



Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE



How to Develop a Grazing Management System

October 13, 2026

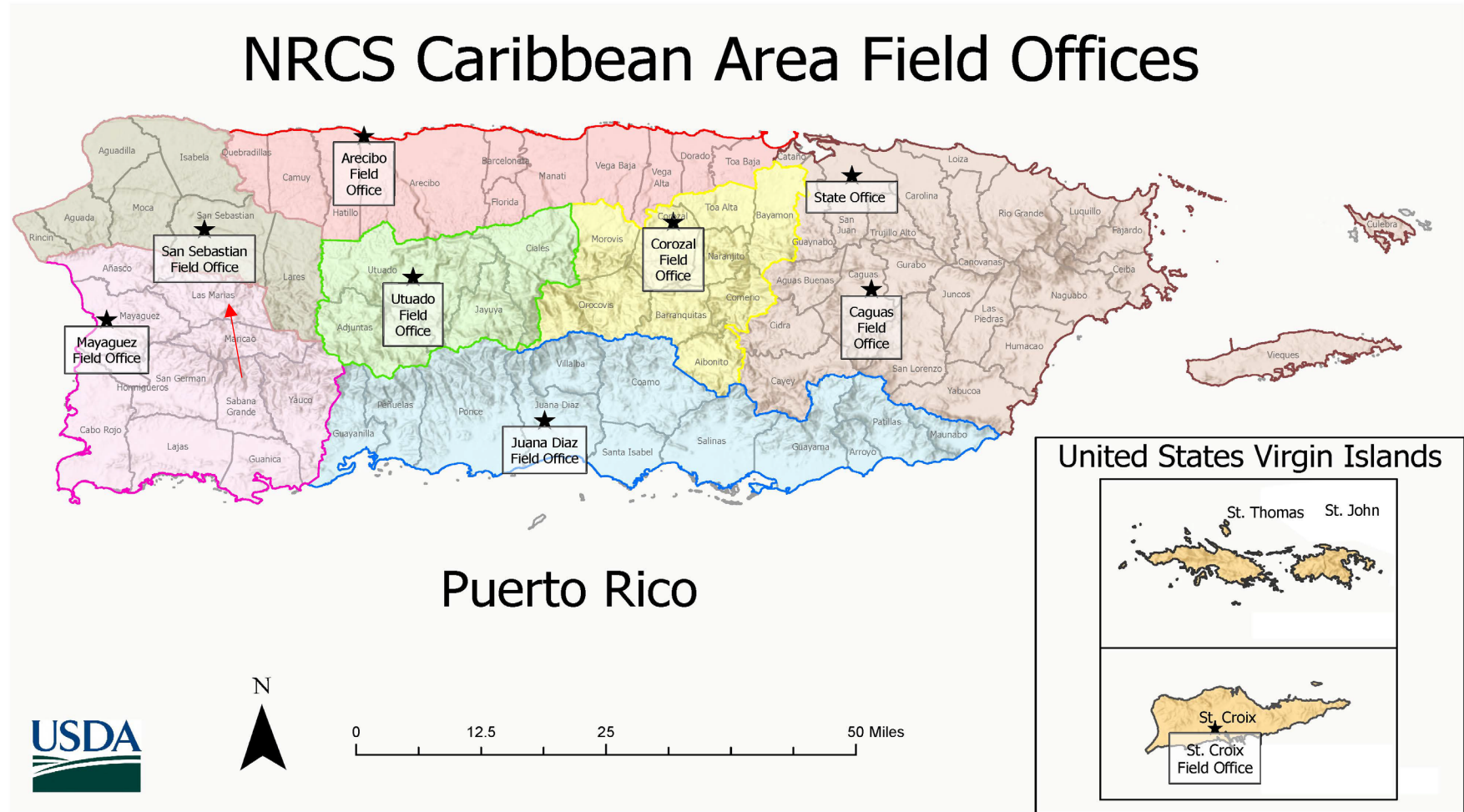
FARM PRODUCTION AND CONSERVATION
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Objectives

- At the end of the presentations participants will understand components of a grazing management system
- Familiarize with the USDA/NRCS Grazing Management System Tool.

Visit
our
office!



USVI Field Office District Conservationist

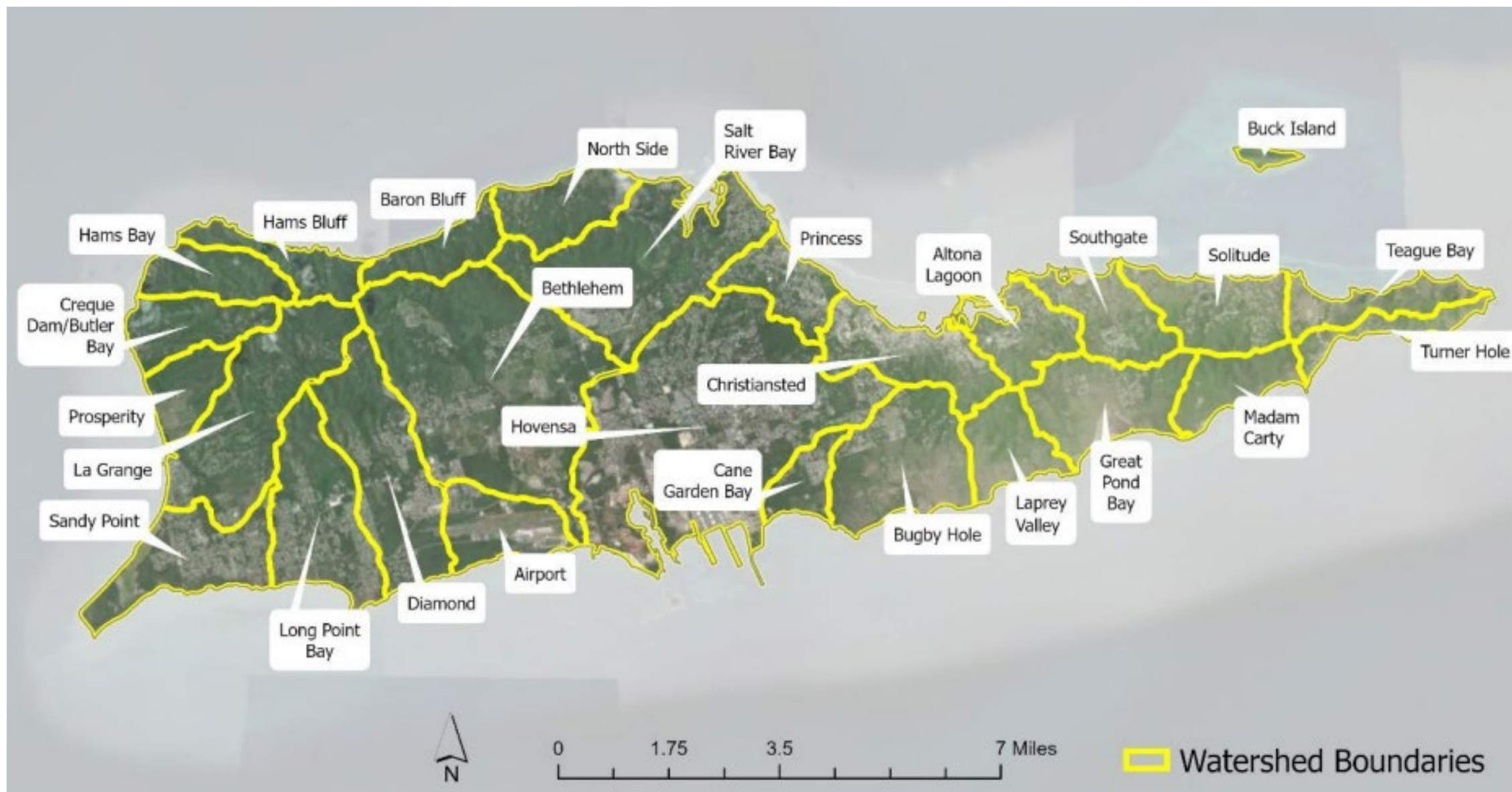
Phone Office

Email

Rudy O_Reilly

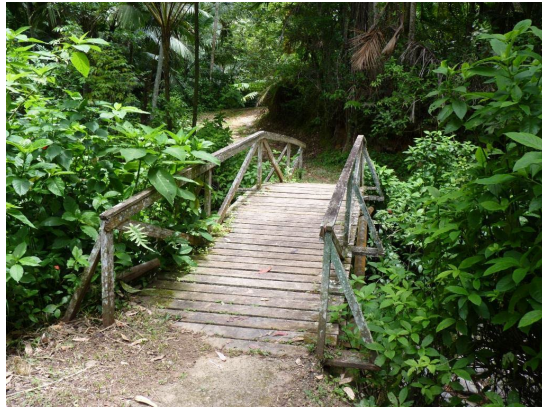
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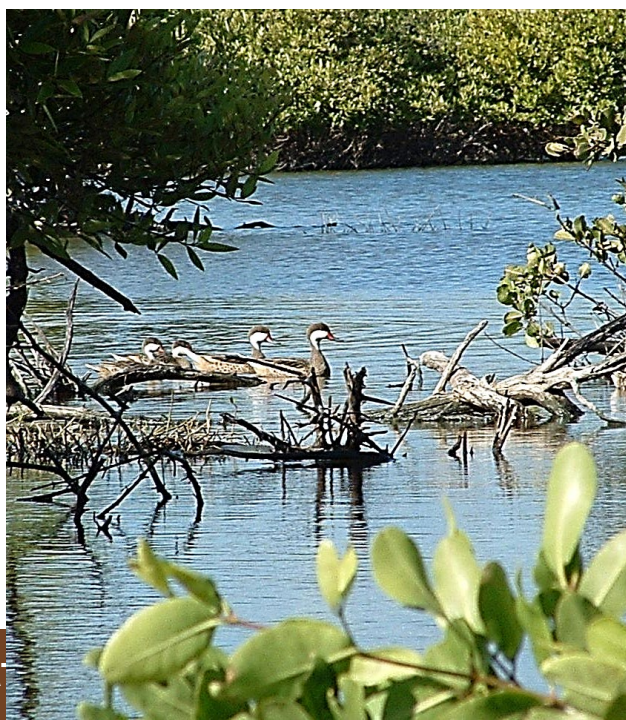
Who We Are

- **Mission:** We deliver practical, voluntary, and locally led conservation solutions that help producers conserve natural resources, strengthen agricultural production, and keep working lands productive for generations to come.



- **Vision:** An America where working lands remain productive, resilient, and in the hands of those who steward them.





What We Do

NRCS helps farmers & private landowners make good conservation decisions



Resource Concerns - SWAPA H+E

Soil, Water, Air, Plants, Animals, Humans + Energy





Programs Available for Farmers

- **ACEP – Agricultural Conservation Easements Program**
- **CSP – Conservation Stewardship Program**
- **EQIP – Environmental Quality Incentives Program**

What is a Resource Concern?



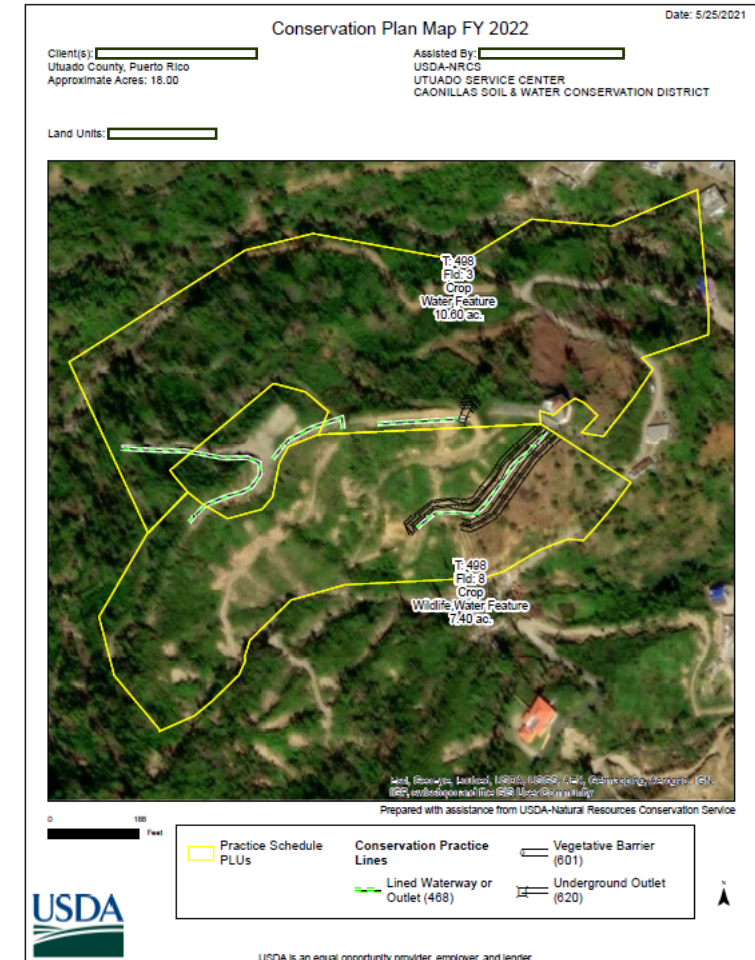
- **USDA NRCS defines (2020) a resource concern as a resource condition that does not meet the minimum acceptable condition levels established by the resource planning criteria shown in the eFOTG (Section III). SWAPAE+H**

9 Steps of Conservation Planning

How Conservation
Planning Works



What type of product does NRCS offer?

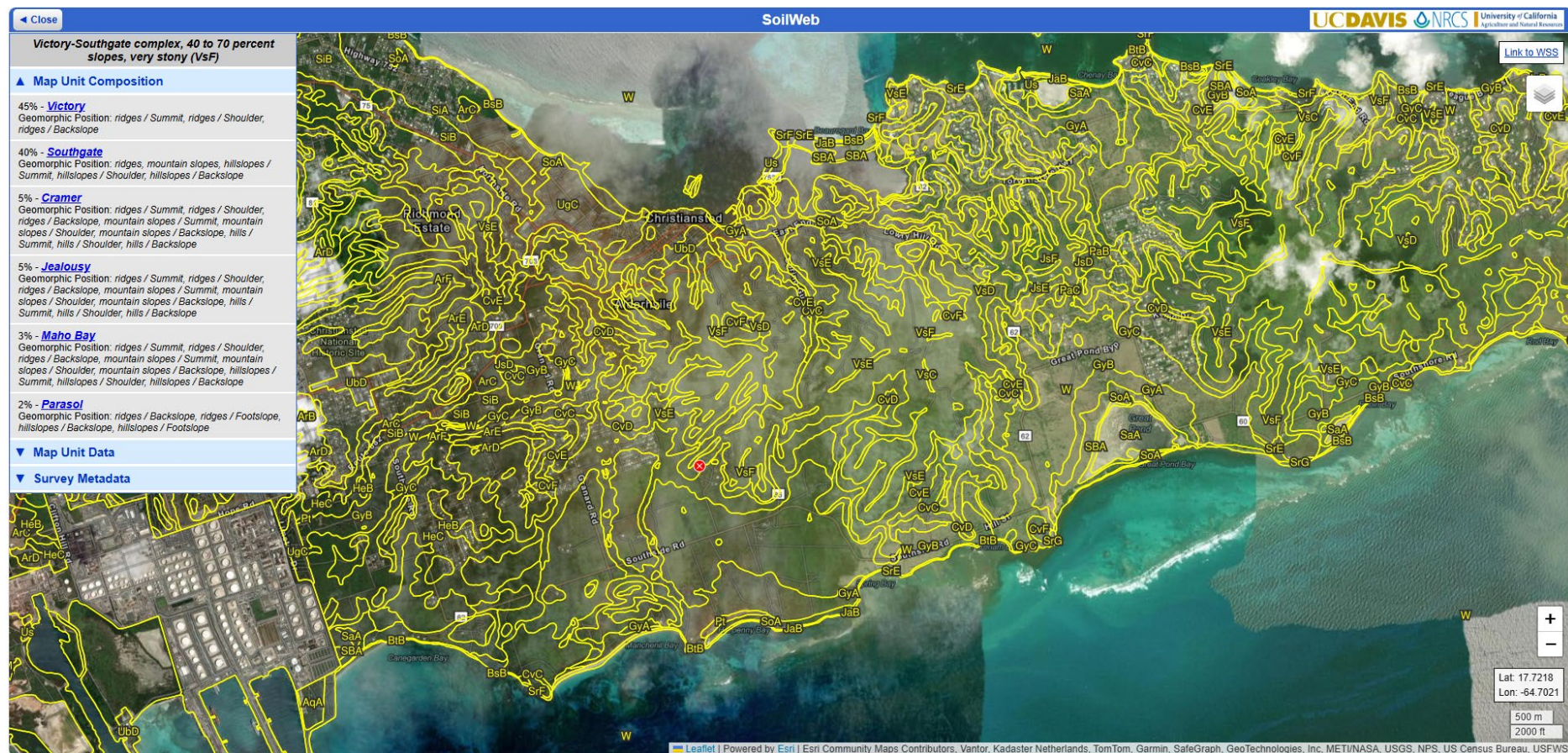




GMSP: What to know Before You Start?

St. Croix Soil Series

1. Aquents
2. Annaberg
3. Arawak
4. Carib
5. Cinnamon Bay
6. Cramer
7. Glynn
8. Hesselberg
9. Hogensborg
10. Jaucas
11. Jealousy
12. Parasol
13. Sion
14. Solitude
15. Southgate
16. Sugar beach
17. **Victory**



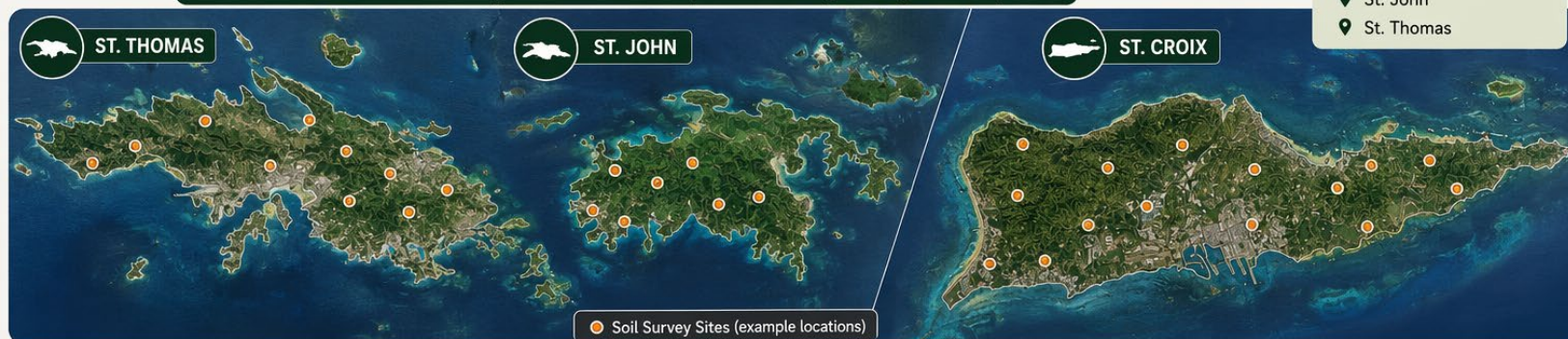
Soilweb: <https://casoilresource.lawr.ucdavis.edu/gmap/>

USVI Soil Series

U.S. VIRGIN ISLANDS (USVI) – SOIL WEB & SURVEY SITES

Identify Soil Series to Complete the Grazing Management System Tool (GMST)

Part of the Resource Inventory Needed to Develop Your Grazing Management System



WHAT IS SOILWEB?



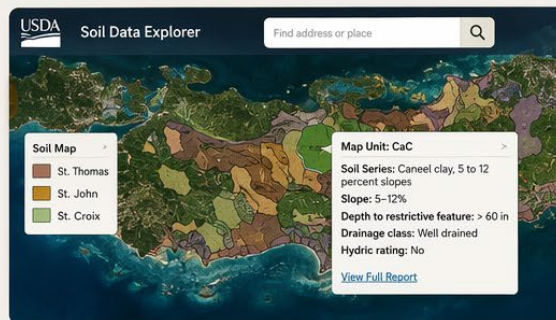
SoilWeb is the official online source for soil survey information.

- ✓ View soil maps
- ✓ Identify soil series
- ✓ Explore soil properties
- ✓ Access survey area data

soils.usda.gov

HOW TO USE SOILWEB TO FIND SOIL SERIES

- 1 Go to soils.usda.gov
Select "Soil Data Explorer"
- 2 Zoom to your farm/ranch
Select the area of interest
- 3 View Soil Map
Review mapped soil units
- 4 View Soil Report
Identify the Soil Series and properties
- 5 Record Soil Series
Enter into the GMST Tool



Example only. Soil survey maps and soil series vary by location.

WHY IT MATTERS FOR GMST

- Soil series help determine forage production potential and management options.
- Supports decisions on stocking rate, rest periods, and grazing system design.
- Helps protect soil health, water quality, and long-term ranch productivity.
- Required input for completing the Grazing Management System Tool (GMST).



This QR code links directly to:
<https://casoilresource.lawr.ucdavis.edu/gmap/>

RESOURCE INVENTORY WORKFLOW



Land Resources



Soils (Soil Series)



Forage Resources



Water Resources



Infrastructure



Livestock



Develop Your Grazing Management System (GMST)



What is the proper amount of feed for my livestock?



What is the proper amount of feed for my livestock?

- **Dry Matter Intake (lb) = Body Weight (lb) x (DMI % Body Weight Value/100 lb)**
 - Livestock Body Weight for a Cow (600-1200)
 - Goat and Sheep Body Weight (80-150 lb)
 - Ruminants Dry Matter Intake (DMI) = (2-3%)
- **How much does a Goat or Sheep need to eat with a body weight of 100 (lb) with a DMI of 2.5%?**
 - BW = 100 (lb)
 - DMI = (2.5%)
 - $100 * 0.025 = 2.5$ (lb)
 - **DMI = 2.5 (lb)**
- **How much is the equivalent of 2.5 pounds of Fresh Chop?**
 - $2.5 \text{ lb} / 0.15 = \mathbf{16.67 \text{ (lb) of Fresh Chop}}$

What is the proper amount of feed for my livestock?

- How much does a cow with a body weight of 1,000 (lb) need to eat with a DMI of 2.5%?
 - DMI = **25 (lb)/day**
 - Fresh chop Daily Intake per animal = **166 (lb)/day**



How much forage do pastures produce in the Virgin Islands?



Bluestem



Buffel



**Mexican Blue
grass**



**Goose
grass**



Digitaria



Guinea



Hurricane

Annual dry Matter Yield of Forage Grasses in the U.S.

Pasture	Rainfed min-max/acre	Irrigated max/acre	References
Bambatsi panicum (<i>panicum coloratum</i>)	13,380-14,190	n/d	Adjei et al. (1998)
Buffelgrass (<i>Cenchrus ciliaris</i>)	1,780-8,030	21,410	Tropical forage (n.d.-a)
Guinea grass (<i>Megathysus maximus</i>)	14,720 max	38,090	Ajei et al. (1998);Wolele et al. (2025)
Hurricane grass (<i>Bothriochloa pertusa</i>)	890-4,460	13,380	Tropical forage (n.d.-a)
Napier/King grass (<i>Cenchrus purpureus</i>)	1,780-26,760	64,220	Rusdy (2016); Feedipedia (n.d.-c)
Pangola (<i>Digitaria Eriantha</i>)	4,460-8920	n/d	Pastures Australia (n.d.-a)
Para grass (<i>Urochloa mutica</i>)	3,570-13,380	26,760	Tropical forage (n.d.-e); Pastures Australia
Rhodes grass (<i>Chloris gayana</i>)	1,780-22,300	n/d	Tropical forage (n.d.-d)



Forage/ Animal BALANCE

$$\text{Balance} = \frac{\text{PASTURE SUPPLY}}{\text{ANIMAL DEMAND}} \geq 1$$

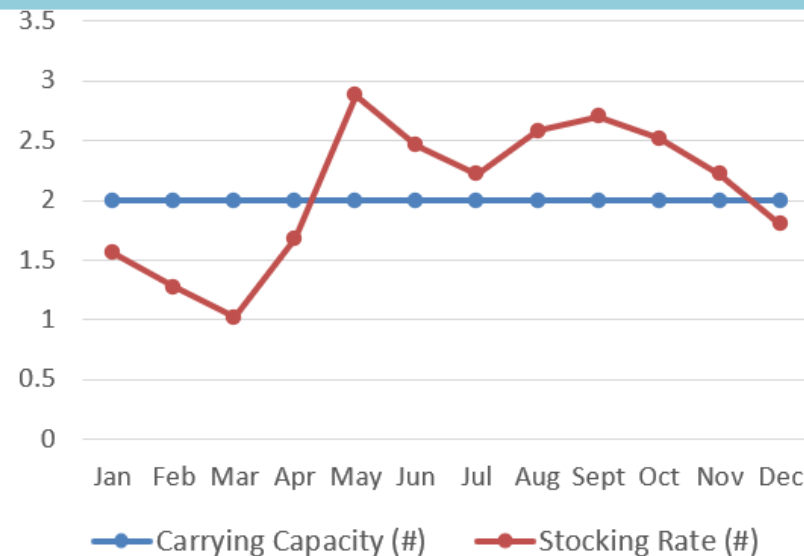
PASTURE CALCULATION WORKSHEET

Farm Operator:	JAC		Reviewer:	JACA			County:	St. Croix
Field Office:	St. Croix Service Center	Farm #:	0	Field(s):	1-5	Acres:	1	Date: 10/5/2020

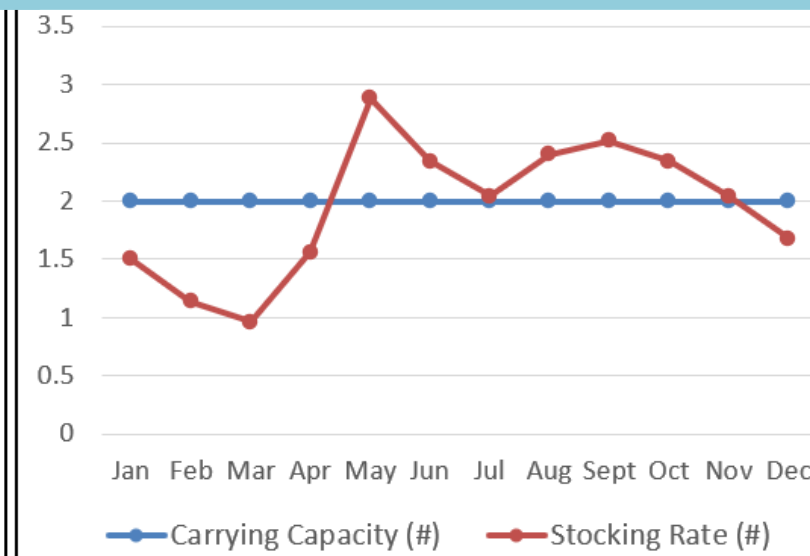
Current General Livestock Site Information

Type of livestock	Number of animals in herd (#)	Estimated Animals Weight (lb)	Animal Intake (Body weight %)	Estimated total pounds of daily intake per animal
Meat goats	2	100	Medium	2.5

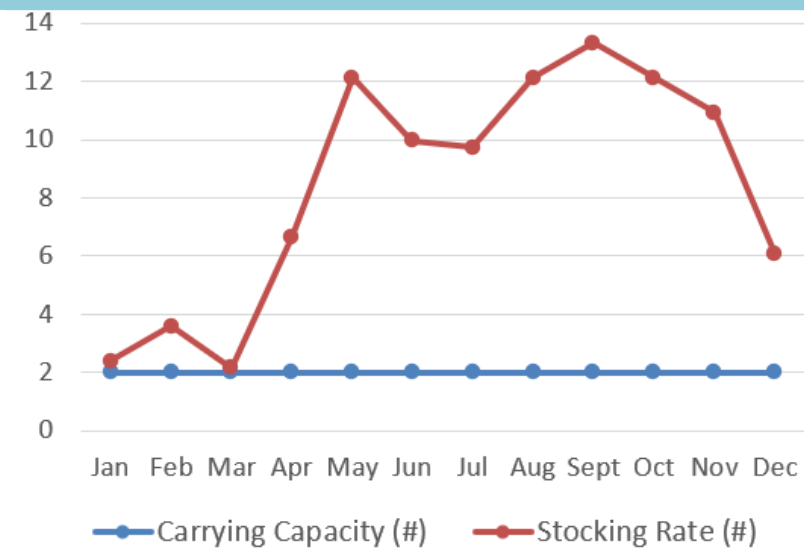
Buffel grass



Guinea grass



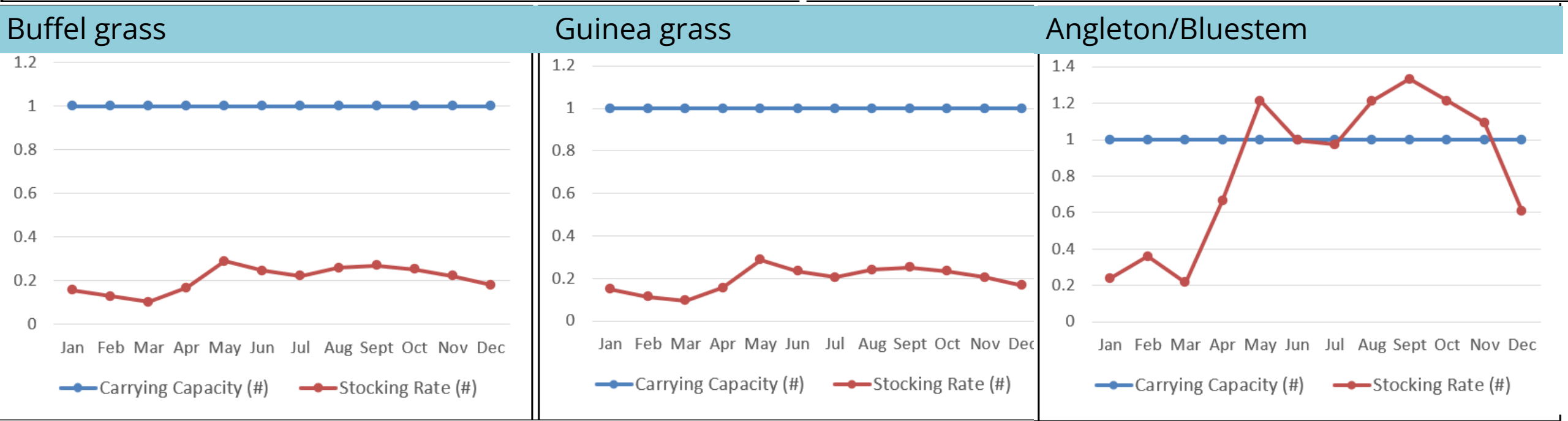
Angleton/Bluestem



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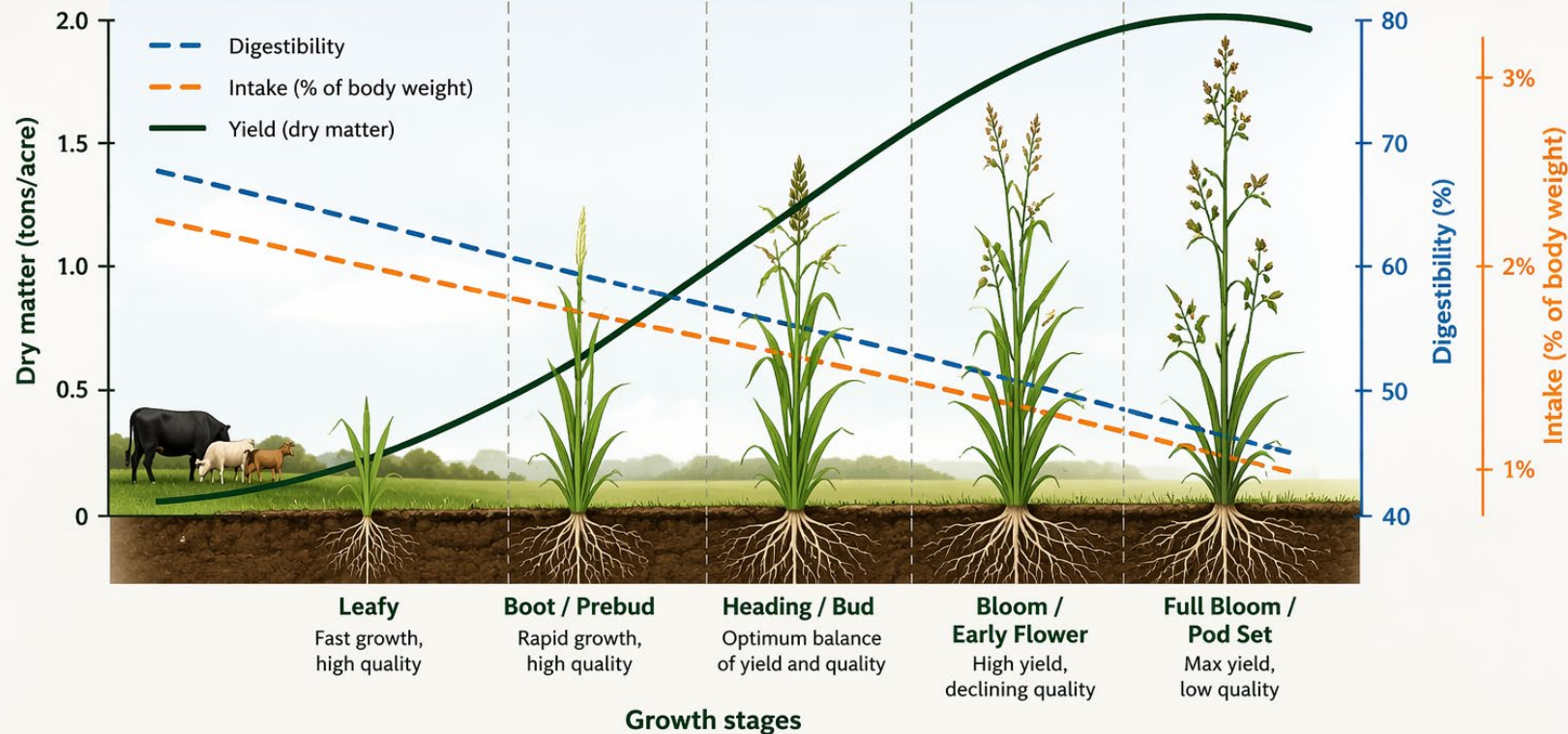
Current General Livestock Site Information				
Type of livestock	Number of animals in herd (#)	Estimated Animals Weight (lb)	Animal Intake (Body weight %)	Estimated total pounds of daily intake per animal
Beef Cattle	1	1,000	Medium	25



The Yield – Quality – Persistence Compromise

Phase I Phase II Phase III

Forage Growth, Intake, Digestibility and Yield Over Time



Digestibility

Highest in young plants. Declines as the plant matures.



Intake (% of body weight)

Higher intake with young, high-quality forage. Declines as plants mature.



Yield (Dry Matter)

Increases as the plant grows. Peaks at bloom, then levels off or declines.

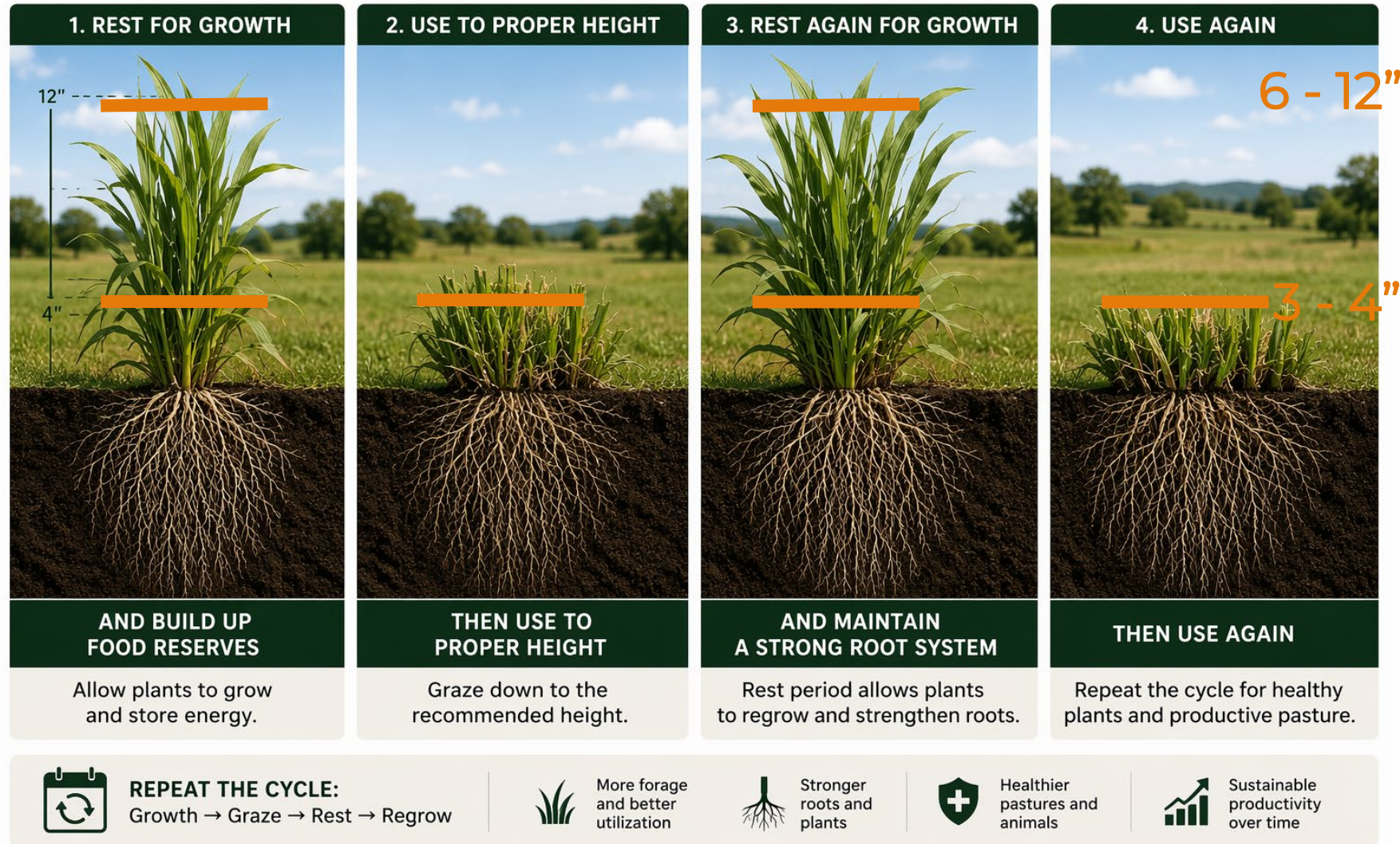


Management Takeaway

Graze before full bloom to maximize intake, digestibility, and animal performance.

Right plant, right stage, right management. 🌱 Graze smart. Rest well. Grow more. 🌱

GRAZE AND REST PASTURE



“Take Half, Leave Half”, Rule

How does Managed Grazing Keep Plants Healthy?

% Leaf Removed	% Root Growth Stopped
10	0
20	0
30	0
40	0
50	2 to 4
60	50
70	78
80	100
90	100



What is a Grazing Management System?

- **It is the interaction of:**

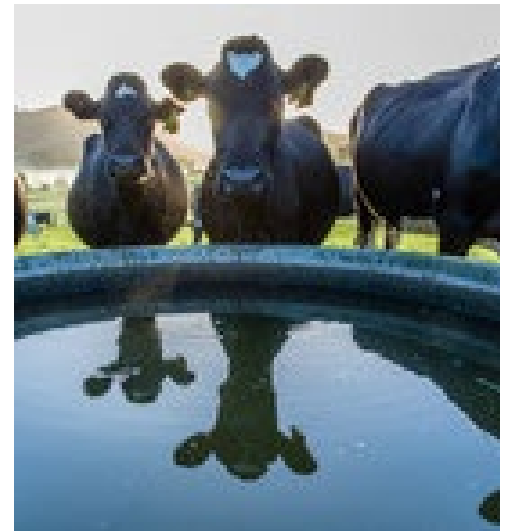
- Livestock
- Amount of food available for the livestock
 - Grass, concentrate, hay, other supplements
- Resting periods for the pasture to recover
 - (21-60 days resting periods)
- Seasons (Long days vs short days)
- Weather
 - Rain, drought
- Soil type
- Number of paddocks available

Note: Keep Record of Activities to make adjustments as required.



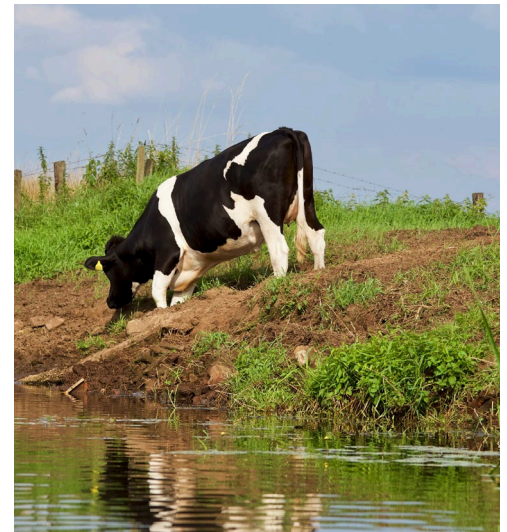
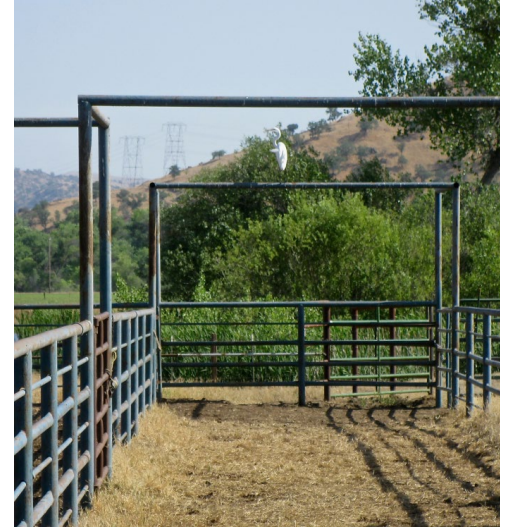
Distribution Management Tools

- Fencing
 - Pastures, paddocks, corrals
 - Barbed wire, panel, electric, virtual
- Water Developments
 - Springs, Streams, Ponds, Troughs
- Nutrient Blocks
 - Salt, Selenium, Protein
- Shade
 - Temporary shelters, Tree & shrubs
- Herding
 - Riders, Herders, Dogs, Drones



Concentration Areas

- Heavy Use Areas
- Water Developments
- Riparian Areas
- Water Crossings
- Corrals
- Gates
- Trails
- Fences



Grazing Systems

- Continuous (Low-Management) Grazing
- Rest Rotation
- Deferred Rotation
- Leader-Follower
- High Intensity – Low Frequency
- Short Duration
- Creep Grazing
- Adaptive Grazing



Diagram Comparing Rotational Grazing Systems

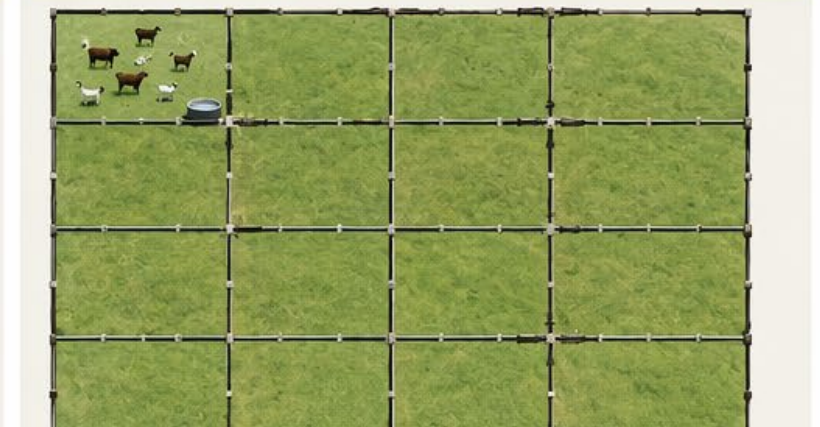
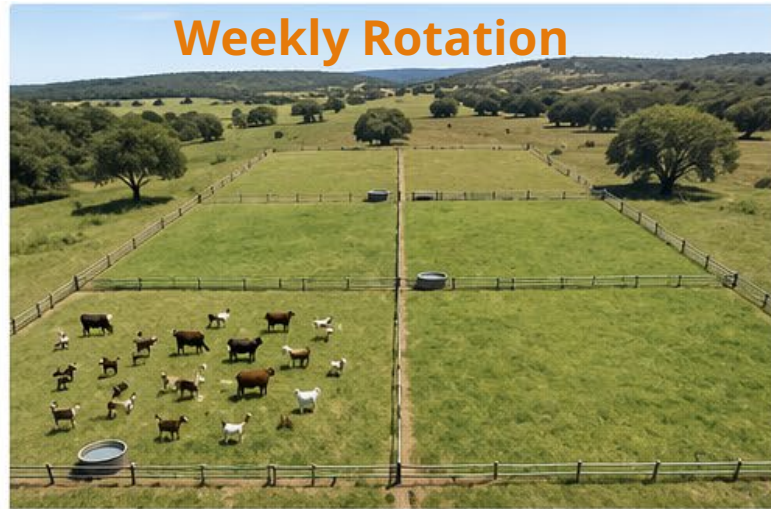
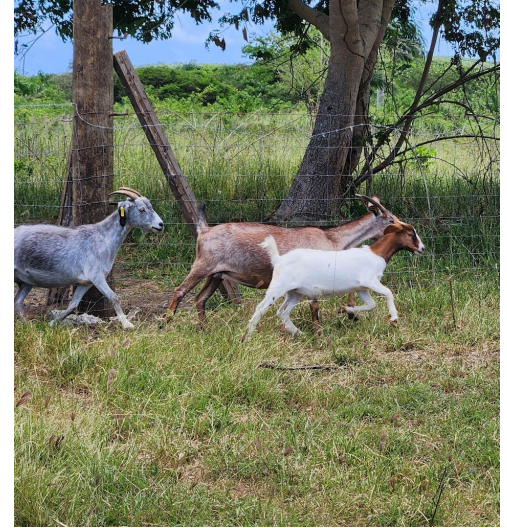


Illustration of grazing management: Continuous grazing (Left), extensive rotation grazing (middle and management intensive rotational grazing (Right))

Grazing Systems

- Which one Should I use?
 - Depends on:
 - Plant community
 - Objectives
 - Ability to carry out the system
 - Want to avoid overkill
- Generally, want to avoid grazing any one spot the same time every year.



Managed Grazing Balances the Animal's Demand with the Forage Supply

- Steps to determine the balance
- Determine the forage supply – pasture (What type do you have?)
- Determine animal demand – needed intake (Goats, Sheep, Cattle)
- Alternatives:
 - Increase forage supply (Use high yield pasture)
 - Improve livestock rotations (up to maximize system efficiency)
 - decrease animal demand for the balance

Grazing Efficiency

# Pastures/Paddocks	Grazing Period	Utilization Rate
1 Pasture	Continuous	45%
4 Pasture	7-10 days	60%
8 Pasture	3-5 days	60%
12 Pasture	2-4 days	75%
24 Pastures	0.5-2 days	75%



GRAZING EFFICIENCY

Shorter grazing periods with adequate rest increase utilization and build deeper, healthier root systems.



Diagram Comparing Rotational Grazing Systems

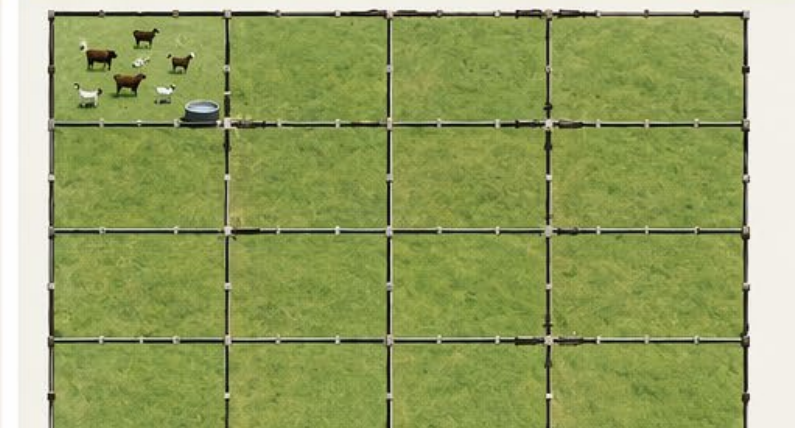
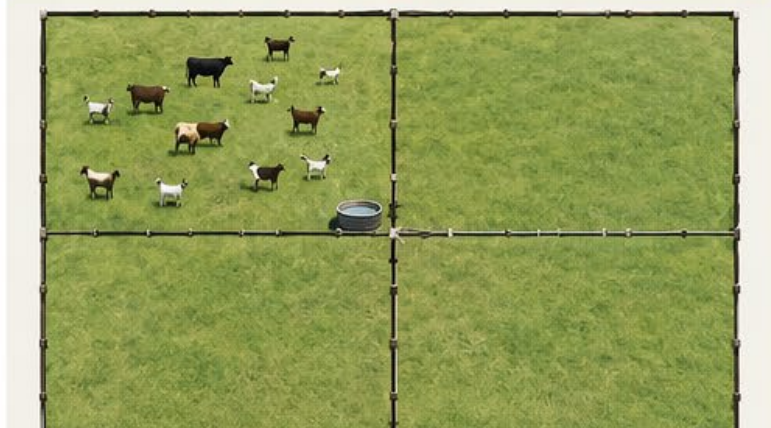
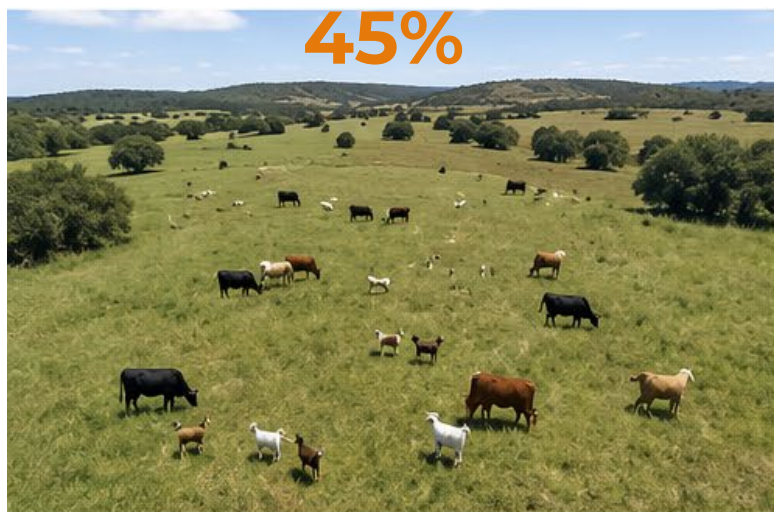


Illustration of grazing management: Continuous grazing (Left), extensive rotation grazing (middle and management intensive rotational grazing (Right)

Records of the Operation needs to Develop a Grazing Management Plan

- Total Acres
- Livestock Type
- Number of animals per group
- Number of acres/field used per group
- Animal weight (lb)
- Animal Intake Percentage
- Supplements feed
- How many species of forage animals eat in the fields
- How much is available in the field (forage height vs cutting height)
- Select Soil Series
- Occupancy Period (How much time stays in the paddock)
- Pasture/Grass Yield



<https://efotg.sc.egov.usda.gov/#/state/CR/documents/section=1&folder=42921>



Topics covered

- 1. NRCS Overview & Mission**
- 2. Soil Series & Forage Production**
- 3. Livestock Nutrition & Forage Balance**
- 4. Grazing Management System Components**
- 5. Grazing Systems & Strategies**
- 6. Practical Application & Monitoring**
- 7. Record Keeping & Field Training**



Questions?



Thank you!

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