

Ranching in a Variable Climate

a practical approach

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Overview

- Let's think back to 2013-2014...
- What do we mean by climate variability and how does it impact ranching operations?
- What do you mean I should write it down?! The importance of a plan...
- Coping with Drought on Annual Rangelands
 - What we learned from the 2012-2015 drought
 - Case Study: Weaning Calves Early

2013-2014



February 5, 2014
Rio Vista, CA

What do we mean by “climate variability”?



Photo: DWR

- What’s the difference between weather and climate?
 - “Climate is what you expect, weather is what you get.” – Robert A. Heinlein
- Climate models predict greater variability
 - Warmer temperatures
 - Shorter, more intense wet seasons
 - Wetter wet years
 - Drier dry years

How does variability affect ranch management?

Lack of spring flush

Lack of stock water

Excessive heat

Loss of irrigation water

Fast spring flush

Wildfire

Smoke impacts

Excessive cold

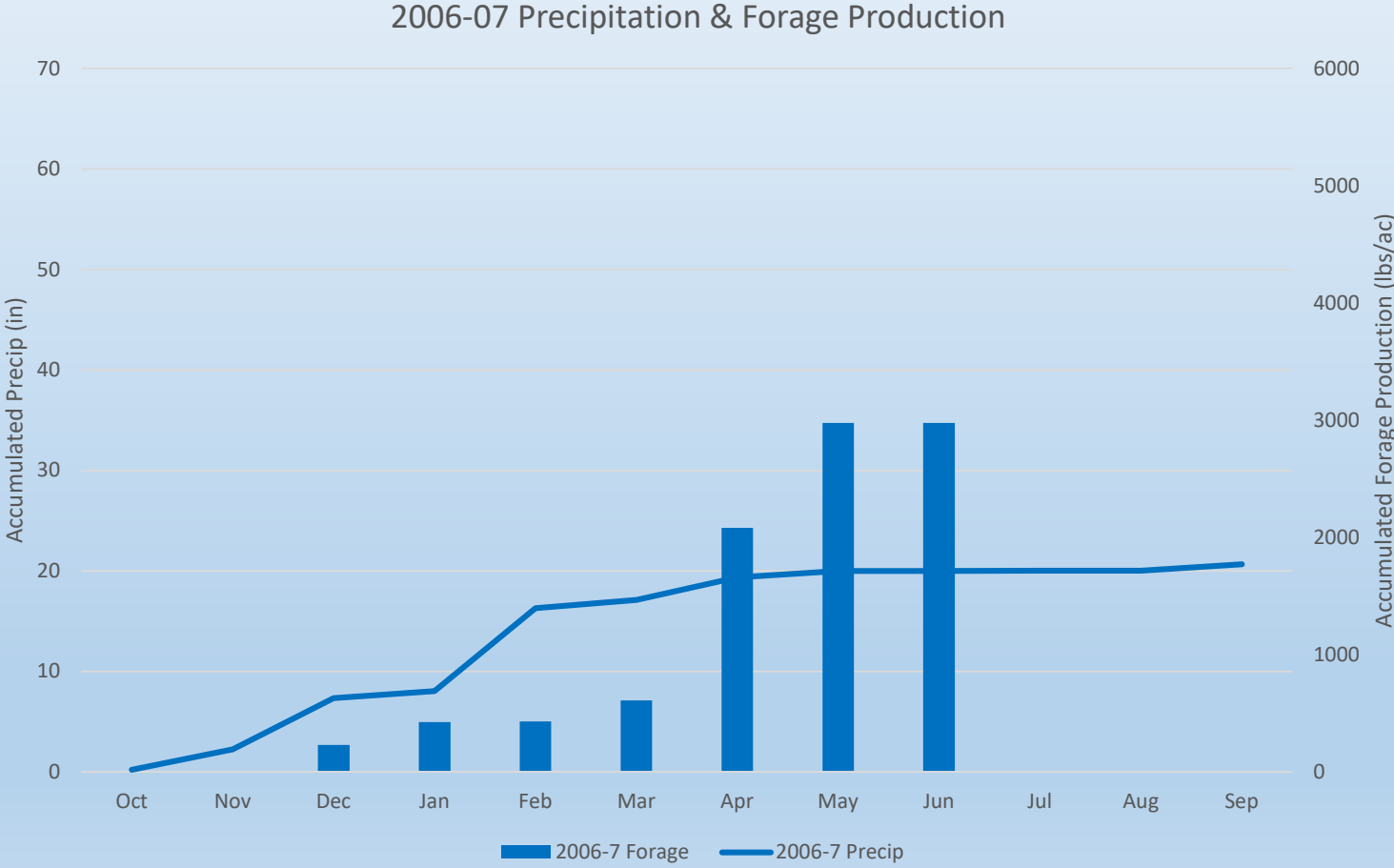
Lack of fall forage

Late spring flush

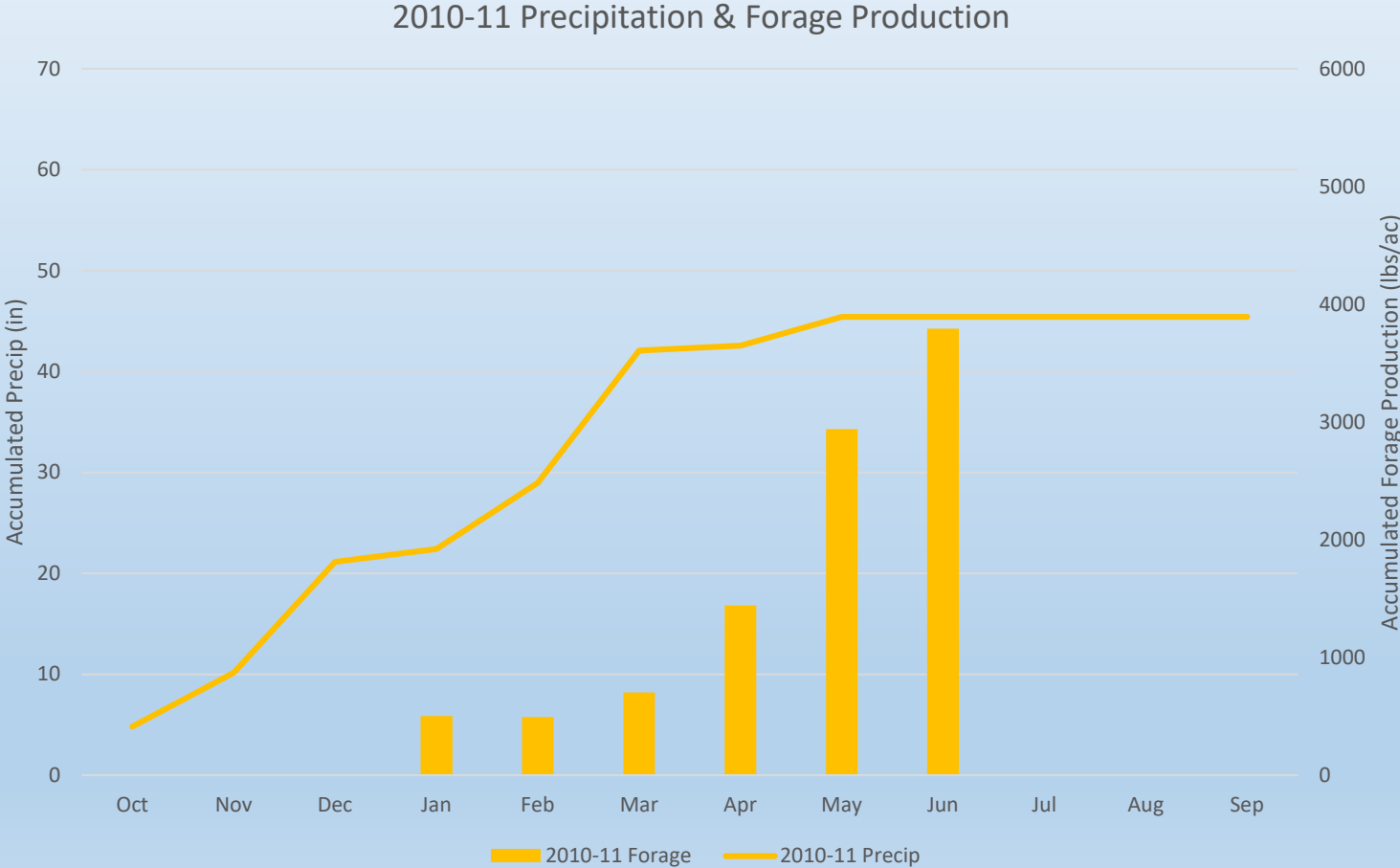
5 Years – 5 Different Stories



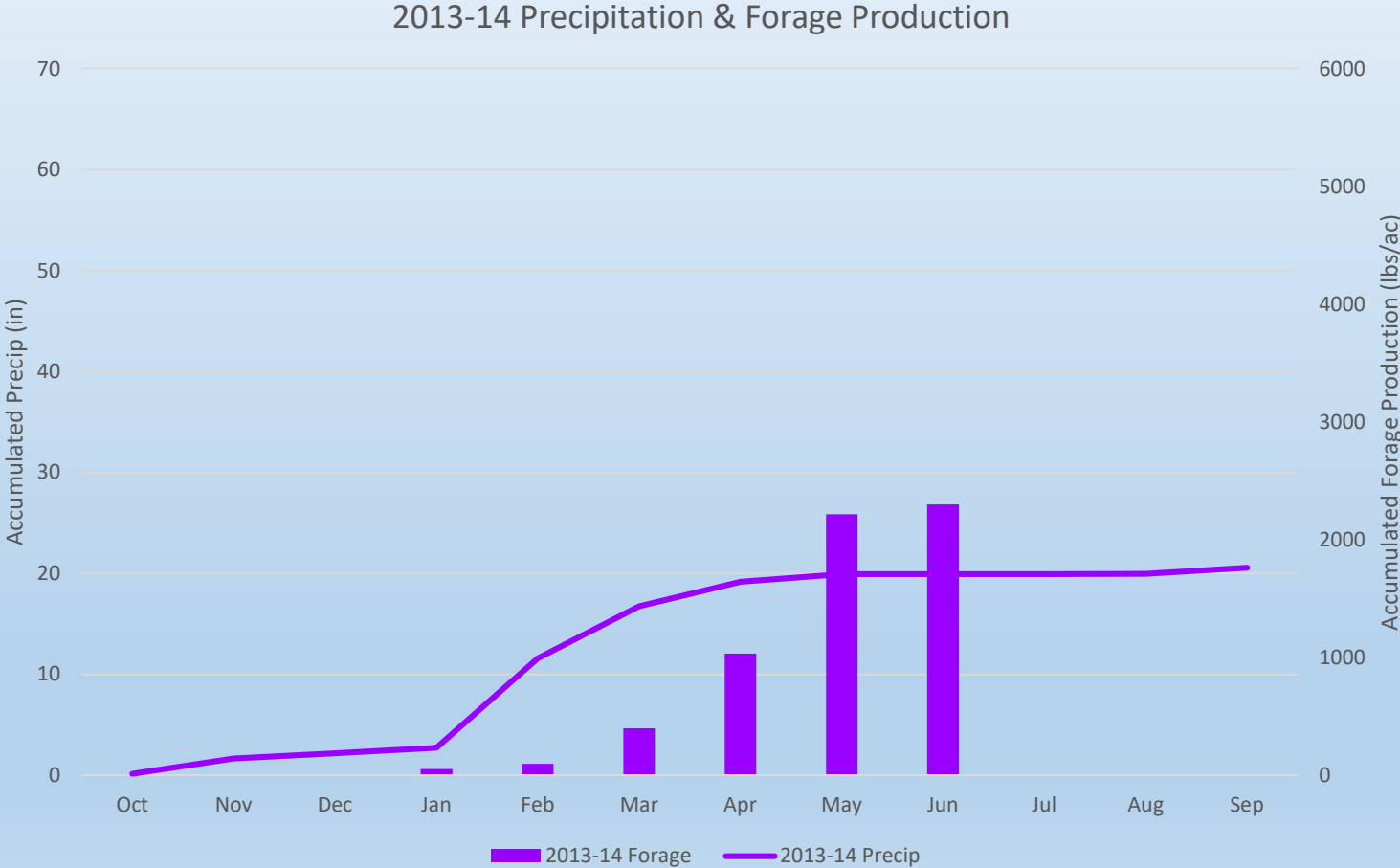
2006-07: Drought



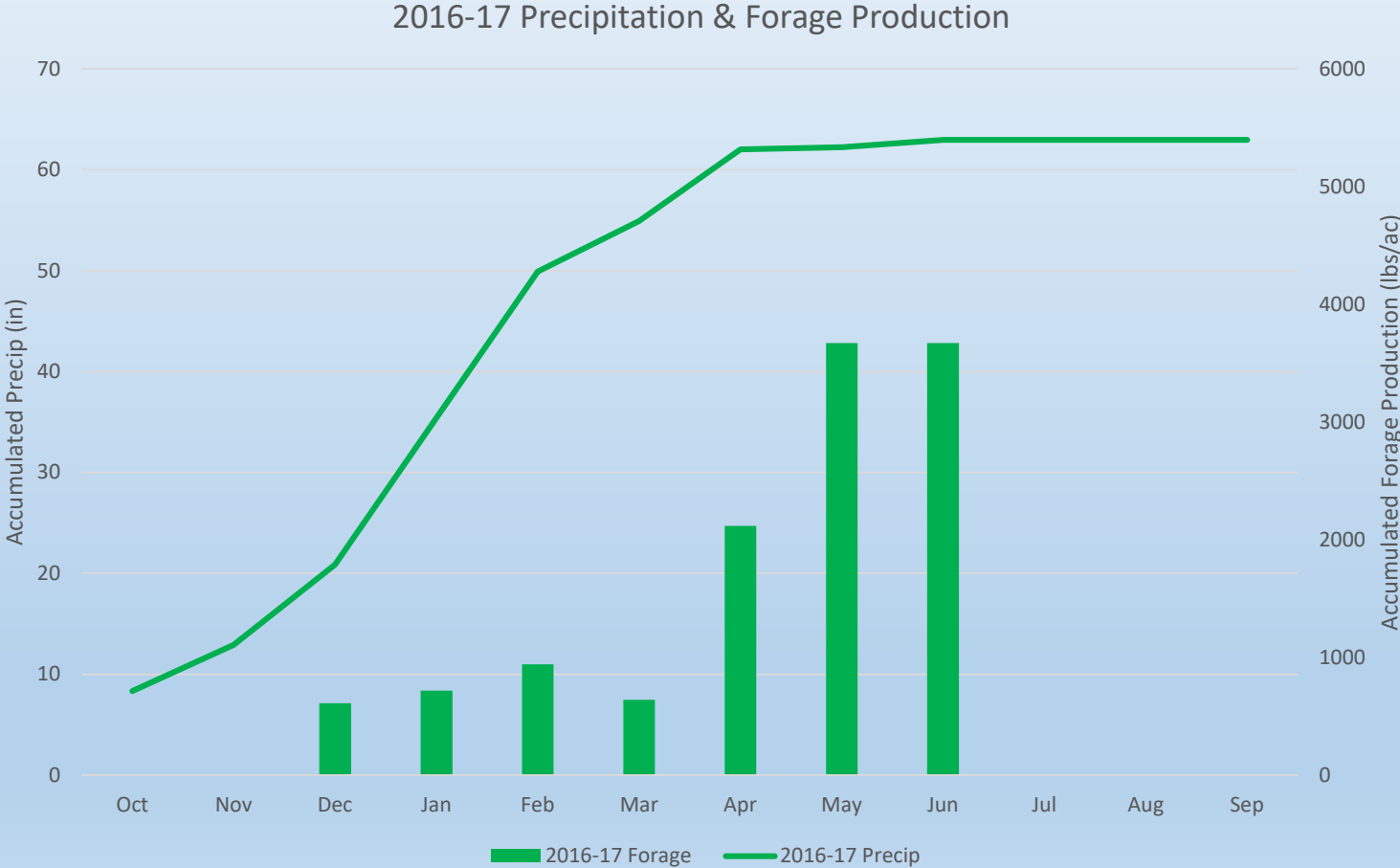
2010-11: Wet



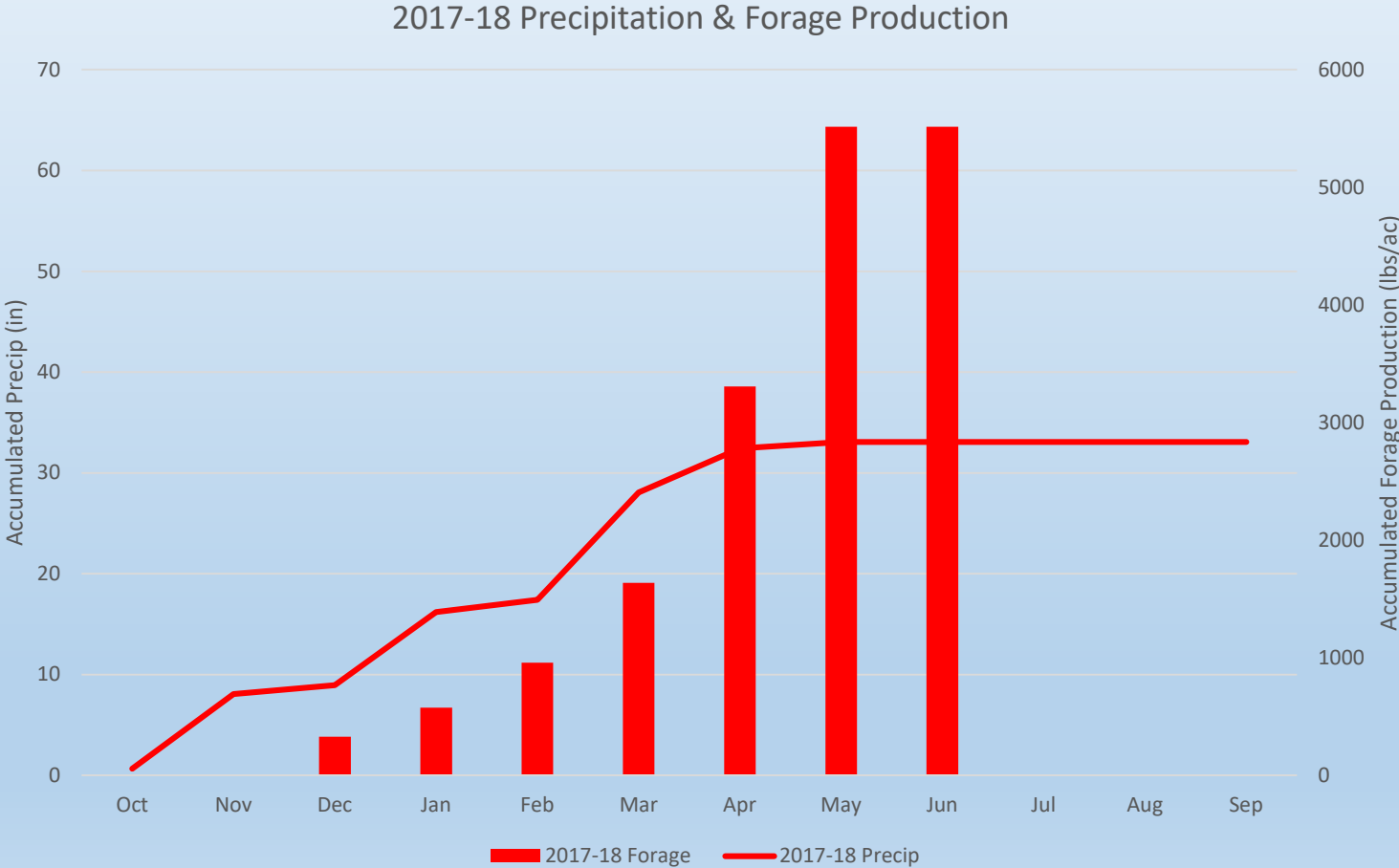
2013-14: Record Drought



2016-17: Record Wet



2017-18: “Normal” – whatever that means!



Based on these 5 years....

How do we stock
our ranches?!

Let's look at drought...

Drought Preparation Strategies



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graph TD; A[Drought Preparation Strategies] --> B[Drought Response Strategies]; B --> C[Drought Recovery Strategies];
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Drought Response Strategies

Drought Recovery Strategies

Drought Impacts on California Ranches (2012 – 2015)

In 2016, we surveyed 48 ranching operations regarding drought impacts, preparation, and response strategies.

- 32 cattle operations
- 28 sheep operations
- 3 goat operations
- 15 multi-species operations

Macon Roche, In prep



Photo: Holly George

Drought Impacts

Impact	%	Severity				
		No Impact ←		→ Severe Impact		
		1	2	3	4	5
Reduced forage availability	98%	3.94				
Increased expenses	90%	3.64				
Tree and brush mortality	67%	3.09				
Reduction in surface water	59%	3.75				
Reduction in stock water	57%	4.03				
Increase in invasive weeds	57%	3.31				
Decreased weaning weights	46%	3.14				
Reduction in reproductive rates	45%	3.10				
Reduced revenues	45%	3.54				

Drought Preparation Strategies

Strategy	%	Effectiveness				
		Not Effective	←————→			Highly Effective
		1	2	3	4	5
Incorporate pasture rest	90%	4.25				
Identify animals to sell	76%	3.94				
Stockpile forage	76%	3.89				
Use a conservative stocking rate	67%	4.33				
Purchase forage insurance	41%	3.84				
Multiple <u>classes</u> of livestock	27%	4.08				
Multiple <u>species</u> of livestock	18%	4.44				

Drought Response Strategies

Strategy	%	Effectiveness				
		Not Effective	←————→			Highly Effective
		1	2	3	4	5
Purchase feed	82%	4.38				
Reduce livestock numbers	61%	4.07				
Develop/haul stock water	55%	4.44				
Rent additional pasture	26%	4.58				
Move livestock to other location	14%	4.57				
Placed livestock in feedlot	14%	4.17				
Earned off-ranch income	10%	4.8				

Early Weaning

Type of Producer	%	Effectiveness				
		Not Effective	←————→			Highly Effective
		1	2	3	4	5
Cattle Only	67%	4.25				
Sheep Only	38%	4.40				
Multi-species	75%	3.67				
All Producers	59%	4.03				

Early Weaning: Key Considerations

- Weaning calves (or lambs or kids) early can reduce stocking rate while maintaining proven genetics.
- Tradeoffs
 - Lighter sale weights = lower revenue
 - Lower stocking rate = potentially lower supplemental feeding costs
 - Selling weaners vs. selling breeding-age females
- Logistics
 - Should fit with typical production calendar (e.g., weaning could occur at preg check)
 - Wean onto trucks vs. fenceline weaning and backgrounding
 - Wean heavier calves first?
- What are the key dates and trigger points?

SFREC Research – Early Weaning of Beef Calves

- Early weaning may be an effective strategy for reducing stocking rate without impacting herd genetics.
- However, no research has analyzed the effectiveness of early weaning on annual rangelands, which are a unique system:
 - Typically fall calving operations (to take advantage of winter/spring forage production)
- Western SARE grant providing funding for us to analyze the costs and benefits of early weaning in a fall-calving, annual rangeland system
- Producer steering committee is helping make sure we're asking the right questions and taking a practical approach!

Early Weaning Project - Objectives



1. Quantify the influence of early weaning on cow and calf performance, pasture utilization, soil protection, and plant biodiversity.
2. Develop decision tools to help producers evaluate the economic and ecological tradeoffs associated with early weaning.
3. Create a basic decision support guide to facilitate operation-specific analysis.

Early Weaning Project - Methods

- Randomly assigned 84 cows to early weaning (March) or traditional weaning (late May or June) groups (3 blocks).
- Cattle will graze in six ~100 acre pastures from late March through the onset of calving (September 1). Stocking rate (acres/cow) will be similar across pastures.
- Experiment conducted across two grazing seasons.



Early Weaning Project - Measurements

- Cows: BCS (weaning, calving, breeding), Conception Rates
- Calves: Weight (weaning)
- Rangeland: forage production and utilization, forage quality, species composition, and biodiversity
- Economics: Value of calves (early vs. traditional) vs. potential savings (feed costs, retention of genetic potential, post-drought recovery)



Early Weaning Project – Steering Committee

- Committee Members

- Joe Fischer, Bruin Ranch
- Patti Beard, Beard Ranch
- Sue Hoek, Robinson Ranch
- Tim Reid, Reid Ranch
- Greg Lawley, Lawley Ranch

- Committee recommendations

- Early weaning should occur during typical operations (e.g., preg check)
- Trigger condition considerations
 - Feeder cattle cash and futures markets
 - Feed (esp. corn) cash and futures markets
 - Cull cow market
 - Cow age
 - Other risk management strategies
 - Labor costs
 - Will early weaning require additional labor?
 - Will extra feeding require additional labor

Early Weaning Project - Update

- Early weaned calves were weaned on March 19 and “sold” on March 26.
- All project cattle placed on project pastures on March 26.
- Traditional weaning will occur on May 30. Calves will be “sold” on June 6.
- Forage production and utilization data collected week of May 28.



Questions?



- What's in YOUR drought toolbox?
 - Preparation tools
 - Response tools
 - Recovery tools
- What questions do we need to be asking?