



Preliminary Results of Sunflower Research at the Southwestern Colorado Research Center

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Sunflower Hybrid Performance

Planting Date

Limited-irrigation (NSA)

Crop Rotation (NSA)



A background image of a sunflower field under a blue sky with white clouds. The sunflowers are in various stages of bloom, with bright yellow petals and dark brown centers. The field extends to the horizon under a clear sky.

2005

- San Juan Biodiesel Cooperative

2007

- San Juan Bioenergy LLC

2008

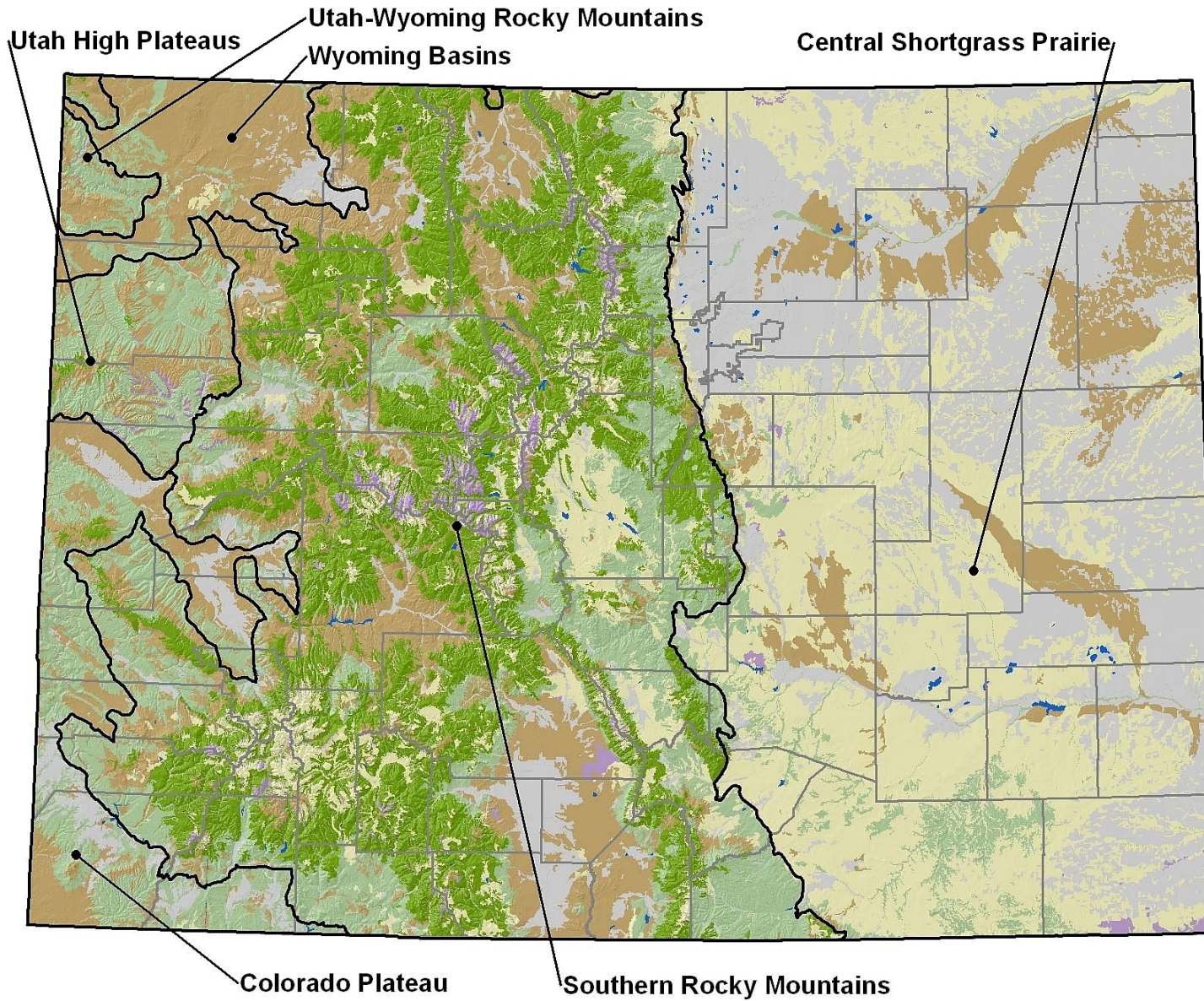
- Dove Creek Plant



Plant Capacity

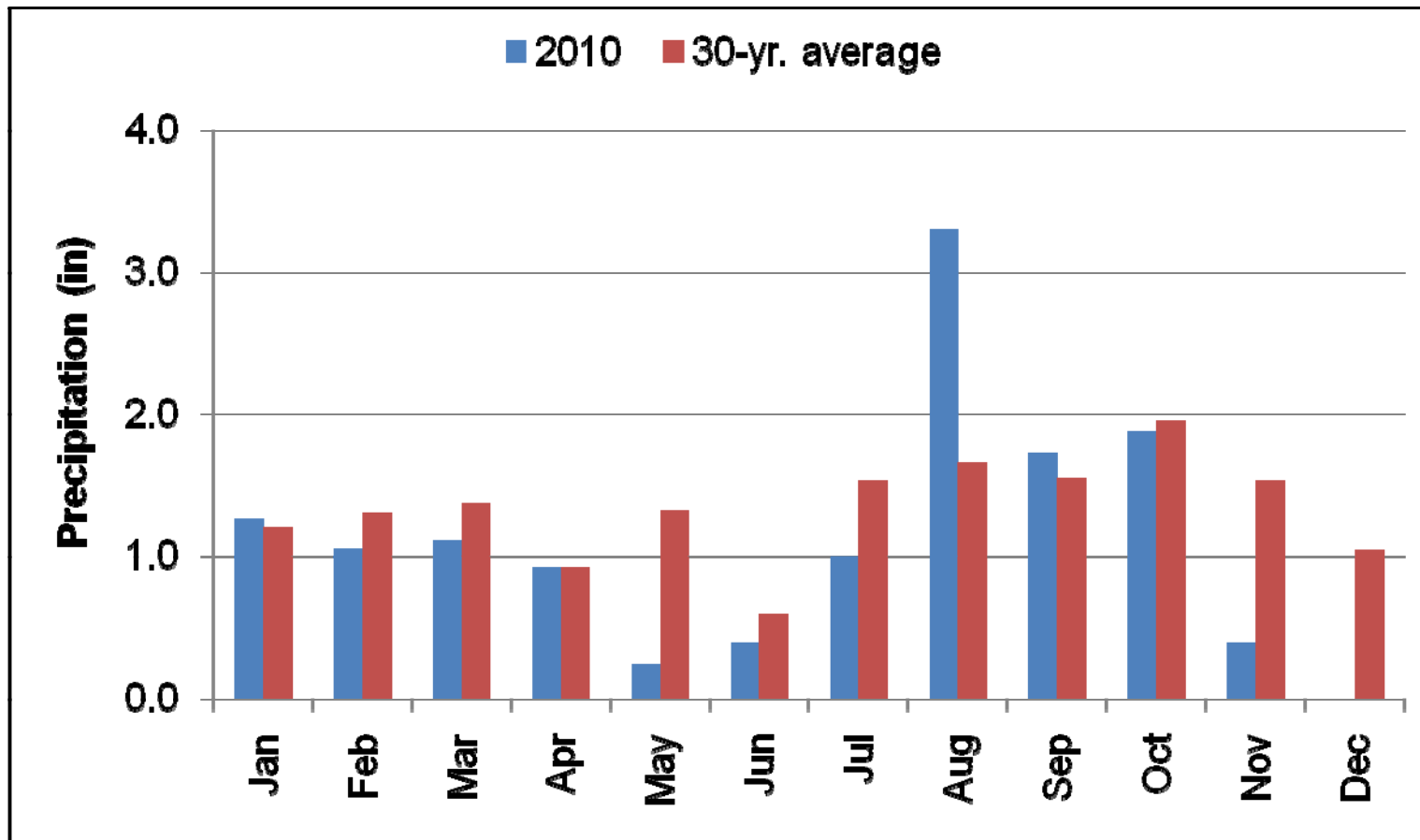
1.5×10^6 gal oil/yr

40,000 acres @ 700 lb/acre

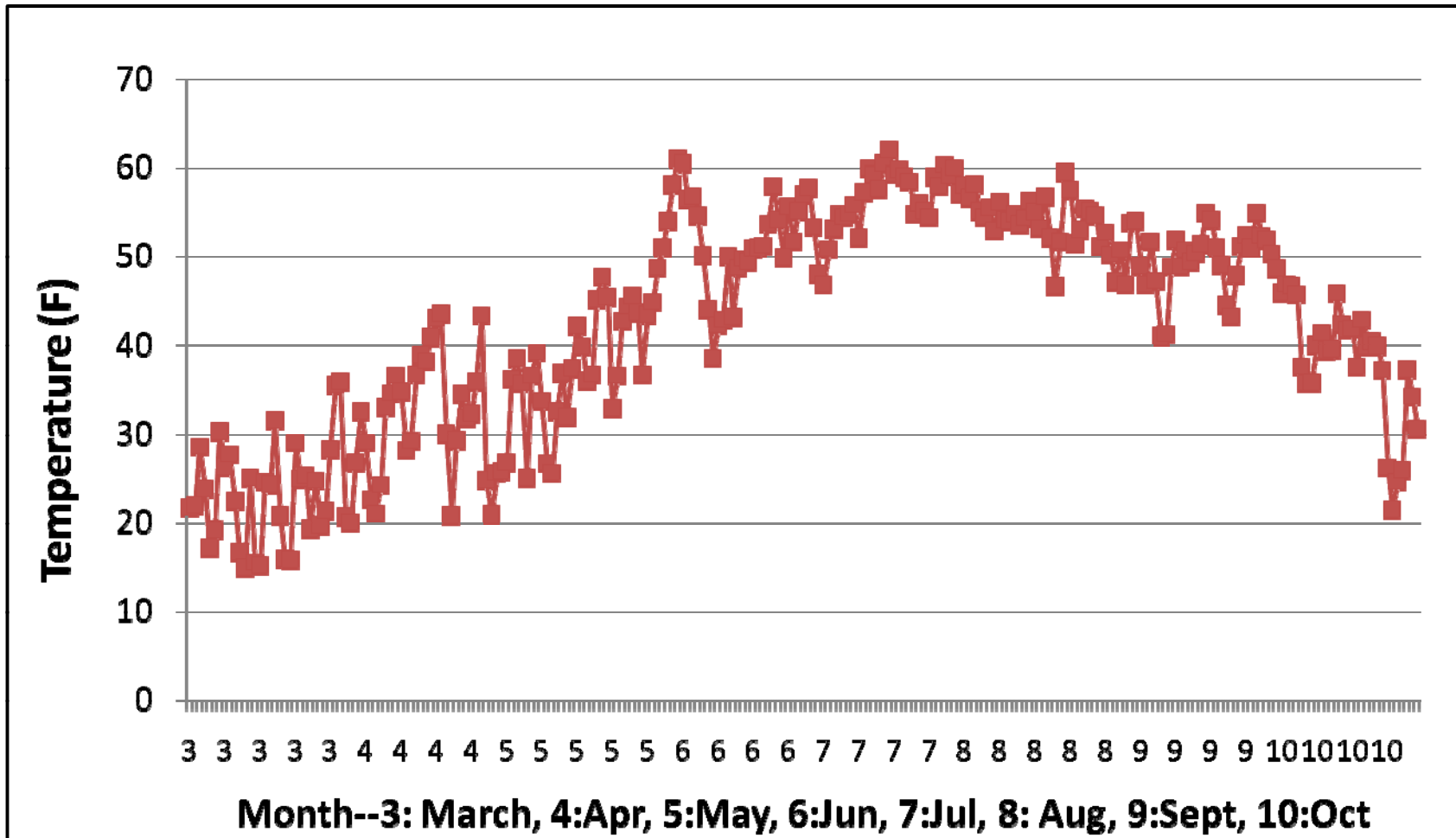


- Forest
- Woodland
- Shrubland
- Grassland/Herbaceous
- Sparsely vegetated
- Non-natural
- Open Water

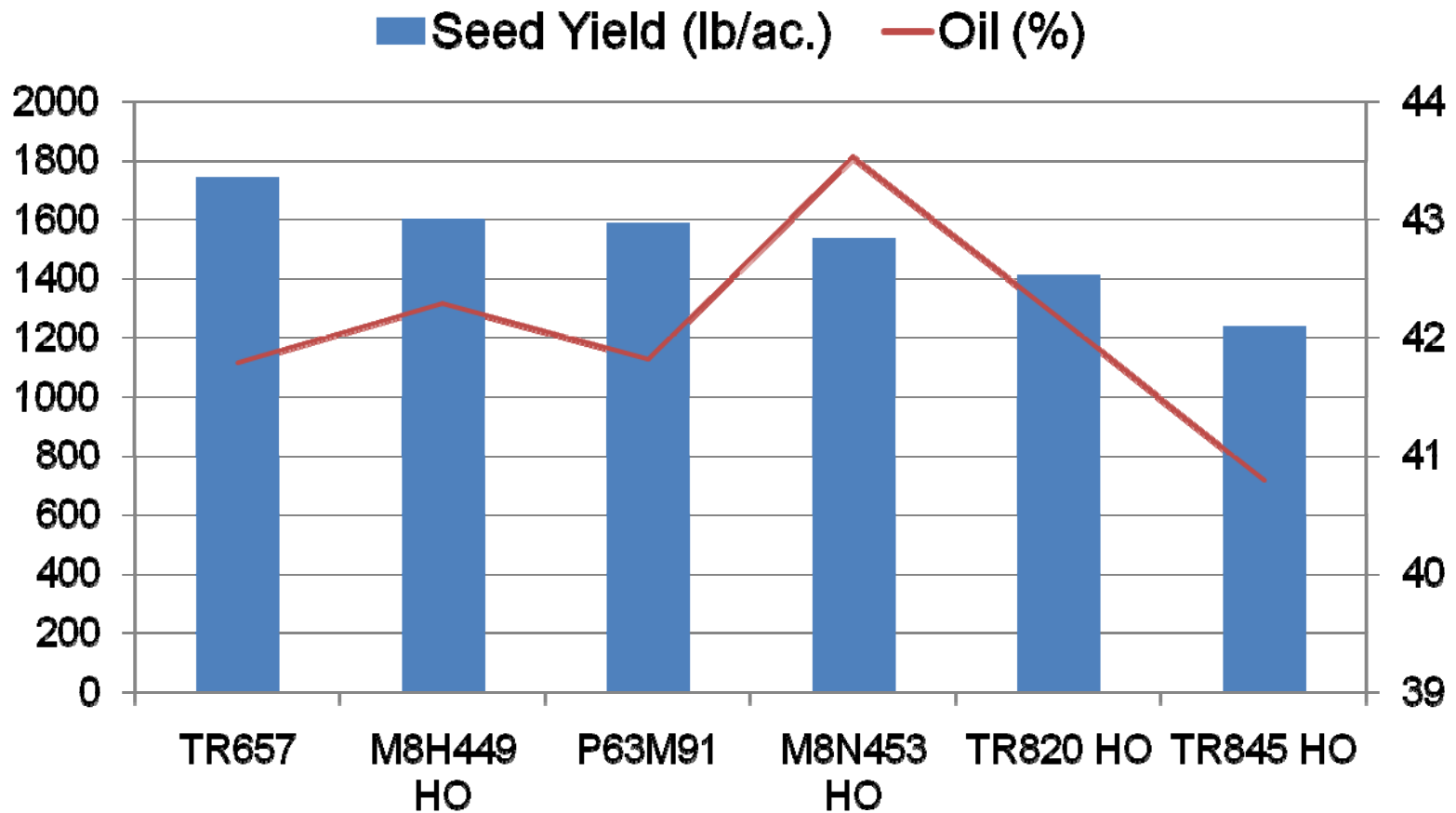
Monthly precipitation at Yellow Jacket



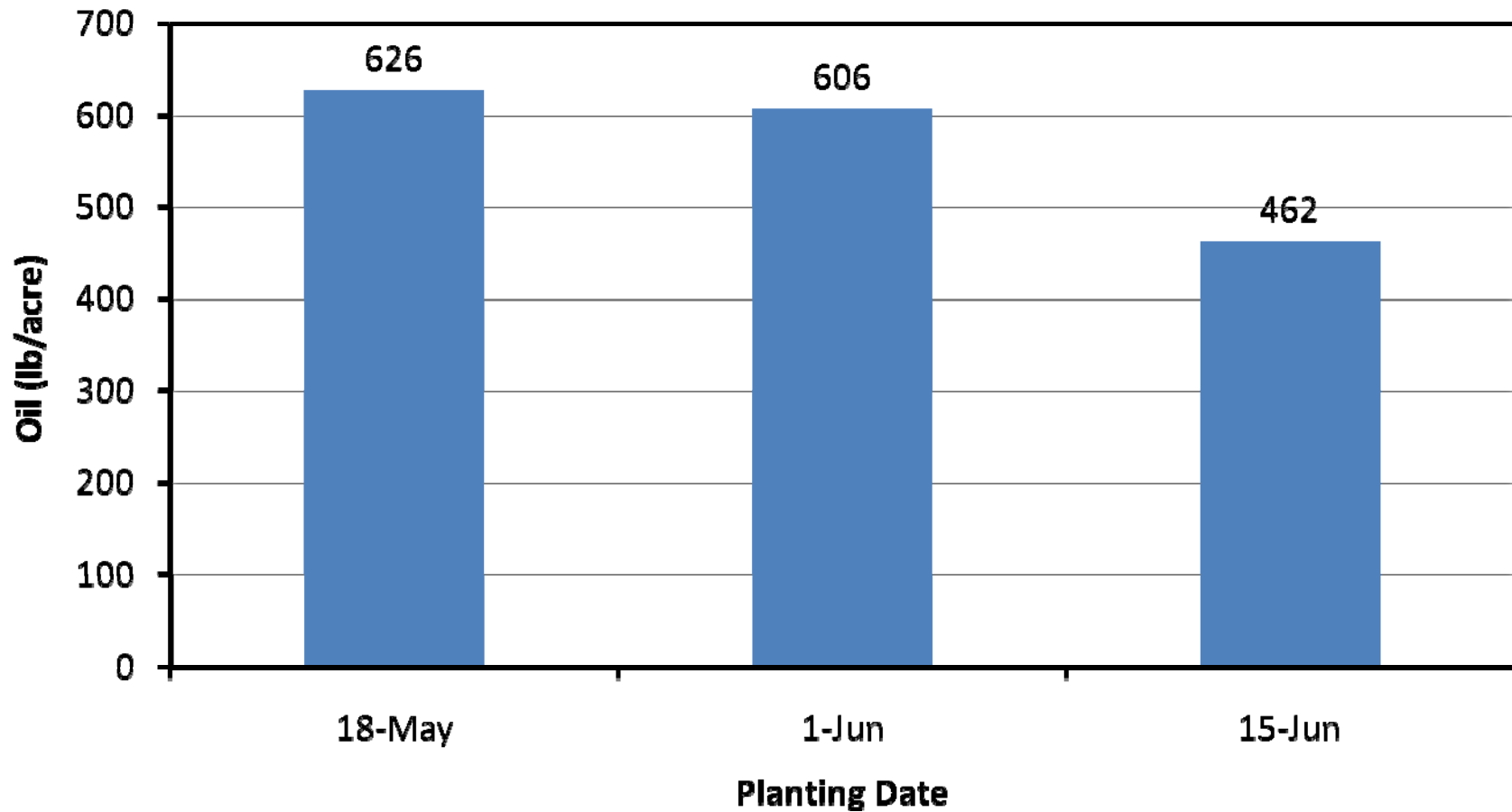
Minimum Temperature in 2010



Dryland Sunflower Hybrid Performance (2008-2010)



Planting date effect on oil yield





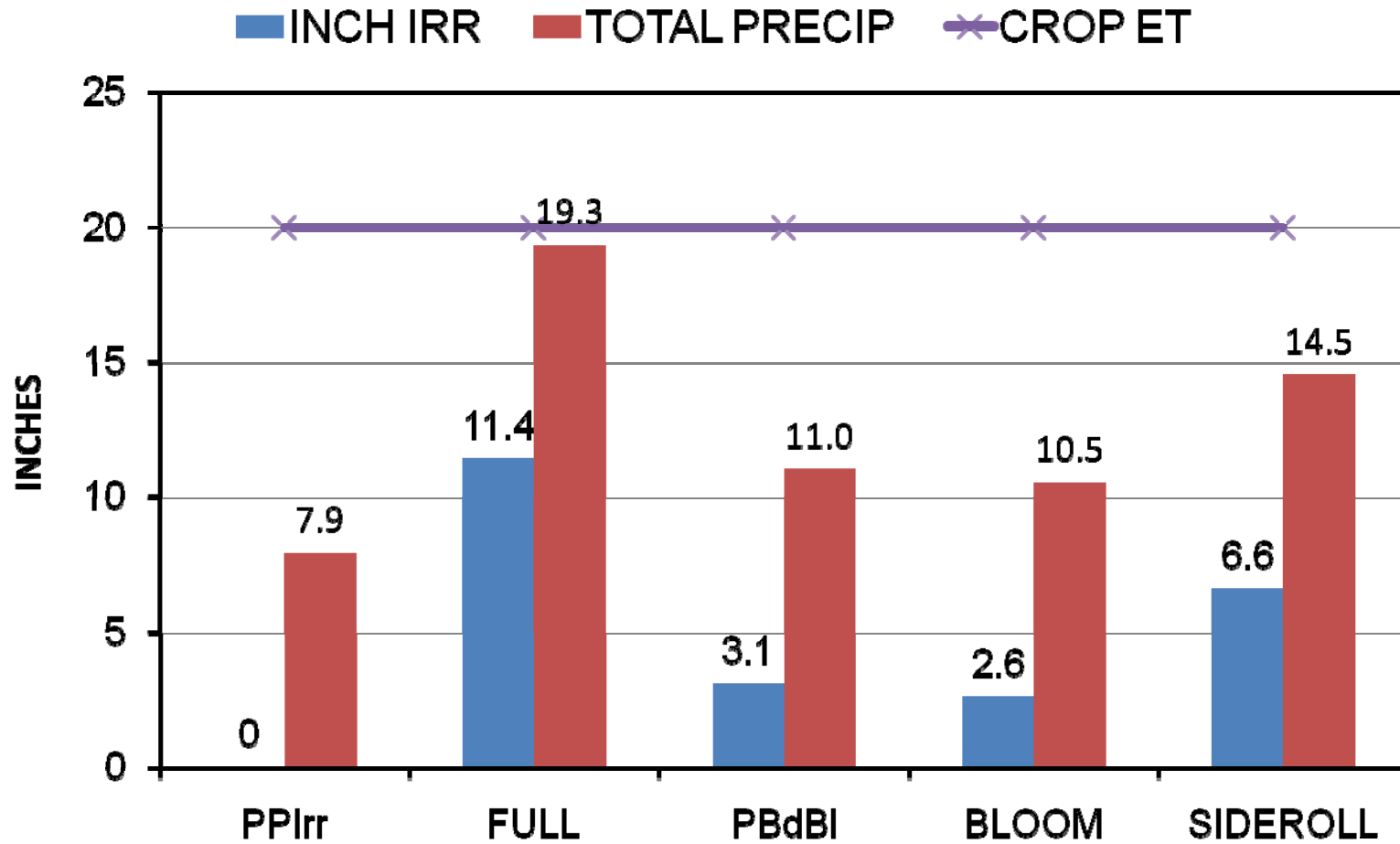
**Sunflower Limited-
Irrigation Trial**

Co-PI: Joel Schneekloth



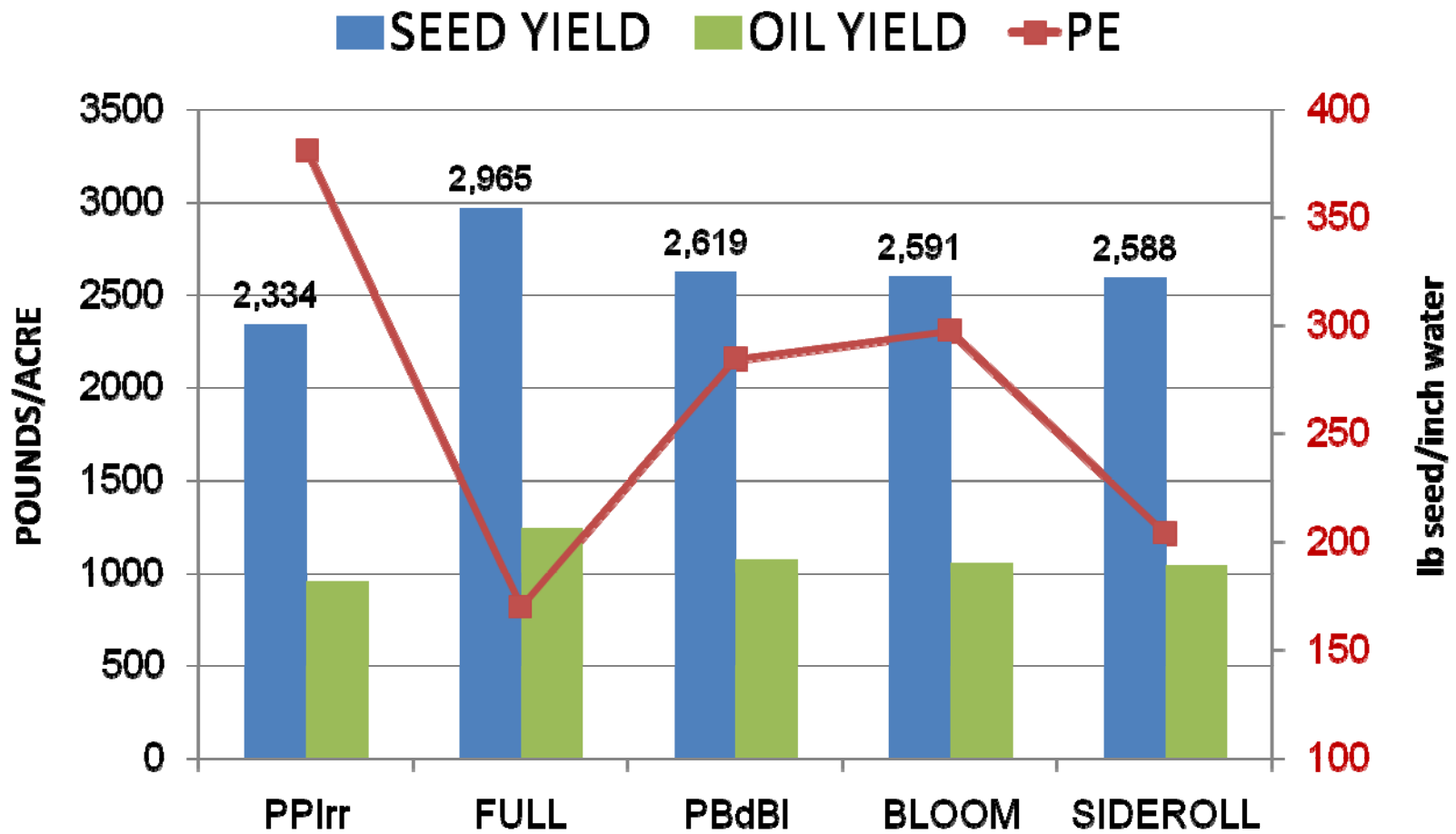
Expected seed yield (lb/a)	
No irrigation	+ 5-7 in., net
800	1600

2010 Sunflower Limited Irrigation



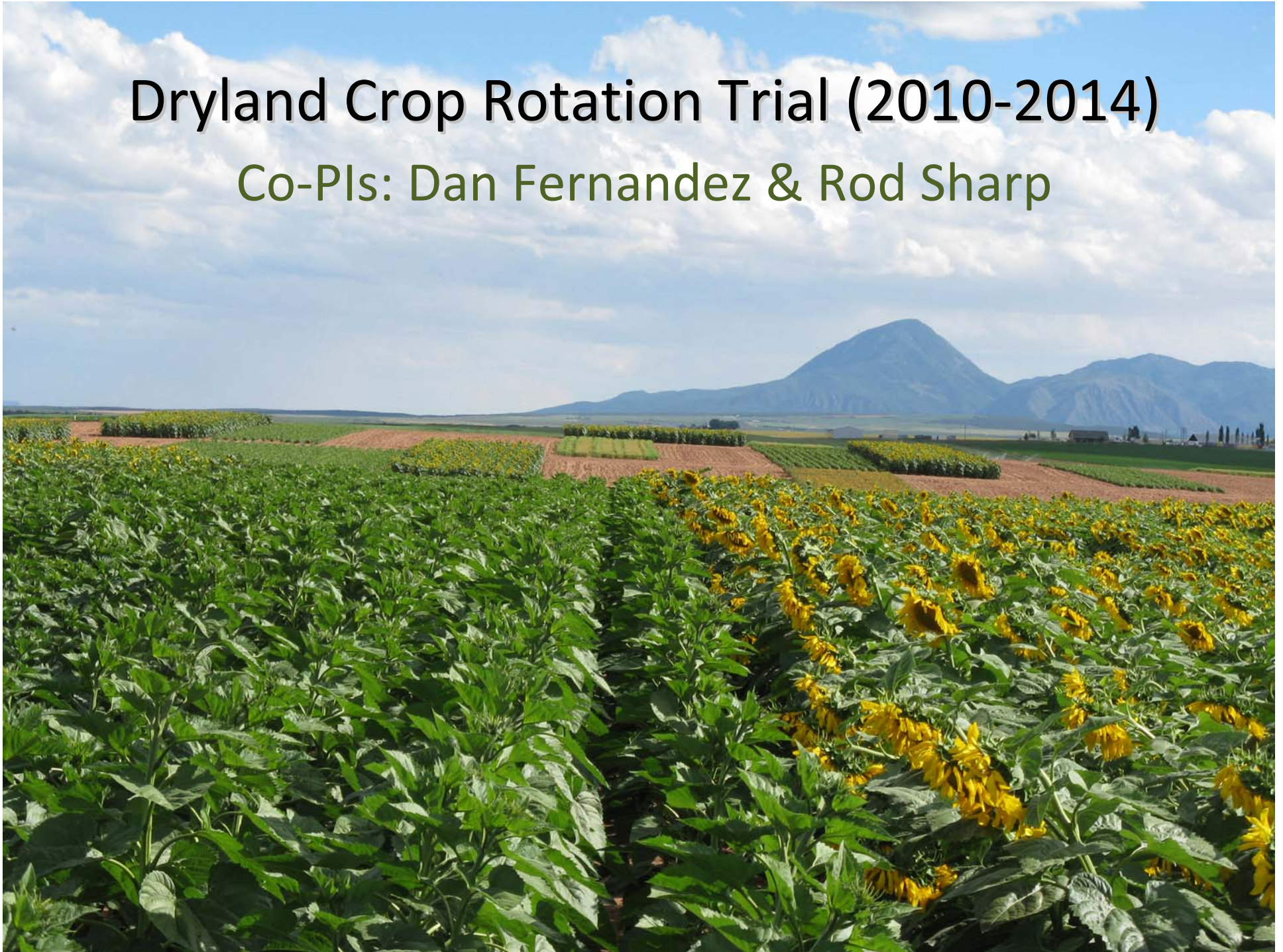


2010 Sunflower Limited Irrigation



Dryland Crop Rotation Trial (2010-2014)

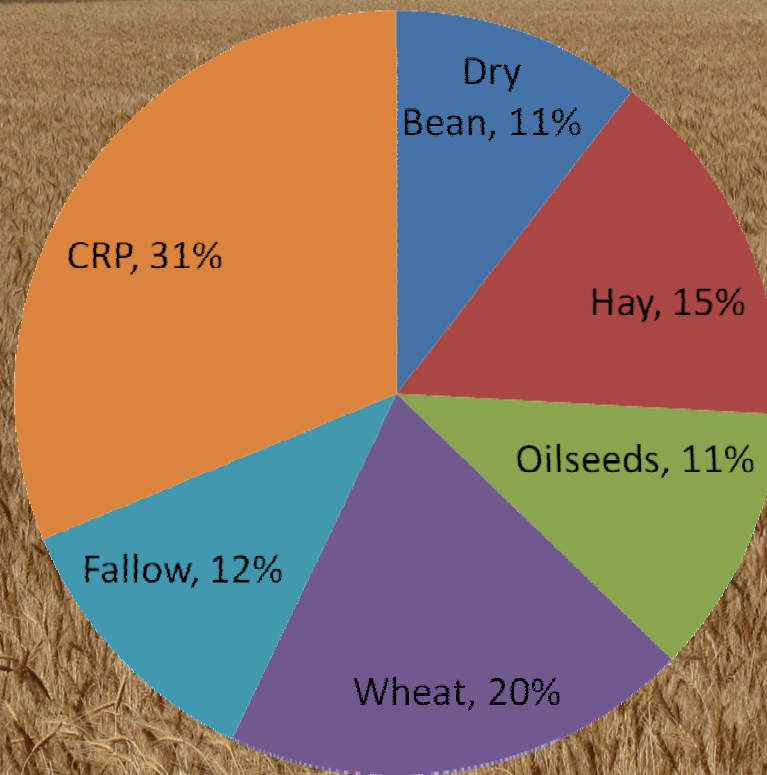
Co-PIs: Dan Fernandez & Rod Sharp



- 1. Sunflower in dryland cropping systems**
- 2. Impact on crop yields, soil water & nutrient availability, crop income, etc.**



2007 Crop Acreage in Dolores County



2007 Sunflower Production Survey

A photograph of a sunflower field. In the foreground, there are rows of young sunflower plants in a field of dark brown soil. The plants are spaced out, and some have small green leaves. In the middle ground, there is a dense row of taller sunflowers. The background shows a clear blue sky and a distant horizon with some hills or mountains. The overall scene is bright and clear, suggesting a sunny day.

- 44% after winter wheat
- 34% after dry bean (best)
- 6% after summer fallow
- 14% after spring wheat, safflower or sunflower

Dryland Cropping Systems

No.	Crop Rotation			
1	Winter Wheat	Fallow		
2	Winter Wheat	Sunflower	Fallow	
3	Winter Wheat	Safflower	Fallow	
4	Winter Wheat	Dry Bean	Sunflower	Fallow
5	Winter Wheat	Dry Bean	Dry Bean	Fallow
6	Winter Wheat	OPC1	Sunflower	OPC2

Opportunity Crop!

Crop	Variety	Seed Yield
Camelina	Cheyenne	Hail damage
Dry bean	Cahone	893 lb/A
Safflower	CW 99OL	1761 lb/A
Sunflower	TR 657	1799 lb/A
W. wheat	Fairview	NA



Challenges

- Deer, elk, bird damage
- Marketing: Adams Oil, Colorado Mills, SunOpta



Conclusions

- Yield potential--Rainfed $\geq 1,200$ lb/acre
Irrigated $\geq 3,000$ lb/acre
- Optimum planting date: May 20 – June 5
- Limited but targeted irrigation increased WUE
- Crop rotations
 - Relatively high crop yields in 2010
 - Re-think opportunity crop
 - Too-early to draw conclusions