Pasture Management Concepts

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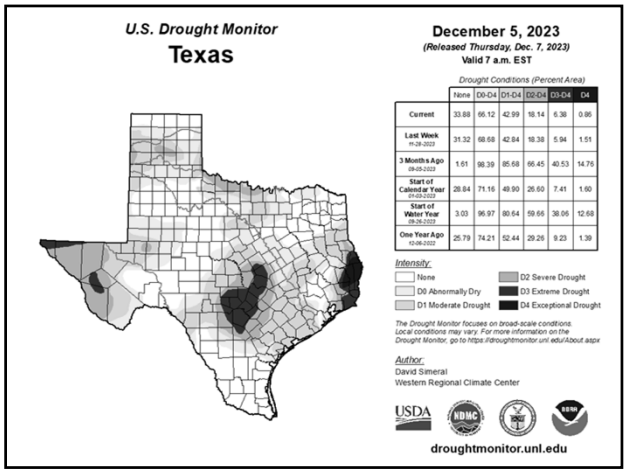

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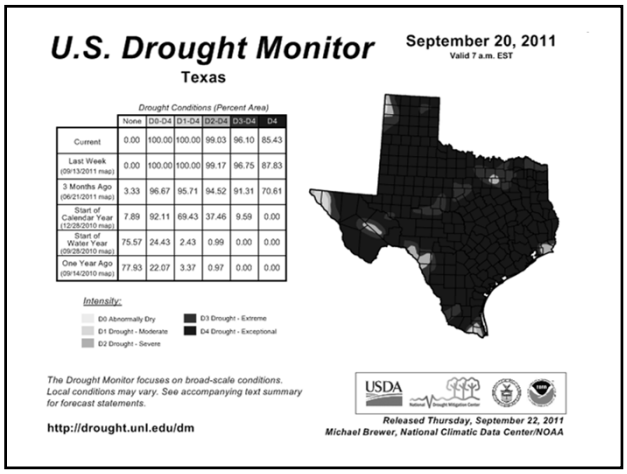

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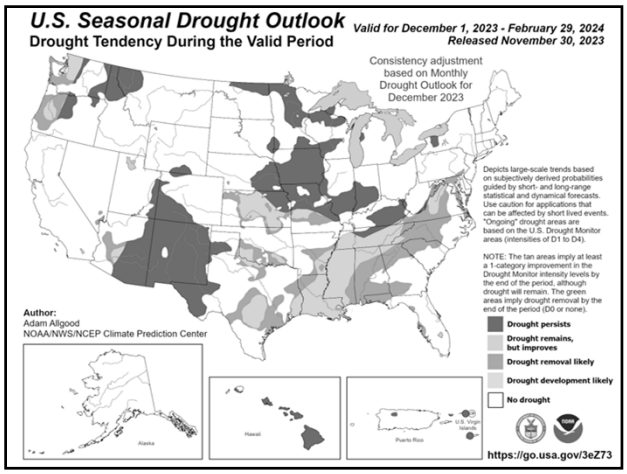
U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for December 1, 2023 - February 29, 2024
Released November 30, 2023
Consistency adjustment based on Monthly Drought Outlook for December 2023
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).
Author:
Adam Allgood
NOAA/NWS/NCEP Climate Prediction Center
Drought persists
Drought remains, but improves
Drought removal likely
Drought development likely
No drought
Alaska
Hawaii
Puerto Rico
U.S. Virgin Islands
https://go.usa.gov/3eZ73

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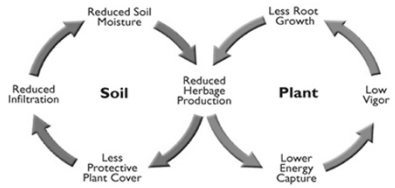
NOTE: Root systems are devastated due to drought…recovery involves rebuilding the root system.



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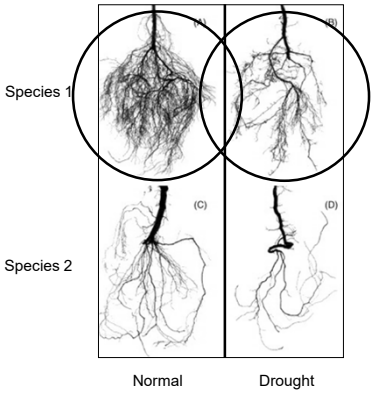

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Three Aspects for Pasture Recovery

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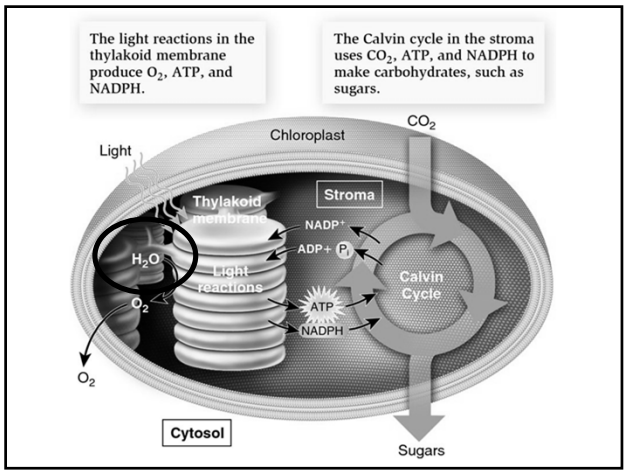
The light reactions in the thylakoid membrane produce O_2, ATP, and NADPH.
The Calvin cycle in the stroma uses CO_2, ATP, and NADPH to make carbohydrates, such as sugars.
Chloroplast
CO_2
Light
Stroma
Thylakoid membrane
NADP+
ADP+ P_i
H_2O
Light reactions
Calvin Cycle
ATP
NADPH
O_2
O_2
Cytosol
Sugars

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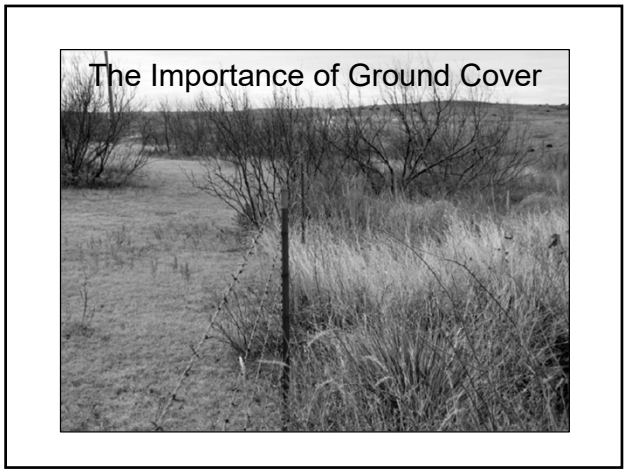
The Importance of Ground Cover

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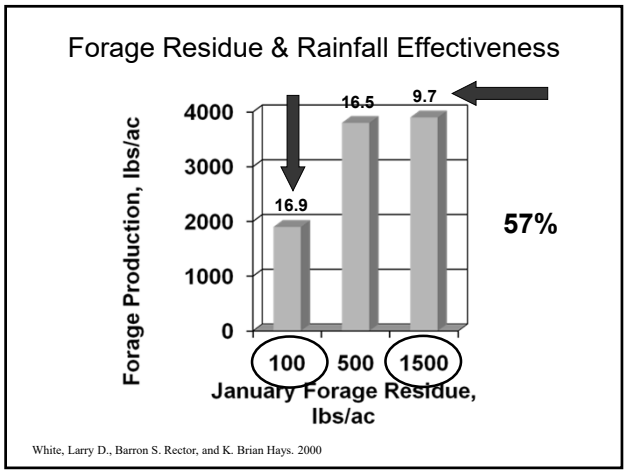
Forage Residue & Rainfall Effectiveness
Forage Production, lbs/ac
4000
3000
2000
1000
0
16.9
16.5
9.7
57%
100
500
1500
January Forage Residue, lbs/ac
White, Larry D., Barron S. Rector, and K. Brian Hays. 2000

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Recent Fertilizer Prices

- Ammonium Nitrate (34-0-0) $440.00/ton
- Urea (46-0-0) $620.00/ton
- DAP (18-46-0) $765.00/ton
- Potassium (potash, 0-0-60) $525.00/ton
- Urea ammonium nitrate (32-0-0) $320/ton
- KMAG $530/ton

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Actual N Cost/lb[1]

Nitrogen Source	Analysis	%N	lbs N/ton	$/ton	$/lb
Anhydrous Ammonia	82-0-0	82	1640		$0.00
Urea	46-0-0	46	920	620	$0.67
Ammonium Nitrate	34-0-0	34	680	440	$0.65
Urea Ammonium Nitrate	32-0-0	32	640	320	$0.50
Ammonium Sulfate	21-0-0-24	21	420	430	$1.02
Broiler Litter	3-3-2	3	60	50	$0.83
Class A Biosolid	6-3-0	6	120	55	$0.46

[1] October 2023 TX Prices

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Can we do anything about the high cost of fertilizer?

No

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Can we do anything about the high cost of fertilizer?

But, we can do something about how efficiently we use fertilizer.

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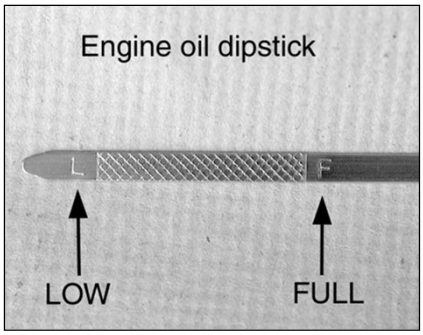
The simple, yet profound, dipstick



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Use the soil “dip stick”…

- Soil Test!
  - Fertilizer needs to be out before the rain…
- Without soil testing you:
  - Over-apply expensive nutrients,
  - Under-apply needed nutrients,
  - Never apply the correct amount.

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Fertilizer Strategy After Drought

- SOIL TEST
- **Minimum Requirement**
  - Drought-stressed forage should be treated as newly established until recovery is complete.
  - P = Root growth & development, energy metabolism
  - K = Drought tolerance, disease resistance, cold tolerance
  - Previously applied nutrients will still be available if not removed via harvesting.


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SOIL SAMPLE INFORMATION FORM

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Consider your forage base

- Bahiagrass, dallisgrass, kleingrass, native forages, others…
  - Persistent under low-input management
  - Will not support the stocking rate as well-managed bermudagrass
  - With hay harvest, all species must be fertilized based on soil-test recommendation; might as well keep bermudgrass for hay

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Protection

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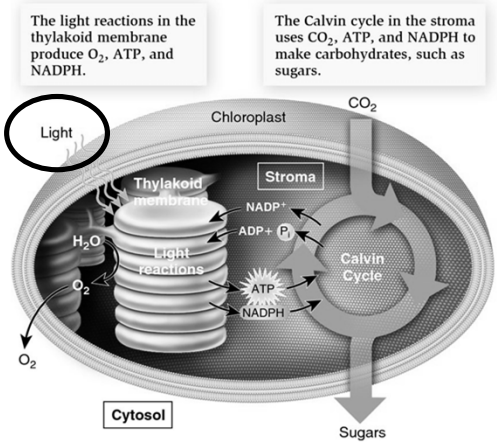

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Protection from Weeds

- Heavy weed pressure:
  - Inhibits photosynthesis, which requires sunlight and green leaf tissue.
  - Reduces **recovery** potential due to competition for sunlight, moisture, nutrients…
  - With good growing conditions, use herbicides; otherwise mow.

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Protection from Winter Pasture

- Failure to remove
  - Inhibits photosynthesis.
  - Can slow emergence.
  - Can destroy warm-season grass.
- **Remove** winter pasture before greenup!
  - Bermudagrass begins active growth when nighttime temperatures are consistently 60°F.
  - Graze or bale.

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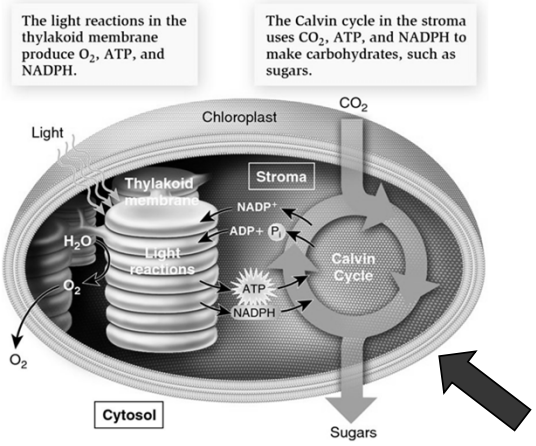

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Protection from Grasshoppers

- Dimilin
  - Applied to young hoppers
  - Has ~30-day residual
  - 1-day haying restriction, no grazing restriction
- Malathion + Sevin XLR
  - 4 oz of each product/ac
  - **14-day** grazing or haying restriction
  - Only apply **2X** per year
- Mustang
  - No grazing or haying restriction
- Tombstone
  - No grazing or haying restriction
  - Pyrethroid
- Lambda-Cy
  - No grazing restrictions; 7-day haying restriction

Vantacor – FMC – no grazing or haying restrictions.

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Protection from Fall Armyworms

- Grizzly
  - Pyrethroid
  - No grazing restriction, 7-day haying restriction
- Malathion + Sevin XLR
  - 4 oz of each product/ac
  - **14-day** grazing or haying restriction
  - Only apply **2X** per year
- Mustang
  - No grazing or haying restriction
- Tombstone
  - No grazing or haying restriction
  - Pyrethroid product
- Lambda-Cy
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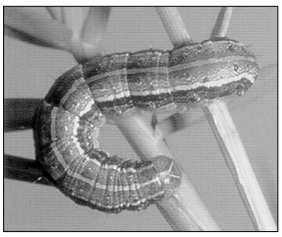

Vantacor – FMC – no grazing or haying restrictions.

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Protection from Livestock

- **Remain destocked, maintain the reduced stocking rate, or consider further reductions**.
  - Consider drought management as part of the overall strategy.

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Root-growth stoppage resulting from defoliation of grass. 1955. Franklin J. Crider

Table 1

	% Root Growth Stoppage Three Days After Forage Removal			
% Forage Removal	Test 1	Test 2	Test 3	Test 4
90	100	100	100	100
80	100	100	91	81
70	78	97	77	76
60	50	80	54	36
50	2	8	38	13
40	0	0	0	0
30	0	0	0	0
20	0	0	0	0
10	0	0	0	0
0	0	0	0	0

This represents four tests with three different grass species. From Crider, 1955.
Note that somewhere between 40% and 50% of the forage can be removed without stopping root growth.

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Figure 2. From Franklin Crider 1955- As grazing pressure increases, root mass decreases. Notice the second plant from the left has about 50% of its top growth removed, and root development is relatively unaffected, but a small increase in grazing pressure leads to a dramatic loss of root development for the 2 plants on the right..

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A Tale of Two Grazing Philosophies

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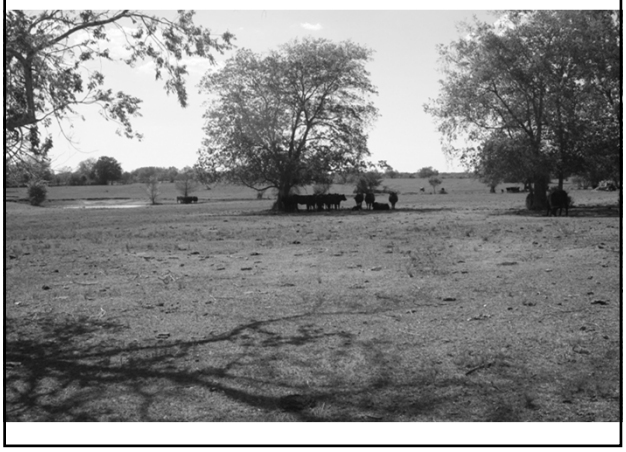

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Be slow to increase stocking…

Impacts of drought take a while to recover from.

Plants need time to re-establish adequate root systems.

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The Importance of Ground Cover

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Finally…protect the soil…

- Without adequate ground cover besides losing water, you **lose:**
  - **Topsoil**
    - Hundreds to > 1,000 years to create 1”
  - **Fertilizer nutrients**
    - Money *literally* goes down the creek
  - **Organic matter**
  - **Bacteria**
    - Primary source of waterbody impairment in Texas

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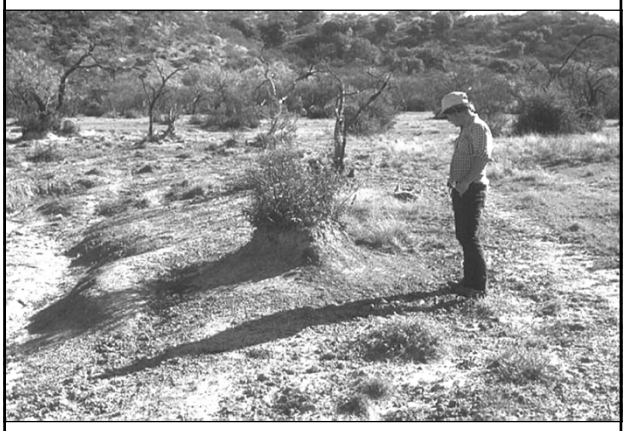

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    - Money *literally* goes down the creek
  - **Organic matter**
    - Water holding, nutrient storing
  - **Bacteria**
    - Primary source of waterbody impairment in Texas

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Re-establishment???

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Consider/Reconsider Goals for the Property

- Is livestock production still of interest?
- Is there a desire to change enterprises?
  - Different livestock species?
  - Move to hay production?
  - Transition to wildlife management?
- Is there a desire to change forage base?

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Assess the Damage

- How extensive is the damage?
- Has adequate precipitation occurred or is occurring at the location?
- What is the potential for recovery?
  - Has the stocking rate been adjusted appropriately?
  - What is the forage base? Variety?
  - Resources available to the producer?

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Establishment/Re-establishment

- Species
- Timing
- Seedbed Preparation
- Pre-plant Fertilizer
- Planting Depth
- Planting Rate
- Post-plant Fertilizer
- Post-plant Management
  - Grazing/harvest/weeds/insects

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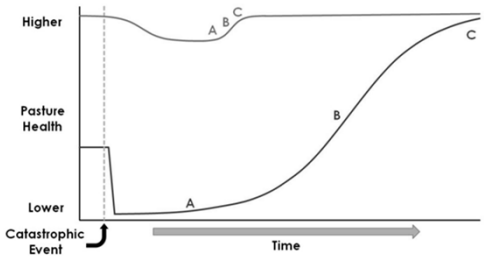
A Tale of Two Pastures: Pasture Response to Catastrophic Events[1]



[1] Justin Morris and Linda Poole, Producers Voice, April 2022

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Summary

- Adequate moisture
- Fertility
- Protection
  - From grazing livestock, weeds, winter pasture, insects
  - Soil protection
- Re-establishment may be necessary

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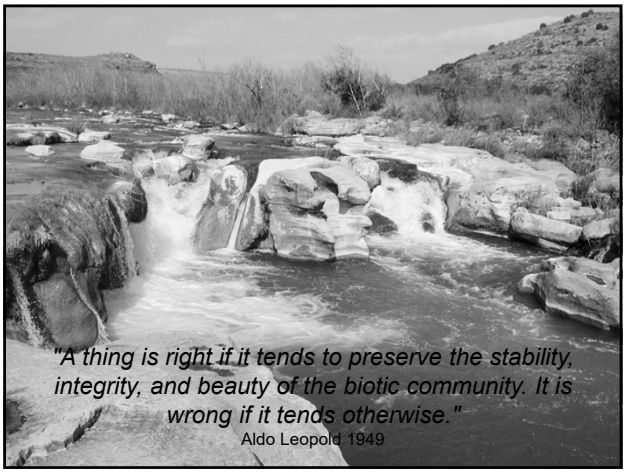

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Think forage…

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Questions?

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