Evaluating Early Weaning of Beef Calves in Annual Rangeland Systems

2019 Update

UCD Beef Day – Sierra Foothill REC

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Overview

- Let's think back to 2013-2014…. What did you do to cope with California's 1000-year Drought?
- What we learned from producers who survived the 2012-2015 drought
- Is early weaning an effective drought response strategy? Preliminary results from Year 1 of our project.

Let's think back to 2013-2014…

February 5, 2014
Rio Vista, CA

How do ranchers cope with drought?

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 classes of livestock	27%	4.08
Multiple species 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

Drought Preparation Strategies

EARLY WEANING

Drought Recovery Strategies

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

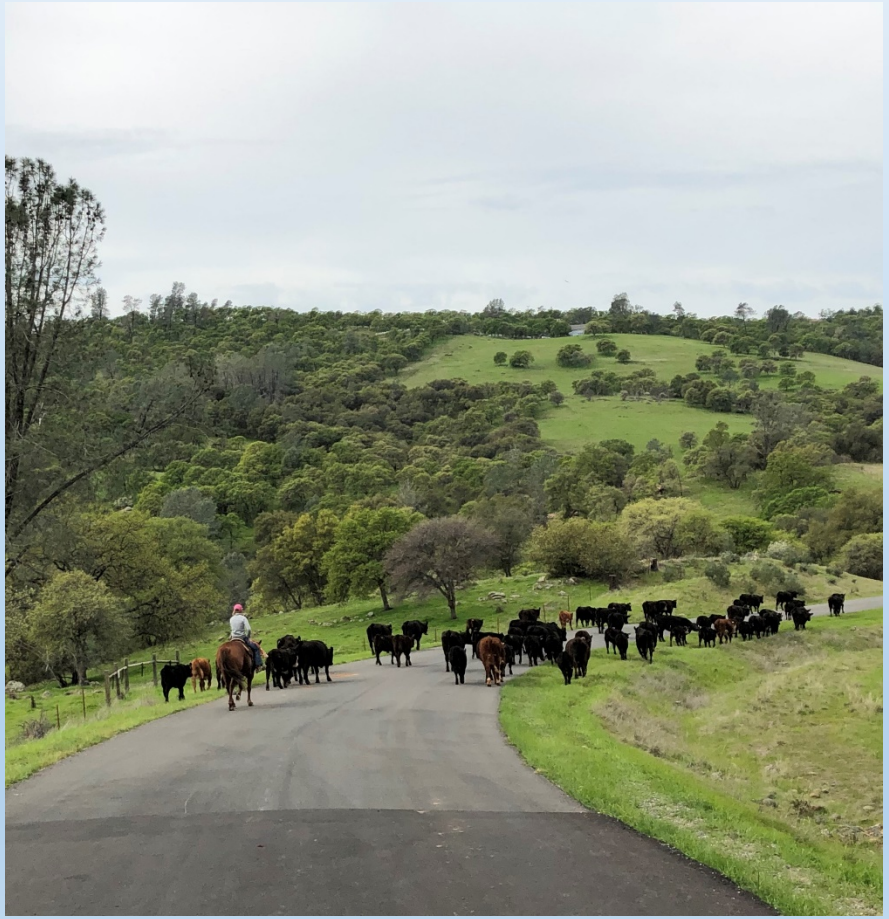
Early Weaning: Key Considerations

- Weaning calves early can reduce stocking rate while maintaining proven genetics. But how much is stocking rate reduced?
- But there are tradeoffs:
  - Lighter sale weights = lower revenue
  - Lower stocking rate = potentially lower supplemental feeding costs
  - Selling weaned calves vs. selling breeding-age females
- Logistics – what happens in the “real” world?
  - 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:
  - In California, these are 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
- Our 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 grazed in six ~100 acre pastures from late March through the onset of calving (September 1). Stocking rate (acres/cow) are similar across pastures.
- Experiment conducted across two grazing seasons.

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 - Measurements

- Cows: BCS (collected at weaning, calving, breeding), Conception Rates
- Calves: Weight (at 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 – Year 1 Update

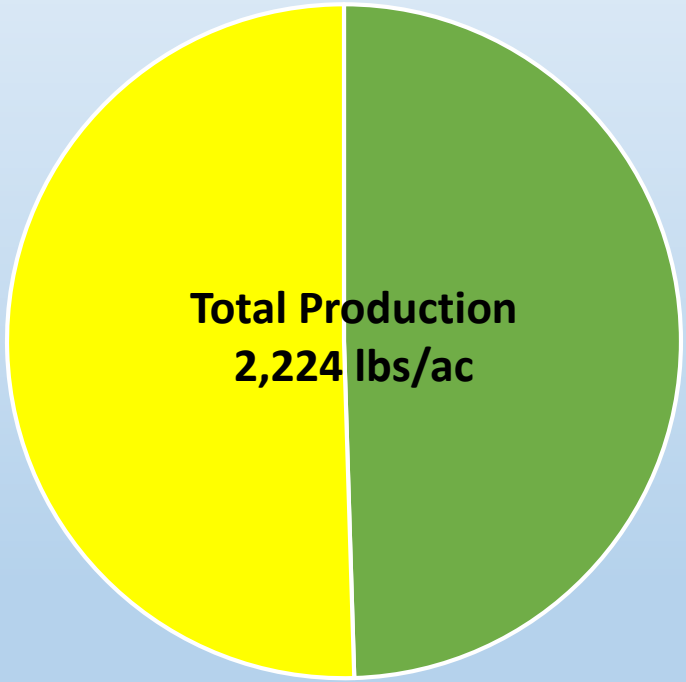
- Early weaned calves were weaned on March 19 and “sold” on March 22.
- All project cattle placed on project pastures on March 26.
- Traditional weaned calves were weaned on May 30 and “sold” on June 7.
- Forage production and utilization data collected week of May 28. Additional data collected in late September.

2019 Results – Cattle enrolled

	Average BW	Average Cow Age
Traditional (42)	77.3 lbs	6.3 yrs
Early (42)	78.1 lbs	6.7 yrs

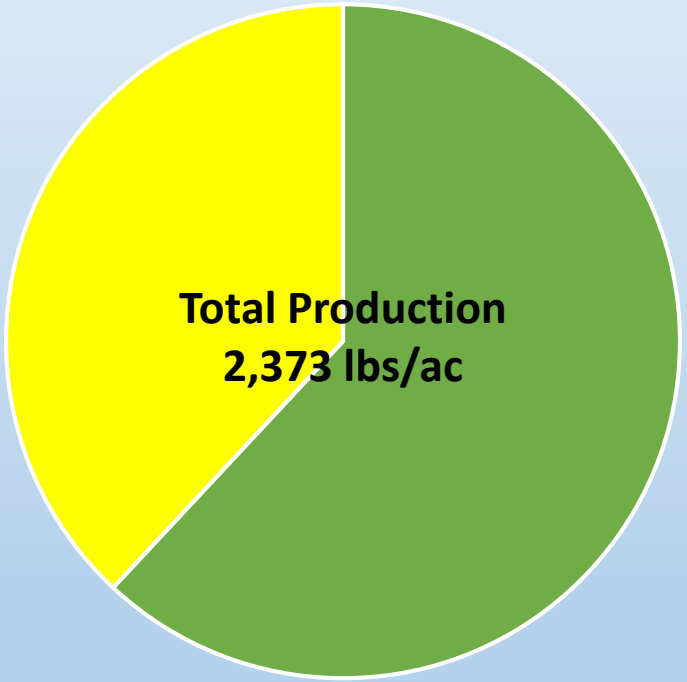
2019 Results – Forage Supply

Traditional Weaning



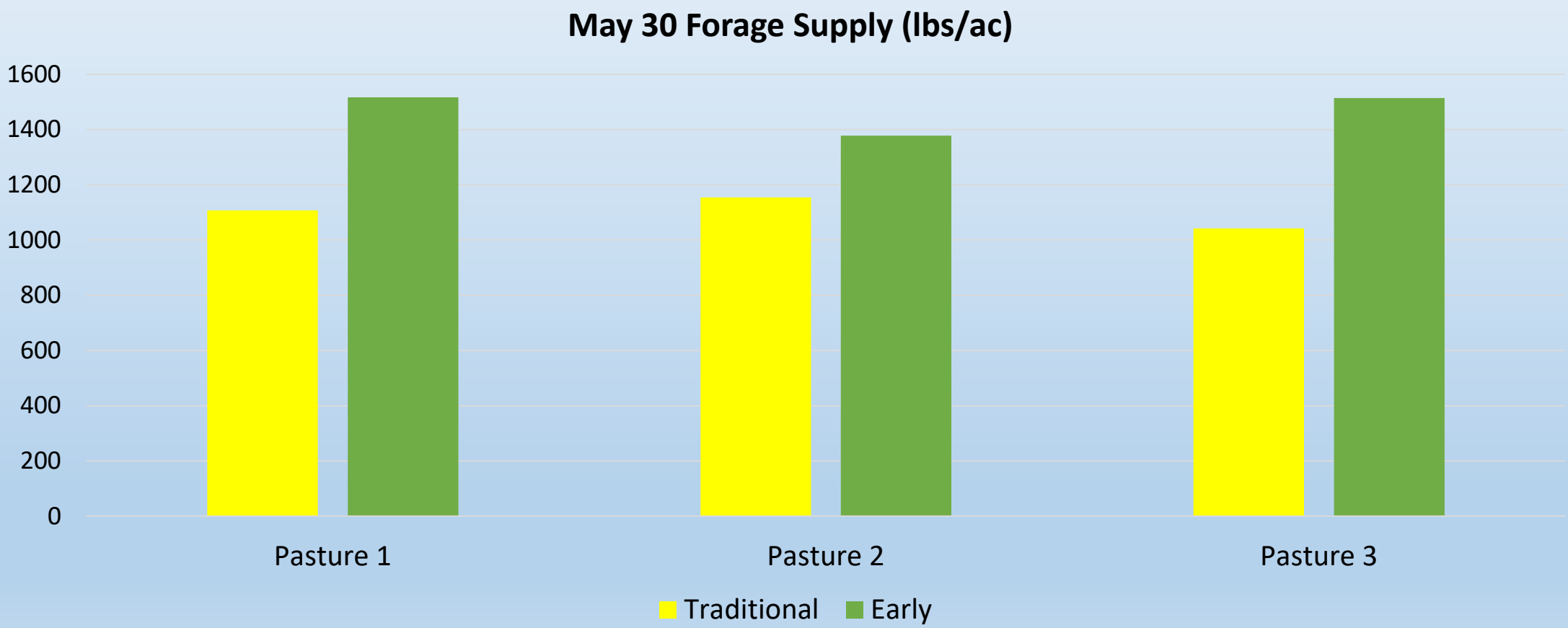
Remaining Forage Grazed Forage

Early Weaning

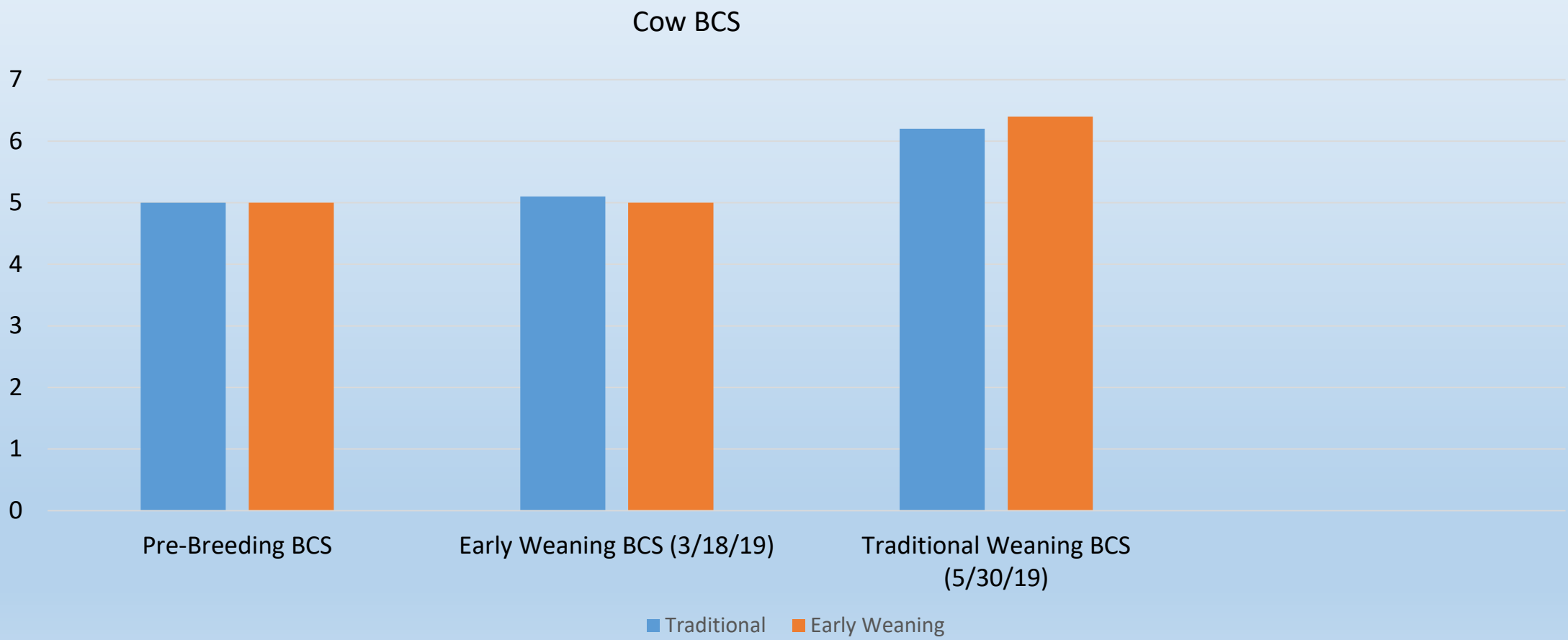


Remaining Forage Grazed Forage

2019 Results – Forage Supply



2019 – Cow Body Condition Score



2019 Results – Calf Data
Early Weaned Calves

	# of Head	Average Wt.	Price (3/22/19 - Shasta)	Average Value / Hd.
Heifer Calves	21	388 lbs	$1.64	$636.32
Steer Calves	21	403 lbs	$1.80	$725.40

2019 Results – Calf Data
Traditional Weaned Calves

	# of Head	Average Wt.	Price (6/7/19 - Shasta)	Average Value / Hd.
Heifer Calves	19	596 lbs	$1.32	$786.72
Steer Calves	23	623 lbs	$1.48	$918.93

Trade Offs

	Ranch A (Traditional)	Ranch B (Early Wean)

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	Ranch A (Traditional)	Ranch B (Early Wean)
June 1 Forage	1,101 lbs/ac	1,470 lbs/ac

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June 1 Average Cow BCS	6.2	6.4

Trade Offs

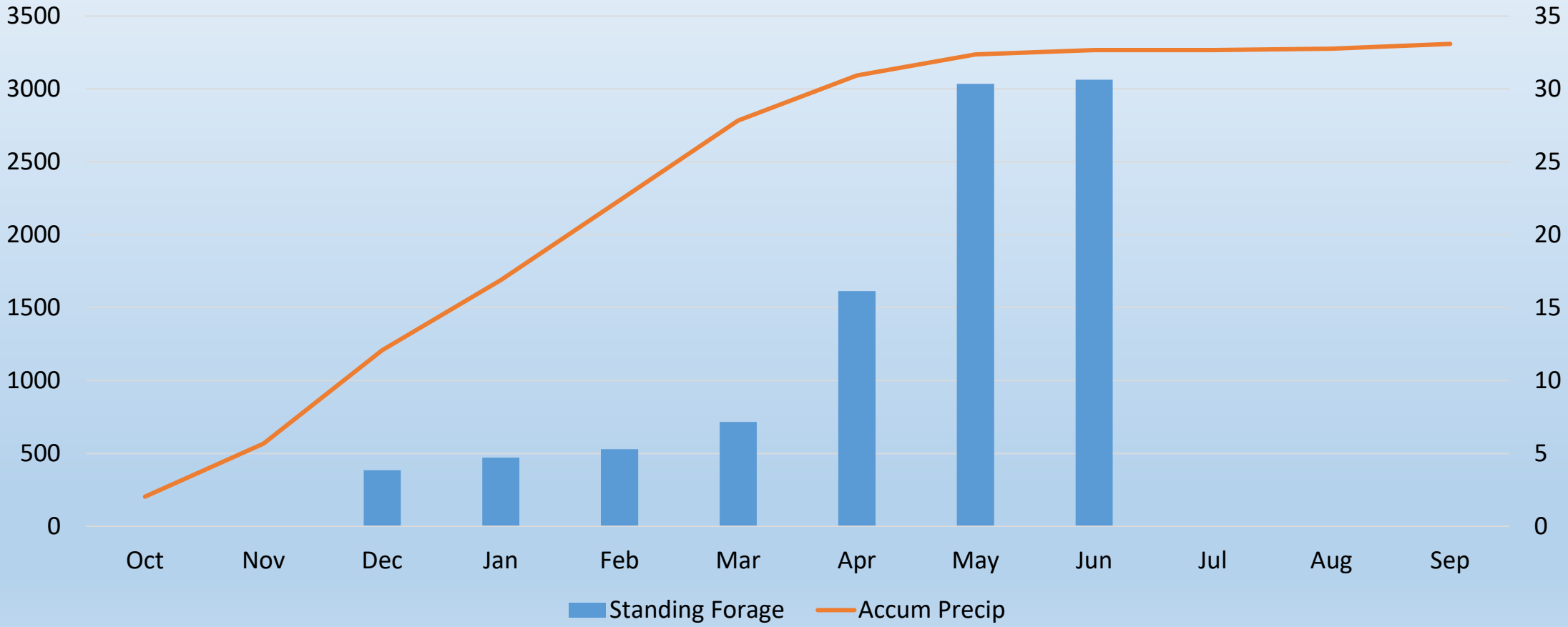
	Ranch A (Traditional)	Ranch B (Early Wean)
June 1 Forage	1,101 lbs/ac	1,470 lbs/ac
June 1 Average Cow BCS	6.2	6.4
Calf Revenue	$36,083	$28,596

Is 369 lbs/ac extra forage and a slight improvement in cow body condition worth $7,500 in foregone revenue? What would these numbers look like in an actual drought situation?

Future Questions

- Are there downstream effects from early weaning?
  - Disease issues?
  - Performance issues?
  - How would this impact “reputation” cattle?
- On annual rangelands, will the forage eventually grow (even in the driest years)?
- What are the long-term effects on reproductive success?
  - Difficult to measure in a “normal” forage year – not much difference in cow BCS.
- Are there some classes of females (e.g., first- or second-calf heifers) that would benefit more from early weaning?
- **What are the key dates for YOUR operation?**

Average Precipitation & Forage Production



2013-14 Precipitation & Forage Production

What would **you** do?!

Next Steps

- Collect second year of data
- Analyze production and economic data
- Evaluate decision-making framework
  - Key dates
  - Prioritize candidate cows (e.g., heifers)
  - Identify weaning priority (e.g., heavy calves first?)