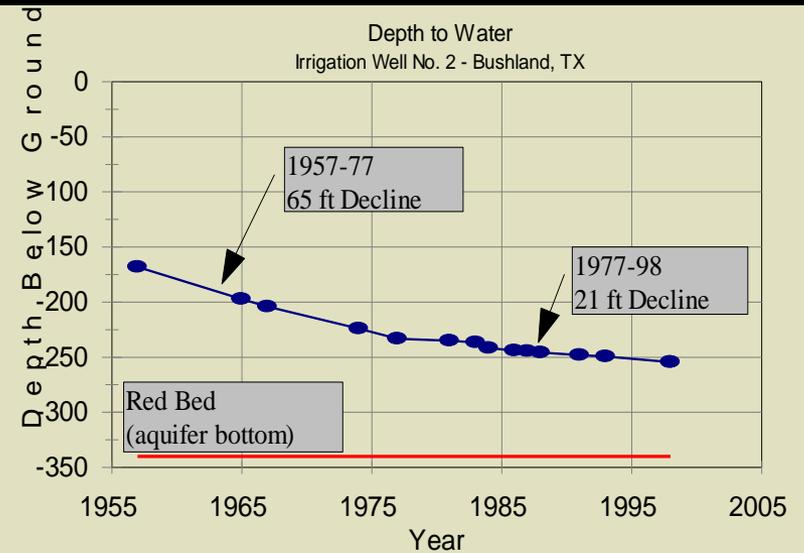


# DRYLAND CROPPING SYSTEMS & GRAZING

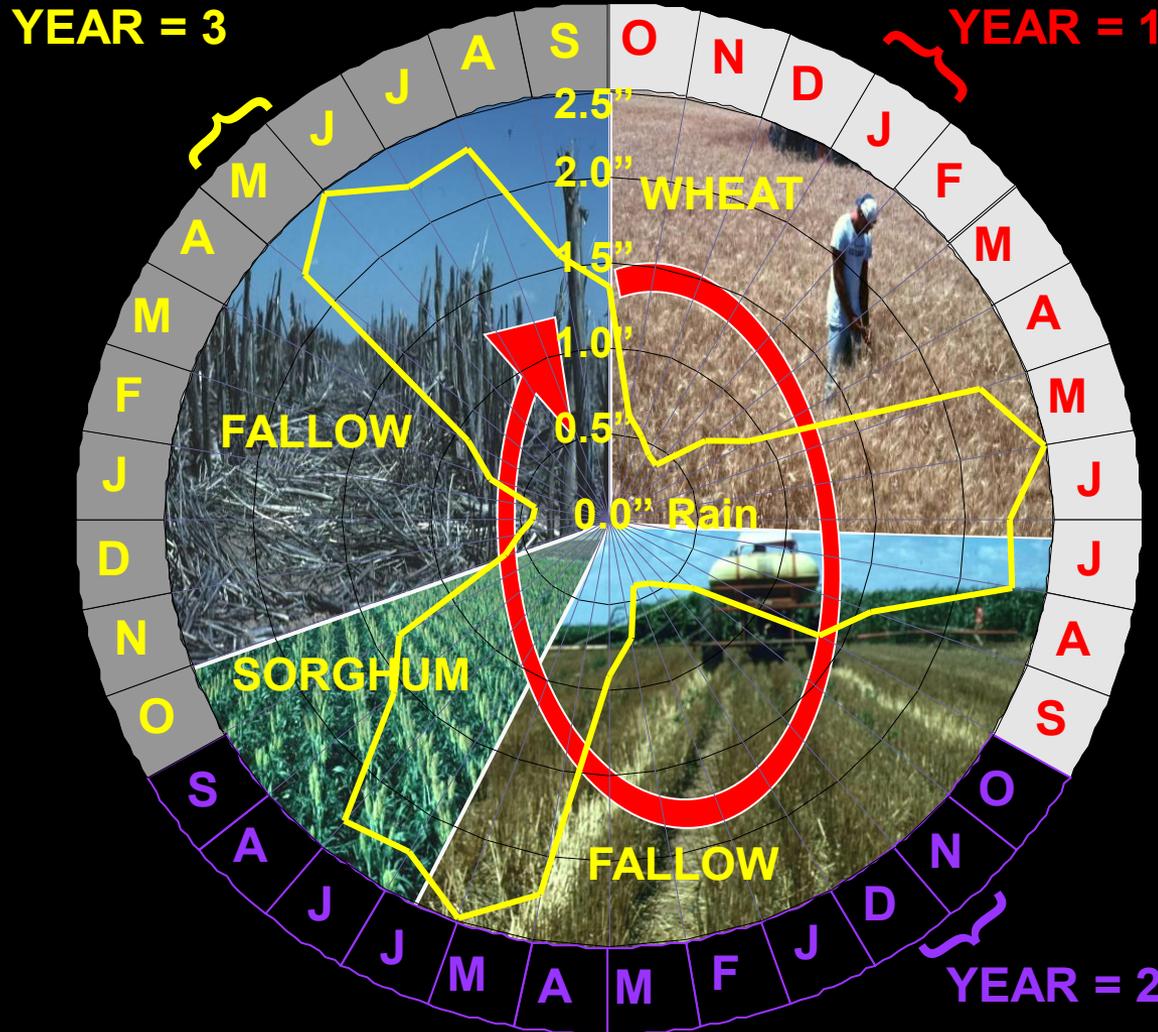
R. Louis Baumhardt

Conservation and Production  
Research Laboratory - Bushland, Texas

# CHALLENGES



# Wheat-Sorghum-Fallow Rotation



1. Two crops in three years,
2. Storage of precipitation as soil water,
3. Stable grain crop yields



# TILLAGE AND GRAZING EFFECTS ON PRODUCTIVITY OF THE DRYLAND WHEAT-SORGHUM-FALLOW ROTATION

# CATTLE GAIN ON DRYLAND WHEAT

YEAR	DATE STOCKED	HEAD	DAYS	GAIN lbs/acre	Value at \$0.35/lb \$/acre
2000	25 Jan.	18	35	203	71.10
2001*	15 Apr.	18	29	119	41.60
2002	21 Feb.	11	29	61	21.20
2003	22 Jan.	18	34	117	41.00
2004	3 Feb.	17	39	153	53.60
2005	15 Feb.	18	27	55	19.40
2006	--	--	--	--	--
2007	22 Feb.	18	27	60	21.10
2008	12 Feb.	18	33	236	82.78
2009	18 Feb.	18	28	173	60.48
<b>AVERAGE</b>			<b>31</b>	<b>131</b>	<b>45.80</b>

\* GRAZEOUT

# DRYLAND WHEAT YIELD, lb/acre

YEAR	<u>STUBBLEMULCH</u>		<u>NO-TILL</u>	
	UNGRAZED	GRAZED	UNGRAZED	GRAZED
2000	790	670		
2001*	2720	0		
2002	1310	1700		
2003	650	770		
2004	1550	1300		
2005	2150	1460	2450	1850
2006	--	--	--	--
2007	2750	2480	2630	1720
2008	620	800	1460	790
2009	730	570	890	840
<hr/>				
<u>AVERAGE</u>				
'00 – '09	1470* (1320)	1100* (1220)		
'05 – '09	1560	1330	1860	1300

\* GRAZEOUT

# DRYLAND SORGHUM YIELD, lb/acre

YEAR	<u>STUBBLEMULCH</u>		<u>NO-TILL</u>	
	UNGRAZED	GRAZED	UNGRAZED	GRAZED
2000	--	--		
2001	2520	2200		
2002	400	30		
2003	0	0		
2004	1690	1930		
2005	3730	3740	3820	4000
2006	3260	3110	3590	3130
2007	3560	3710	3800	3880
2008	1710	1760	2920	1740
2009	1910	1460	4240	1190
<hr/>				
<u>AVERAGE</u>				
'00 – '09	2090	1990		
'05 – '09	2830	2760	3670	2790

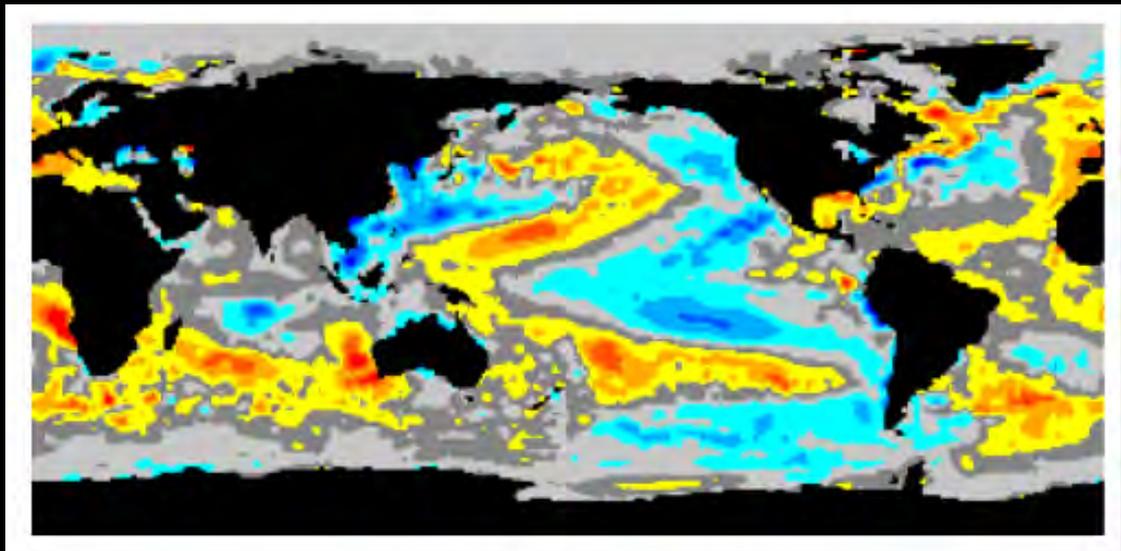
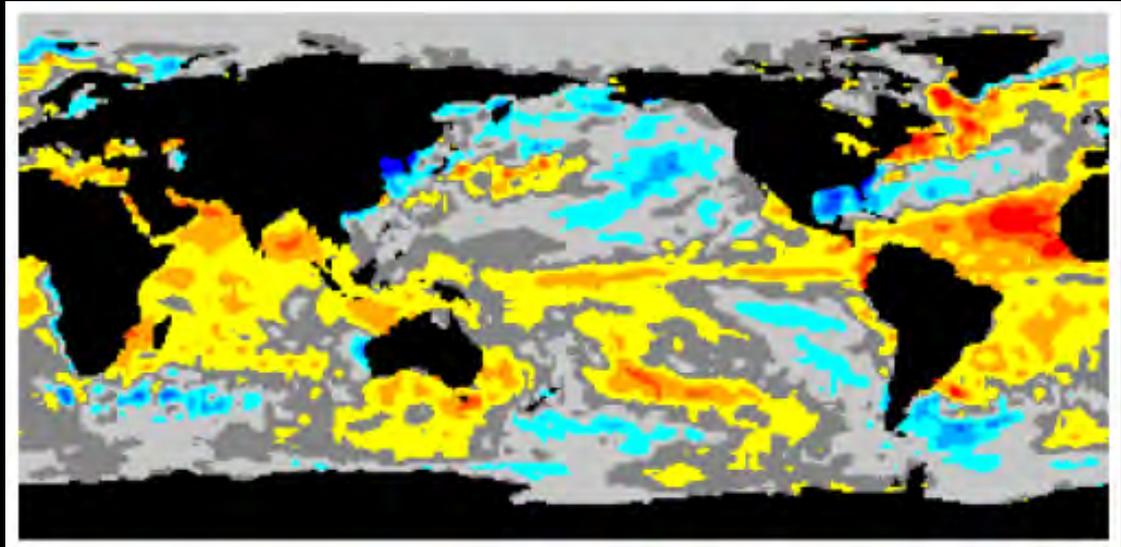
# SUMMARY

- 
- ❑ Grazing wheat (WSF cropping system) provided forage for 31 d, but grain yields declined after several years.
  - ❑ Sorghum grain yields for no-tillage were greater than for stubble-mulch tillage.

# Climate Factors



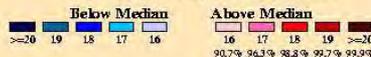
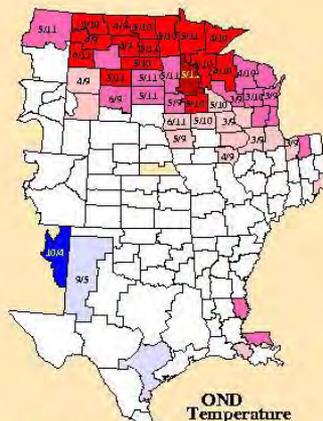
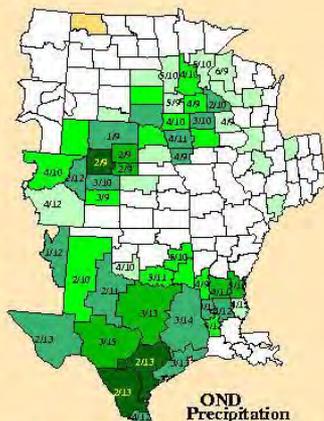
**Relative April  
sea surface  
temperature  
patterns for El  
Niño in 2010  
(top) when  
Bushland rain  
was 4 in, ~300%  
long-term  
mean, and the  
2011 La Niña  
(bottom) with  
less than 0.1 in.**



The October to December El Niño Southern Oscillation Index weather patterns feature more rain and lower temperatures for El Niño (top), but La Niña weather is characterized by reduced rain and warmer temperatures (bottom).

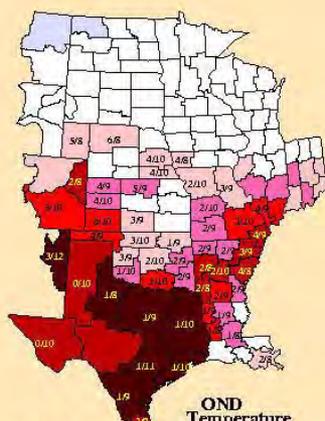
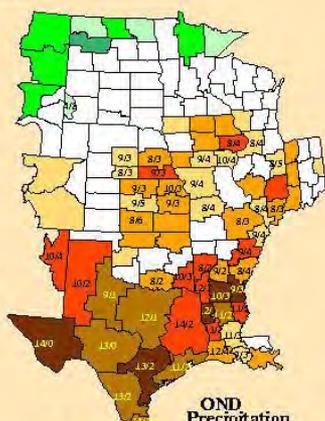
25 OND seasons

- 1896
- 1899
- 1902
- 1904
- 1905
- 1911
- 1914
- 1918
- 1923
- 1925
- 1930
- 1939
- 1940
- 1941
- 1951
- 1957
- 1963
- 1965
- 1969
- 1972
- 1982
- 1986
- 1987
- 1991
- 1994



22 OND seasons

- 1908
- 1909
- 1915
- 1916
- 1917
- 1922
- 1924
- 1933
- 1938
- 1942
- 1949
- 1950
- 1954
- 1955
- 1956
- 1964
- 1970
- 1971
- 1973
- 1975
- 1988
- 1995





**YOUR BADGE!**  
**SHOW HIM YOUR BADGE!**

# No-Till



# Sweep Till

