THE ROLE OF GOATS IN CENTRAL TEXAS ECOSYSTEMS

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Goldthwaite, TX



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Saskatchewan experience:

160°F annual temperature range

6 month winters

3-5 month grazing period

Dairy goats

Heavy predator presence

Mix of forest, prairie, cropland, hills, valleys, flatland

Livestock integration in cropland

Agrisilviculture/agroforestry mgmt.

Production layering

Passive solar/venting infrastructure

Composting/carbon cycling

Texas applications:

Seasonal dormancies

Growth/Regrowth patterns

Maximizing forage growth

Goat production factors

Fencing systems

Savannah management

Pasture establishment

Brush management

Tree establishment

Microclimate leveraging

Carbon and nitrogen capture

Microbial activity

THE ROLE OF GOATS IN CENTRAL TEXAS ECOSYSTEMS

- A “GOOD” OPERATION
- QUALITY OF YOUR LIFE
- AIMS AND LEVERS

THE ROLE OF GOATS IN CENTRAL TEXAS ECOSYSTEMS

- **BROWSERS vs. GRAZERS**
- **CARBON CYCLE in a BRITTLE CLIMATE**
- **ROTATIONAL GRAZING**

BROWSERS

VS.

GRAZERS

WHY GOATS EAT

“EVERYTHING”

-OR-

WHY GOATS *AIN’T*

SHEEP

BROWSERS

VS.

GRAZERS

WHY GOATS EAT *“EVERYTHING”*

-OR-

WHY GOATS *AIN’T* SHEEP

- Sheep: 9 heads down, 1 up
- Goats: 6 heads up, 4 heads down

- "In the early days of goat research, some scientists decided to find out what the lethal dose of copper was for a goat. They administered what was considered to be a lethal dose to a white goat (which does not need so much copper as a coloured one), and then waited for it to die. A few weeks later the goat had never looked better and flatly refused even to be ill!” - Pat Coleby, *Natural Goat Care*

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The Selenium Reproductive Example

Selenium Deficiency Resulted in:

- **33% reduction in initial conception rates**
- high rates of **miscarriages, stillbirths, and abortions.**
- **Poorer Birthing & Nursing Success**: weaker kids, **23% decrease** in milk production, high rates of **retained placentas**.

- **greater than 50% drop in the number of viable, live kids** by day 91 of life compared to the selenium-sufficient control group. [1]

BROWSERS

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South Africa and Central Texas are **legendary in the global goat industry** because they share nearly **identical semi-arid climates, rocky topographies, and aggressive woody brush vegetation**.

BROWSERS

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WHY GOATS EAT *“EVERYTHING”*

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This profound environmental overlap is why the premier meat goat in the world—the **Boer goat**—was easily exported from its native South African veld directly to west-central Texas.

BROWSERS

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The Mediterranean basin is the historic epicenter of **global goat production** because it shares the exact same trio of traits as South Africa and Central Texas: **intense summer droughts, mountainous rocky terrain, and a thick coverage of woody, aromatic brush**

BROWSERS

vs.

GRAZERS

What it means for parasites

"...parasites are better able to survive in the **zinc deficient** hosts"

"**Cobalt deficiency** promotes parasitism ....Animals on **low protein** diets are more susceptible..."

Copper oxide particles (administered as a bolus) have been shown to reduce worm infections in ruminant

https://pmc.ncbi.nlm.nih.gov/articles/PMC3793100/

BROWSERS

VS.

GRAZERS



About 80 % of parasites live in the first 2 inches of vegetation.

Parasite infection can be minimized by allowing the livestock to graze up to 4 inches from the ground in a field. The drier the grass, the more parasites will stay at the base of the plants.

https://pmc.ncbi.nlm.nih.gov/articles/PMC3793100/


BEFORE & AFTER 2 DAYS OF BROWSING BY 8 GOATS

THE CARBON CYCLE IN A BRITTLE CLIMATE:

TURNING BRUSH & WEEDS INTO BLACK SOIL & BBQ

What's a brittle climate?

- Weathering/oxidation vs biological decomposition (skinny vs soggy fenceposts)
- Mills County – 6-7.... or way more

NON-BRITTLE CLIMATE







BRITTLE CLIMATE:











THE CARBON CYCLE IN A BRITTLE CLIMATE:

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What’s carbon?

- The difference between black soil and desert sand
- THE basic building block for all known life on Earth
- Soil carbon determines a farm's **fertility**, **water resilience**, and **biological life**. In regenerative agriculture, managing carbon is not just about locking it away to fight climate change; it is about **putting carbon to work improving soil’s production potential.**
- **What makes topsoil topsoil (vs mineral soil)**

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What's carbon?

- air

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Your fencepost, or dead trees, or dead grasses are cellulose tissue made of C, H, O atoms.

Any exposed carbon atom "couples up" with an oxygen atom in the air and *literally flies away*.

It is now a *gas*, namely carbon dioxide CO_2

(in a BRITTLE climate)



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NON-BRITTLE CLIMATE





Microbes metabolize cellulose (plant material) before it flies away.
Biological decomposition reorganizes the molecular structure into … ***soil.***

(in a NON-BRITTLE climate)

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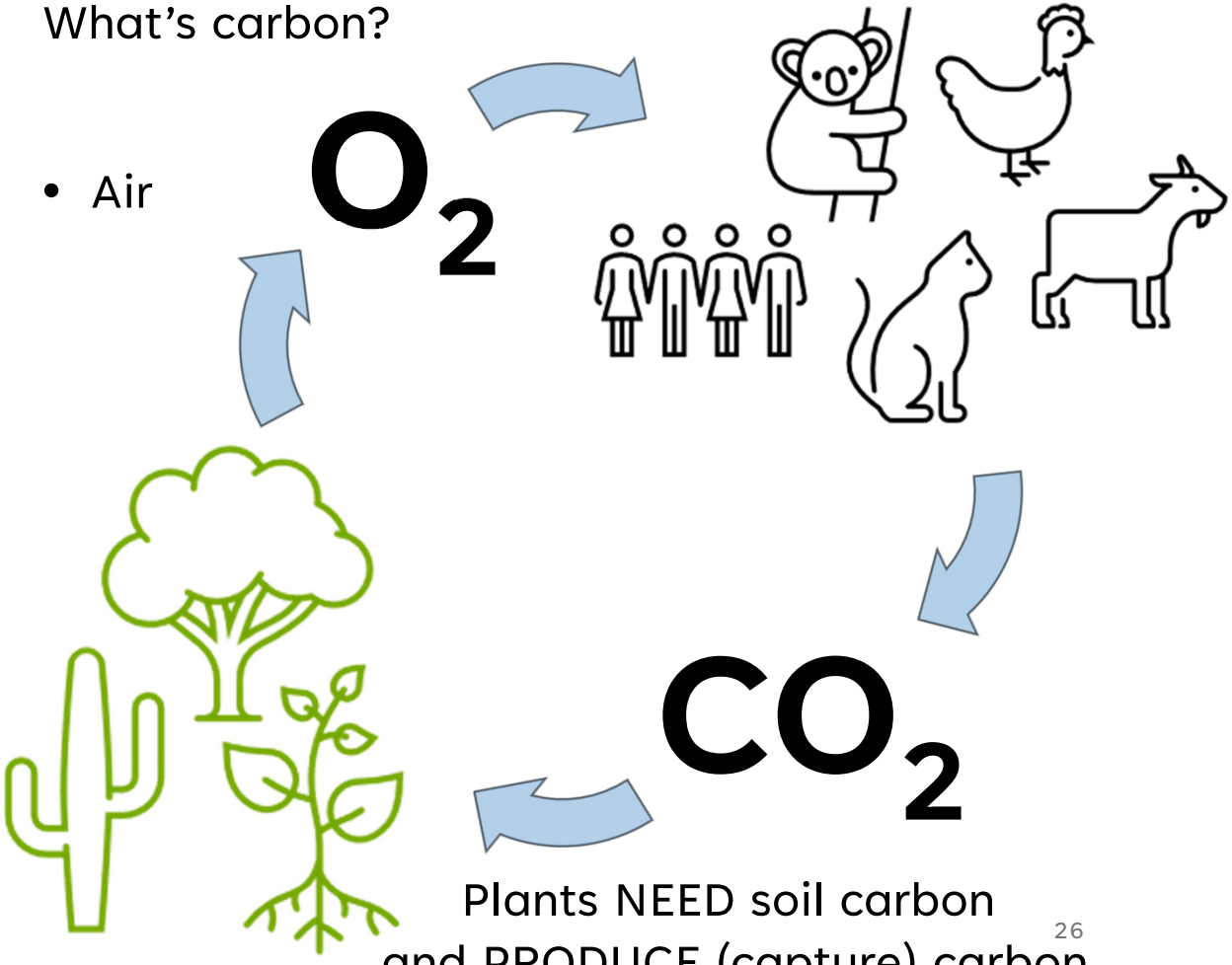

Plants NEED soil carbon
and PRODUCE (capture) carbon

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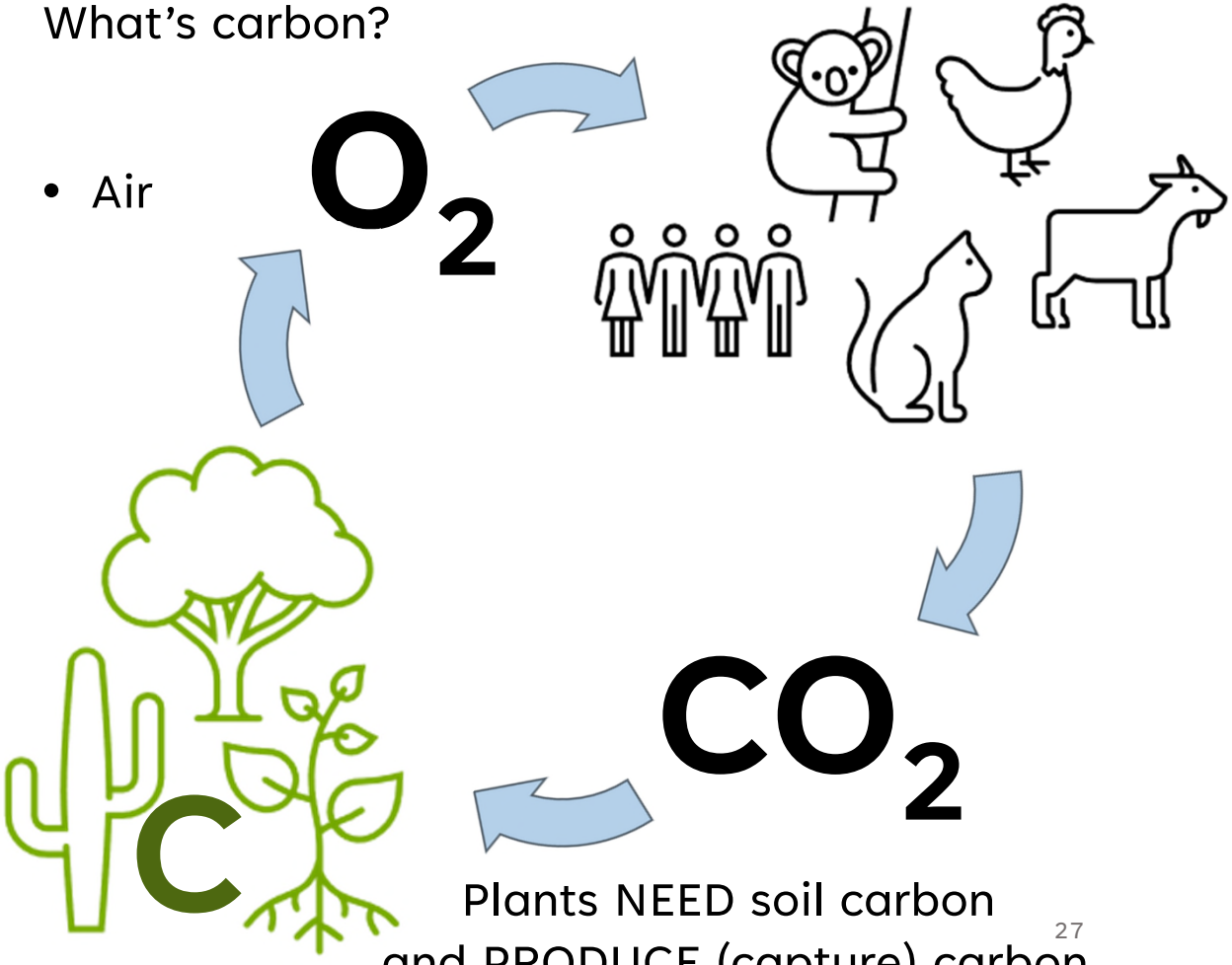

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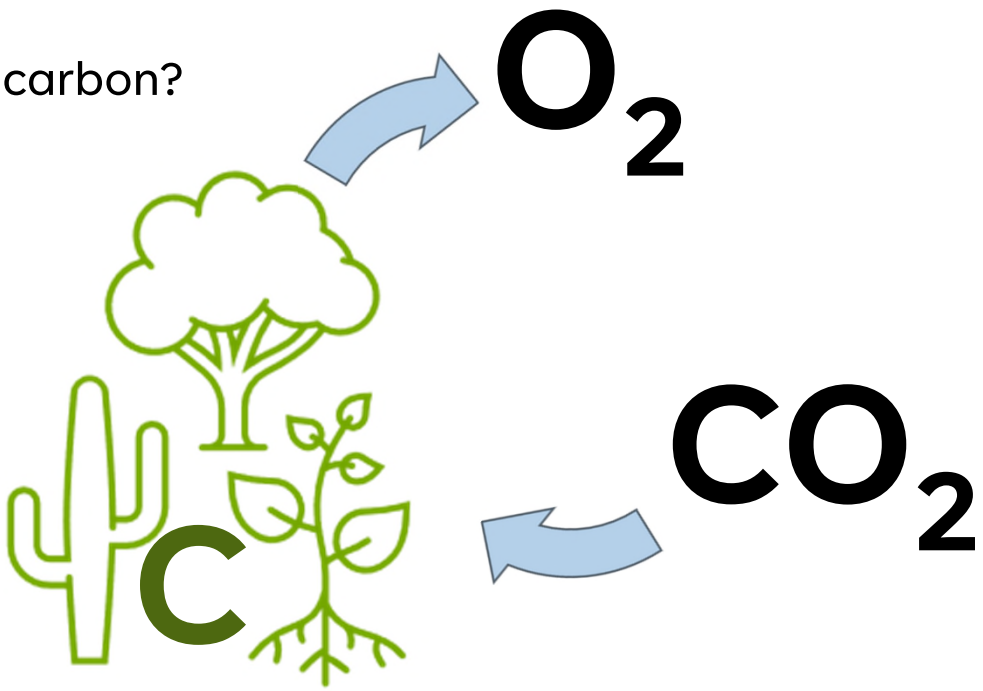

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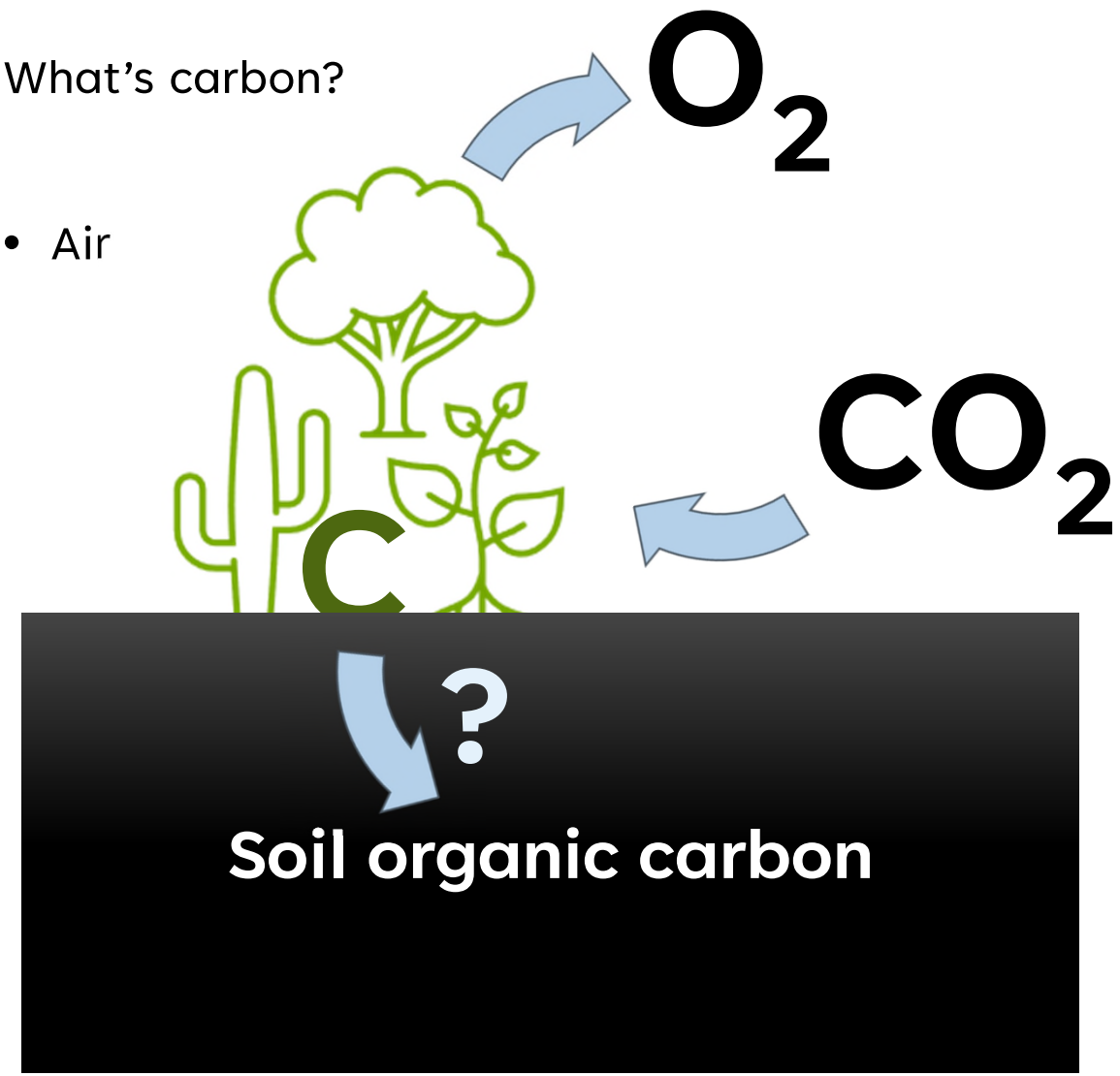



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REMEMBER?

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NO SOIL CARBON **(in a BRITTLE climate)**

THE CARBON CYCLE IN A BRITTLE CLIMATE:

TURNING BRUSH & WEEDS INTO BLACK SOIL & BBQ

- Can we ***create*** a non-brittle climate where dead stuff gets decomposed (biologically)?

A microbe's dream home:

- Moist
- Warm, stable temps
- A little bit of movement
- Right mix of C and N

Silage pit, compost pit ...

THE CARBON CYCLE IN A BRITTLE CLIMATE:

TURNING BRUSH & WEEDS INTO BLACK SOIL & BBQ

- Can we ***create*** a non-brittle climate where dead stuff gets decomposed (biologically)?

-OR-

A ruminant's stomachs

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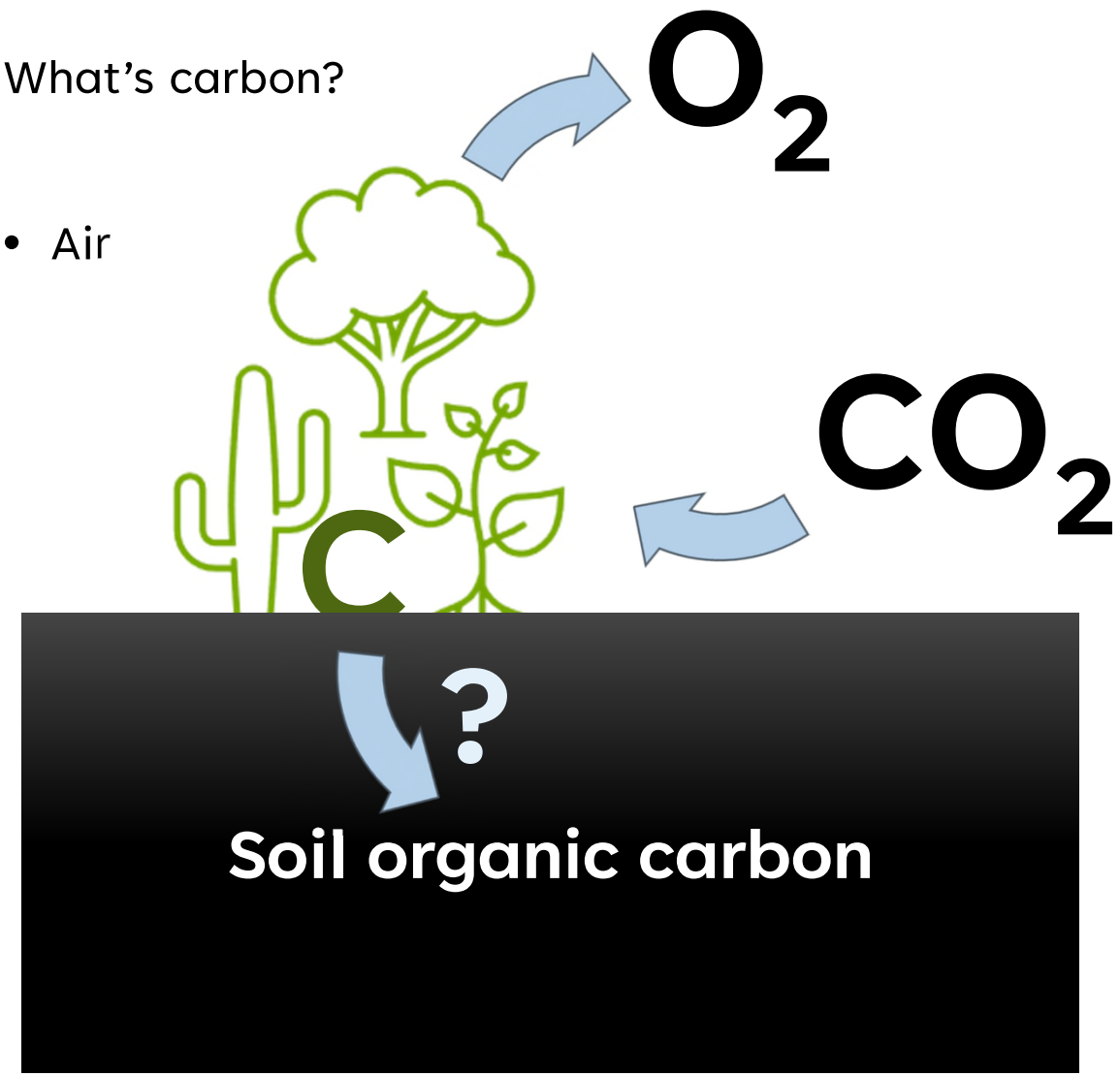

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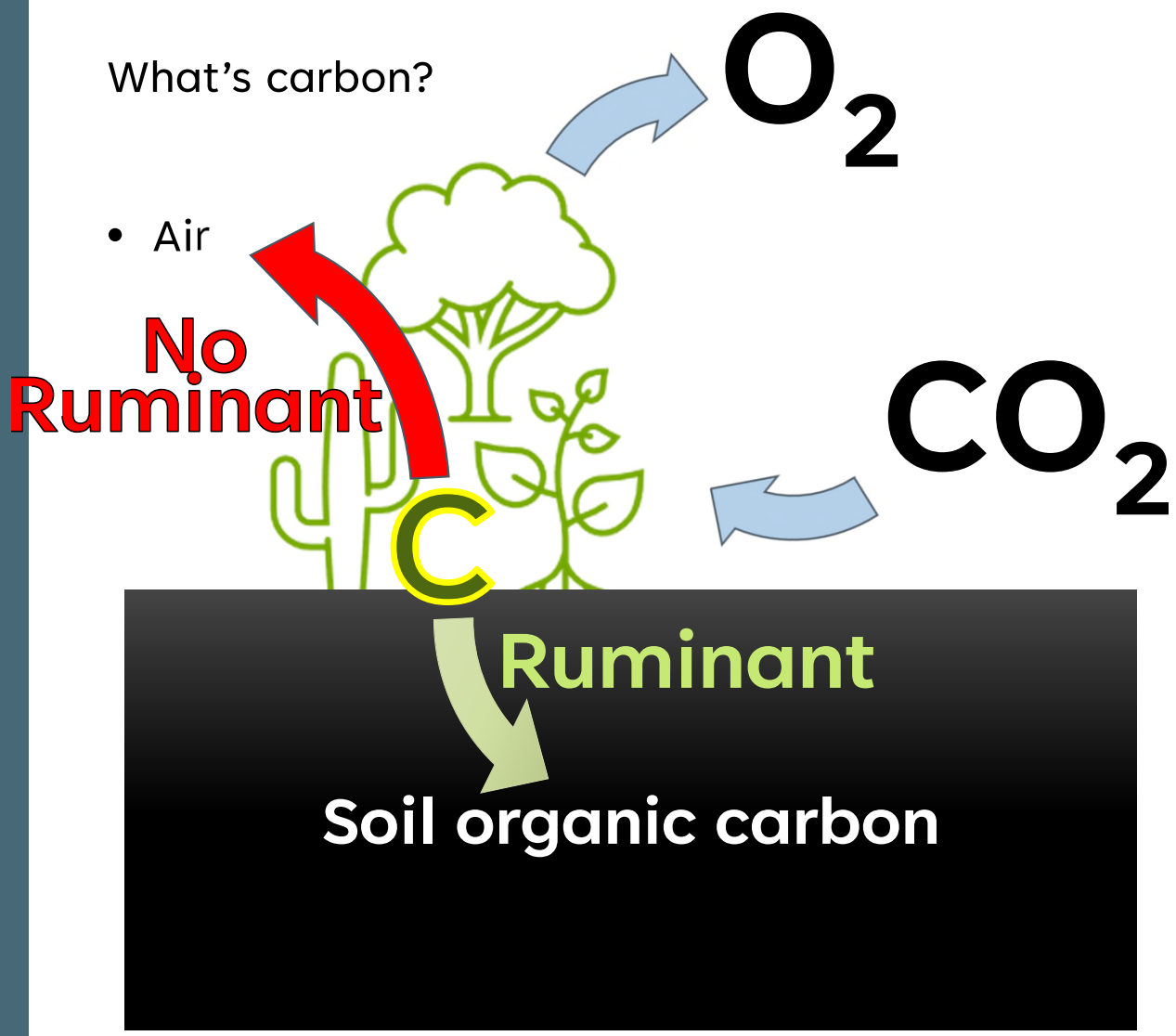

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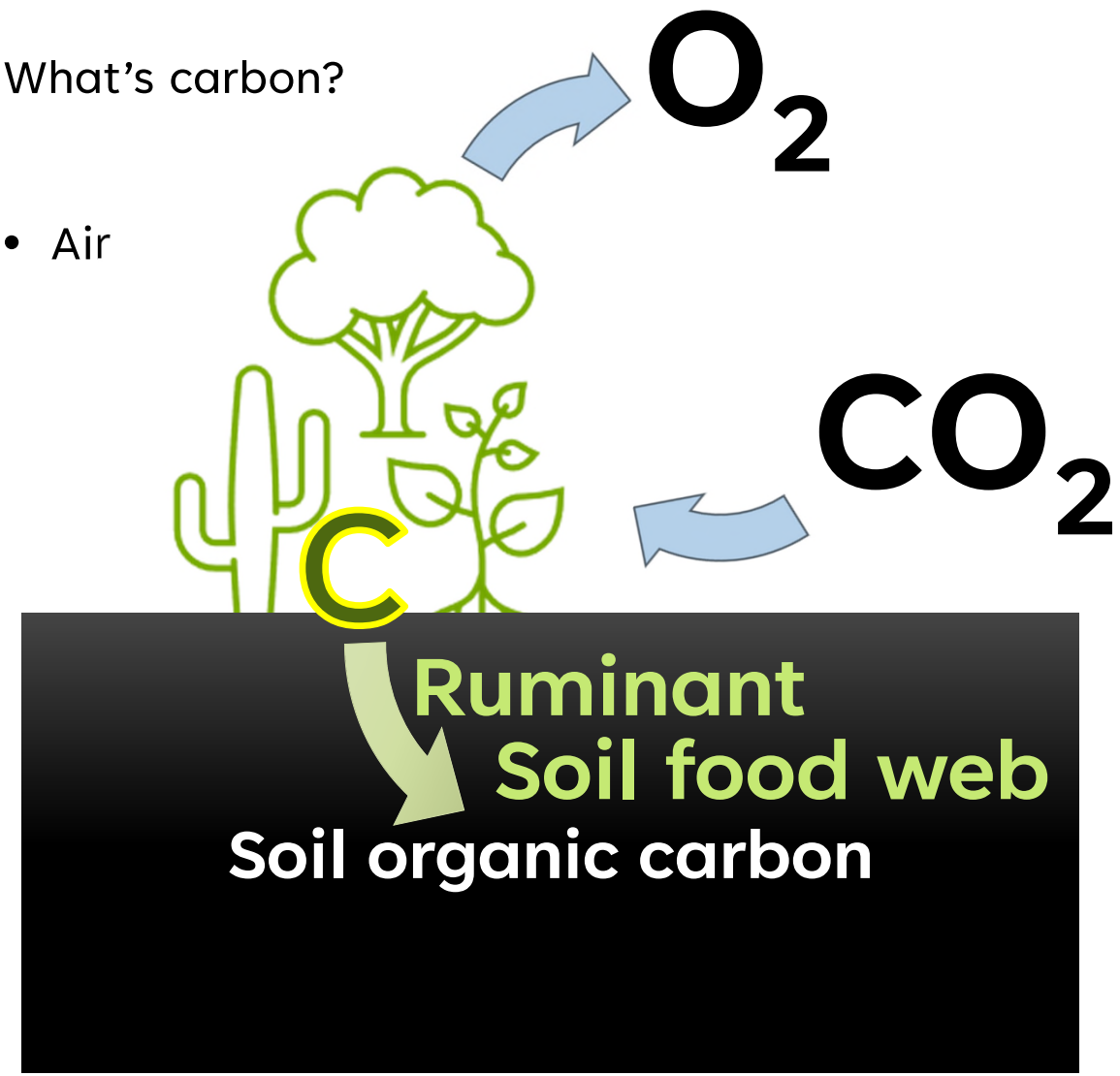

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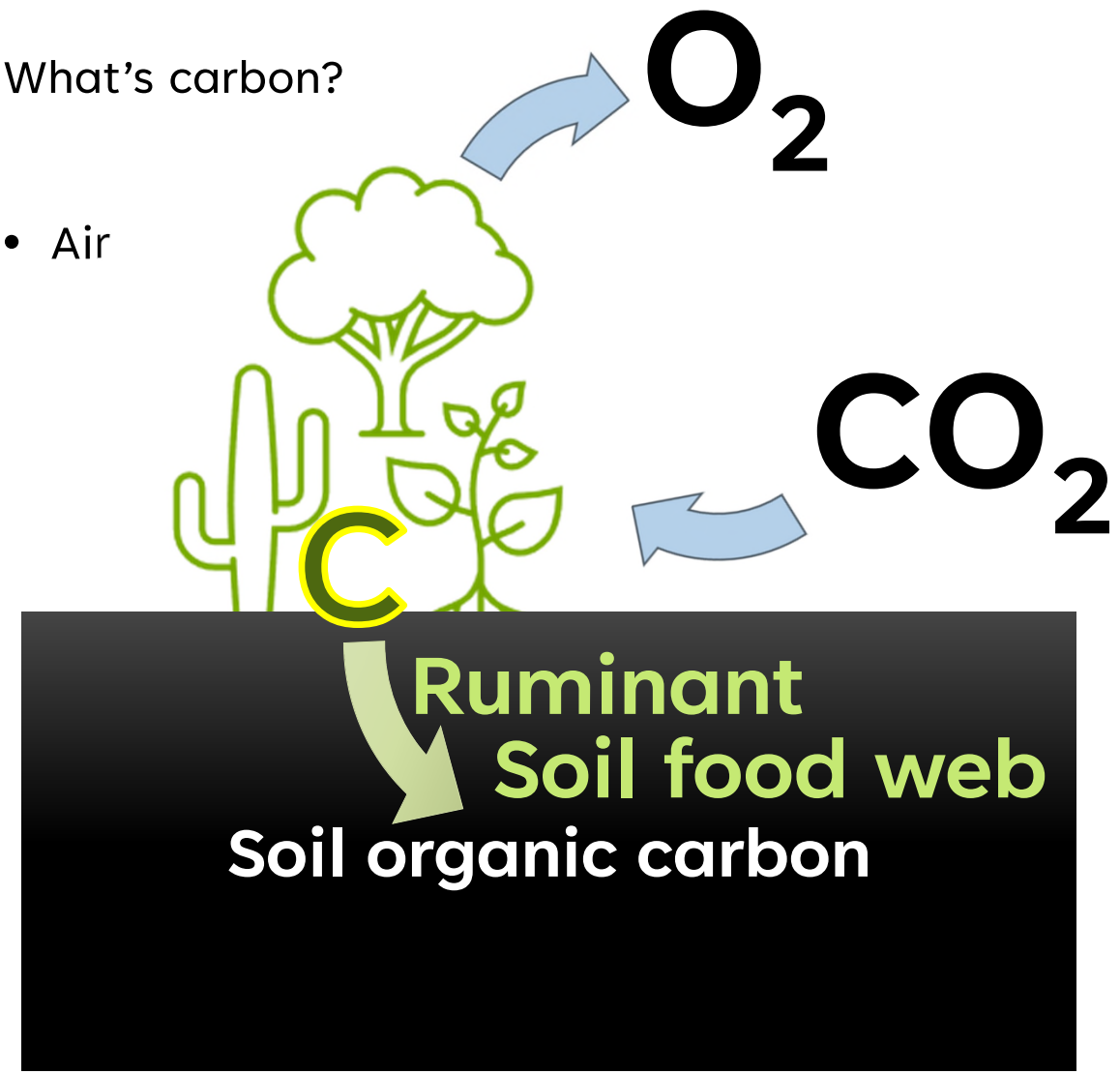

THE CARBON CYCLE IN A BRITTLE CLIMATE:

TURNING BRUSH & WEEDS INTO BLACK SOIL & BBQ

Where's the catch?

Do you have a functioning soil food web?

- Antimicrobials?
- Antifungals?
- Pesticides?

Do you have good manure?

- Antibiotics (medicated feed)?
- Anthelminthics (dewormer)?

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- Anthelminthics (dewormer)?

...Proof is in the pudding

ROTATIONAL GRAZING:

YOUR MANAGEMENT LEVER

Benefits of rotational grazing:

- Decreased selectivity
- Increased grazing motivation
- Increased trampling of unused forage
- Increased water infiltration
- Total rest periods
- Customizable rest periods (vegetation selection)
- Clean break of parasite cycle (*more* effective than anthelminthics)

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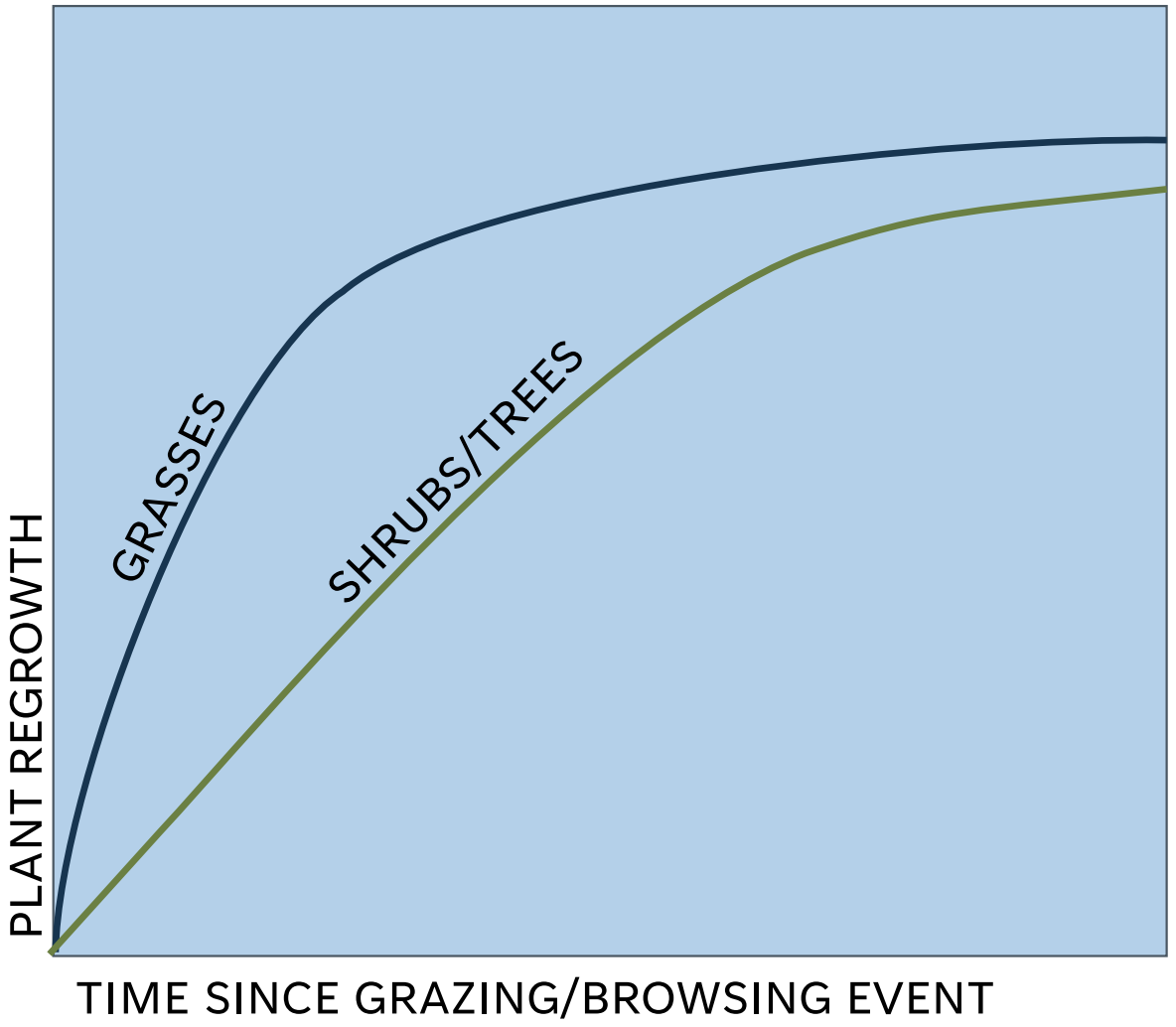

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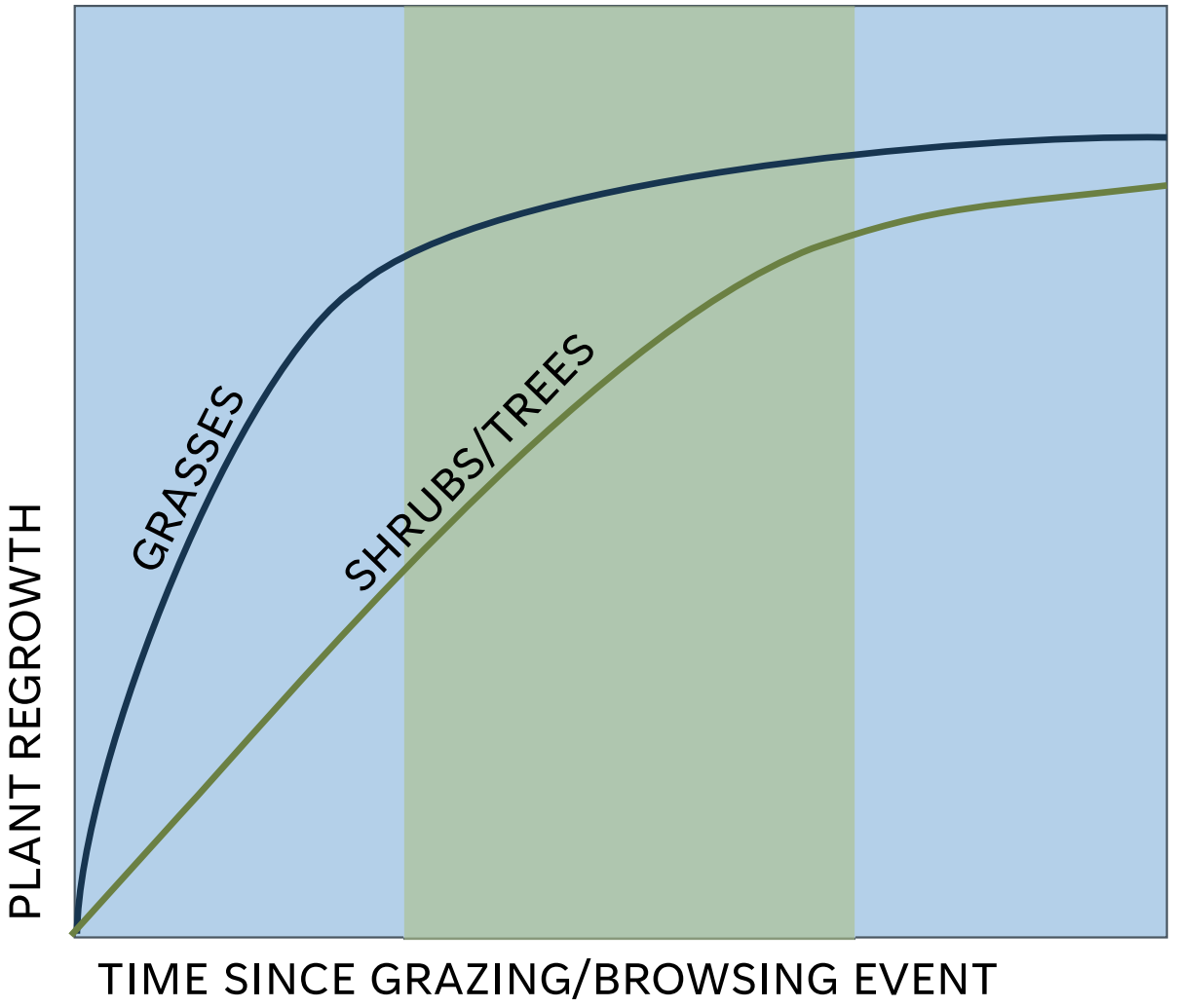

Recommended works:

- Holistic Management - Savory & Butterfield
  Regenerative Agriculture - Richard Perkins
- Natural Goat Care - Pat Coleby
- Healthy Land, Happy Families and Profitable Businesses - David W Pratt
- Nourishment - Fred Provenza
- The Soil Owner's Manual - Jon Stika
- Folks, This Ain't Normal - Joel Salatin
- The Humanure Handbook - Jenkins



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