Total Germination: 85%

Grazing Goat Forage Spring & Summer Seed Mix:

- Pensacola Bahia
- Alfalfa
- Common Bermuda
- Sunn Hemp
- Sericea Lespedeza
- Hybird Pearl Millet
- Sorghum-Sudangrass
- Arrowleaf Clover
- Korean Lespedeza
- Sunflower / Brassica Blend

Buying seeds

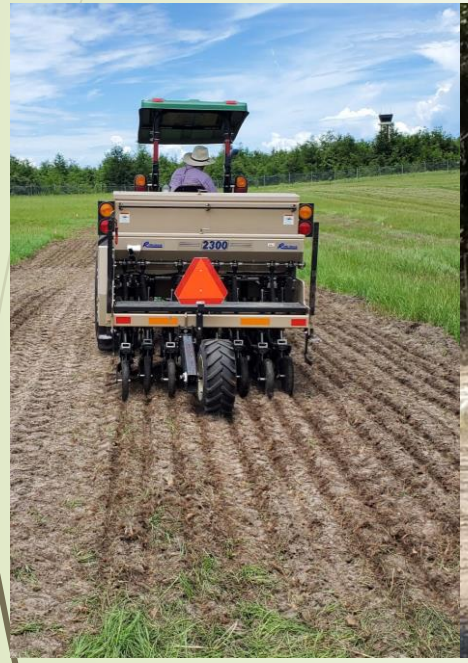
Check our recommendations – consult your local extension agents

- Choose species and varieties that are recommended!

Find reputable sources

- Read the labels and see what is being sold!

Different planting techniques and the issue of equipment availability



Seeded forages can be drilled or broadcasted – but there are specific nuances that need to be understood

Bermudagrass, limpograss, perennial peanut are planted with vegetative material (tops or sprigs)

What about grazing management?

Carrying capacity:

Maximum number of animals or animal units that your pastures can support in order to achieve a targeted animal performance without compromising the pasture (Allen et al., 2011)

Stocking rate: The relationship between the number of animals and the total area of the land in one or more units utilized over a specified time; an animal-to-land relationship over time (Allen et al., 2011).

Starting

Residual

Average daily gain 153% greater
Gain per area 43% greater

Pictures and data from Savian, 2017

Grazing management and parasites

Variable	Lenient rotational	Traditional rotational	P-value
Average daily gain (lb/day)	0.26	0.1	<0.001
Live weight gain per area (lb/A)	356	284	0.002
Stocking rate (lb/A)	756	1099	<0.001
Internal parasites (eggs/g of feces)	704	2472	<0.001

Greater parasite load in the bottom of the canopy

Savian, 2017

Parasites and grazing management

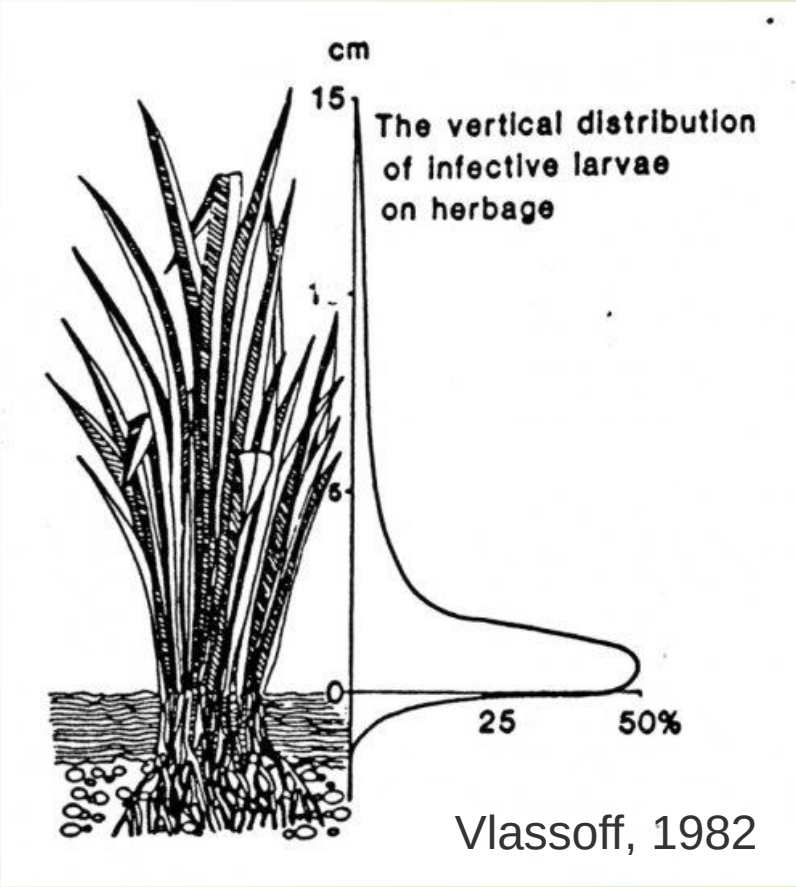
Primary cause is overstocking (and overgrazing)

Rotation

- Break cycles - ~45 – 60 days
  - Ideally longer – but will reduce nutritive value
- Graze top of the canopy only
- First and second grazers

Multi-species

- Of forages – tannins
- Of foragers – cattle & horses – non-host



Vlassoff, 1982

Grazing management

- Graze at the right timing
  - Too early – reduce plant growth
  - Too late – plants are too mature
- Leave residual forage to maintain growth
- Challenges
  - Growth is not “steady” – it will change across the season
  - Diversify, plant at different dates
  - Rotate and stockpile

Delayed grazing = less regrowth and very tall plant

Grazed at the right time = good regrowth and shorter plant

Three principles to remember:

1. Make sure you have enough
2. Add diversity of species along time and along space
3. Manage grazing in a way to benefit both plants and animals

Thank you!

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