UF IFAS UNIVERSITY of FLORIDA

FORAGE TEAM

Forage management *applied*

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Pasture management

Rotational vs. continuous stocking

Intensive grazing

Heavy fertilization

Improved hybrids and expensive seed

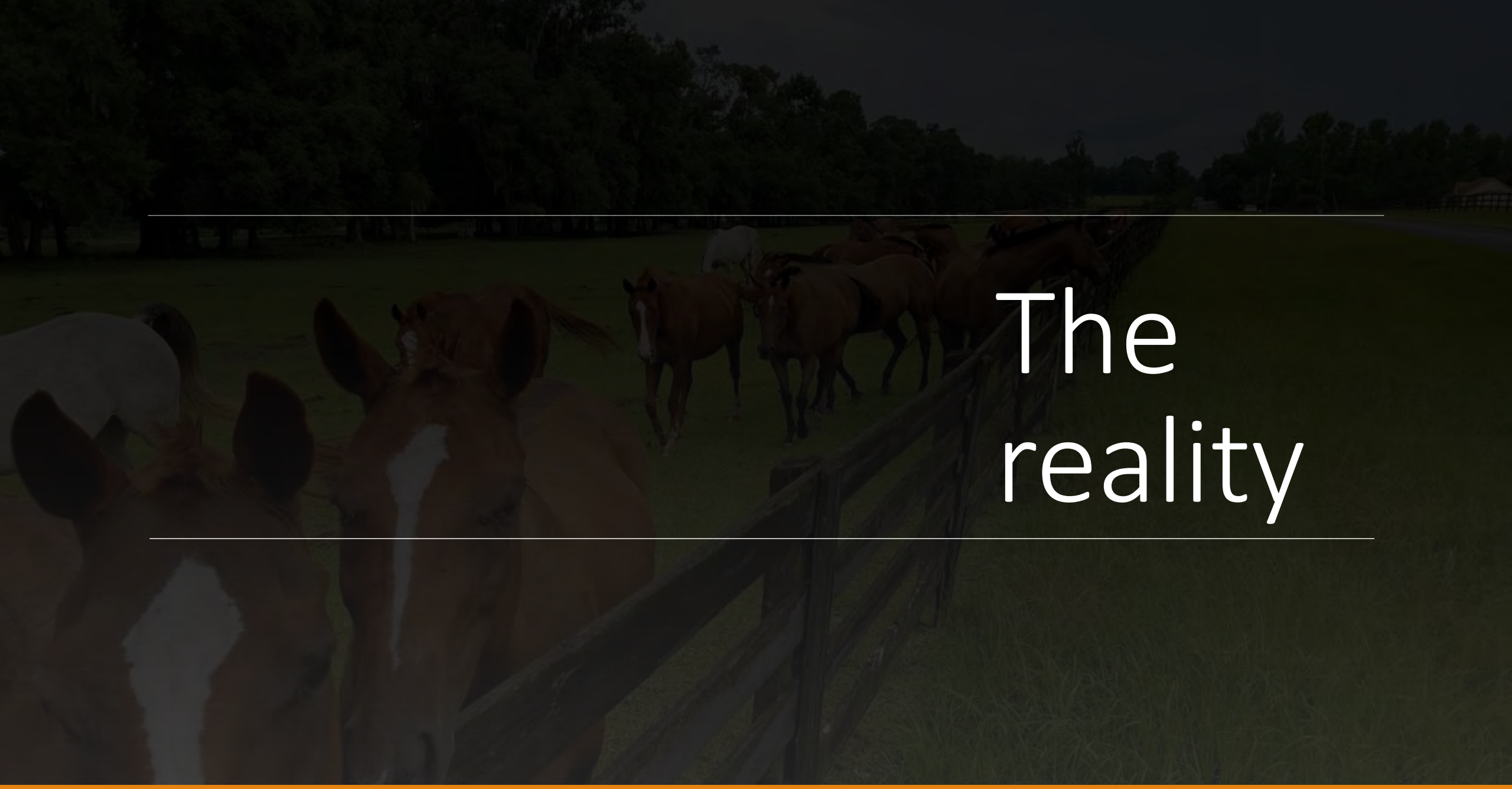
Irrigation

First

Concepts

&

Planning



The reality

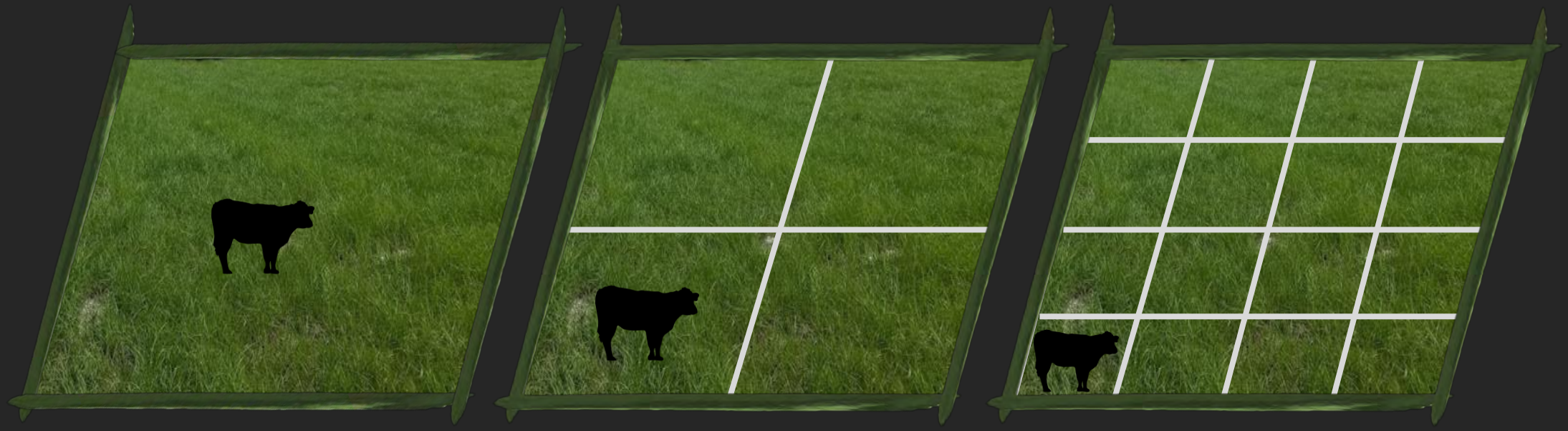
But with simple concepts and a management plan we can do a lot to improve our production

The basis to make sure we have enough forage for our cattle.

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)

And carrying capacity has to be your determinant for stocking rate.

Stocking rate – the actual number of animals or animal units per area based on total land (e.g. AU/A)

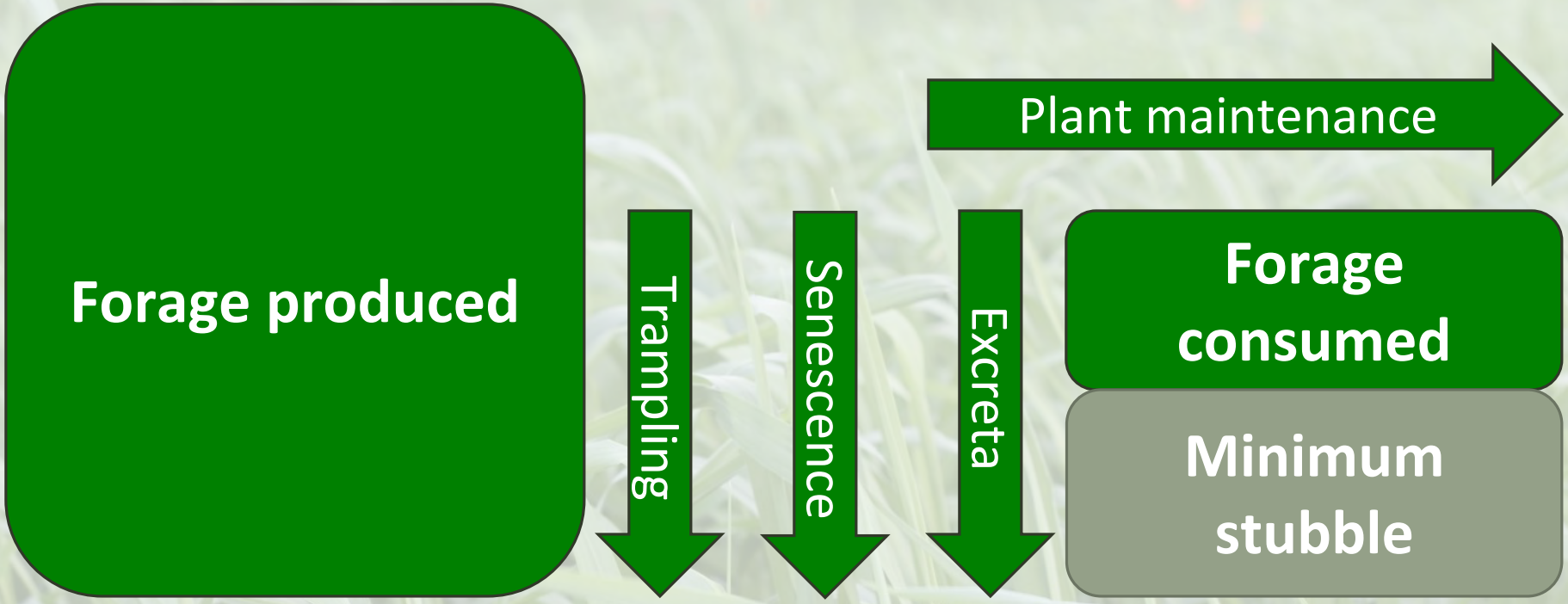


Stocking density – the relationship between number of animals and specific unit of land being grazed (e.g. AU/A)

Site	N rate	Cultivar			Reference
		Argentine	Pensacola	UF Riata	
	lb N/A yr^{-1}	lb DM/A			
Gainesville	180	10,800	9,300	8,400	Interrante et al., 2009
Ona	50	4,800	4,100	4,900	Vendramini et al., 2014
Ona	100	10,000	9,200	-	Mislevy et al. 2005

How much our bahiagrass pastures produce?

How much forage can I count on?



Rule of thumb – use 50-60% of accumulation rate – respect minimum stubble

Temperate annual pastures can tolerate up to 70% harvest efficiency

Tropical rangelands between 20 and 25%

9,000 lb DM/A → 50% grazing efficiency

= 4,500 lb DM/A available

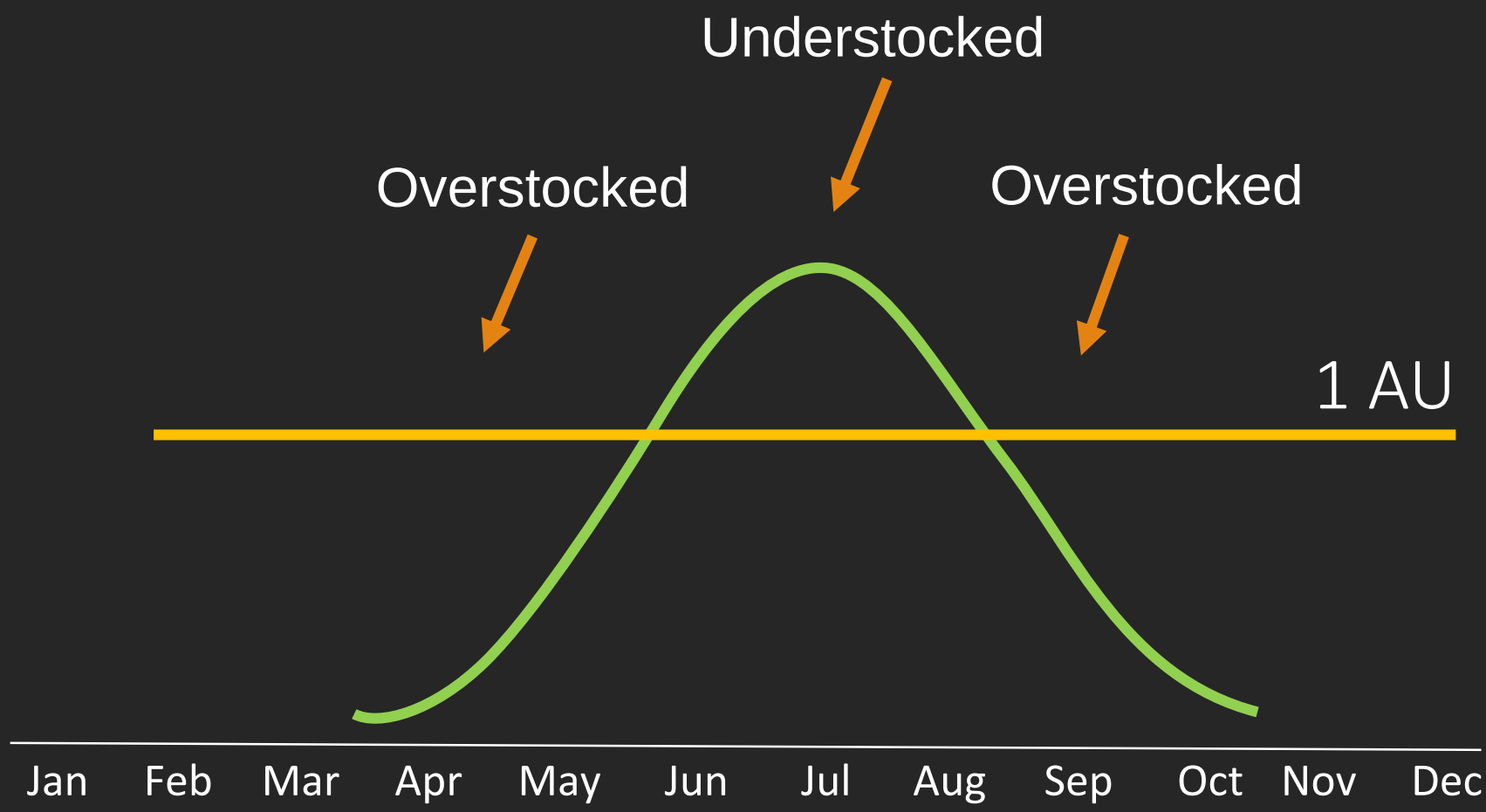
1,100-lb cow eating 2.5% body weight per day = 27.5 lb DM/D

27.5 lb DM/D x 170 days = 4,675 lb/DM

~ 1 AU/A

Carrying capacity

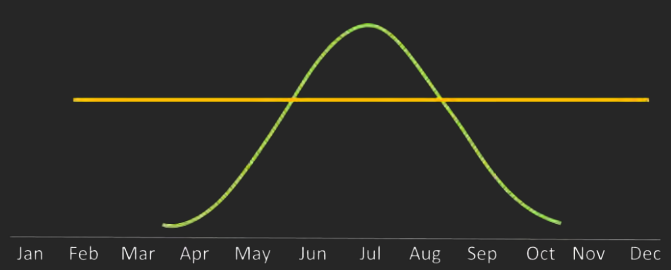
Bahiagrass growth



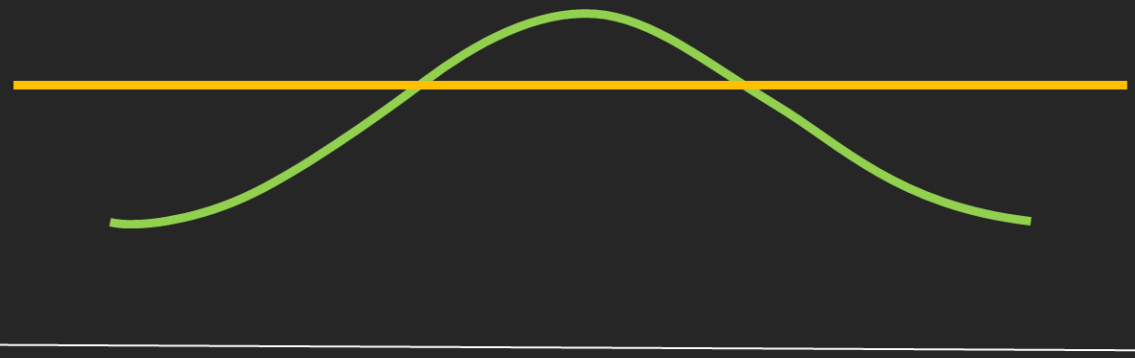
PARAMETER	UNIT	MAY	JUN	JUL	AUG	SEP	OCT
Herbage accumulation rate	lb DM/A d^{-1}	**28**	**41**	**59**	**50**	**12**	**14**
Days		31	30	31	31	30	31
Total DM production	lb DM/A	865	1242	1814	1535	351	446
DM available (50% total)	lb DM/A	432	621	907	767	176	223
1100-lb cow needs	(27.5 lb DM d^{-1})	853	825	853	853	825	853
Pasture needed	acres/AU	2.0	1.3	0.9	1.1	4.7	3.8
Monthly Carrying Capacity	**AU/A**	**0.5**	**0.8**	**1.1**	**0.9**	**0.2**	**0.3**

Stewart et al., 2007

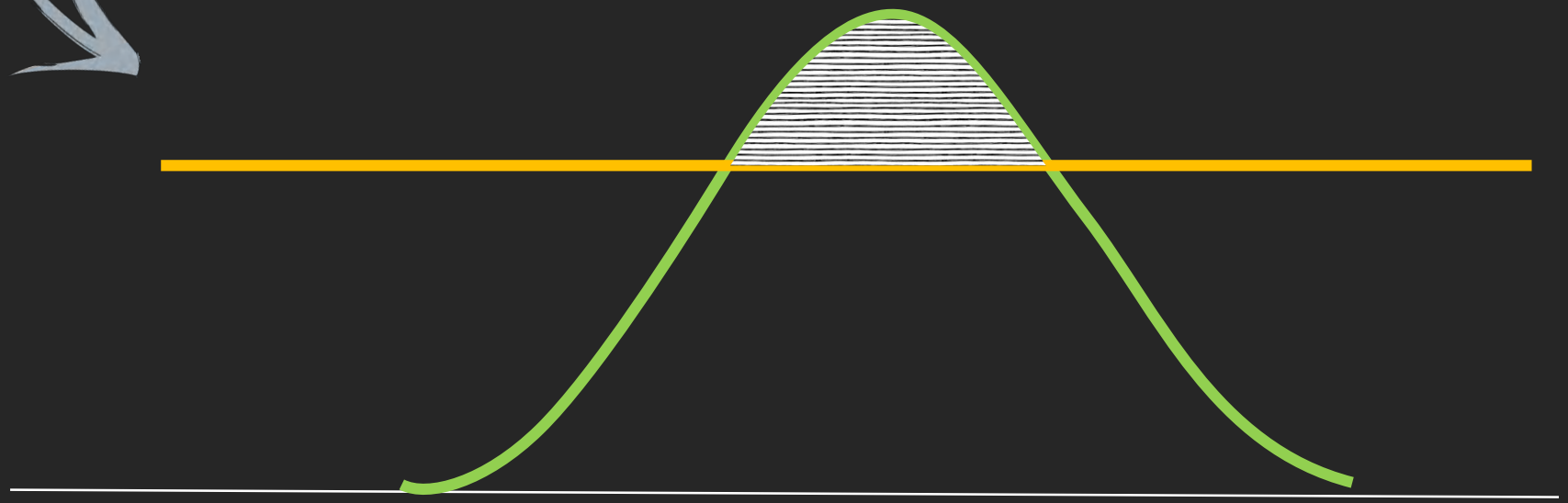
Dealing with seasonality



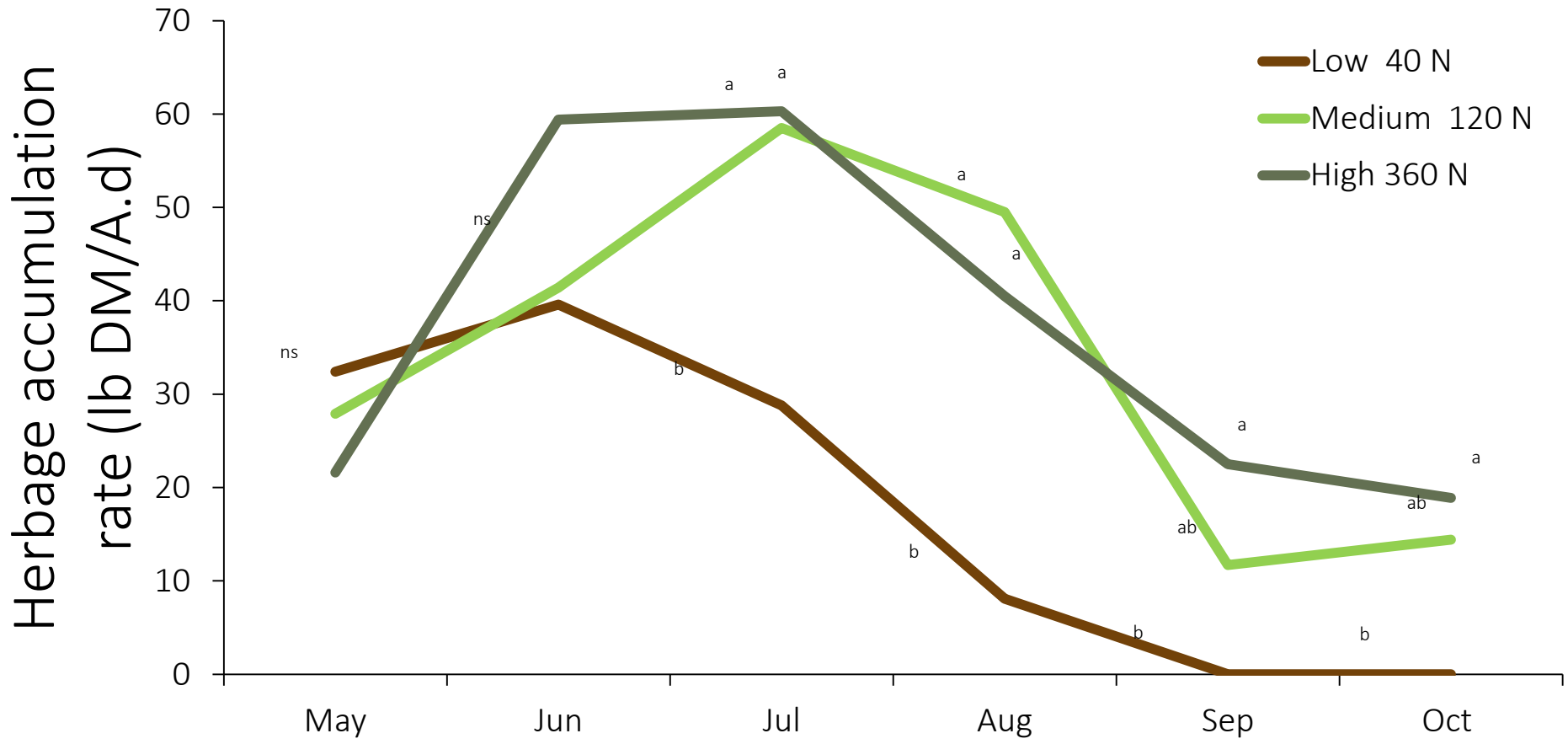
Flatten the curve



Harvest excess

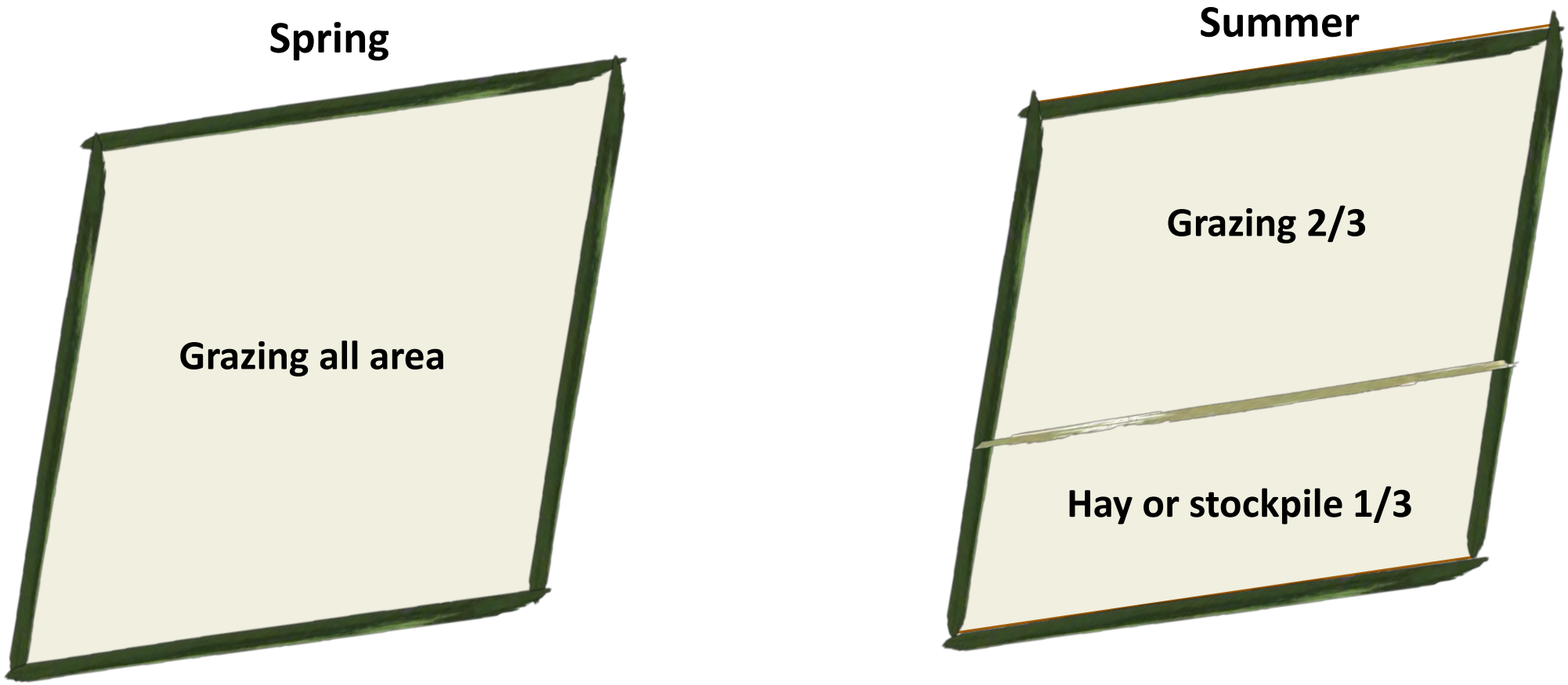


Effect of fertilization on herbage production



Stewart et al., 2007

Increase stocking density and harvesting the excess



Same stocking rate but increased stocking density

Hay production

Cheap insurance but expensive supplement

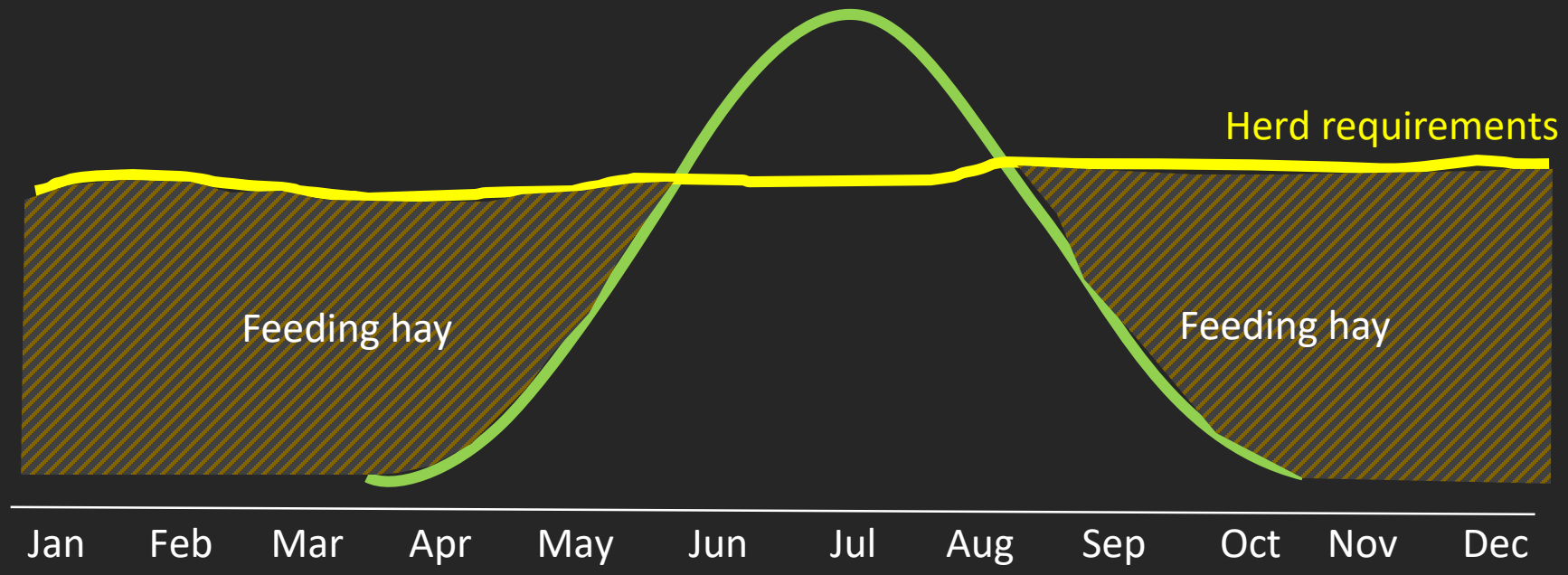
Good quality hay can save money!

Hard to make good hay on rainy FL summer - wrapping?

Forage budget

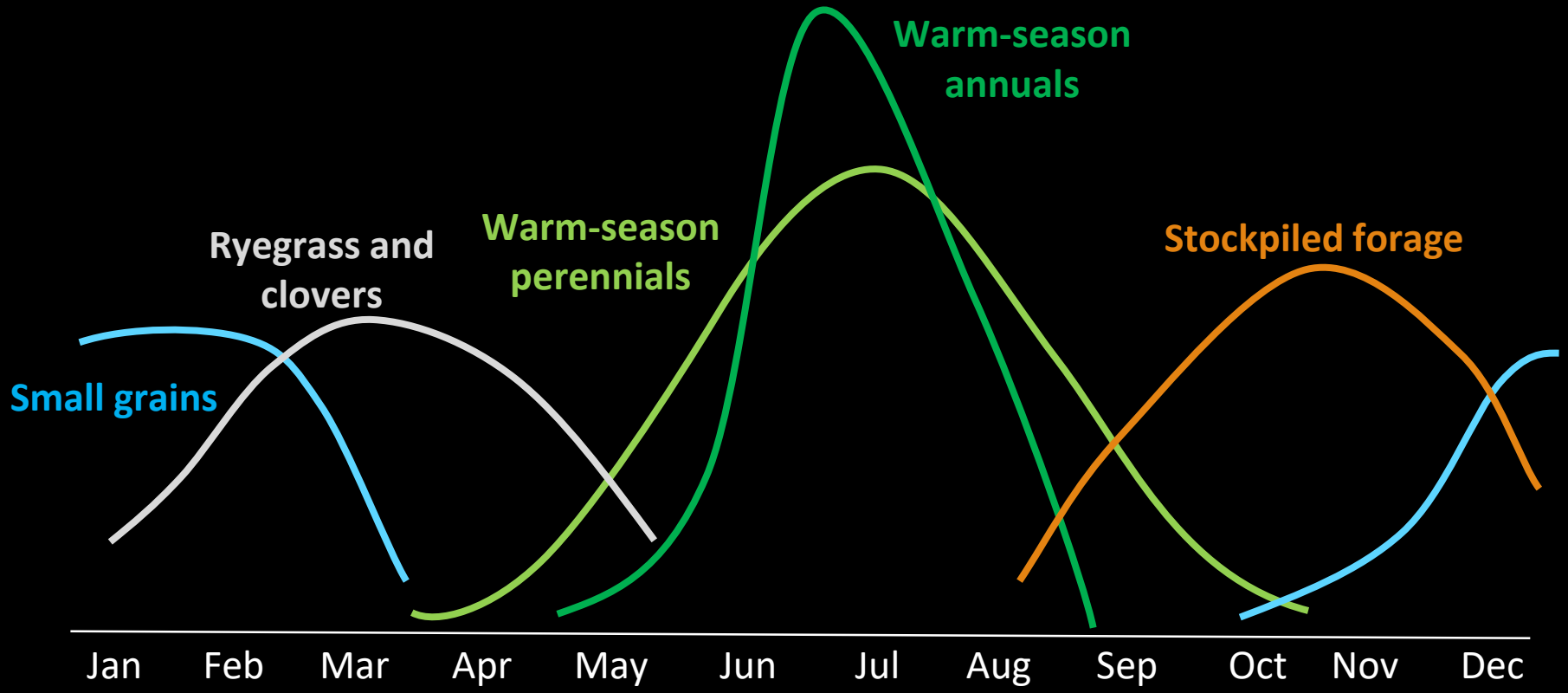
Parameter	Unit	Initial herbage mass	May	Jun	Jul	Aug	Sep	Oct
Herbage accum. rate	lb DM/A d^{-1}		28	41	59	50	12	14
Days			31	30	31	31	30	31
Total DM production	lb DM/A		865	1242	1814	1535	351	446

Bahiagrass only

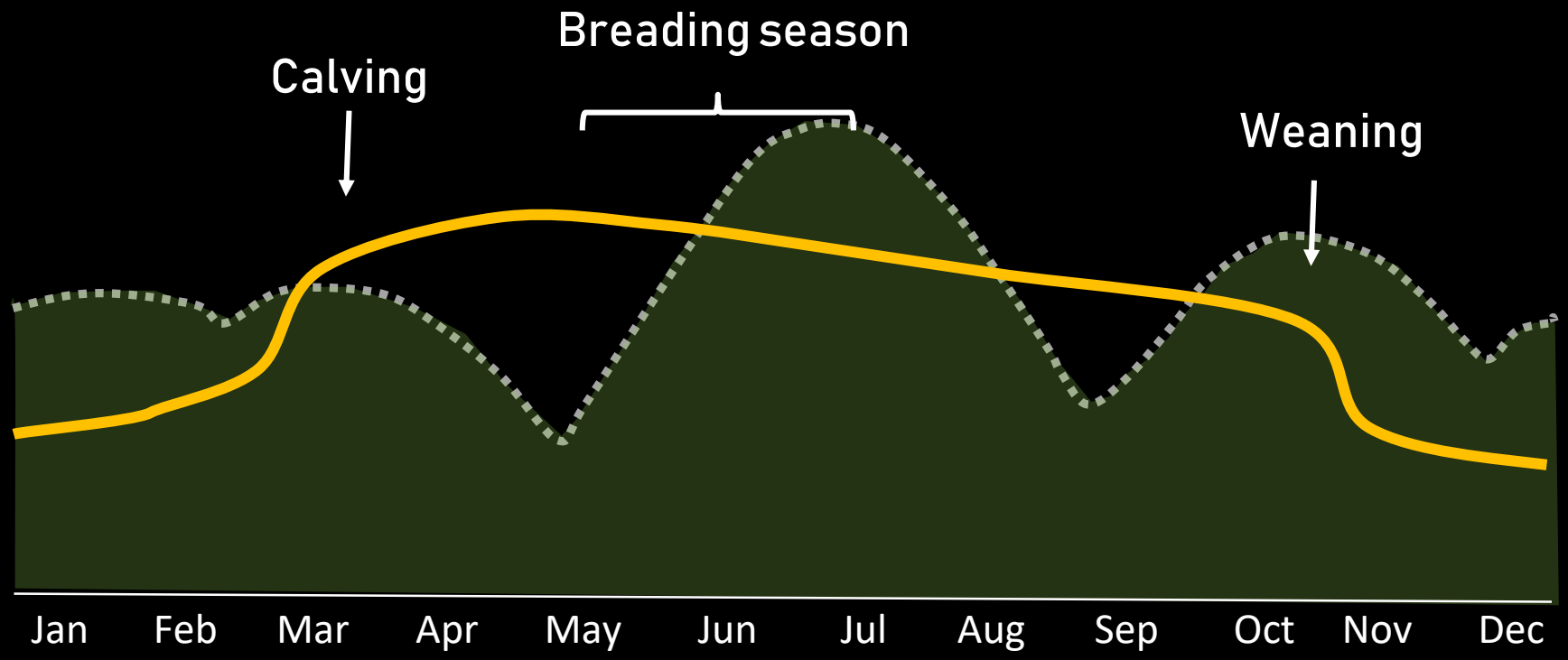


Concept #2

More grazing days and opportunity to improve animal performance

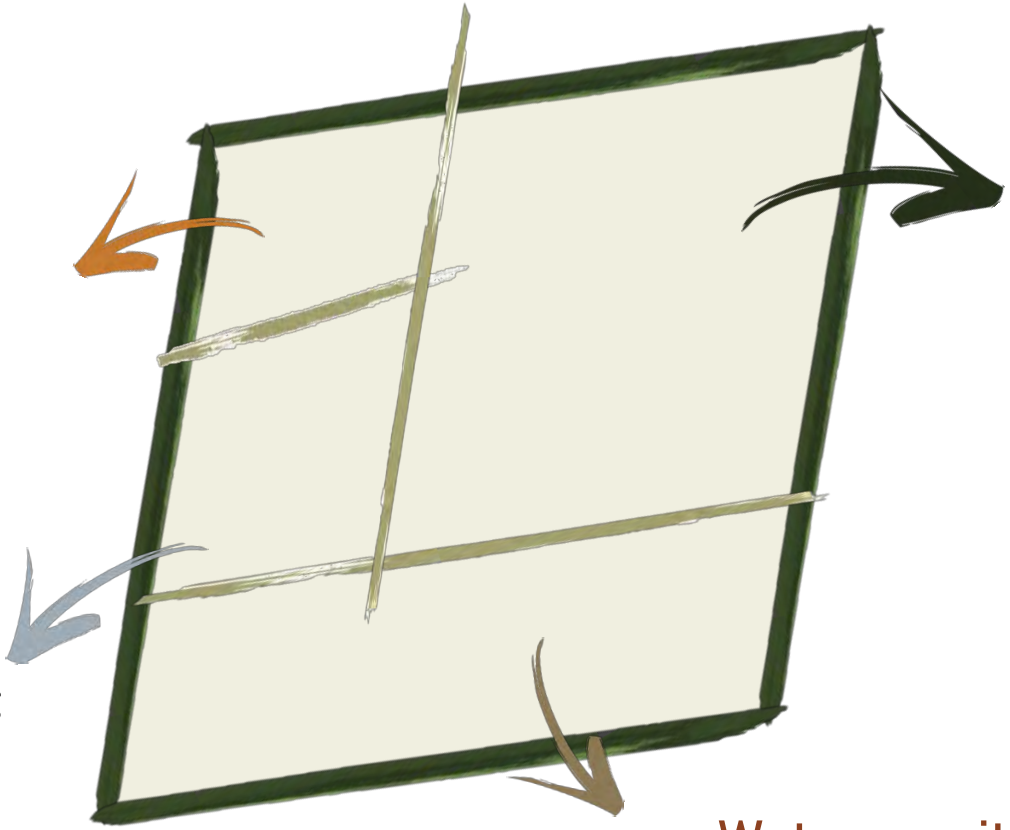

Warm-season annuals
Ryegrass and clovers
Warm-season perennials
Stockpiled forage
Small grains
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Better matching production needs (demand) and forage production (supply)



Farm mosaic

A 15% prepared ground for Sorghum and oat/ryegrass



Main forage crop bahiagrass

Bermudagrass hayfield

Wet area with limpograss for stockpiling

What forage to use?

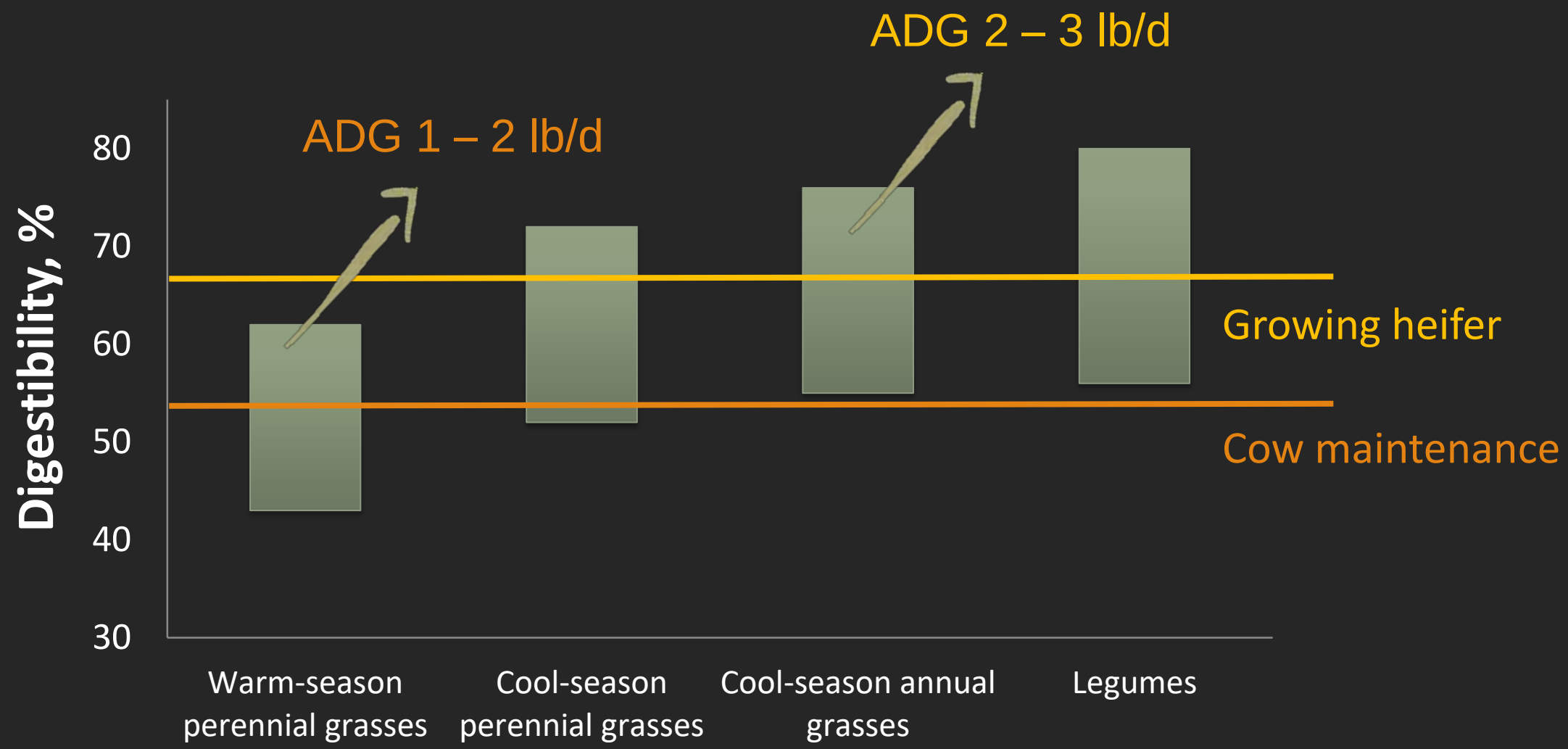
What are the needs?

Which forage species better fits the system/environment?

What is the level of investment and involvement?

Define objective

Setting production goals



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

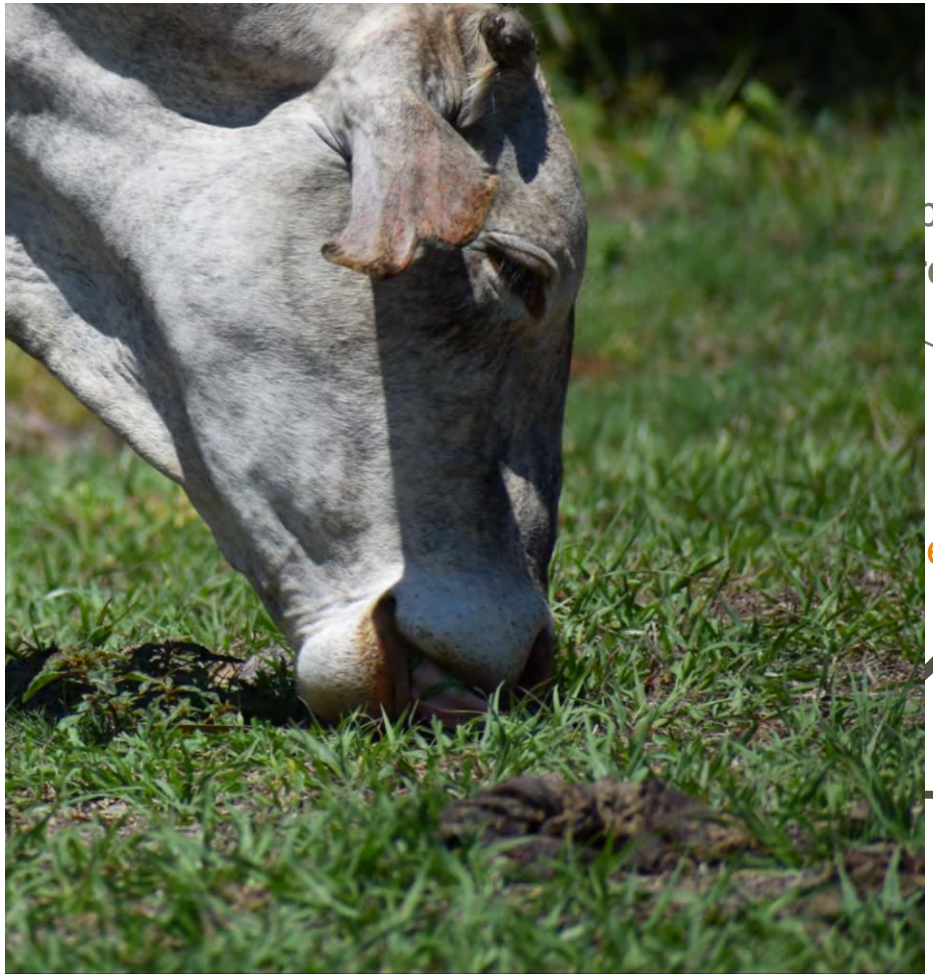
Concept #3

Grazing management

How does defoliation influence on animal performance and pasture growth?

Picture credit: Noble Institute

Plant growth curve



phase
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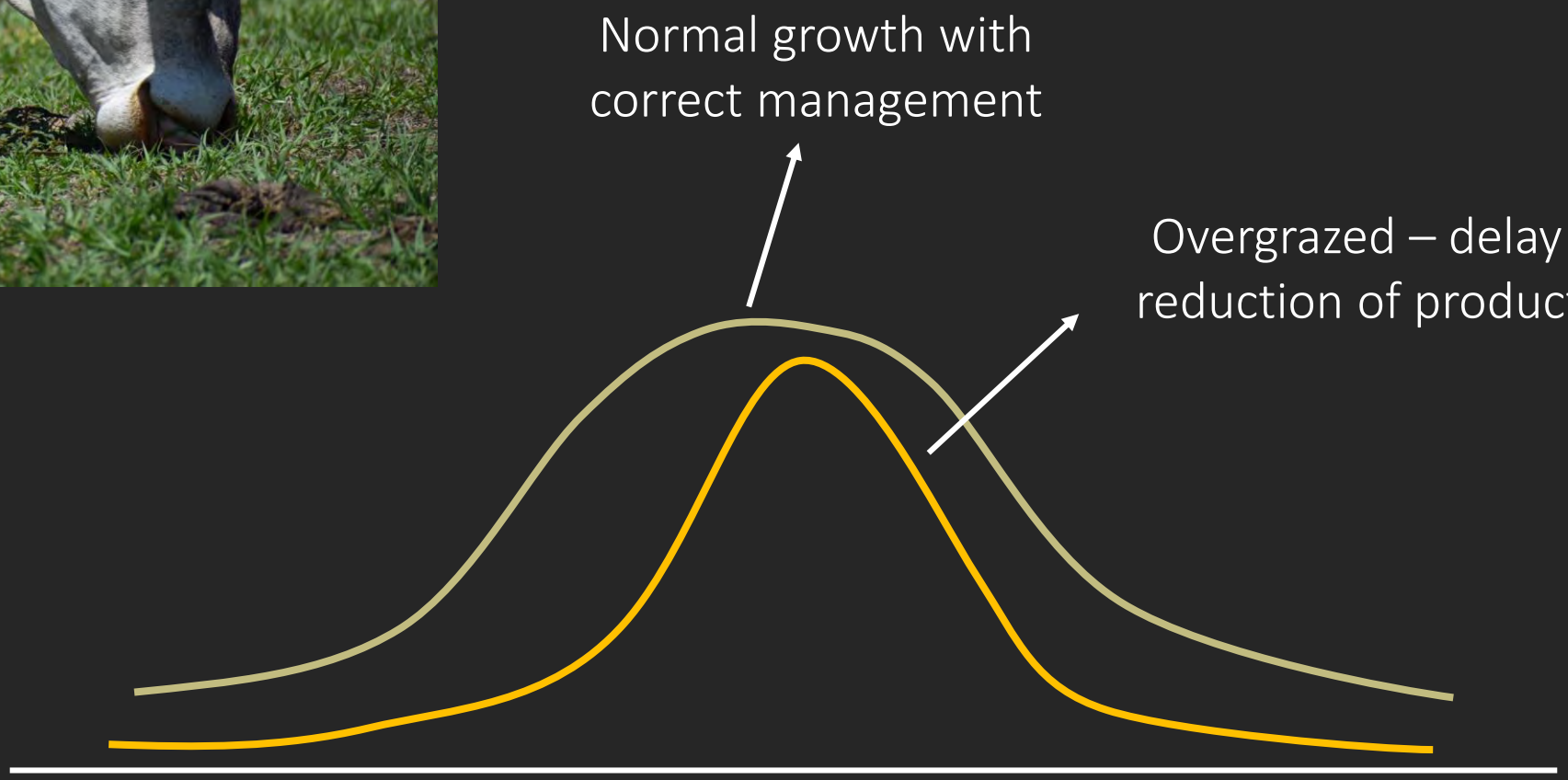
Time
(Biomass)


Normal growth with correct management
Overgrazed – delay and reduction of productivity

Heavy grazing

Moderate grazing

Light grazing

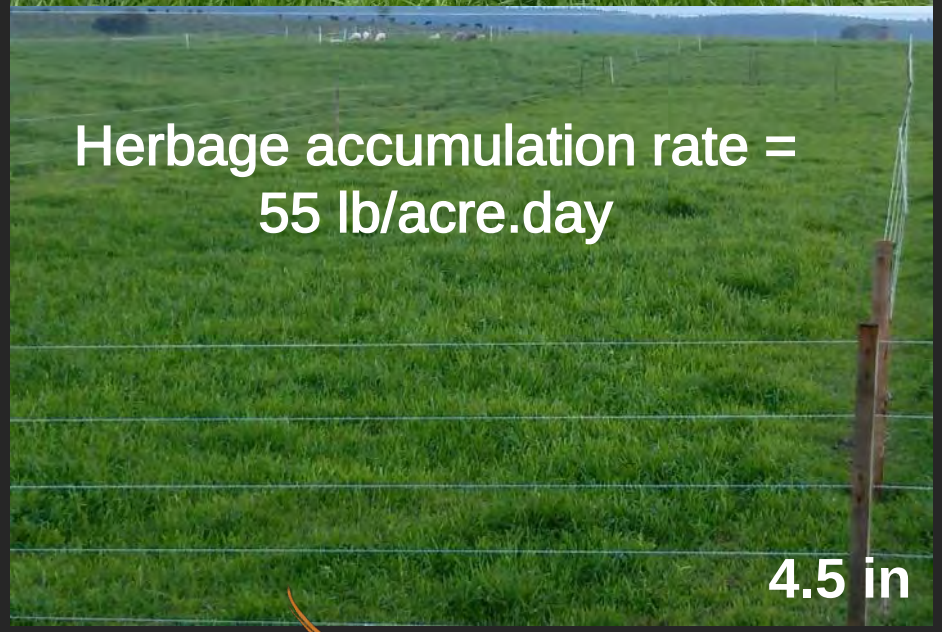
Source: Lynn Sollenberger

A mouth full of grass

Adequate forage will allow animals to graze at full potential

Picture credit: Gentil Silva Neto

Starting



Residual

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

Pictures and data from Savian, 2017

Recapping

Plan to make sure you have enough - budget

Don’t put all eggs in one basket - diversify

Leave grass behind, so you can make more grass - defoliation

Summing up!

These concepts are crucial to establish a plan for your system.

Planning is a powerful tool that confers flexibility to the system to overcome possible challenges.

Forage budget may require some calculation but is simple and will help to achieve herd requirements.

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