GRAZING MANAGEMENT FOR RESILIENCE ON THE COLORADO PLATEAU

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EXTENSION
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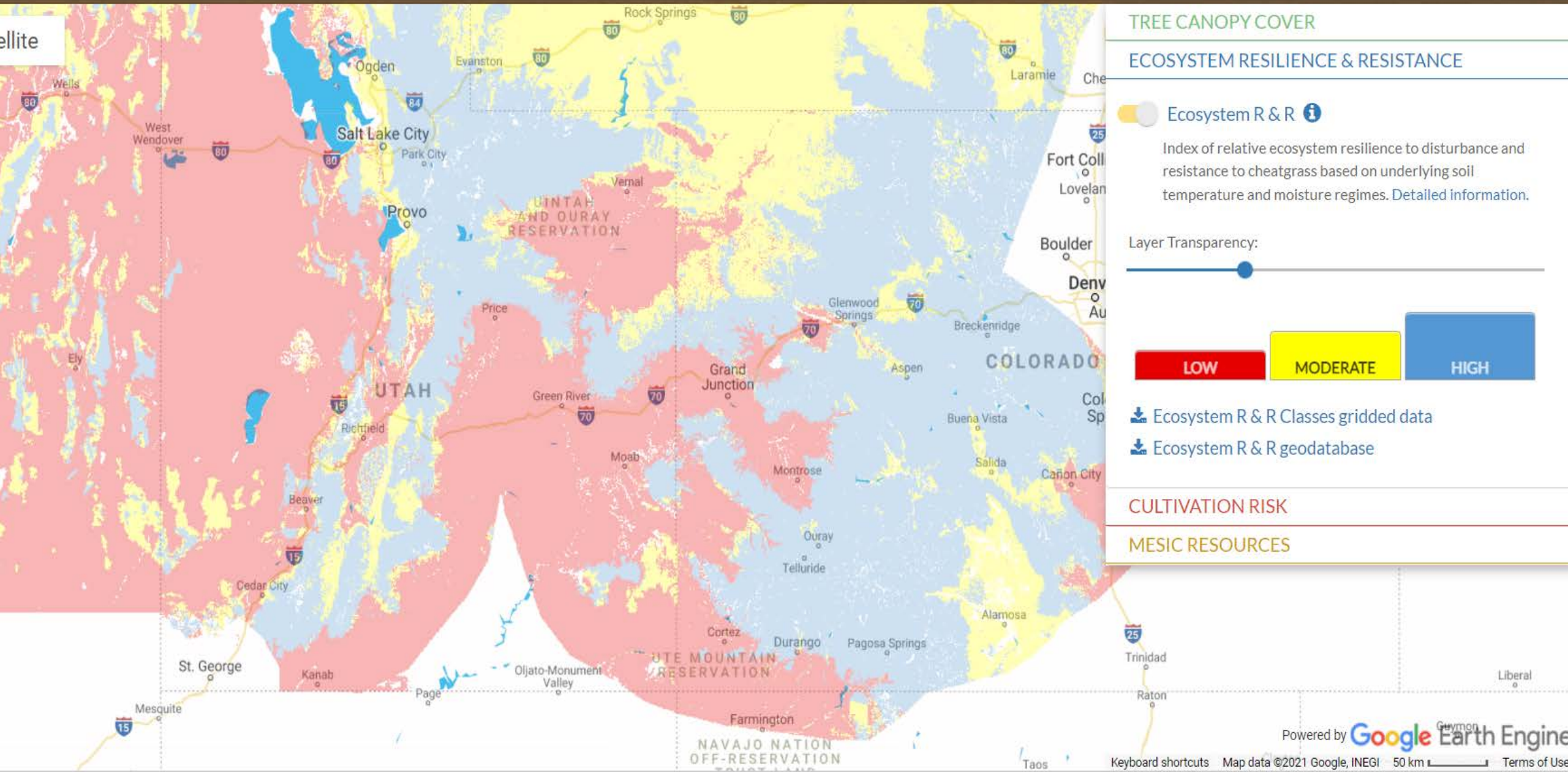
SAGE GROUSE INITIATIVE

Wildlife Conservation Through Sustainable Ranching.

WILDLIFE

ECOSYSTEM



TREE CANOPY COVER

ECOSYSTEM RESILIENCE & RESISTANCE

Ecosystem R & R

Index of relative ecosystem resilience to disturbance and resistance to cheatgrass based on underlying soil temperature and moisture regimes. Detailed information.

Layer Transparency:

LOW	MODERATE	HIGH

Ecosystem R & R Classes gridded data

Ecosystem R & R geodatabase

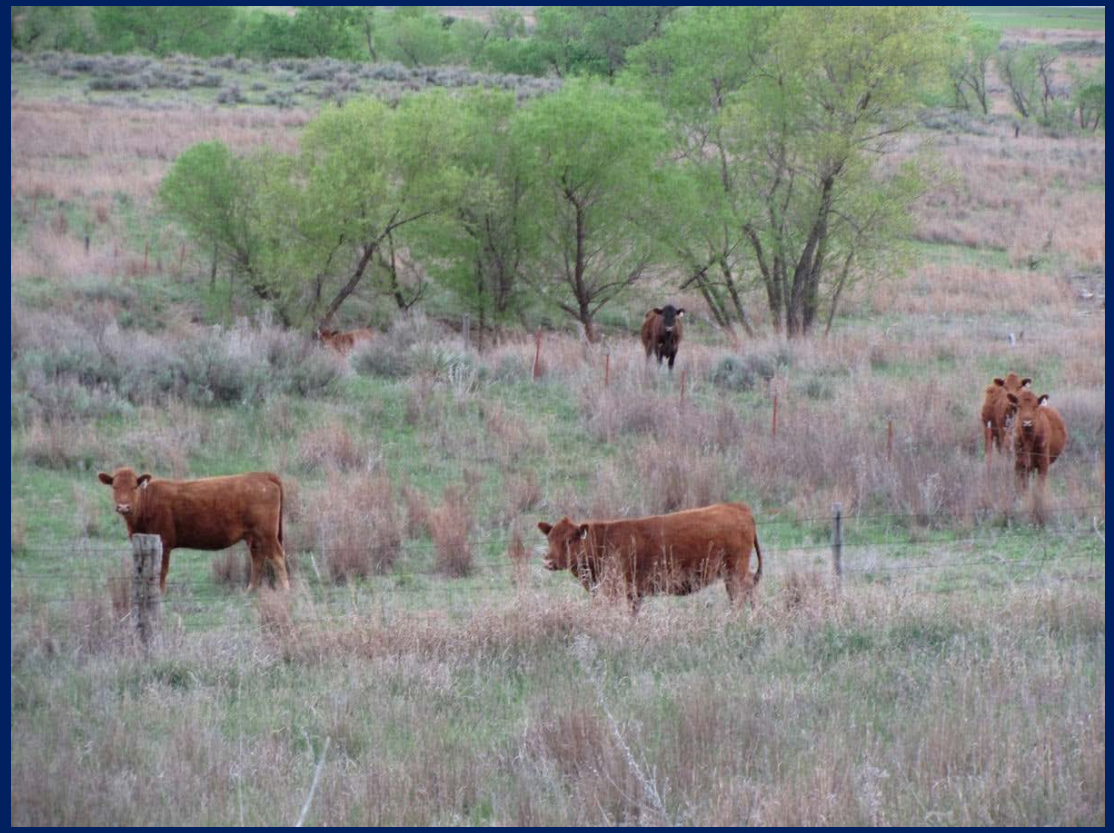
CULTIVATION RISK

MESIC RESOURCES

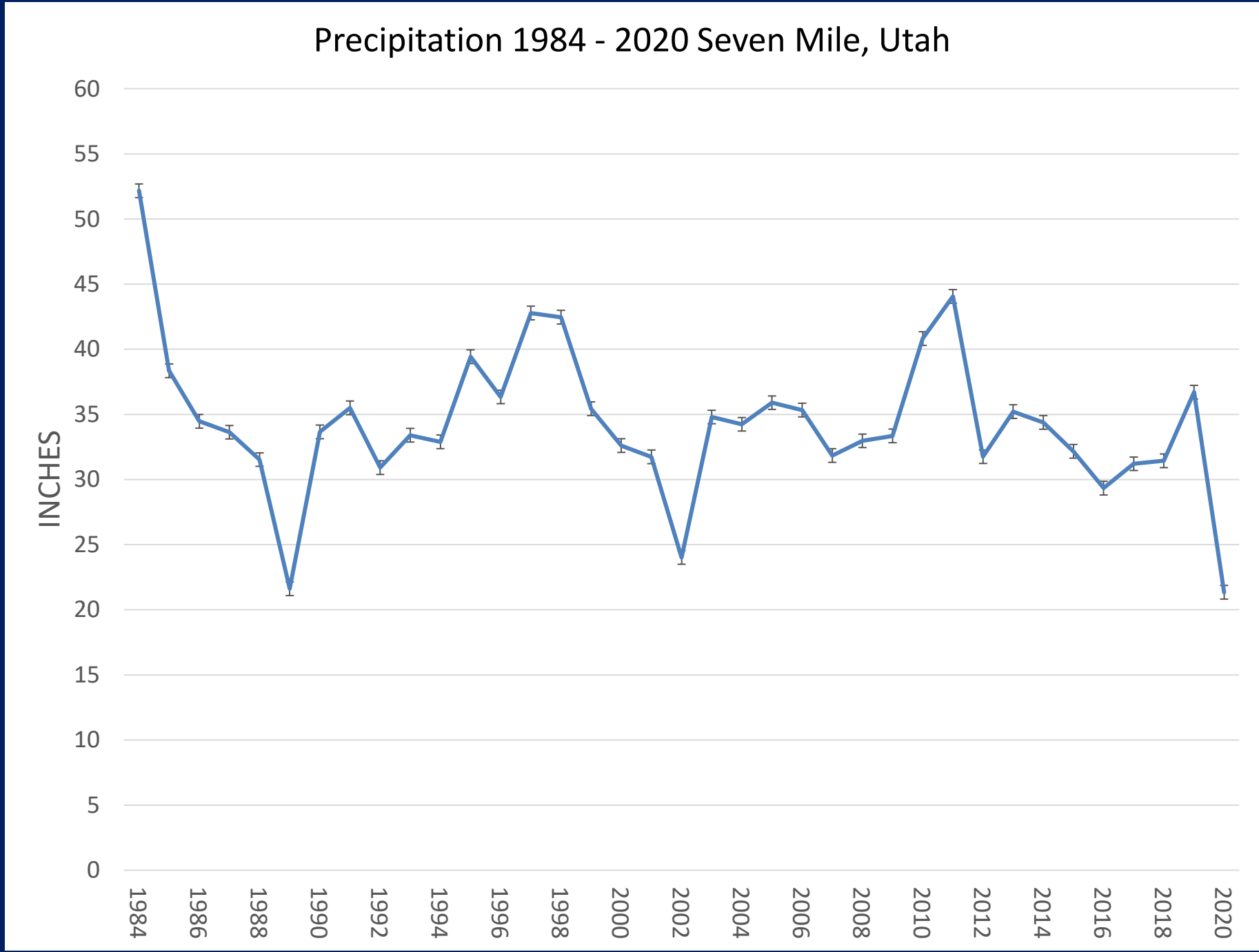
Why Do Grasses Matter?

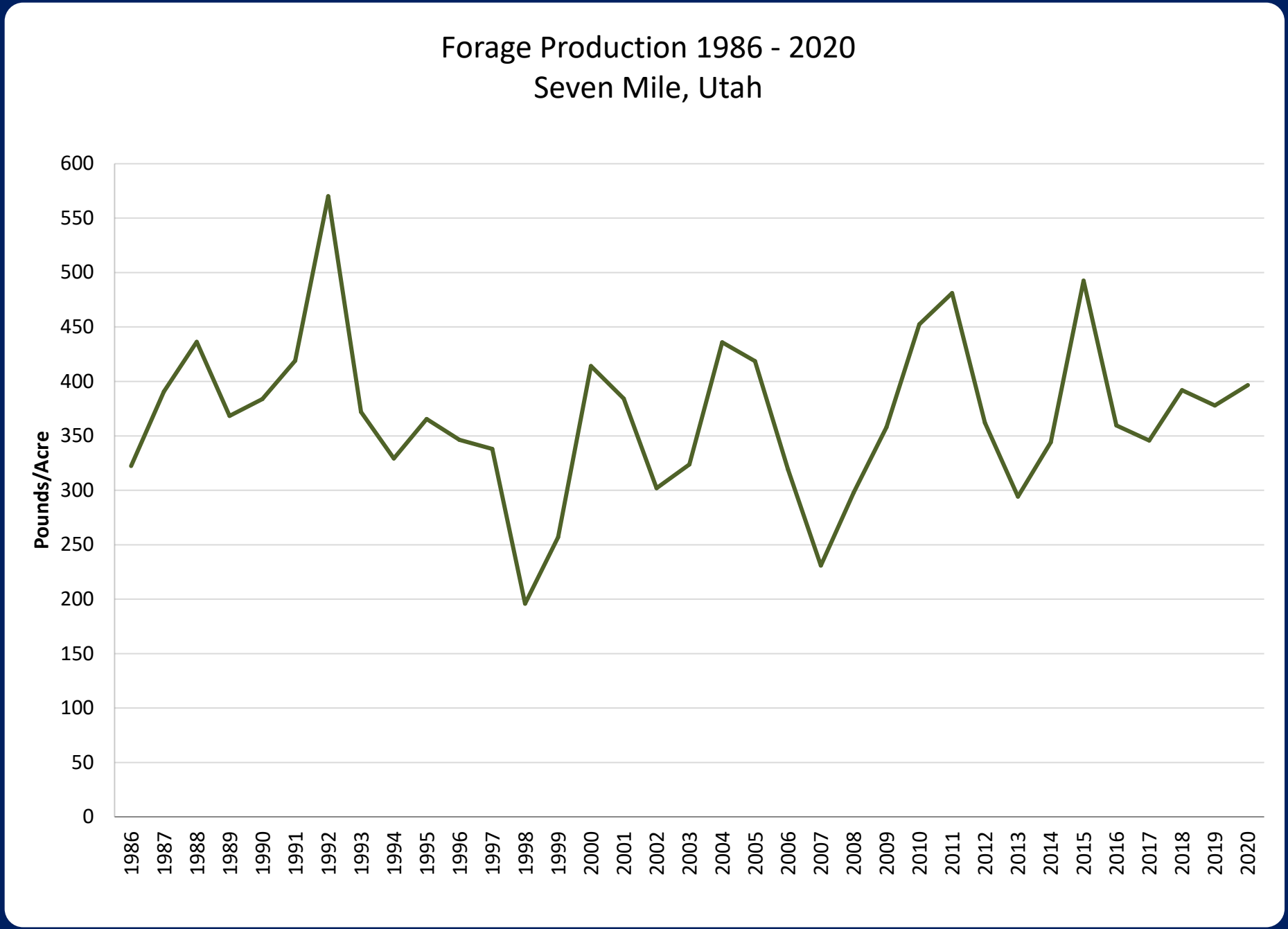
Growing season Precipitation

Fort Supply, OK
Precip: 24”
Forage Production: 1889#/acre



Avon, UT
-Precip: 24”
Forage production:985#/acre


Precipitation 1984 - 2020 Seven Mile, Utah
INCHES
60
55
50
45
40
35
30
25
20
15
10
5
0
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020


Forage Production 1986 - 2020
Seven Mile, Utah
Pounds/Acre
600
550
500
450
400
350
300
250
200
150
100
50
0
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
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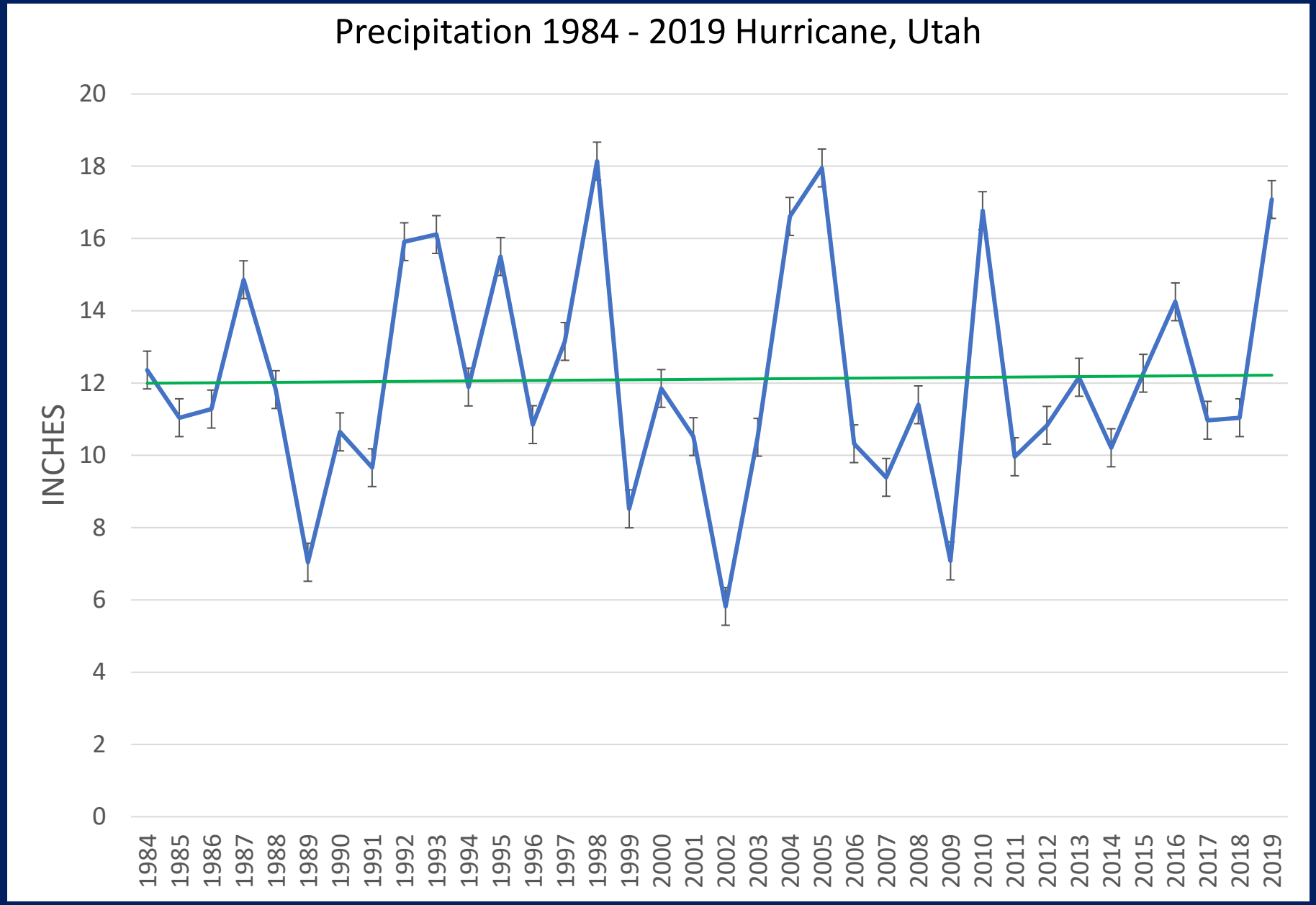
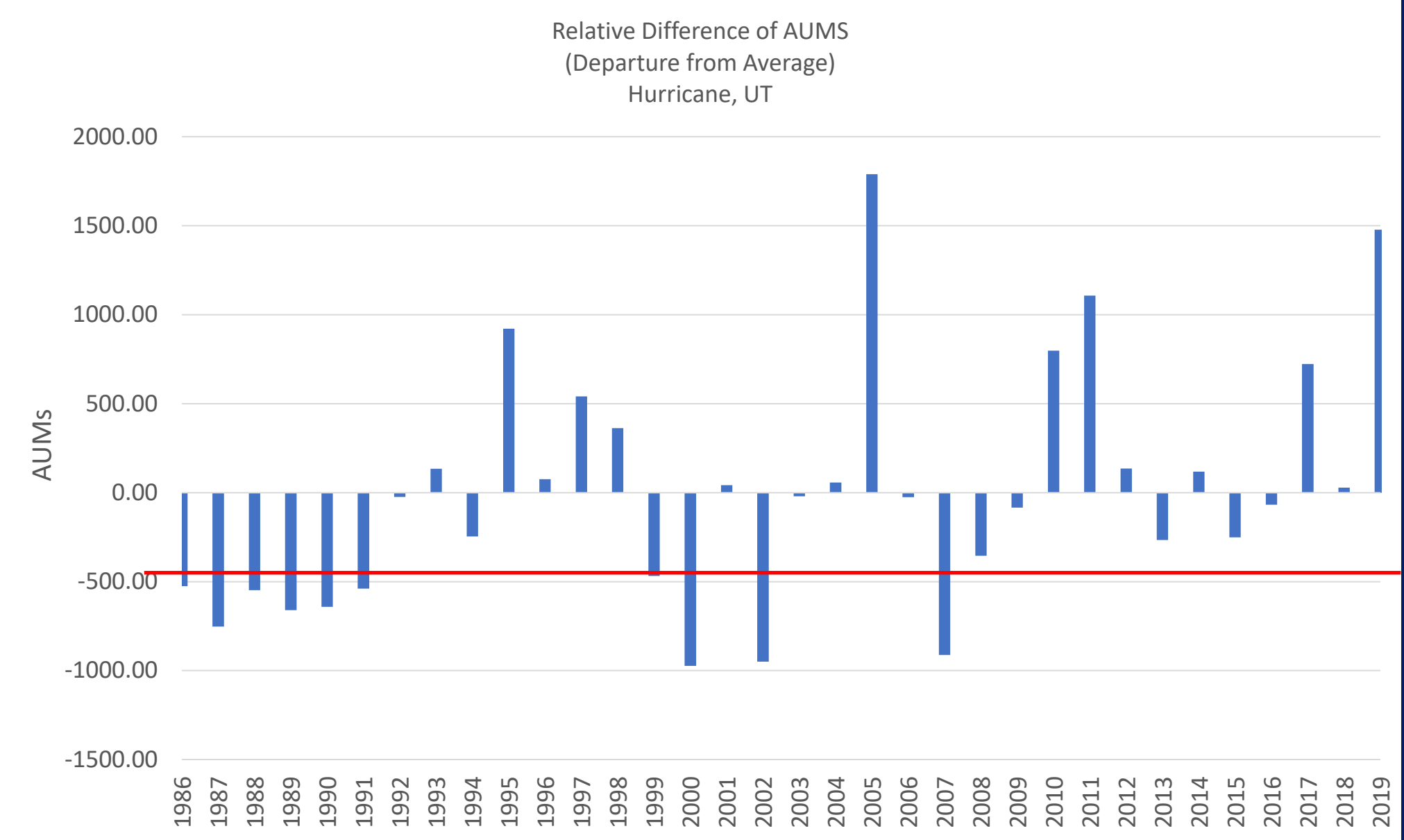
2015
2016
2017
2018
2019
2020



Average = 12.1 → 17% % Above = 31% **% Below = 53%**



10,000 Allotment near Hurricane: Available forage = 133#/acre (@ available %50)

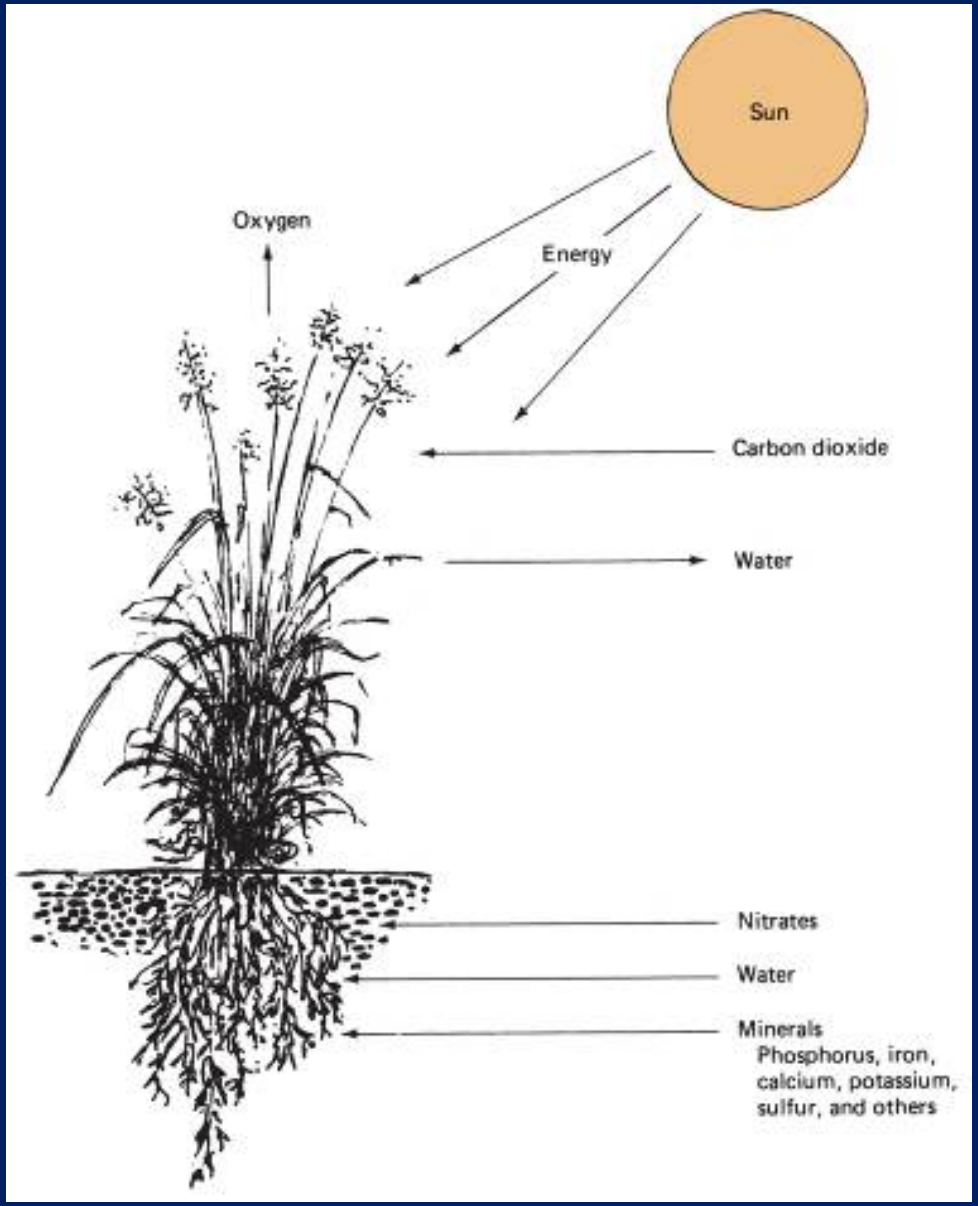
Average = **1783AUMs** Max= **3572AUMs** **Min = 810AUMs**

Plant Response Strategies

1. **<u>Avoidance</u>**
- Mechanical: thorns, leaf hairs etc.

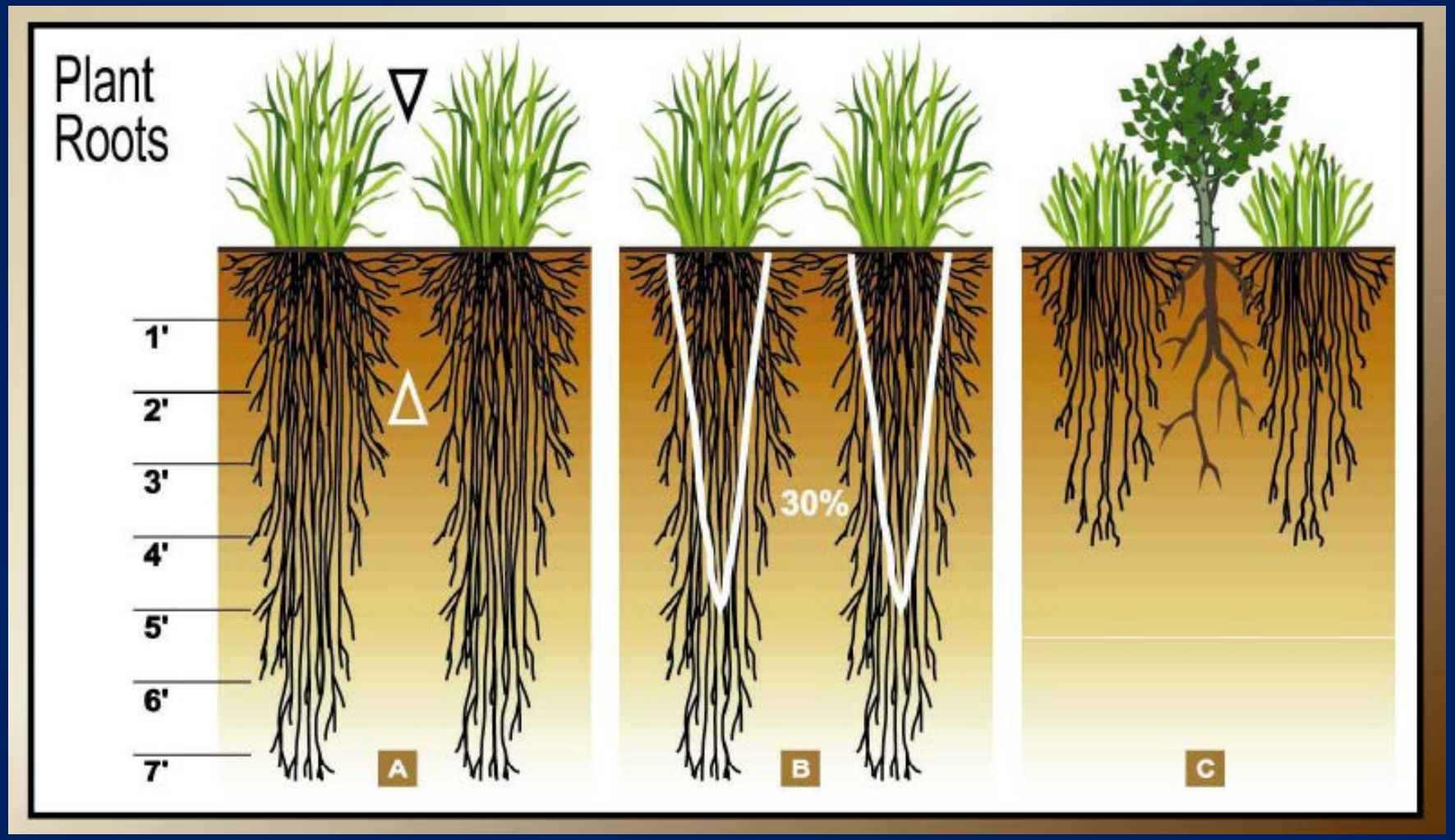
- Chemical: toxins lead to avoidance

2. **<u>Compensation</u>**
- Out grow it

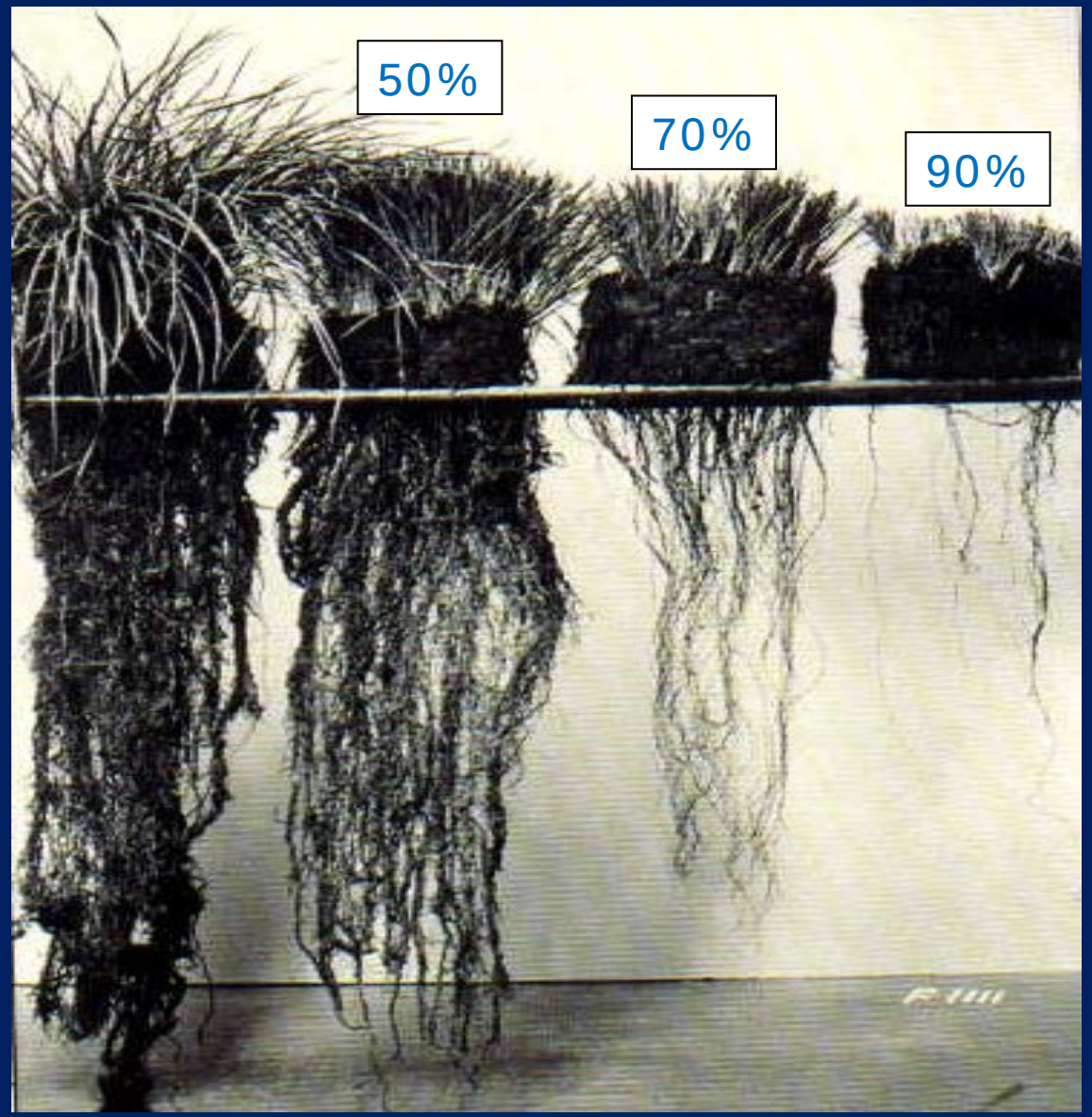


Materials used by grass plants for photosynthesis.

Grass Roots



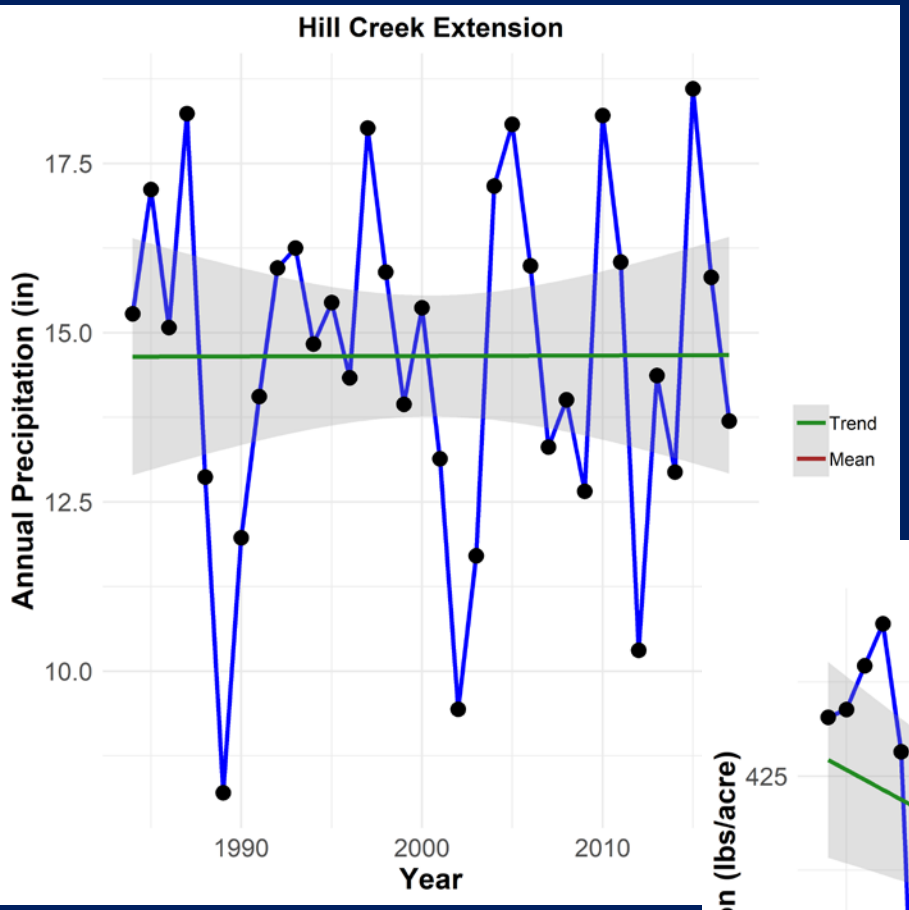
Root Responses to Grazing

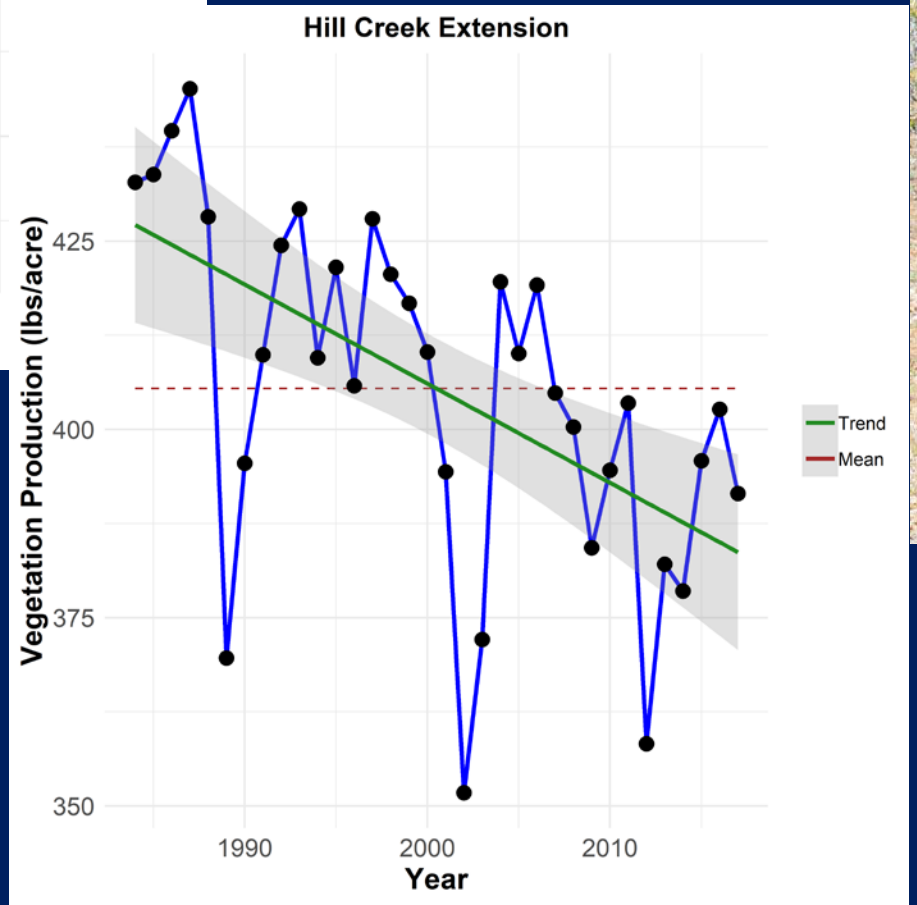


Level of Removal

Percent leaf volume removed	Percent root growth stopped
10%	0%
20%	0%
30%	0%
40%	0%
50%	2-4%
60%	50%
70%	78%
80%	100%
90%	100%

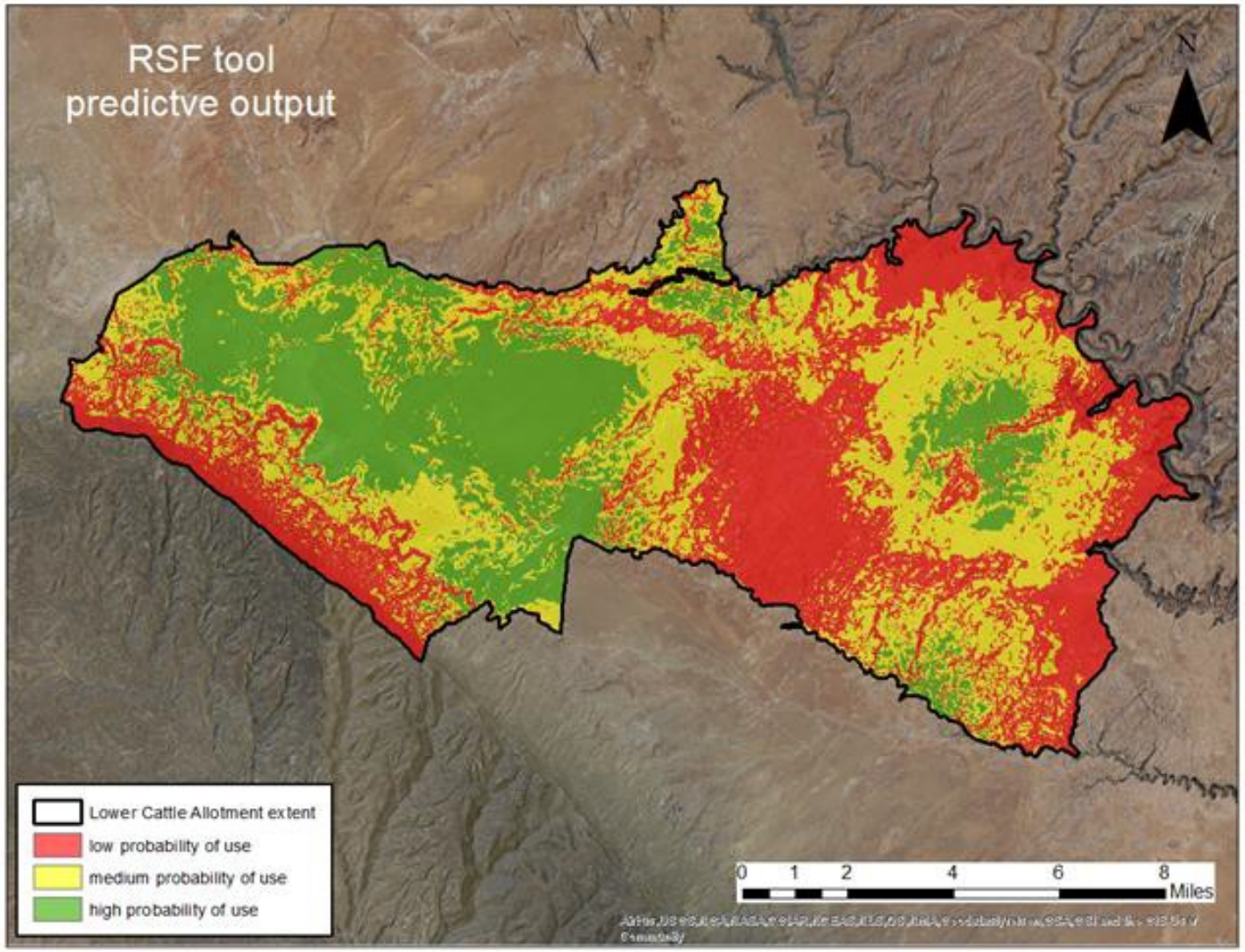
Forage Sustainability





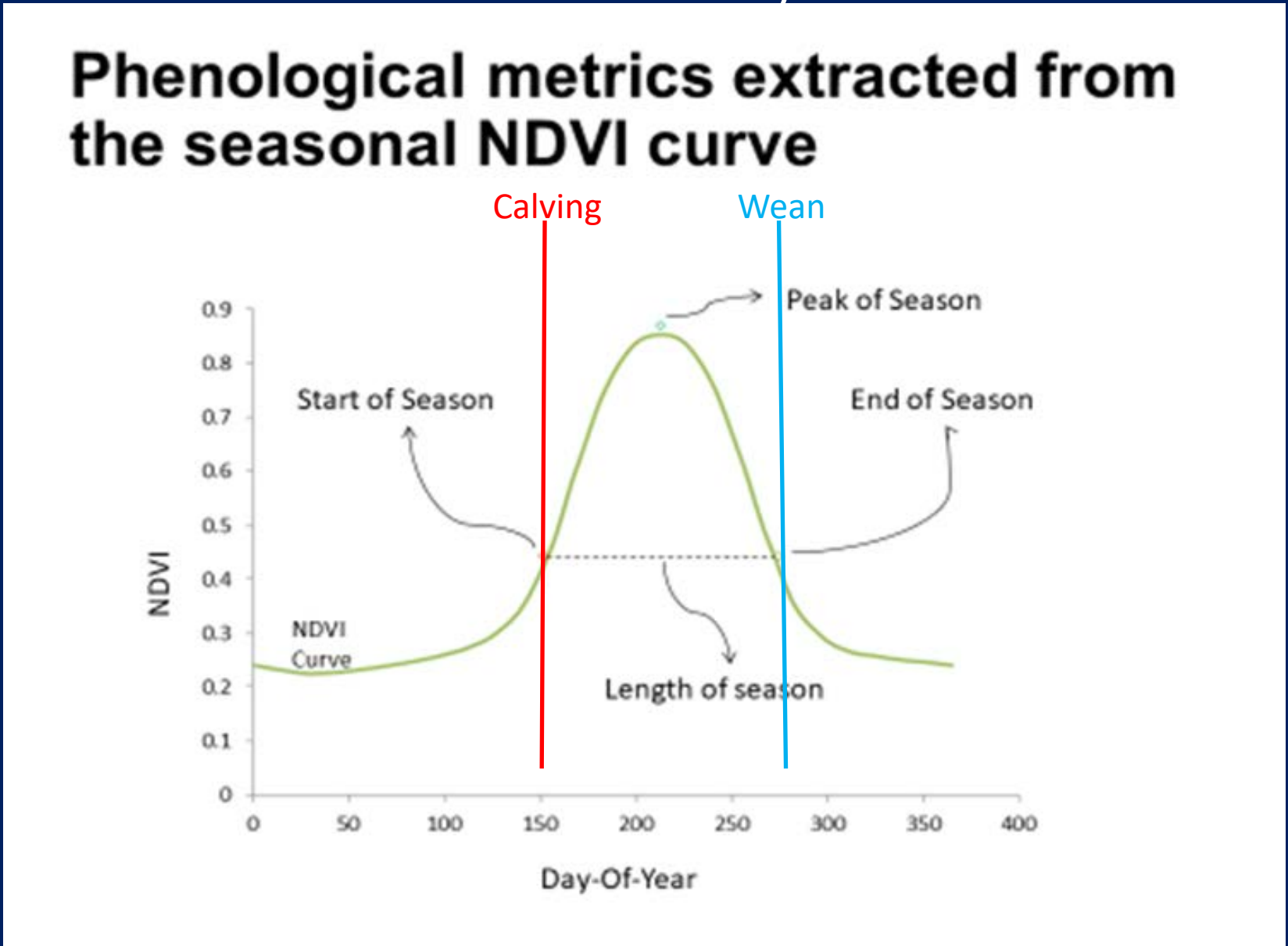
Zimmer et al. 2021

Probability of Use



- Cattle distribution
- Probability of Use Classification
  - Low probability of use (Red) – 0 - 25%
  - Moderate probability of use (Yellow/Orange) – 25-75%
  - High probability of use (Green) – 75-100%
- Distributions driven by
  - distance to water
  - Slope
  - vegetation type

Seasonality of Forage Production and the Beef Production Cycle



Managing Resilience

1. Recognize drought is not an anomaly
2. Resilience could shift with shifts in climates
3. Think about what forage is left (liter and stubble).
4. Provide opportunities for growth/rest
5. Think like landscapes and how livestock are using them.
6. Adaption requires **DATA** → **Monitoring.**
7. Adaption of livestock production systems

QUESTIONS

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