

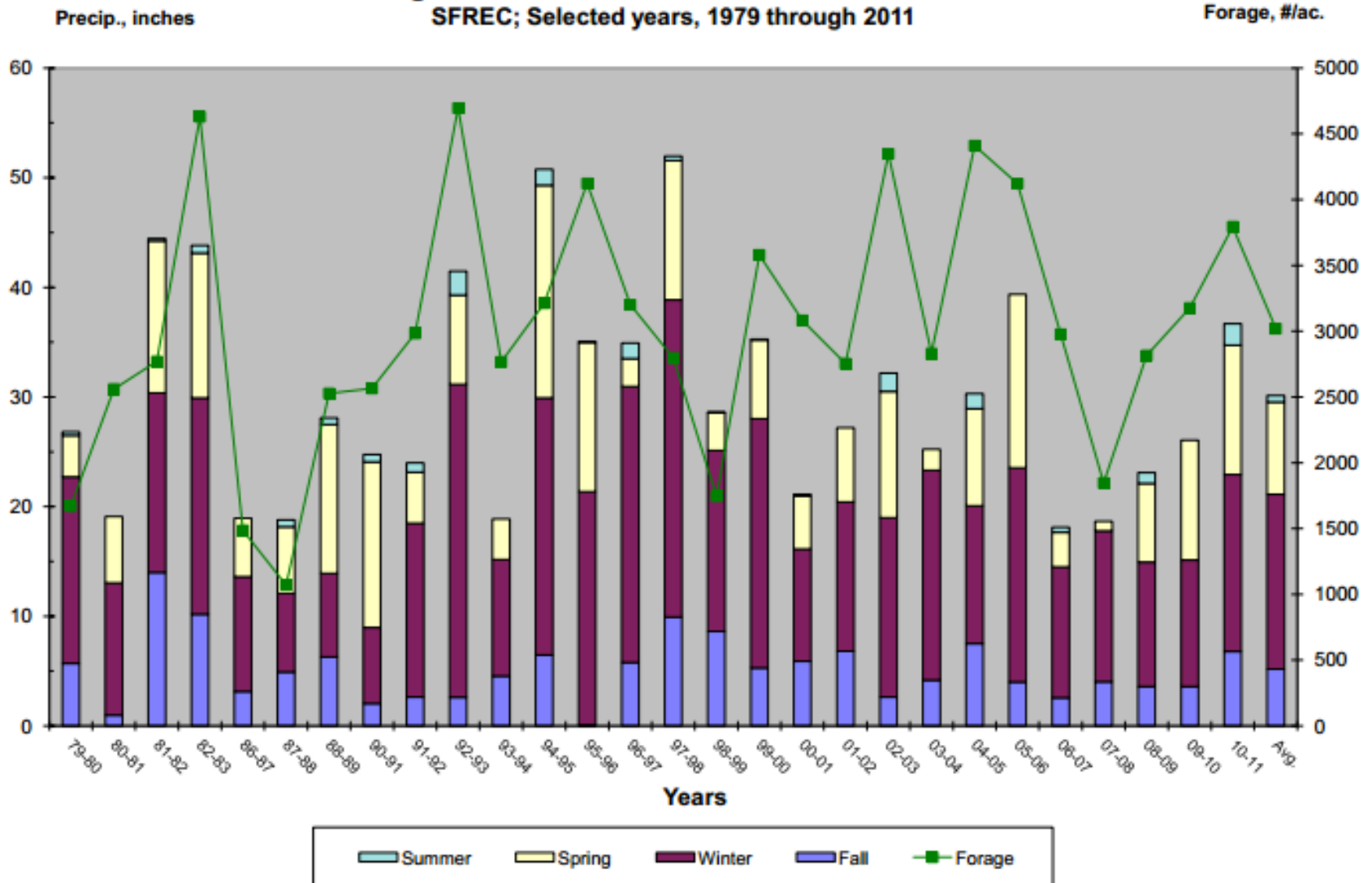
# Ranch Management Tools for a Water-Scarce Region

Presented by Ken Tate  
CalCAN Paicines Ranch Field Day  
October 30, 2012



# A Variable Climate

Figure 1. PRECIPITATION & FORAGE YIELD  
SFREC; Selected years, 1979 through 2011

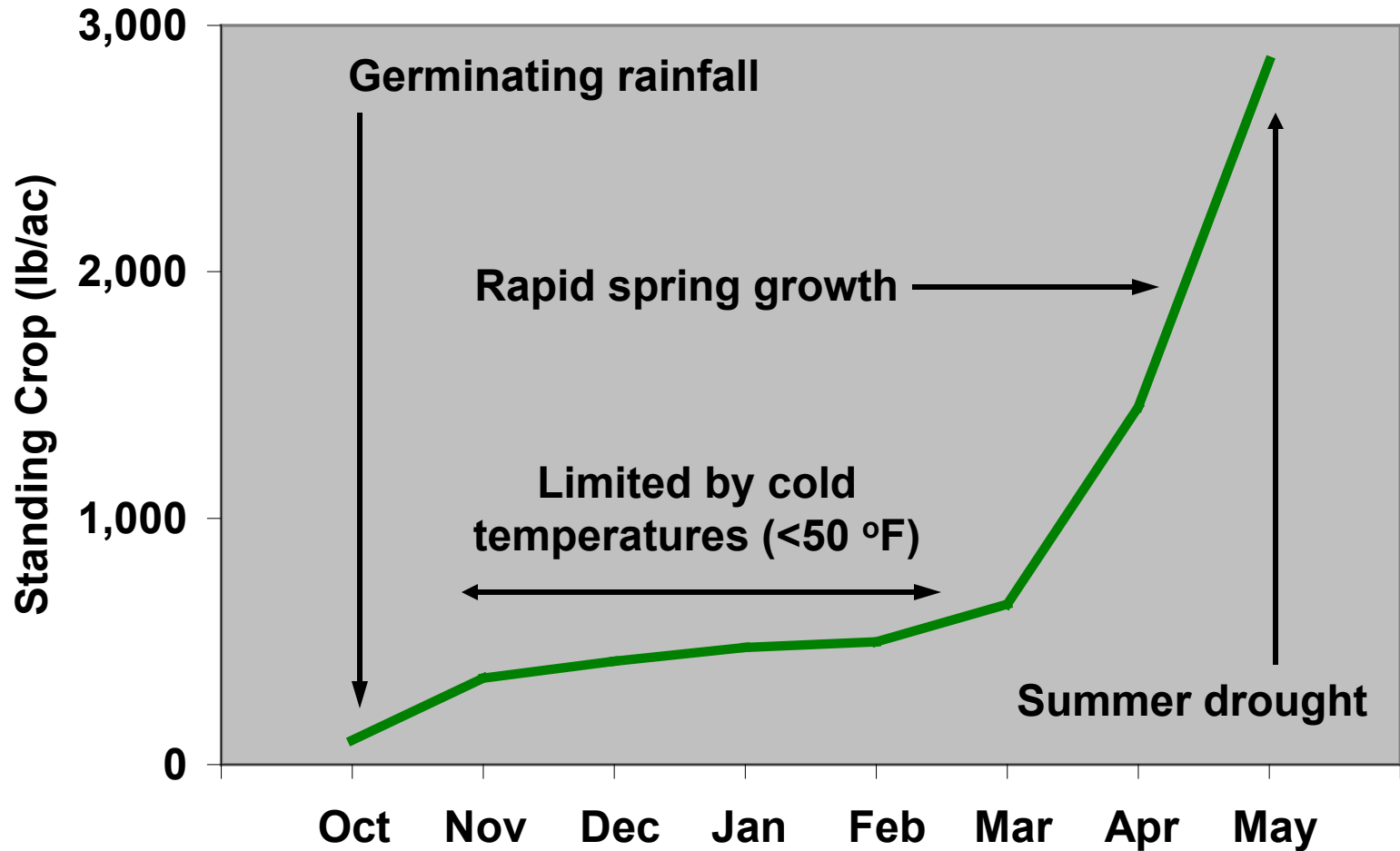


# Annual P and Forage: 1979-2011

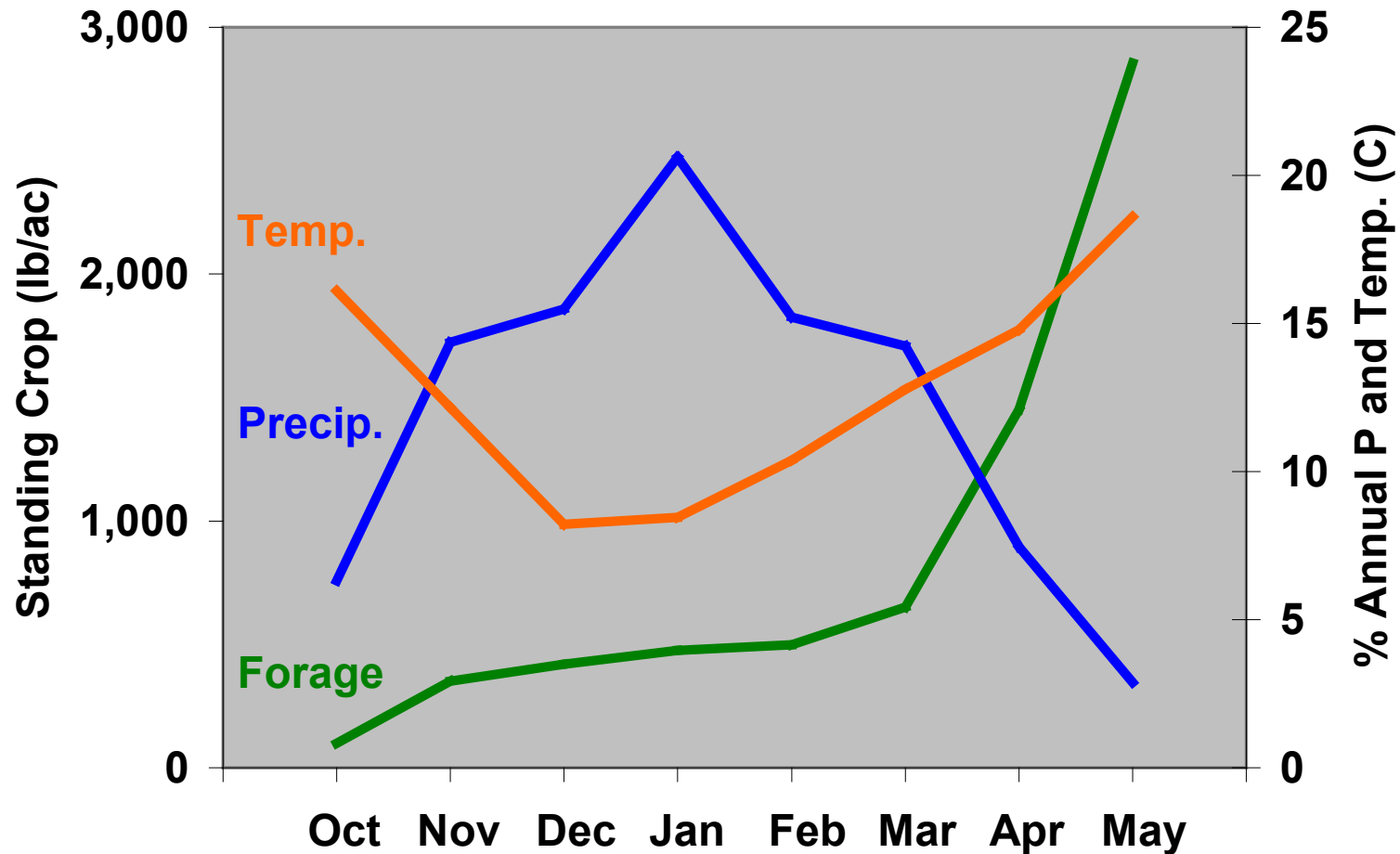
Measure	Low	High
% of Average Rainfall	35	156
Forage Produced (lb/ac)	1070	4990
Grazing Capacity (AUM/ac)	1.2	5.2
Value (\$/ac)	\$24	\$104

**Within season (i.e., fall, winter, spring) rainfall and forage production can be extremely variable**

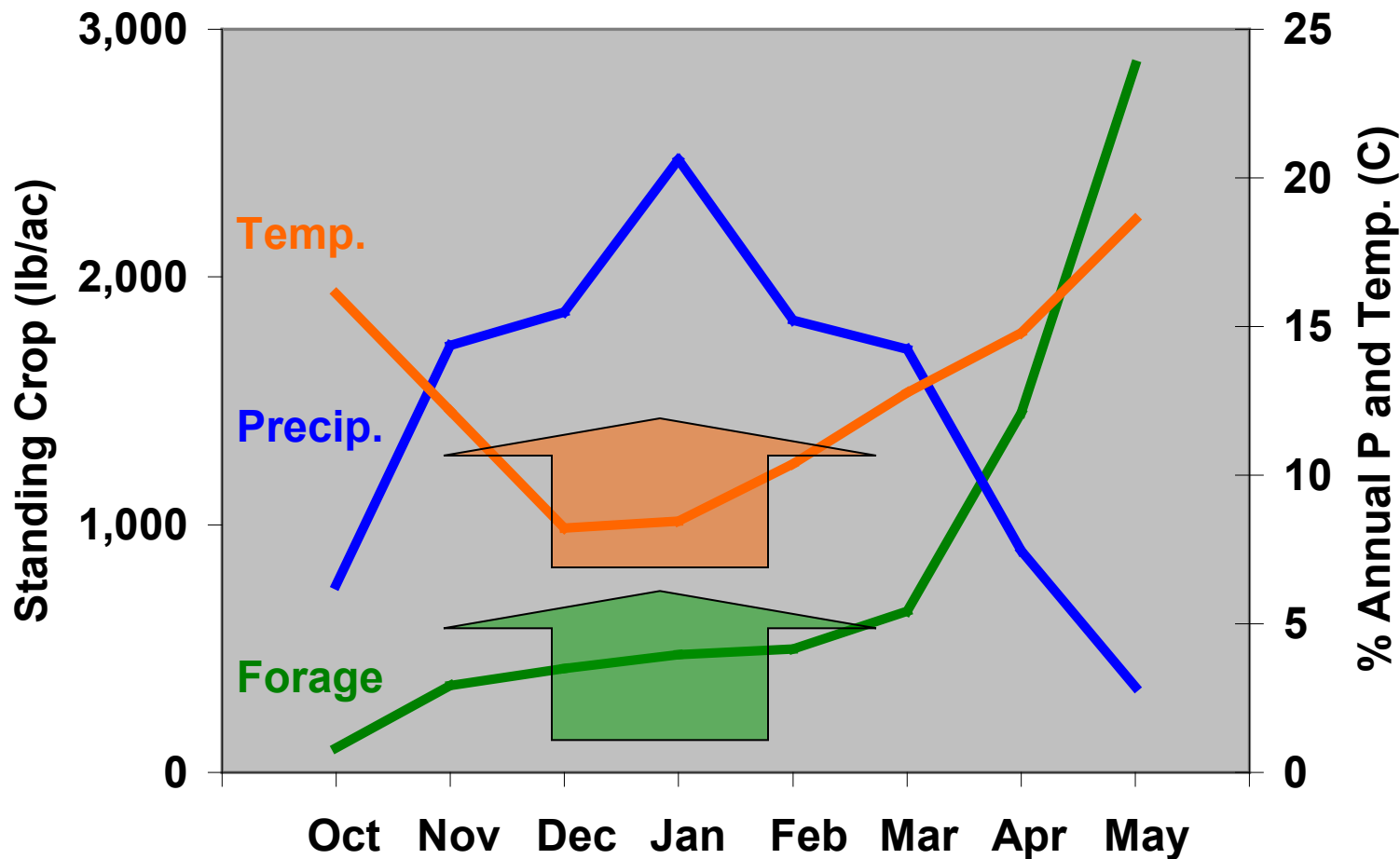
# Annual Rangeland Forage Growth Curve



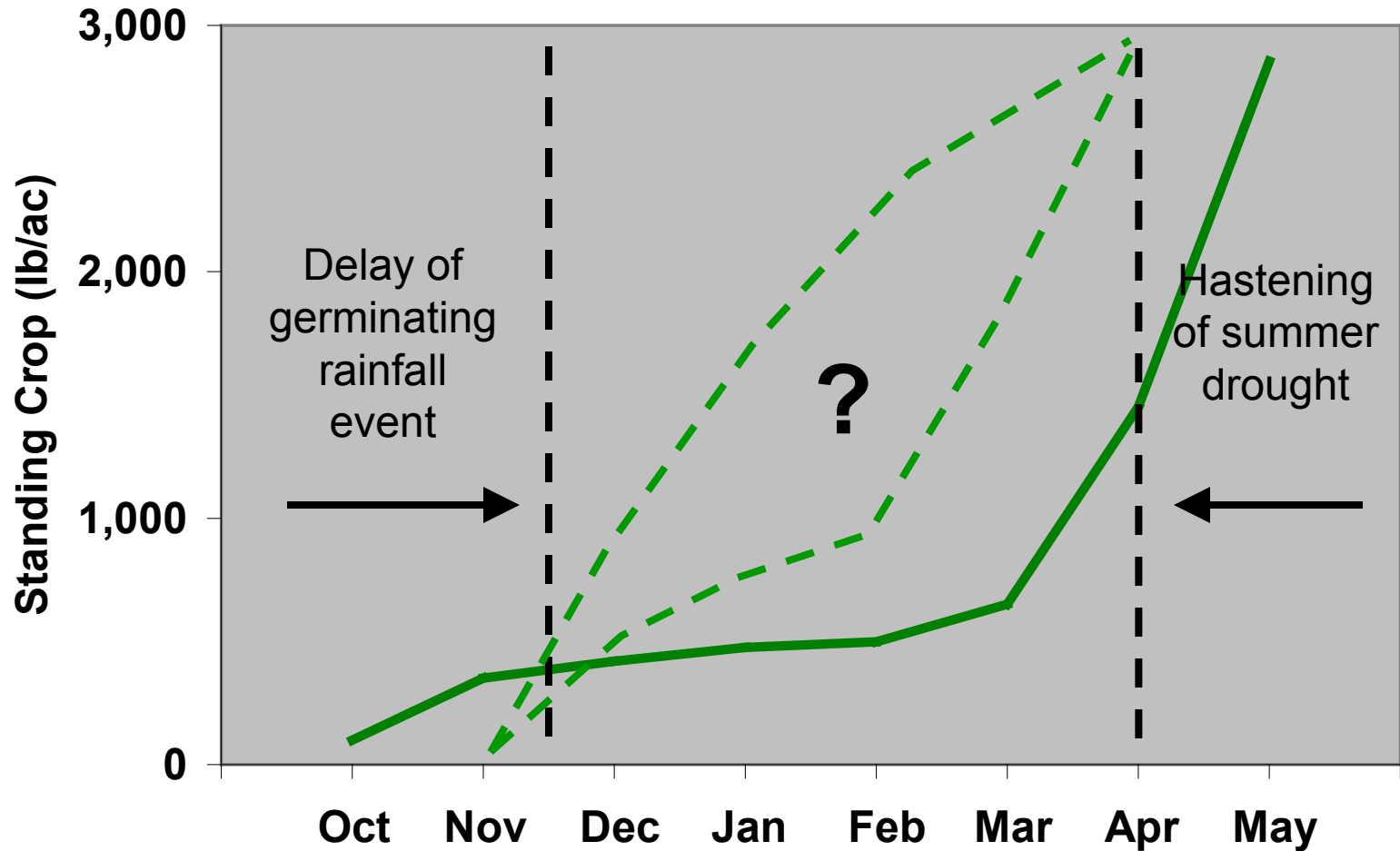
# Much annual P falling during period of sub-optimal temperature conditions...



# Projected changes in temperature - increase in DJF temperatures, could increase forage...

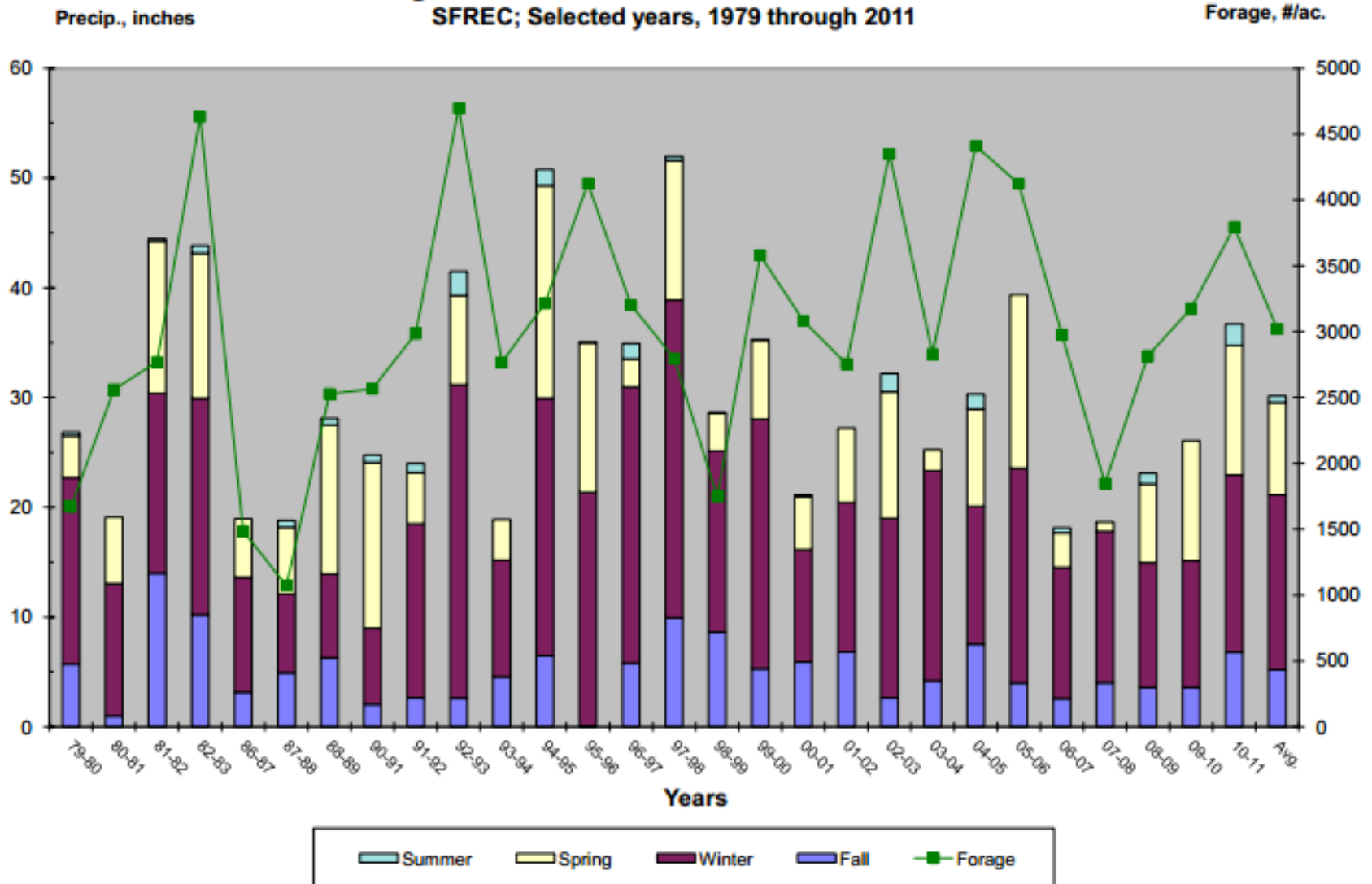


# Projected changes in rainfall – less, perhaps in Fall and Spring, shorter growing season, forage production?



# Increased Yearly Variation?

Figure 1. PRECIPITATION & FORAGE YIELD  
SFREC; Selected years, 1979 through 2011





# Recall – it is already variable!

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**Within season (i.e., fall, winter, spring) rainfall and forage production can be extremely variable**

# CA Ranchers and Drought

**What was the last drought that affected your operation?**

2005-2011 (No.)	349
2000-2004	5
1990's	11
1980's	7
1970's	8
Not affected by drought	15
Cannot recall	8

# CA Ranchers and Drought

**During the last drought, did you have a drought management plan in place?**

Yes (%)	50
No	39
No Answer	11

# CA Ranchers and Drought

**During the last drought, which of the following were impacted more severely than expected?**

Grazing capacity (%)	71
Winter feed availability	57
Profit	51
Calf weaning weights	40
Irrigation water availability	21
Reproduction rates	18
Other	8
Other – Livestock drinking water	4

# CA Ranchers and Drought

## Management in response to drought?

Reduce herd size (%)	71
Purchase feed	70
Apply for government assistance	40
Wean calve early	40
Rent additional pasture	26
Move livestock to another location	25
Earn off-farm income	24
Sell retained yearlings	22
Place livestock in a feed lot	8
Allow livestock to decline; maintain herd size	7

# CA Ranchers and Drought

## Management in preparation for drought?

Conservative stocking rate to allow full grazing even in drought years (%) 35

Incorporate pasture rent into grazing system 23

Increase flexibility by incorporating both cow-calf and stocker cattle 22

Use 1-3 month weather predictions to adjust stocking rate 11

Grass-banking (stockpile forage) 3

# CA Ranchers and Drought

**Do you think drought will be more influential in your management plans/operation in the next 10 years?**

Yes (%)	40
No	51
No Answer	9

# CA Ranchers and Drought

**If another drought were to begin right now, how severely would this impact the economic viability of your operation?**

No differently than the last drought (%)	59
More severely than the last drought	15
Less severely than the last drought	12
Did not answer	7
Have not experienced drought	6