AGRIPARTNER
IRRIGATION
RESULT DEMONSTRATIONS

2007
Final Report

AgriLIFE EXTENSION
Texas A&M System

May 21, 2008

Executive Administrator
Texas Water Development Board
1700 N. Congress Avenue
Austin, Texas 78701

Executive Administrator,

The requested copies of the final report for TWDB contract 0603580592 are in the mail to Mark Michon. Please convey AgriLife Extension's thanks to all TWDB staff who worked with us on the grant proposal to make the contract funds available to growers on the Texas High Plains.

In response to TWDB's review comments.

1. Task 1 and task 2 final reports are under one cover as planned labeled Final Report.

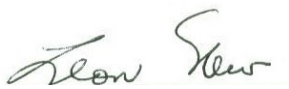
2a. An executive summary is added to the final report.

2b. Perhaps the TWDB is unaware that AgriLife Extension has an administrative statewide demonstration report format that includes Problem, Objectives, Materials and Methods and other as used in each AgriPartner demonstration report across all disciplines, ie. brush control, irrigation, fertilizer, variety trials and all demonstrations conducted in cooperation with growers and ranchers. In addition, most individual demonstration reports are printed seperately and discussed personally with the cooperating grower, other growers, used individually in county and area educational meetings as appropriate, individually by commodity groups and others. In my experience, very few people read and study the entire Agripartner demonstration report. But rather, they glean it by crop, irrigation system, grower data and other to obtain the information they want. Such as the corn historical summary states 21.42 inches of irrigation is needed to produce a good yield. Since the TWDB review suggestion is not in compliance with established AgriLife Extension demonstration reporting and the previous nine annual Agripartner demonstration reports, it is not used.

3. The single "Gray" County spelling error was finally located on page 133 and corrected.

4. The range of pre-water on page 75 is corrected.

Double space and double sided copies are utilized the best I can interpret to be both in partial compliance with the TWDB contract and yet the report remain functional for growers, Agri-industry, irrigation industry, crop consultants and others who funded the Agripartner demonstration program nine previous years. Hopefully, TWBD can bend a little on this where needed.



Leon New
Agricultural Engineer

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Date: 5/9/2008 3:00 PM
Subject: 2007 Final Report contract# 0603580592

Leon,

I know I left you a phone message on this final report, however, I may need to add something or clarify what I was attempting to make known.

The Ag section has reviewed the draft final report and have realized that you are going to continue to edit and also insert crop and irrigation pictures. There is a few suggested edits that we would like to add and I believe this email then will confirm our reviews and will look anticipate the Final Report by May 31st.

1) Its probably your intentions already, however, we would like to see both Task 1 and Task 2 combined in what is titled the 2007 Final Report.
2) We would like to see an Executive Summary in the beginning. Perhaps the Problems and Objectives on each work sheet could be mentioned in the Summary and not repeated on each work sheet. Also, how the AgriLife Extension and funding from TWDB will help producers long term.
3) Gray County not Grey County.
4) Where ranges are given the same number ie. 1 inch to 1 inch. Simply state pre water as 1 inch.

Per the above-referenced contract, please submit one (1) electronic copy of the entire Final Report in PDF and nine (9) bound double-sided, double-spaced copies of the Final Report to the Executive Administrator no later than May 31, 2008. Please be sure to include a copy of the comments made on the draft final report in the submittal of the Final Report.

The Board looks forward to receiving one (1) electronic copy of the entire Final Report in Portable Document Format (PDF) and nine (9) bound double-sided copies. TAES shall also submit one (1) electronic copy of any computer programs or models and an operations manual developed under the terms of this CONTRACT.

If you have any questions concerning this contract, please contact Mr. Mark Michon, the Board's designated Contract Manager for this study, at (512) 463-7984.

Sincerely,

Mark Michon
Program Specialist
Texas Water Development Board
Water Conservation Division
512/463-7984
mark.michon@twdb.state.tx.us

AGRIPARTNER DEMONSTRATIONS

Approximately 650 irrigation, water management and crop production field demonstrations have been conducted on more than 71,000 acres with more than 450 cooperating growers since '98. The demonstrations have identified representative crop water use and production response from limited to adequate water including dryland. Each demonstration is reported annually in comparison to full irrigation from the High Plains PET Weather Station Network, to help growers improve management decisions and irrigation system efficiency. Tools developed include crop production per inch of irrigation and from each inch of irrigation, rainfall and net soil water measured. Demonstration results are the basis for irrigation demand from Ogallala Groundwater in Region A's Senate Bill 1 and Senate Bill 2 water plans.

CROP	PERCENT	ACRES
Corn	26	18,815
Wheat	22	15,953
Cotton	18	13,096
Grain Sorghum	12	8,044
Soybean	9	6,555
Peanut	6	3,976
Silage	4	2,408
Sunflower	2	1,512
Forage and Other	1	1,008
TOTAL	100	71,367

Executive Summary

Leon New, Professor and Extension Agricultural Engineer- Irrigation
Texas AgriLife Extension Service, Amarillo, Texas

From a dream to an award winning team, the AgriPartner field demonstration program started in the Panhandle region in 1998 as a way to help the producer while the crop is growing in the field. Dr. Bob Robinson, retired North Region AgriLife Extension Service Director of Agriculture and Natural Resources, came up with the idea when he recognized a void in services to producers. Previous technical services for producers by primarily seed and chemical companies diminished due to consolidation. Robinson utilized AgriLife Extension Service infrastructure and partnered with private industry, other agencies, universities, commodity groups, groundwater districts and others to provide "now" information to growers during their crop production season. "We never had the capability to monitor crops so closely and integrate applied research so quickly before this program" Robinson stated. "Water is so precious" to all Panhandle citizens.

Five Farm Demonstration Assistants were employed and trained to go into cooperating grower's fields twice each week to measure and record irrigation, rainfall and soil water using sensors installed at 1, 2 and 3 feet in the soil root zone, plant growth stage, insect presents , disease systems and other overall crop production potential and adversities. Current crop production information is presented to each cooperating grower weekly.

The Texas Water Development Board Funded a $100,000 AgriLife Extension grant proposal in support of the 2007 AgriPartner demonstration program. Fifty four irrigation and dryland crop production field demonstrations were conducted in cooperation with forty five cooperating growers on 6952 acres in fourteen Panhandle counties. It provided essential grower data to the historical AgriPartner crop irrigation, water use and grower management database. The program helps other growers manage farms and water more efficiently.

All AgriPartner demonstrations are tied to the Texas High Plains EvapoTranspiration (TXHPET) weather station network, based on extensive crop daily and seasonal water use research. Farmers can adjust their irrigation practices to conserve groundwater, improve management strategies and water use efficiency in producing a crop. The TXHPET weather station network is another cooperative effort between Texas AgriLife

Extension and Research and USDA-ARS at Bushland, Texas. To personally use the daily and seasonal crop water use data generated by TXHPET network go to http://amarillo2.tamu.edu/nppet/index.new.htm.

Published compiled grower data obtained from the fields of AgriPartner cooperating growers are instrumental in increasing crop production per inch of irrigation by adopting improved irrigation systems, techniques and management. Especially, LEPA center pivot and subsurface drip irrigation (SDI) system efficiencies show continually increasing crop production per inch of irrigation, a grower management tool introduced by the AgriPartner demonstration program. Corn production averaged 342 pounds per inch of irrigation, the first year of AgriPartners'. In 2007, it was 708 pounds. The ten year average of 129 demonstrations is 507 pounds per inch. Cotton averaged 69 pounds per inch of irrigation in '98. Production was 235 pounds per inch in '07. The ten year average from 115 AgriPartner demonstrations is 125 pounds of lint per inch of irrigation. The AgriPartner demonstration educational program documents and teaches this principle, the value of irrigation and Ogallala Aquifer groundwater.

Instrumental in obtaining previous funding for AgriLife Extension AgriPartner's, state representative David Swinford said "This program is the only one of it's kind in the nation. It works. It is effective and worth fighting to fund. Knowledge provided by this team is power. Recorded facts from this team's on-the-ground efforts are instrumental in maintaining agriculture's value to the state economy. It provides proof and evidence that agriculture is very valuable to the Texas economy and cannot be ignored. AgriPartner data recorded in cooperating grower fields were used to calculate the irrigation demand for the Region A Senate Bills 1 and 2 water plans and anticipated to be similarly used for Senate Bill 3.

Special thanks to the Texas Water Development Board for funding the 2007 AgriPartner field data collection and economic analyses. Additional organizations who provided funds for the 2007 and past nine years, 1998 thru 2006, demonstration program are acknowledged for their support on the back cover. Thanks to everyone. Your funds were essential in achieving the success of the 10 year AgriPartner field demonstration program in cooperation with progressive High Plains Growers.

TABLE OF CONTENTS

Task 1. Demonstration Reports and Summaries

Executive Summary i
Table of Contents iii
Crop Irrigation and Production Summary 1

Corn- Grain

Grain Corn Irrigation and Production Summary 6
Justin Crownover 8
Wade Lenz 10
Craig McCloy 12
Sieto Mellema 14
Harold Grall 16
Dan Krienke #8 18
Butch Harbert 20
Jon Englebrecht 22
Dan Krienke #47 24
Robert Gordon 26
Bill Cole 28
John R. Spearman 30
Dannie Morris 32

Cotton

Cotton Irrigation and Production Summary 35
Derrel Johnson 37
Geno Abbe 39
Kerry Cartrite 41
Tony Cox 43
Dale Kleuskens 45
John R. Spearman 47
Pat & Rod White 49
Keith Watson 51
Charles Schlabs 53

Grain Sorghum

Grain Sorghum Irrigation and Production Summary 56
Dan Krienke 58
Greg Urbanczyk 60
Dan Krienke 62
Dale Kleuskens 64
Terry Oneal 66
Neal Conrad 68
Neal Conrad 70
Neal Conrad 72

Peanut

Peanut Irrigation and Production Summary 75
Joe Baumgardner 77
Dan & Rex Henard 79
Pat & Rod White 81
Dannie Morris 83

Silage
Silage Irrigation and Production Summary 86
Frankie Bezner 88
Mike Menke 90

Soybean
Soybean Irrigation and Production Summary 93
Joe Homer 95
Mike Dudenhoeffer 97

Wheat
Wheat Irrigation and Production Summary 100
Dan Krienke 103
Dan Krienke 105
David Block 107
Greg Urbanczyk 109
Ray Schlabs Jr. 111
Troy Skarke 113
Neal Conrad 115
Mike Dudenhoeffer 117
Ray Schlabs Jr. 119
Dave Davis 121
Neal Conrad 123
Rex & Dan Henard 125
Bryan Bichsel 127
CJ Kuper 129
Bryan Bichsel 131
Rapstine Test Plot 133

Task 2. Economic Analysis
Methodology 2
Result 3
Returns per acre-inch of Irrigation 6
Discussion and Limitation 8
References 10
Appendix A. Crop Budgets 11
BT Corn, Sprinkler Irrigated 12
Cotton, Sprinkler Irrigated 13
Grain Sorghum, Sprinkler Irrigated 14
Runner Peanuts, Sprinkler Irrigated 15
Silage Sorghum, Sprinkler Irrigated 16
Soybean, Sprinkler Irrigated 17
Wheat, Sprinkler Irrigated 18
Dryland Grain Sorghum 19
Dryland Wheat 20

AgriPartners Crop Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer-Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Fifty-four crop irrigation and dryland production field demonstrations were completed on 6952 acres with Forty-five volunteer cooperating growers in fourteen Panhandle counties. One dryland wheat demonstration failed. Corn, cotton, grain sorghum, peanut, silage, soybean, and wheat were produced on 5294 acres irrigated with center pivot, subsurface drip and furrow systems. Sixteen hundred fifty-eight acres were dryland. Forty-two fields that included all crops totaled 5014 acres, 72 percent of the acreage, were irrigated with center pivot systems. Two demonstrations on 140 acres was furrow irrigated. One 140 acre corn field, 2 percent, was irrigated with subsurface drip. Three fields planted to grain sorghum on 270 acres and 1388 acres of wheat in 9 fields were dryland, which is 24 percent of the total acreage. No lawn irrigation management demonstrations were conducted.

Cooperating volunteer growers were arranged by County Agricultural Extension agents. Irrigation, rainfall and soil water levels were measured and recorded by five farm demonstration assistants or the agents themselves two times each week. Reports that included progressive irrigation, soil water and other production data were submitted each week. Final crop production data was reported following harvest.

The date, number and amount of individual irrigations were recorded and calculated using well delivery gallons per minute and the number of acres irrigated. Water meters installed on growers' wells by the North Plains, Panhandle High Plains ground water districts were used where available. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at one, two and three feet in the crop root zone to measure soil water levels during the growing season and recorded twice each week. Beginning and ending soil moisture readings were used to calculate net soil water depletion during the growing season.

Irrigation, rainfall, and additional soil water measured are tabulated in comparison to corresponding crop seasonal water use reported by the North Plains PET (Potential Evapo Transpiration) Network for fully irrigated crops. Production from each inch of seasonal irrigation and average total rainfall, irrigation and additional soil water measured are listed in Table 1.

CORN Thirteen corn irrigation and production demonstrations were conducted on 2317 acres in eight counties in cooperation with twelve growers. Ninety-four percent of the acreage was irrigated with center pivot. Six percent was irrigated with subsurface drip. All fields were combine harvested for grain corn.

Grain corn production ranged from 15142 (270 Bu.) to 10360 pounds (185 Bu.) per acre and averaged 12903 pounds (230 Bu.). Production from each inch of seasonal irrigation applied ranged from 1099 (19.6 Bu.) to 542 (9.7 Bu.) and averaged 708 (12.6 Bu.) pounds per acre. It ranged from 558 (9.3 Bu.) to 352 (6.3 Bu.) and averaged 452 (8.8 Bu.) pounds from each inch of total rainfall, irrigation, and additional soil water measured. Rainfall, irrigation and soil water averaged 88 percent of that reported by the North Plains PET Network for fully irrigated full season corn. Greater than normal rainfall increased percent of PET.

COTTON Nine cotton irrigation production demonstrations were conducted on 986 acres in seven counties in cooperation with nine growers. No demonstration failed. One hundred percent of the acreage was irrigated using center pivot. None were irrigated using row water, none used subsurface drip.

Cotton production ranged from 2153 to 670 and averaged 1522 pounds of lint per acre. Production from each inch of seasonal irrigation water ranged from 467 to 164 and averaged 235 pounds per acre. It ranged from 114 to 47 and averaged 75 pounds from each inch of total irrigation, rainfall and additional soil water. Irrigation, rainfall and soil water averaged 83 percent of that reported by the North Plains PET

Network for fully irrigated cotton.

Production averaged 1522 pounds of lint per acre and 235 pounds per inch of irrigation using center pivot systems. Average irrigation, rainfall plus net soil water totaled 20.30 inches and was 83 percent of that reported by the North Plains PET Network for fully irrigated cotton. There were no subsurface drip irrigation cotton demonstrations.

Irrigation, rainfall and soil water was 83 percent of that reported by the North Plains PET Network. Production was 1522 pounds per acre from 20.30 inches of rainfall, irrigation, and soil water. Production was 75 pounds per inch measured. There was no dryland production.

GRAIN SORGHUM Eight grain sorghum irrigation production demonstrations were conducted on 810 acres in four counties in cooperation with five growers. Sixty-seven percent of the acreage was irrigated using center pivot and row water. Thirty-three percent of the acreage was dryland.

Irrigated grain sorghum yield ranged from 9128 to 5000 and averaged 7321 pounds per acre. Production from each inch of seasonal irrigation ranged from 1839 to 594 and averaged 885 pounds per acre. It ranged from 436 to 303 and averaged 358 pounds from each inch of irrigation, rainfall and additional soil water that totaled 20.43 inches. Irrigation, rainfall and additional soil water measured averaged 79 percent of that reported by the North Plains PET Network for fully irrigated full season grain sorghum.

Dryland production ranged from 4200 to 1200 pounds per acre. Average was 3033 pounds from 10.63 inches of rainfall and soil water. Soil water and rainfall averaged 41 percent of that reported by the north plains PET network for fully irrigated grain sorghum.

PEANUT Four peanut irrigation and production demonstrations were conducted on 294 acres in Collingsworth County in cooperation with four growers. All acreage was irrigated using center pivot systems.

Peanut production ranged from 4690 to 3100 and averaged 3838 pounds per acre. Production from each inch of seasonal irrigation ranged from 513 to 230 and averaged 351 pounds per acre. Irrigation averaged 10.91 inches. Production ranged from 210 to 154 and averaged 189 pounds from each inch of irrigation, rainfall and additional soil water measured. Irrigation, rainfall and soil water averaged 20.30 inches. Average rainfall, irrigation, and soil water was 103 percent of that reported by the North Plains PET Network for Runner peanut. Some rainfall events were intense and did not allow normal contribution to peanut production. However, all rainfall measured is reported.

SILAGE Two silage sorghum irrigation and production demonstration were conducted on 222 acres in Potter and Deaf Smith Counties by two growers. Fifty-five percent of the acreage was irrigated by center pivot systems. Forty-five percent was row water.

Silage sorghum production averaged 22 tons per acre from 8.72 inches of irrigation. Production from each inch averaged was 2.50 tons per acre. Rainfall, irrigation and soil water averaged 20.88 inches. Production was 1.04 tons per inch.

Rainfall, irrigation and additional soil water for silage sorghum was 102 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum. In eleven sorghum silage demonstrations ,'98-'07, total water measured was 95 percent of that the PET Network reported for fully irrigated full season grain sorghum production. Some rainfall events were intense and runoff prevented all recorded and reported from being fully utilized by the crop.

SOYBEAN Two soybean irrigation and production demonstrations were conducted on 390 acres in Carson County in cooperation with two growers. One hundred percent of the acreage was irrigated using center pivot systems.

Soybean yield ranged from 45 to 45 and averaged 45 bushels per acre. Irrigation ranged from 7.55 to 7.26 inches and averaged 7.41 inches. Average production from each inch of seasonal irrigation ranged from 5.96 to 6.20 and averaged 6.08 bushels per acre. It ranged from 3.08 to 2.58 and averaged 2.81 bushels from 16.02 inches average total irrigation, rainfall and additional soil water measured. Average rainfall, irrigation and soil water was 63 percent of that reported by the North Plains PET Network for fully irrigated soybean. The percentage was 63 percent using center pivot irrigation systems. There were no row water demonstrations.

WHEAT Sixteen wheat irrigation and dryland production demonstrations were conducted on 1933 acres in 8 counties in cooperation with 11 growers. One field was abandoned due to a poor stand. The fall was extremely dry. Twenty-eight percent of the acreage was irrigated with center pivot. Seventy-two percent was dryland following good spring rainfall.

Wheat yield ranged from 103 to 25 and averaged 57 bushels per acre. Irrigation ranged from 11.5 to 1.15 and averaged 6.09 inches. Production from each inch of seasonal irrigation ranged from 34.8 to 8.33 and averaged 11.91 bushels per acre. It ranged from 4.86 to 2.51 and averaged 3.32 bushels from each inch of average rainfall, irrigation and additional soil water measured. Average rainfall, irrigation and additional soil water was 116 percent of that reported by the North Plains PET Network for fully irrigated wheat. Dryland production ranged from 62 to 25 bushels per acre and averaged 44 bushels. Production averaged 3.83 bushels from each inch of rainfall and soil water measured.

Summary crop irrigation and production data represented above are average of center pivot, subsurface drip and furrow systems.

Summary data plus that for center pivot, subsurface drip and furrow irrigation systems and dryland are listed separately in Table 1 on the following page.

LAWN No lawn and turf grass water measurement demonstration were conducted in ’07.

CONCLUSION

Additional information on the 54 field demonstrations is presented in the summary for each crop. Site specific data is included in the two page report of each demonstration presented by crop, cooperating grower, and county on the following pages in this ’07 demonstration report.

Thanks to the growers who volunteered their facilities, time, and operating data and other in cooperation and support of the field demonstrations. And, to Natalia Bernard and Ronda Fisher, two members of the Amarillo Texas AgriLife Center staff who prepared the reports and, special recognition to the Texas Water Development Board who designated citizen taxes to fund the ’07 AgriPartner Demonstration Program.

Table 1. Average crop production, per acre inch of irrigation, rainfall and soil water and percent of PET by crop, irrigation method and dryland, 2007

		Irrigation		Irrig/ Rain/ Soil	Production			PET
Crop	No.	Method	Inches	Inches	Per Acre	Inch of Irrigation	Inch of Irrg/Rain/Soil	% of
Corn	13	Center Pivot,SF	18.22	28.51	12903 LBS	708.04 LBS	452.66 LBS	88
	12	Center Pivot	18.38	28.78	12807 LBS	696.77 LBS	444.96 LBS	89
	1	SF Drip	16.34	25.18	14056 LBS	860.22 LBS	558.22 LBS	72
Cotton	9	Center Pivot	6.47	20.30	1522 LBS	235.10 LBS	74.97 LBS	104
Grain Sorghum	8	Center Pivot, RW, Dryland	8.27	16.75	5713 LBS	690.69 LBS	341.02 LBS	65
	4	Center Pivot	7.09	19.48	7219 LBS	1018.19 LBS	370.54 LBS	73
	1	Row Water	13.00	24.22	7731 LBS	594.69 LBS	319.20 LBS	102
	3	Dryland	-	10.63	3033 LBS	-	285.45 LBS	41
Peanut	4	Center Pivot	10.91	20.30	3838 LBS	351.66 LBS	189.09 LBS	103
Sorghum Silage	2	Center Pivot, RW	8.72	20.88	22 TONS	2.50 TONS	1.04 TONS	102
	1	Center Pivot	5.93	18.43	20 TONS	3.37 TONS	1.09 TONS	80
	1	Row Water	11.50	23.32	24 TONS	2.05 TONS	1.01 TONS	123
Soybean	2	Center Pivot	7.41	16.02	45 BU	6.08 BU	2.81 BU	63
Wheat	15	Center Pivot, Dryland	-	17.73	57.25 BU	-	3.23 BU	98
	7	Center Pivot	6.09	21.83	72.57 BU	11.91 BU	3.32 BU	116
	8	Dryland	-	14.14	43.85 BU	-	3.83 BU	81

Corn Irrigation And Production 2007

Cooperating Growers	*County*
Justin Crownover	**Sherman**
Wade Lenz	**Hartley**
Craig McCloy	**Hutchinson**
Sieto Mellema	**Dallam**
Harold Grall	**Moore**
Dan Krienke #8	**Ochiltree**
Butch Harbert	**Moore**
Jon Englebrecht	**Sherman**
Dan Krienke #47	**Ochiltree**
Robert Gordon	**Dallam**
Bill Cole	**Hartley**
John R. Spearman	**Gray**
Dannie Morris	**Collingsworth**

AgriPartners Grain Corn Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer- Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Thirteen grain corn irrigation and production demonstrations were conducted in 2007. The number was seven more than in 2006. Twelve were irrigated by center pivot systems. One was subsurface drip. The demonstrations were conducted on 2317 acres.

Grain corn yield ranged from 15142 pounds (270 bu) to 10360 (185 bu) per acre. Production was 12320 pounds (220 bu) per acre or more at ten sites. Average was 12903 pounds (230 bu) per acre. All yields are by combined harvest.

Irrigation amounts ranged from 25.62 to 11.10 inches per acre. Average irrigation for grain corn using center pivot was 18.38 inches per acre. Sixteen inches were applied by subsurface drip. Two were pre-watered. Average pre-water was 1.25 inches. Pre-water, if applied, is included in irrigation inches. There were no demonstrations with row water.

Grain corn production per inch of irrigation water applied ranged from 1099 to 542 pounds. Average was 708 pounds (12.6 bu.) per inch of irrigation using center pivot. Production was 860 pounds (15.3 bu) using drip irrigation.

Irrigation, rainfall and additional water stored in three feet of soil ranged from 36.12 to 22.31 inches. Average was 28.51 inches per acre. Grain production from each inch of irrigation, rainfall and additional soil water measured ranged from 558 to 352 pounds per acre. Average was 452 pounds (8.08 bu.) from each inch. Production from irrigation, rainfall and additional soil water averaged 445 pounds (7.94 bu.) per inch with center pivot irrigation. It was 558 pounds (9.96 bu.) using drip irrigation.

Rainfall, irrigation and additional water used from the top three feet of soil ranged from 107 to 63 percent of that reported by the North Plains PET Network for fully irrigated full season corn. Average was 88 percent and grain corn yields averaged 12903 pounds (230 bu) per acre. Total rainfall, irrigation and soil water where center pivots were used averaged 89 percent of the PET and corn yield 12807 pounds (228 bu) per acre. Total drip irrigation, rainfall, and net soil water was 72 percent of weather station PET. Production from each inch was 860 pounds (15.35 bu).

The value of irrigation water in producing grain corn priced at $7.00 per hundred weight ranged from $76.99 to $37.99 per acre inch applied. Average of the thirteen locations was $49.56 from each inch of irrigation. These values consume or include production by rainfall and water used from the soil as well as irrigation system efficiency and management of resources. A five year running average of corn production per inch of irrigation water applied is a good management tool. The value per inch of rainfall, irrigation and net soil water ranged from $39.08 to $24.67 and averaged $31.69 per acre.

A tabulated summary of the thirteen grain corn irrigation and production demonstrations are listed in Table 1. Additional information for each demonstration is listed in the individual grower reports.

One hundred twenty-nine grain corn irrigation and production demonstrations were conducted in 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, and 2007. One hundred twenty were irrigated by center pivot and seven with row water systems. Two used subsurface drip. Irrigation averaged 21.42 inches and production 10868 pounds (194 bu) per acre. Production averaged 507 pounds (9.0 bu) from each inch of irrigation. Rainfall, irrigation and soil water averaged 30.71 inches from which 354 pounds (6.3 bu) per acre were harvested per inch. Irrigation, rainfall and soil water measured averaged 87 percent of that reported by the North Plains PET Network for fully irrigated grain corn. The ten year summary is listed last in Table 1.

Thanks to area growers who provided facilities, personal time, operating data and other assistance. Hopefully the information assembled will help you and other growers.

Table 1. Corn Irrigation and Production, 2007

		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$7.00/CWT-$	
						LBS/ACRE/IN		ACRE/INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	LBS/AC	IRRIGATION	RAIN/IRRIG/SOIL	IRRIGATON	RAIN/IRRIG/SOIL
Sherman	CP-Justin Crownover	18.24	29.74	89	15142	830.15	509.15	58.11	35.64
Hartley	CP-Wade Lenz	18.53	27.7	78	14728	794.82	531.70	55.64	37.22
Hutchinson	SF-Craig McCloy	16.34	25.18	72	14056	860.22	558.22	60.21	39.08
Dallam	CP-Mellema	25.62	36.21	106	13944	544.26	385.09	38.10	26.96
Moore	CP-Harold Grall	17.50	26.20	83	12768	729.60	487.33	51.07	34.11
Ochiltree	CP-Dan Krienke #8	15.68	28.81	95	12768	814.29	443.18	57.00	31.02
Moore	CP-Butch Harbert	18.75	28.40	87	12712	677.97	447.61	47.46	31.33
Sherman	CP-Jon Englebrecht	23.32	34.07	107	12656	542.71	371.47	37.99	26.00
Ochiltree	CP-Dan Krienke #47	17.13	32.06	104	12432	725.74	387.77	50.80	27.14
Dallam	CP-Gordon	19.70	28.14	82	12320	625.38	437.81	43.78	30.65
Hartley	CP-Bill Cole	11.10	22.31	63	12208	1099.82	547.20	76.99	38.30
Gray	CP-John R. Spearman	16.00	22.44	74	11648	728.00	519.07	50.96	36.34
Collingsworth	CP-Dannie Morris	19.00	29.40	98	10360	545.26	352.38	38.17	24.67
AVERAGE 2007	13	18.22	28.51	88	12903	708.04	452.55	49.56	31.68
AVG CENTER PIVOT	12	18.38	28.79	89	12807	696.77	444.85	48.77	31.14
AVG SF DRIP	1	16.34	25.18	72	14056	860.22	558.22	60.21	39.08
AVG '98'99'00'01'02'03'04'05'07	129	21.42	30.71	87	10868	507.40	353.86	35.52	24.77
AVG CENTER PIVOT	120	20.99	30.32	86	10909	519.83	359.85	36.39	25.19
AVG ROW WATER	7	29.33	37.90	92	9534	325.10	251.53	22.76	17.61
AVG SF DRIP	2	19.67	29.32	93	13048	663.35	445.10	46.43	31.16
CP- CENTER PIVOT, SF- SUBSURFACE DRIP									

AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
SHERMAN COUNTY - 2007
JUSTIN CROWNOVER, DAVID GRAF, AND DENNIS BEILUE

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	May 5	**Fertilizer:**	10 Tons Manure, 75-39-0
Variety:	Pioneer 33B54	**Insecticide:**	Pauncho @ plt'g
Seeding Rate:	33,000	**Herbicide:**	None
Soil Type:	Sherm Clay Loam/Gruver Clay Loam	**Harvested:**	October 15
Row Width:	30 Inches	**No. Acres:**	120

RAINFALL

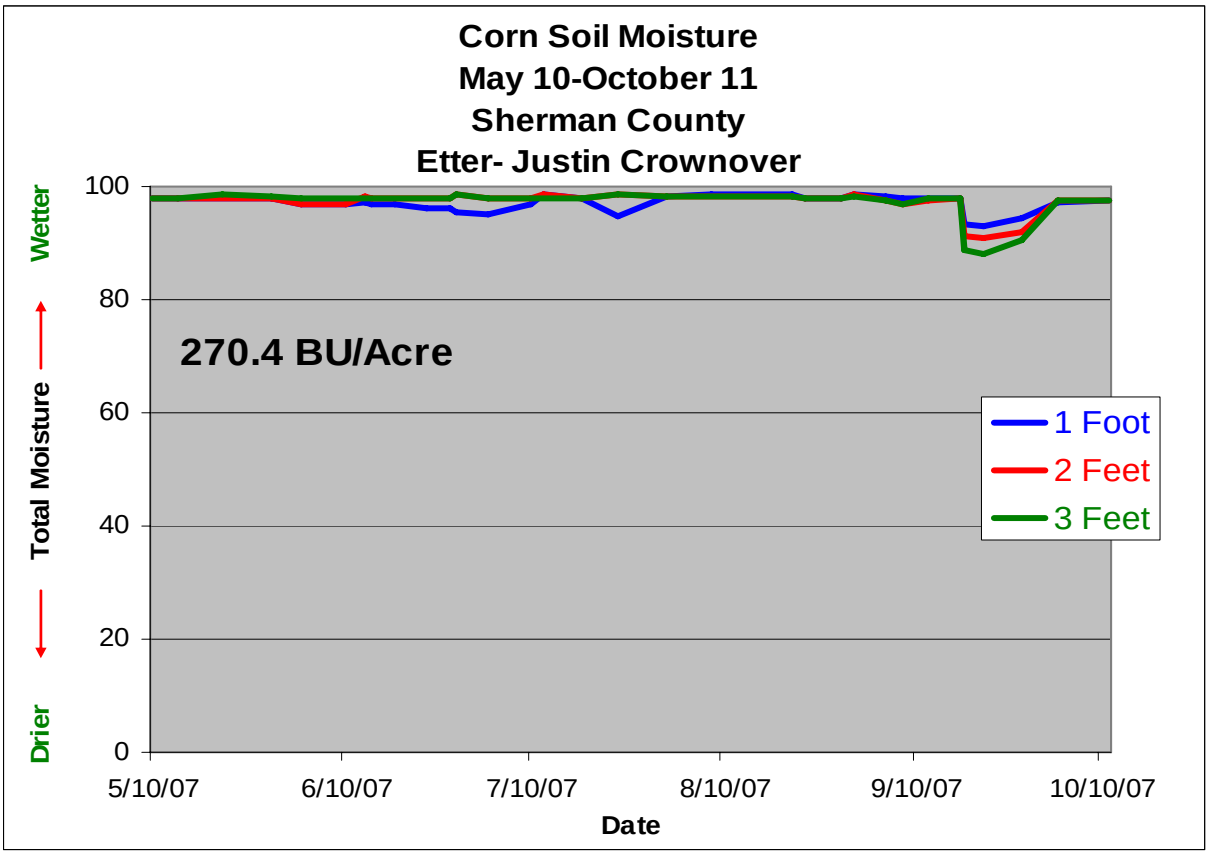
May – 1.05" June- 1.50" July- 1.30" August- 3.15 September- 4.50" Total: 11.50"

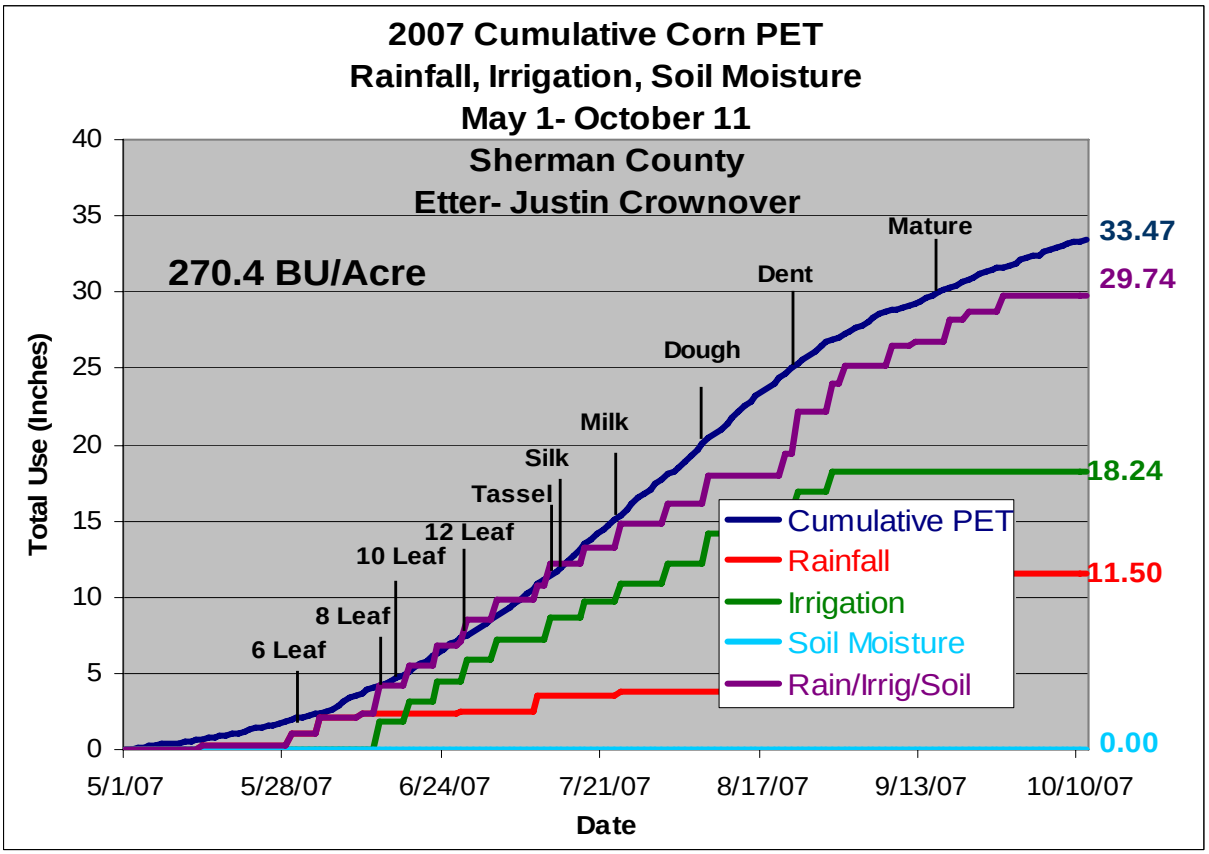
MATERIALS AND METHODS: One hundred and twenty acres irrigated by a center pivot nozzled at 750 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
18	**18.24**	**89***	**15,142**	**830.15**	**$1059.94**	**$58.11**

***Includes 0.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: An excellent corn yield and good irrigation management to supplement good beginning soil water at 1, 2 and 3 feet and seasonal rainfall. The soil profile was maintained at full available capacity throughout the growing season. Production was 830 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 29.74 inches. Production was 509 pounds per inch measured. Irrigation, rainfall, and net soil water was 89 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
HARTLEY COUNTY - 2007
WADE LENZ AND NICK SIMPSON

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	April 27	**Fertilizer:**	300-0-0
Variety:	Nct	**Insecticide:**	Comite
Seeding Rate:	32,000	**Herbicide:**	Dual, Atrazine
Soil Type:	Dallam Fine Sandy Loam	**Harvested:**	October 7
Row Width:	30 Inches	**No. Acres:**	120

RAINFALL

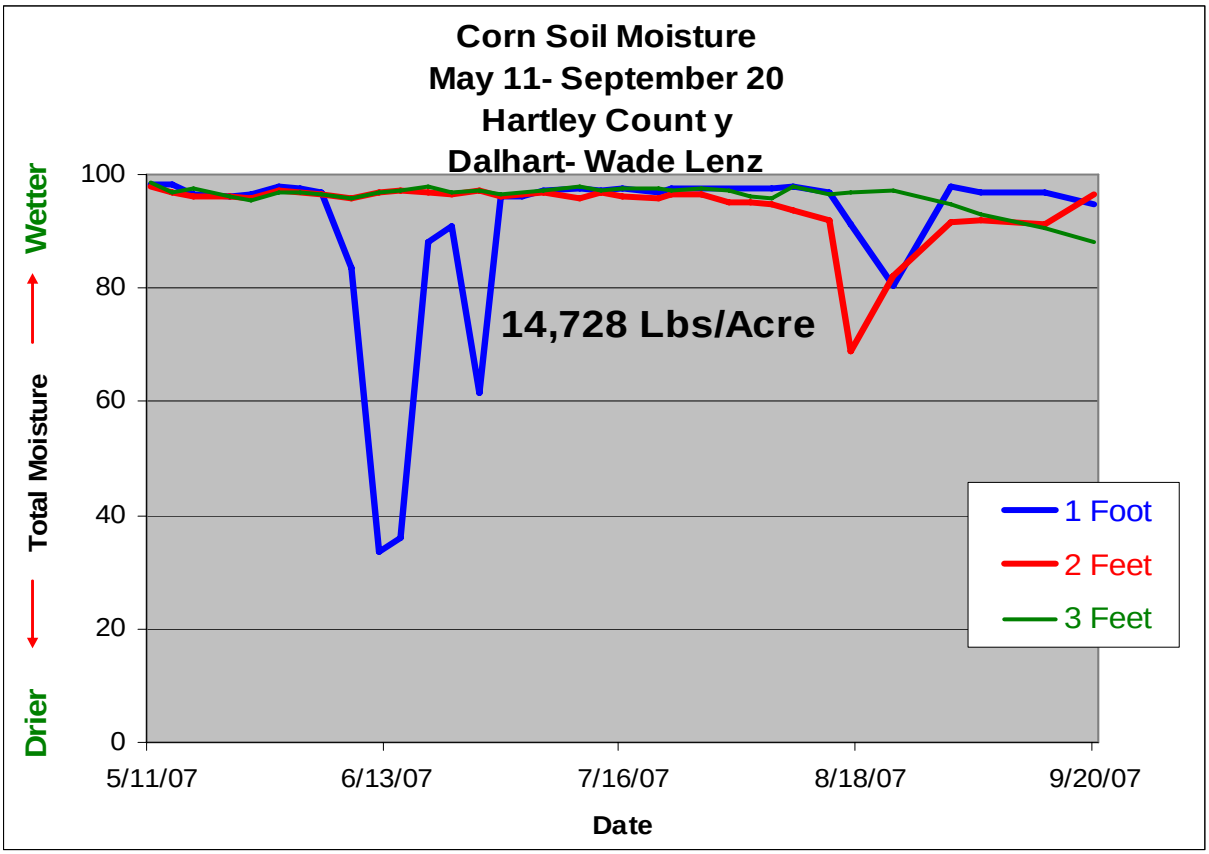
May- 1.15" June- 1.47" July- 2.30" August- 2.30" September- 1.25" Total: 8.47"

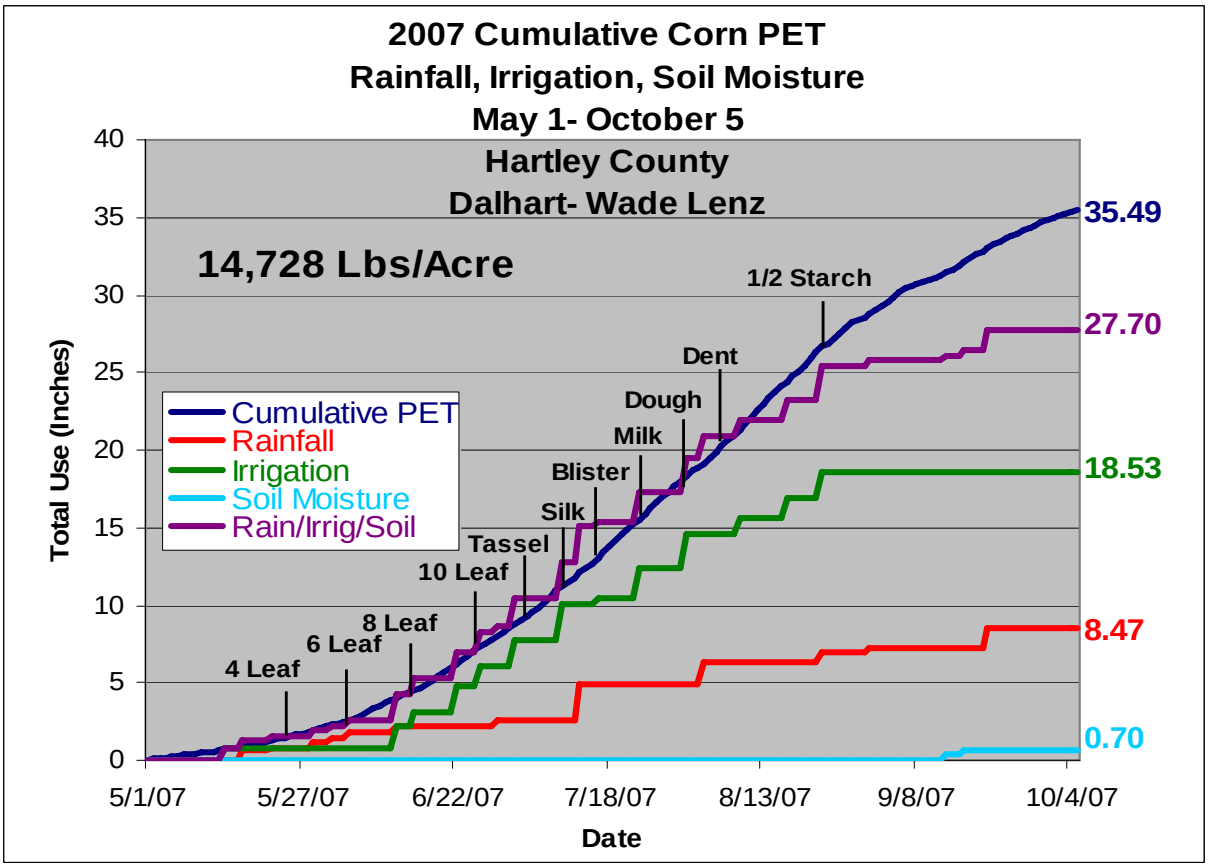
MATERIALS AND METHODS: One hundred and twenty acres irrigated by a center pivot nozzled at 650 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
18	**18.53**	**78***	**14,728**	**794.82**	**$1030.96**	**$55.64**

***Includes 0.70 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Another excellent corn yield and water management. Soil water was good at 1, 2 and 3 feet throughout the growing season. Production was in residue management of previous year corn. Production was 795 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 27.70 inches. Production was 531 pounds per inch measured. Irrigation, rainfall, and net soil water was 78 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING DRIP IRRIGATION
HUTCHINSON COUNTY - 2007
CRAIG McCLOY AND TOM BENTON

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using sub surface drip irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	April 20	**Fertilizer:**	270-100-0
Variety:	Golden Harvest 9250	**Insecticide:**	None
Seeding Rate:	32,000	**Herbicide:**	1.5 Oz Balance, 1 Qt Inch
Soil Type:	Sherm Silty Clay Loam	**Harvested:**	October 2
Row Width:	Double Row 40"	**No. Acres:**	140

RAINFALL

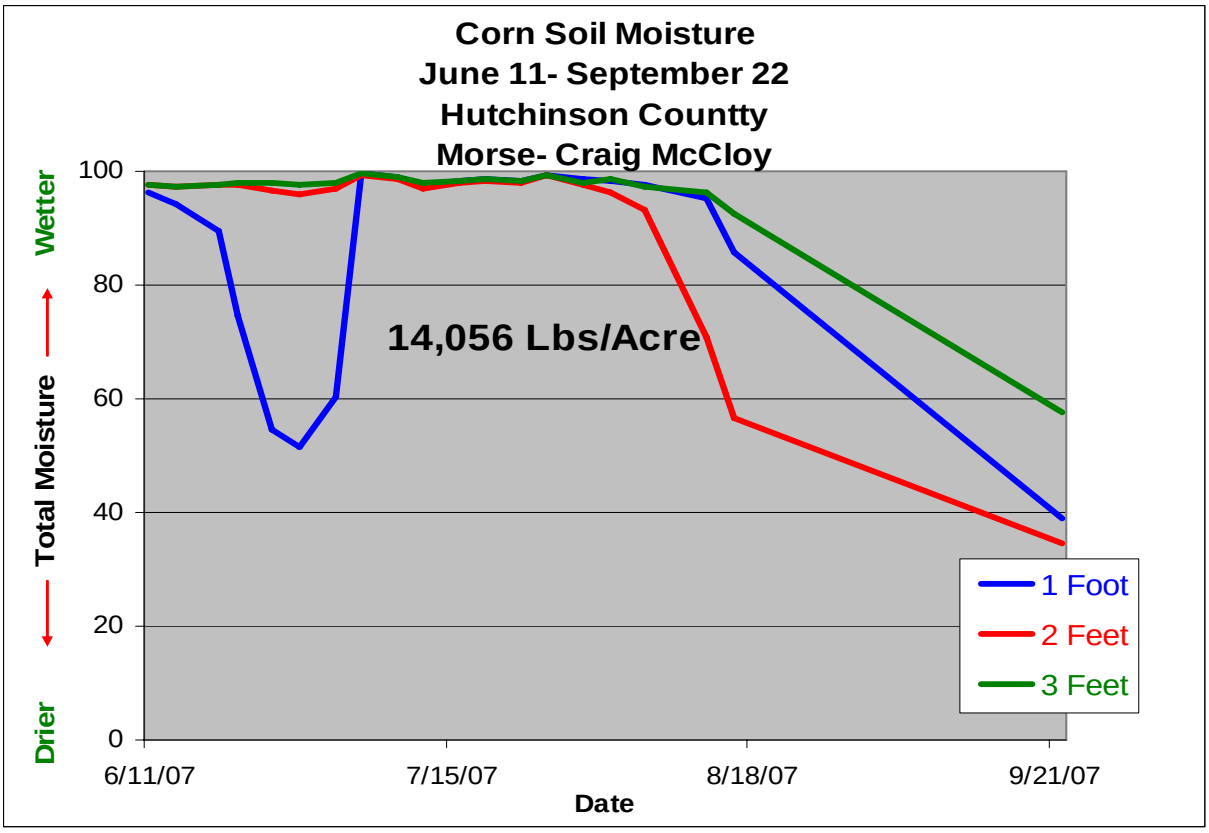
April- 0.61" May- 1.22" June- 1.02" July- 2.40" Total: 5.25"

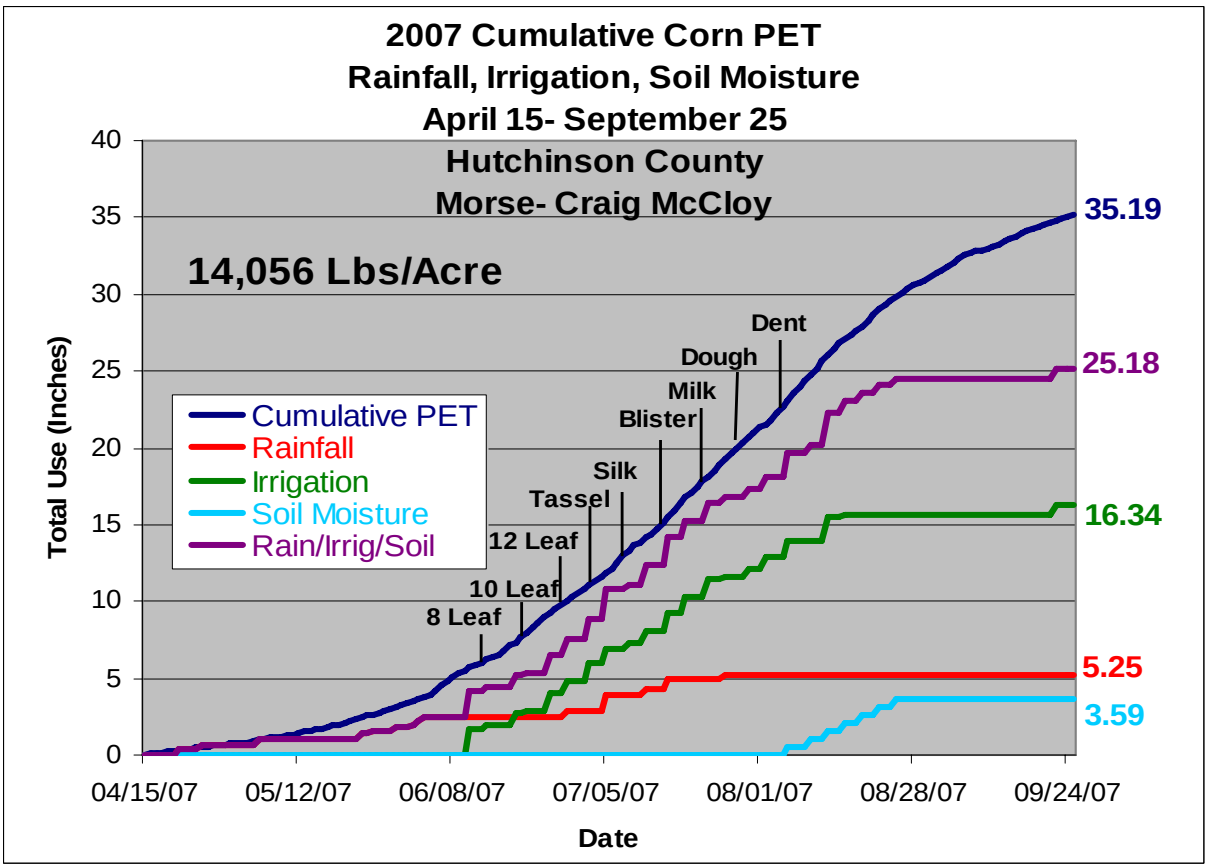
MATERIALS AND METHODS: One hundred and forty acres irrigated by a drip irrigation at 825 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
28	**16.34**	**72***	**14,056**	**860**	**$983.92**	**$60.21**

***Includes 3.59 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Installation of the subsurface drip irrigation was completed late due to spring rainfall. However, the crop was planted on time, with good soil water at 1, 2 and 3 feet. The drip irrigation system is automatically time controlled cycling through the acreage zones. Production was 860 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 25.18 inches. Production was 558 pounds per inch measured. Irrigation, rainfall, and net soil water was 72 percent of that reported by the North Plains PET Network for fully irrigated corn. The crop had sufficient water, producing an excellent yield.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
DALLAM COUNTY - 2007
SIETO MELLEMA AND NICK SIMPSON

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	May 10	**Fertilizer:**	299-31-02
Variety:	33B29	**Insecticide:**	Intrepid; Fungicide@Headline
Seeding Rate:	28,500	**Herbicide:**	Pre-emerged-Lumax; Status
Soil Type:	Dallam Fine Sandy Loam	**Harvested:**	October 19
Row Width:	30 Inches	**No. Acres:**	120

RAINFALL

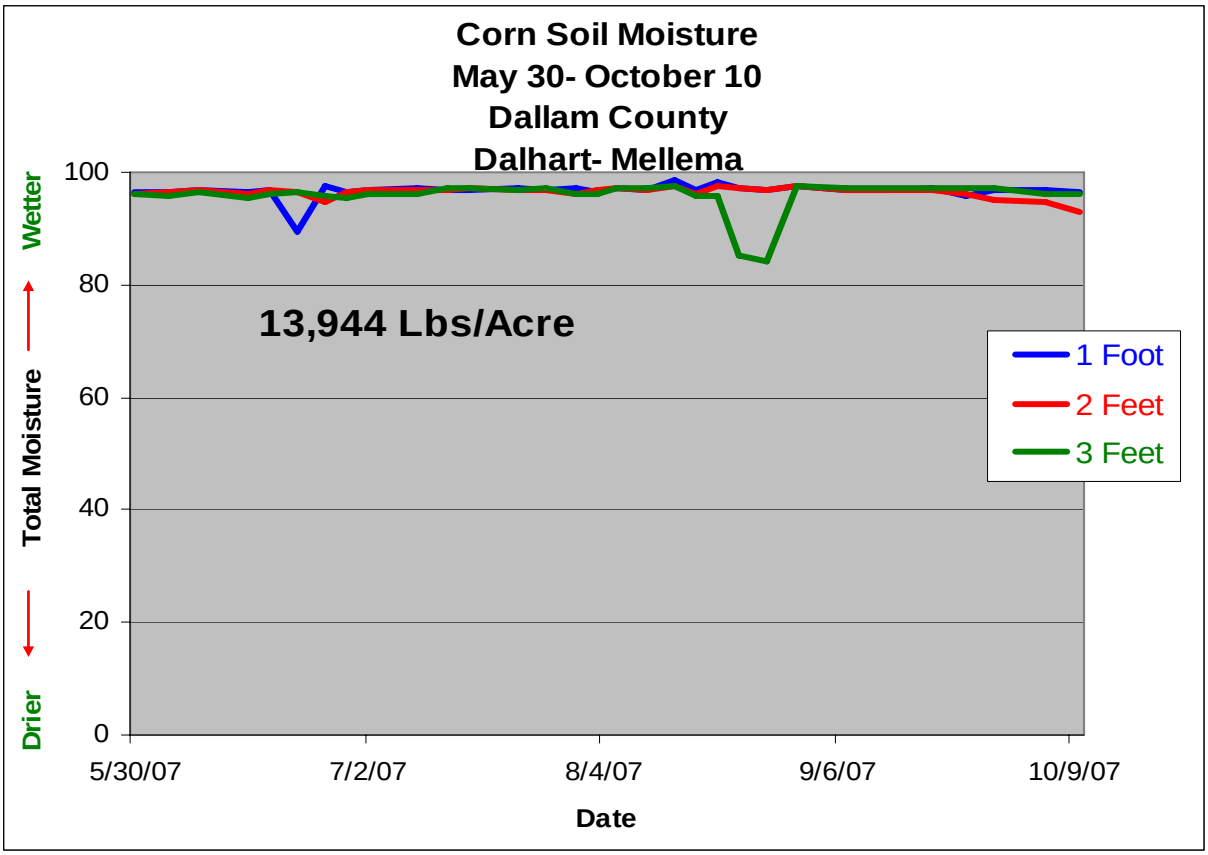
May – 0.42" June- 2.10" July- 2.35" August- 2.95" September- 2.65" Total: 10.47"

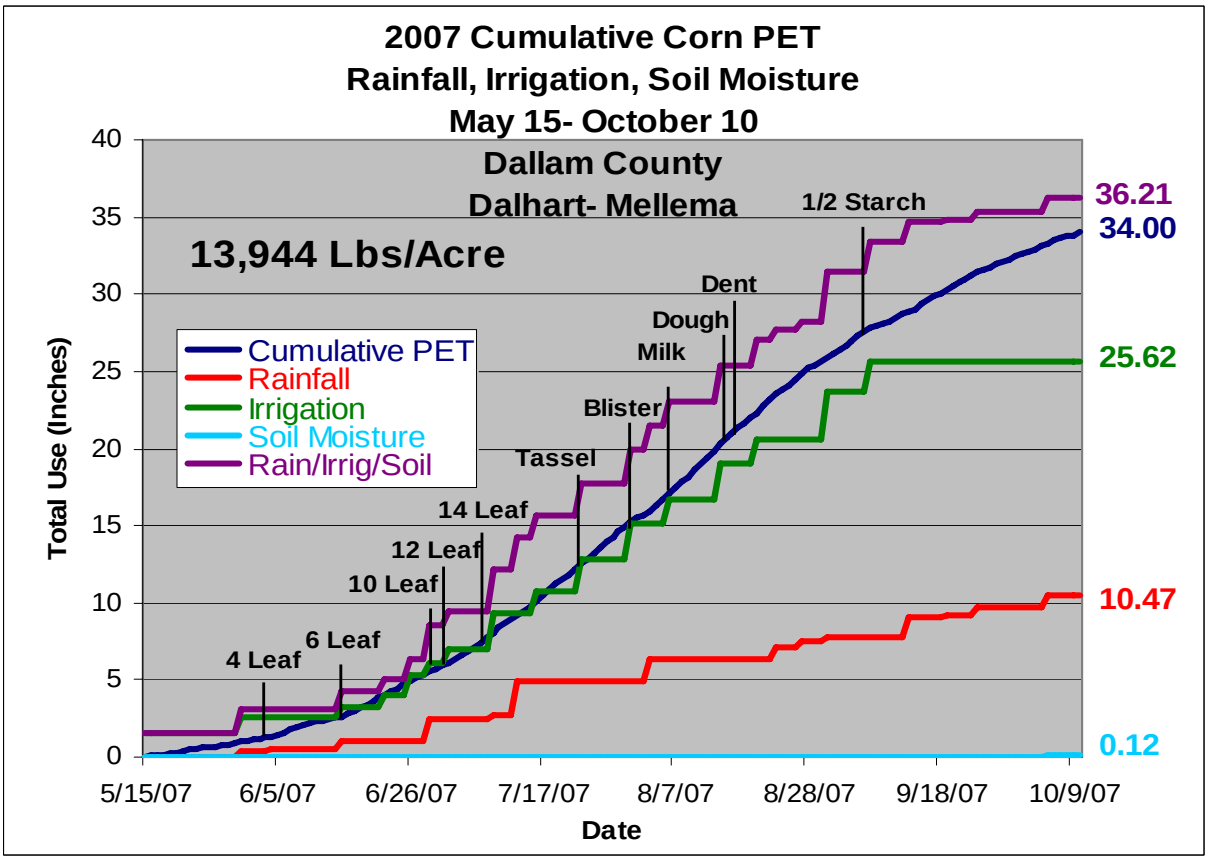
MATERIALS AND METHODS: One hundred and twenty acres irrigated by a center pivot nozzled at 600 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
21	**25.62**	**106***	**13,944**	**544.26**	**$976.08**	**$38.10**

***Includes 0.12 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: The crop had sufficient rainfall and irrigation to maintain high soil water levels at 1, 2 and 3 feet throughout the growing season. Seasonal rainfall totaled 10.47 inches. Irrigation capacity was 5.0 GPM per acre. Production was 544 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 36.21 inches. Production was 385 pounds per inch measured. Irrigation, rainfall, and net soil water was 106 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
MOORE COUNTY - 2007
HAROLD GRALL, DENNIS BEILUE, AND MARCEL FISCHBACHER

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	April 27	**Fertilizer:**	220-65-0
Variety:	Pioneer 33H27	**Insecticide:**	Comite
Seeding Rate:	28,500	**Herbicide:**	Roundup
Soil Type:	ShA- Sherm Silty Clay Loam	**Harvested:**	September 26
Row Width:	None	**No. Acres:**	480

RAINFALL

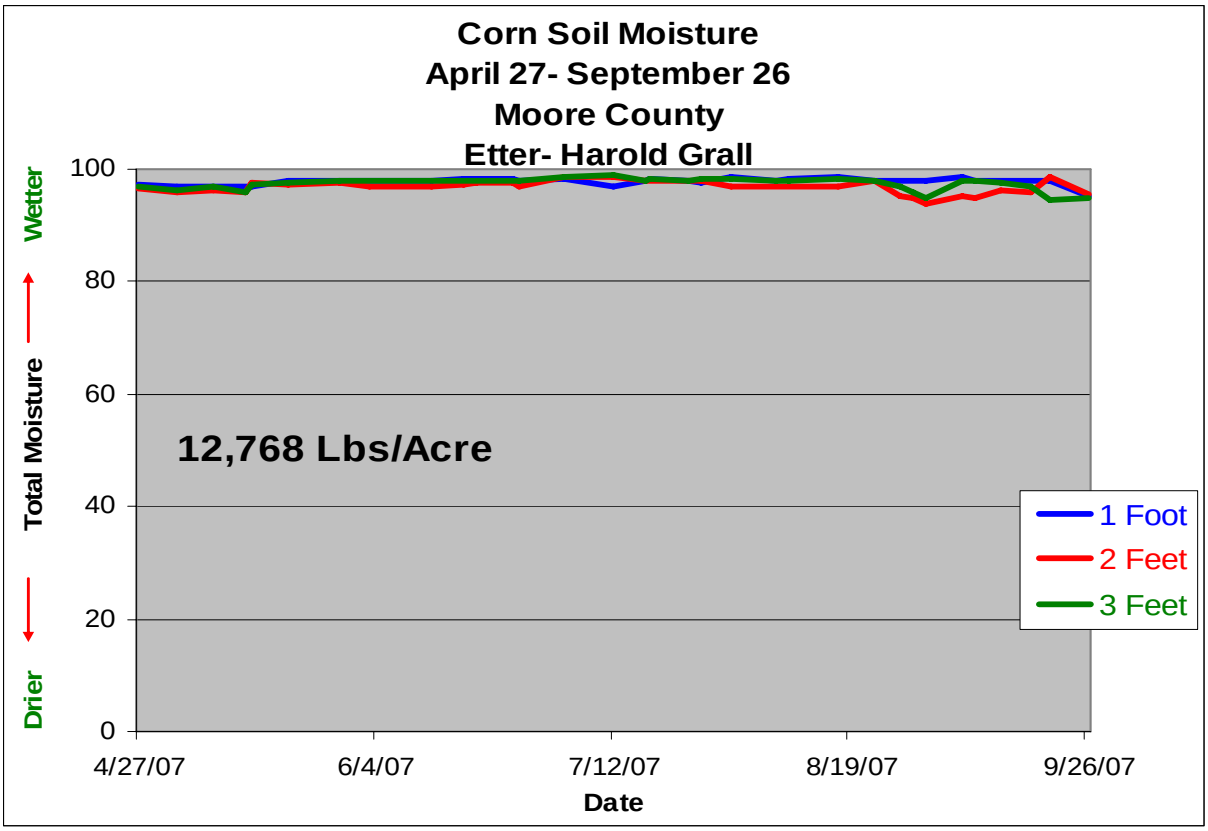
May- 0.75”__ June- 2.25”__ July- 1.40”__ August- 1.60” September- 1.95”_ Total: 7.95”

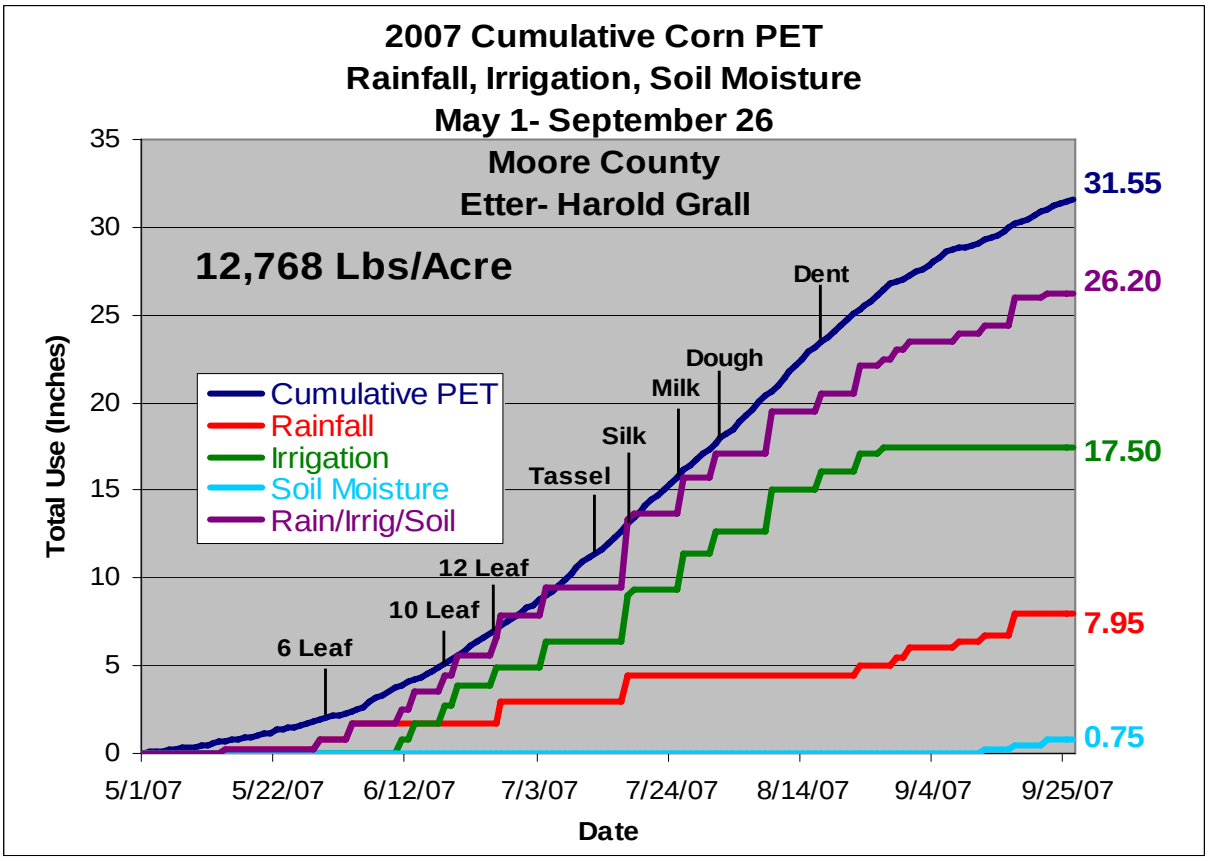
MATERIALS AND METHODS: Four hundred and eighty acres irrigated by center pivot nozzled at 2450 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
18	**17.50**	**83***	**12,768**	**729.60**	**$893.76**	**$51.07**

***Includes 0.75 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Good tracking of the accumulated daily and seasonal crop use reported from the North Plains ET Network Etter weather station. Good management of irrigation to supplement rainfall and soil water. Irrigation capacity was 5.10 GPM per acre. Production was 729 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 26.20 inches. Production was 487 pounds per inch measured. Irrigation, rainfall, and net soil water was 83 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
OCHILTREE COUNTY - 2007
DAN KRIENKE #8 AND SCOTT STRAWN

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	May 1	**Fertilizer:**	160-0-0+10 Ton Manure
Variety:	Pioneer 33B54	**Insecticide:**	None
Seeding Rate:	34,000	**Herbicide:**	Dual+Atrazine
Soil Type:	Pullman Clay Loam	**Harvested:**	September 6
Row Width:	30 Inches	**No. Acres:**	125

RAINFALL

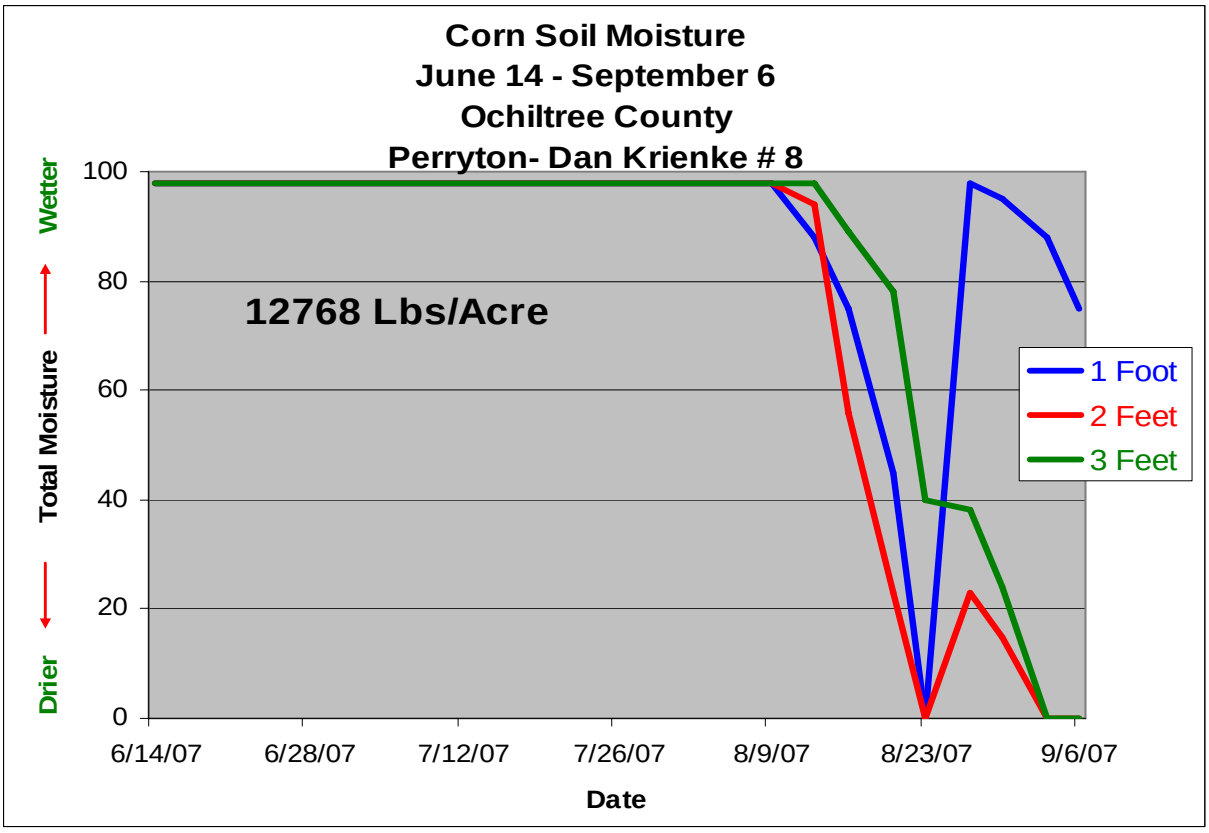
May – 4.20” June- 1.70” July- 1.70” August- 0.75” Total: 8.35”

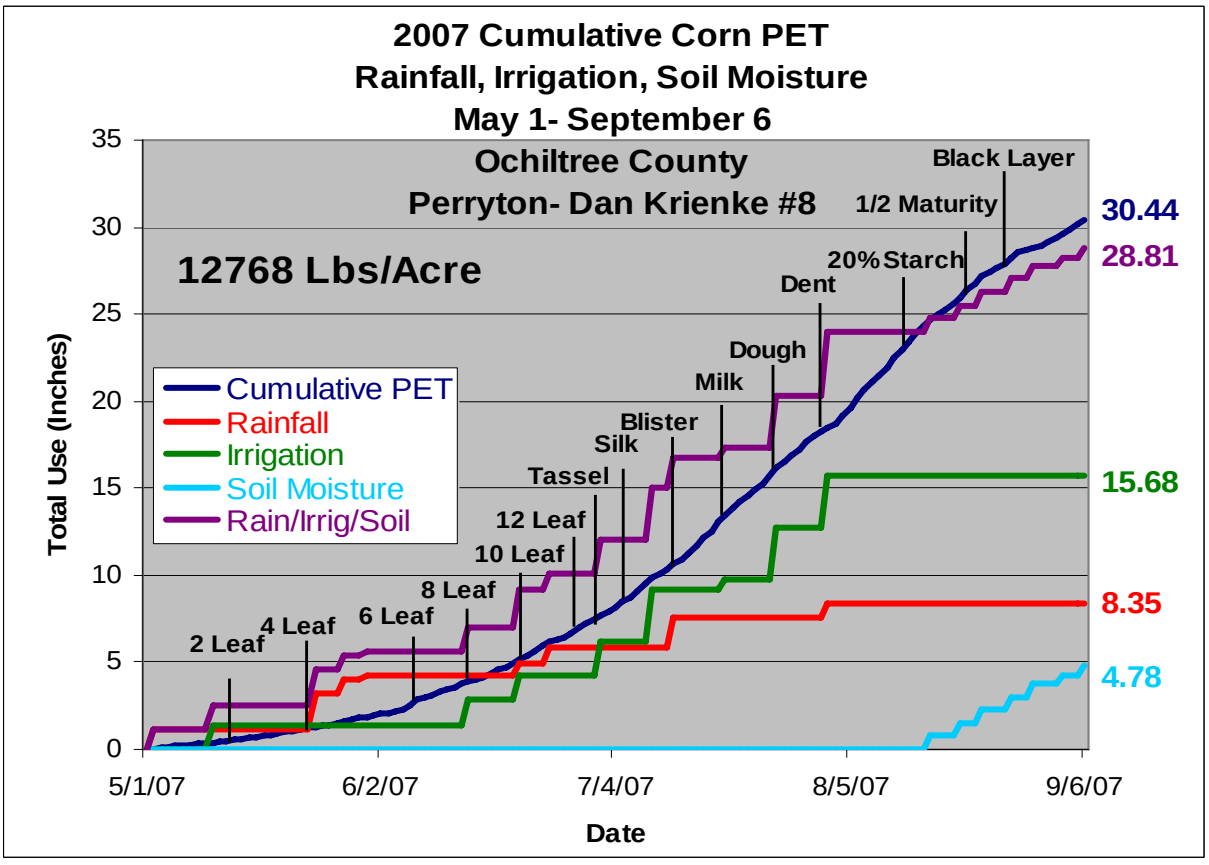
MATERIALS AND METHODS: One hundred and twenty-five acres irrigated by a center pivot nozzled at 1000 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
11	**15.68**	**95***	**12,768**	**814.29**	**$893.76**	**$57.00**

***Includes 4.78 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Good early season rainfall provided high soil water levels that were maintained throughout the growing season. Good soil water management that utilized soil water to finish the crop. Production was 814 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 28.81 inches. Production was 443 pounds per inch measured. Irrigation, rainfall, and net soil water was 95 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
MOORE COUNTY - 2007
BUTCH HARBERT, DENNIS BEILUE, AND MARCEL FISCHBACHER

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	May 4	**Fertilizer:**	246-39-0
Variety:	Pioneer 32-B29	**Insecticide:**	None
Seeding Rate:	32,000	**Herbicide:**	None
Soil Type:	DmA-Dumas Loam	**Harvested:**	October 4
Row Width:	30 Inches	**No. Acres:**	466

RAINFALL

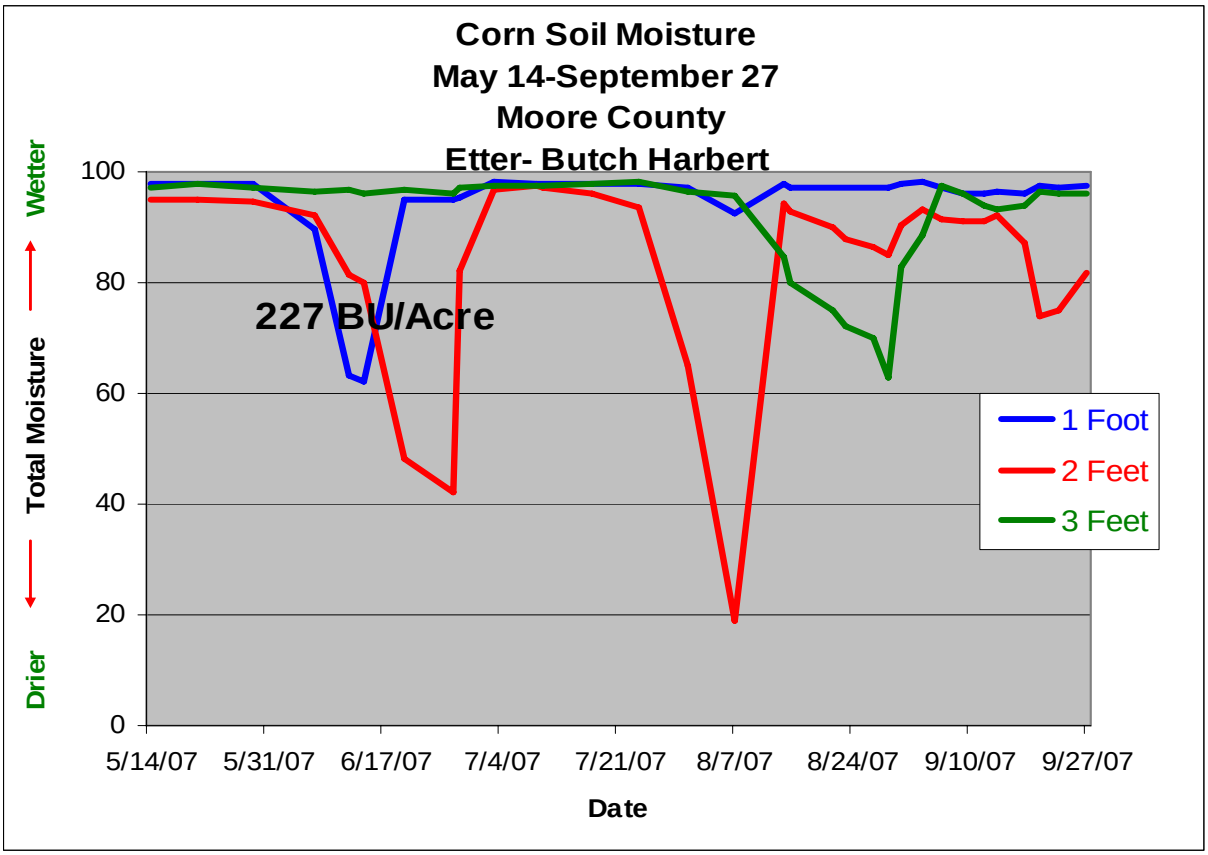
May- 0.50”__ June- 0.75”__ July- 1.40”_ August- 2.60”__ September- 3.75”_ Total: 9.00”

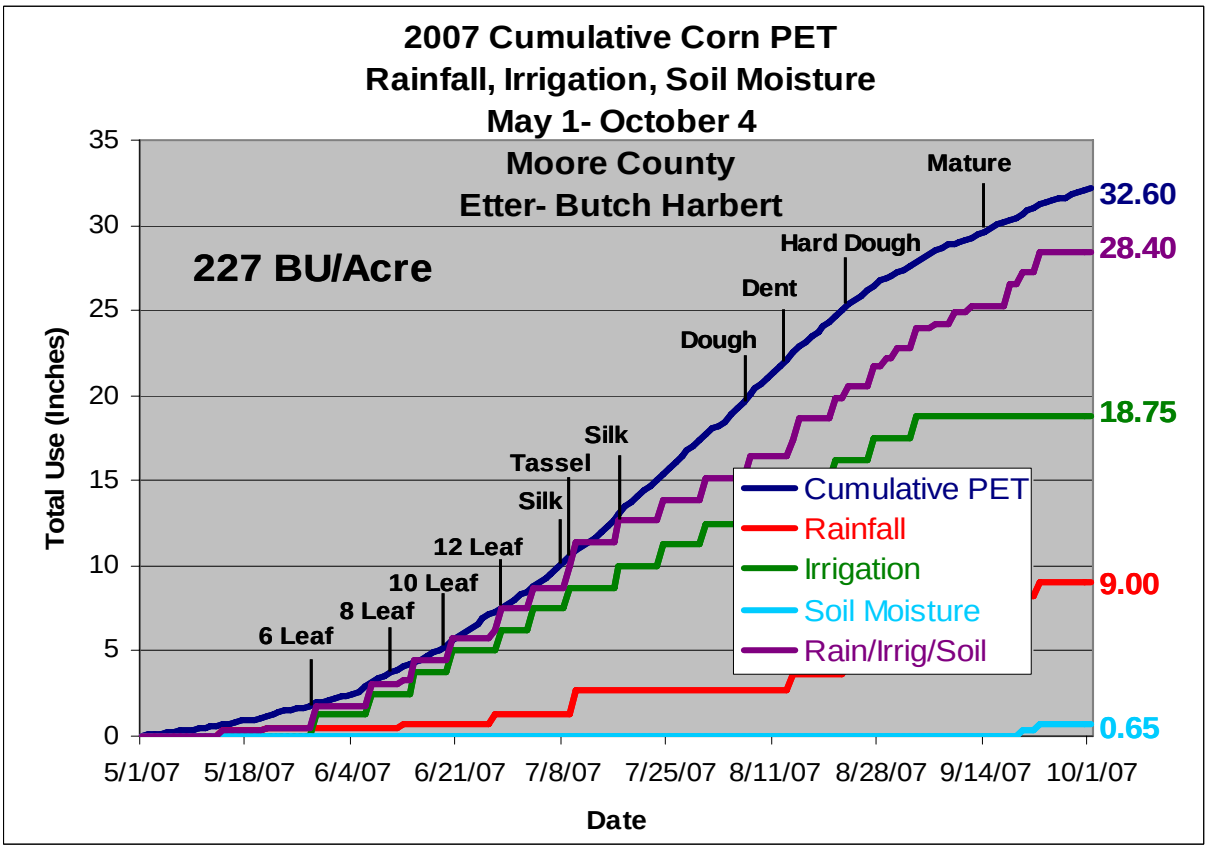
MATERIALS AND METHODS: Four hundred and sixty-six acres irrigated by center pivot nozzled at 2500 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
15	**18.75**	**87***	**12,712**	**677.97**	**$889.84**	**$47.46**

***Includes 0.65 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in May and was maintained at good levels throughout the growing season. Good mid and late season rainfall separated by 5.36 GPM per acre irrigation capacity. Production was 678 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 28.40 inches. Production was 447 pounds per inch measured. Irrigation, rainfall, and net soil water was 87 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
SHERMAN COUNTY - 2007
JON ENGLEBRECHT, DAVID GRAF, AND DENNIS BEILUE

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	April 30	**Fertilizer:**	5 tons compost +40-40-0 preplt
Variety:	Pioneer 33B53	**Insecticide:**	None
Seeding Rate:	29,500	**Herbicide:**	None
Soil Type:	Sherman Silty Clay Loam	**Harvested:**	September 28
Row Width:	30 Inches	**No. Acres:**	122

RAINFALL

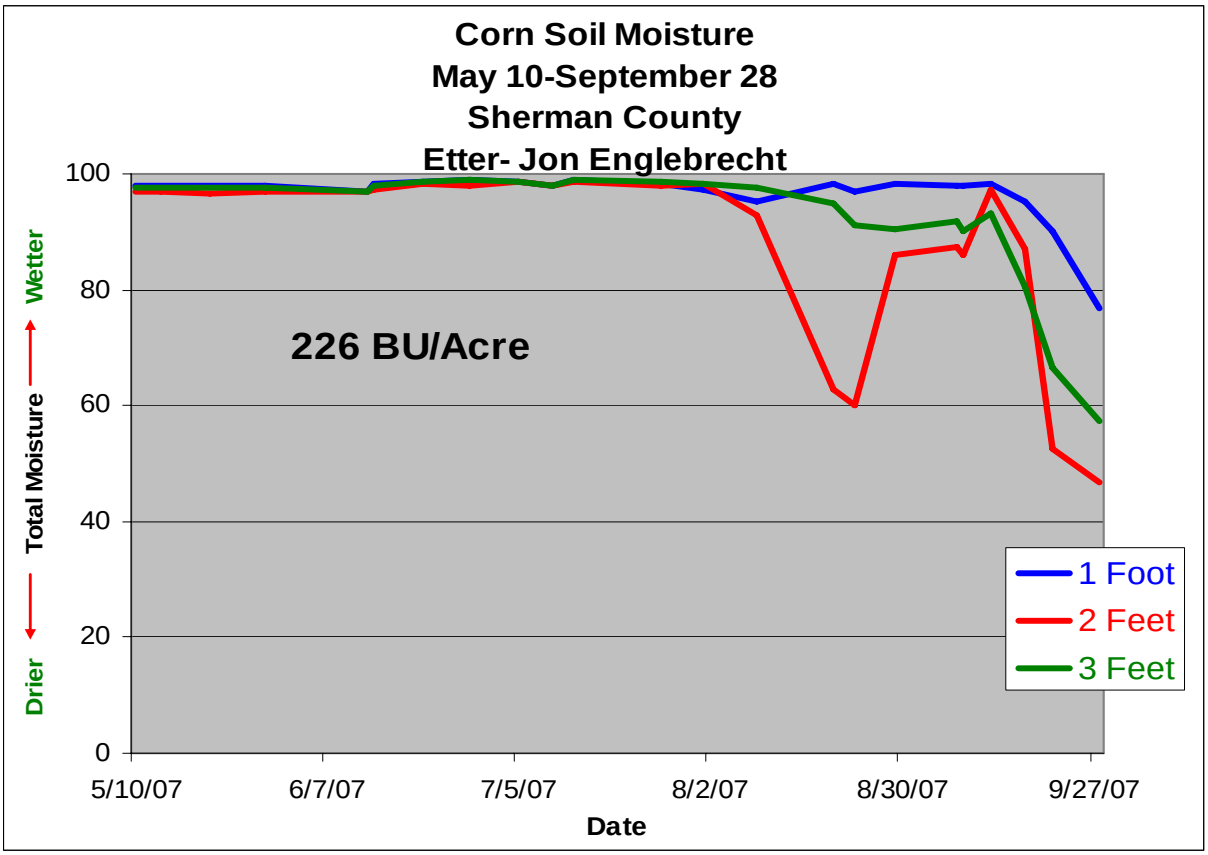
May- 1.35" June- 0.55" July- 3.25" August- 1.10" September- 1.70" Total: 7.95"

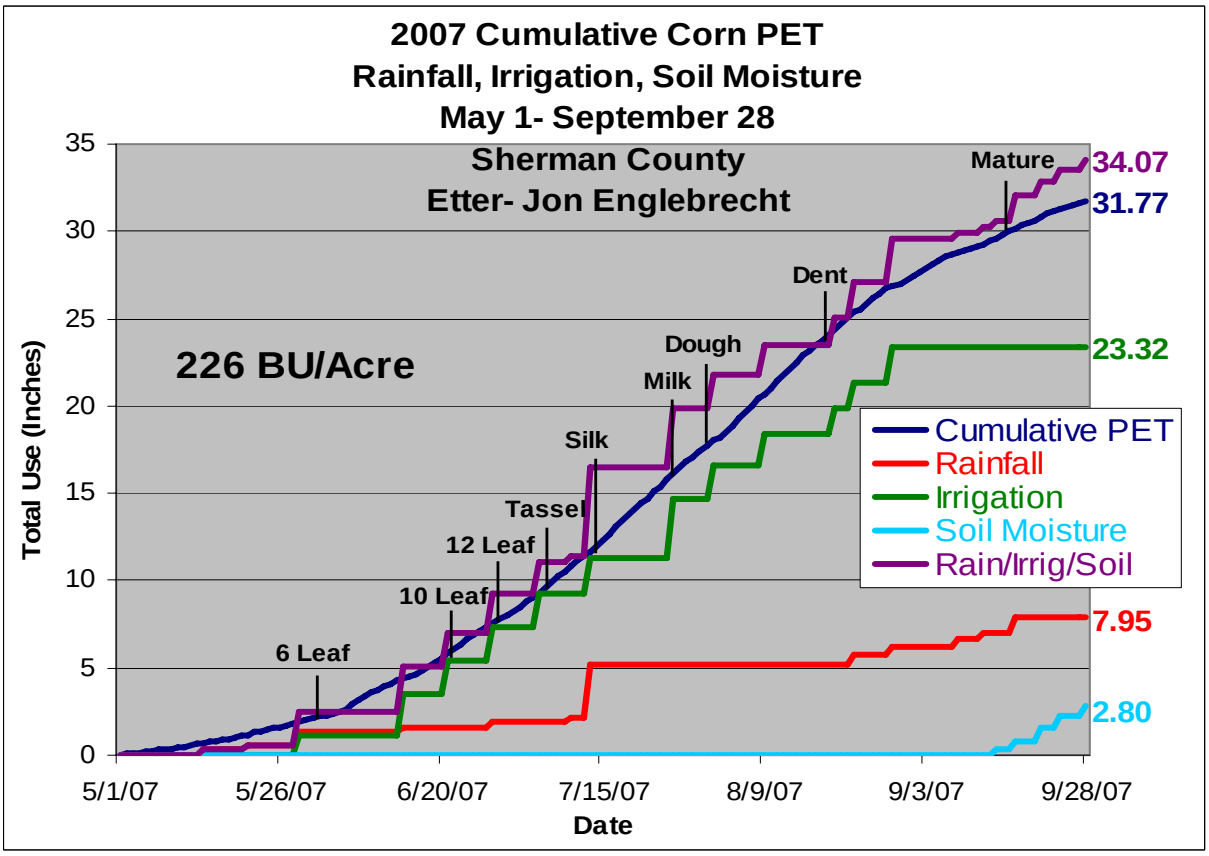
MATERIALS AND METHODS: One hundred and twenty-two acres irrigated by a center pivot nozzled at 650 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
23	**23.32**	**107***	**12,656**	**542.71**	**$885.92**	**$37.99**

***Includes 2.80 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Periodic rainfall helped produce a good corn yield. Soil water was sufficient at 1, 2 and 3 feet throughout the growing season. Irrigation capacity was 5.3 GPM per acre. Production was 542 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 34.07 inches. Production was 371 pounds per inch measured. Irrigation, rainfall, and net soil water was 107 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
OCHILTREE COUNTY - 2007
DAN KRIENKE #47 AND SCOTT STRAWN

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	April 28	**Fertilizer:**	130-0-0
Variety:	Pioneer 33B54	**Insecticide:**	None
Seeding Rate:	29,000	**Herbicide:**	Dual+Atrazine
Soil Type:	Pullman Silty Clay Loam	**Harvested:**	September 10
Row Width:	30 Inches	**No. Acres:**	120

RAINFALL

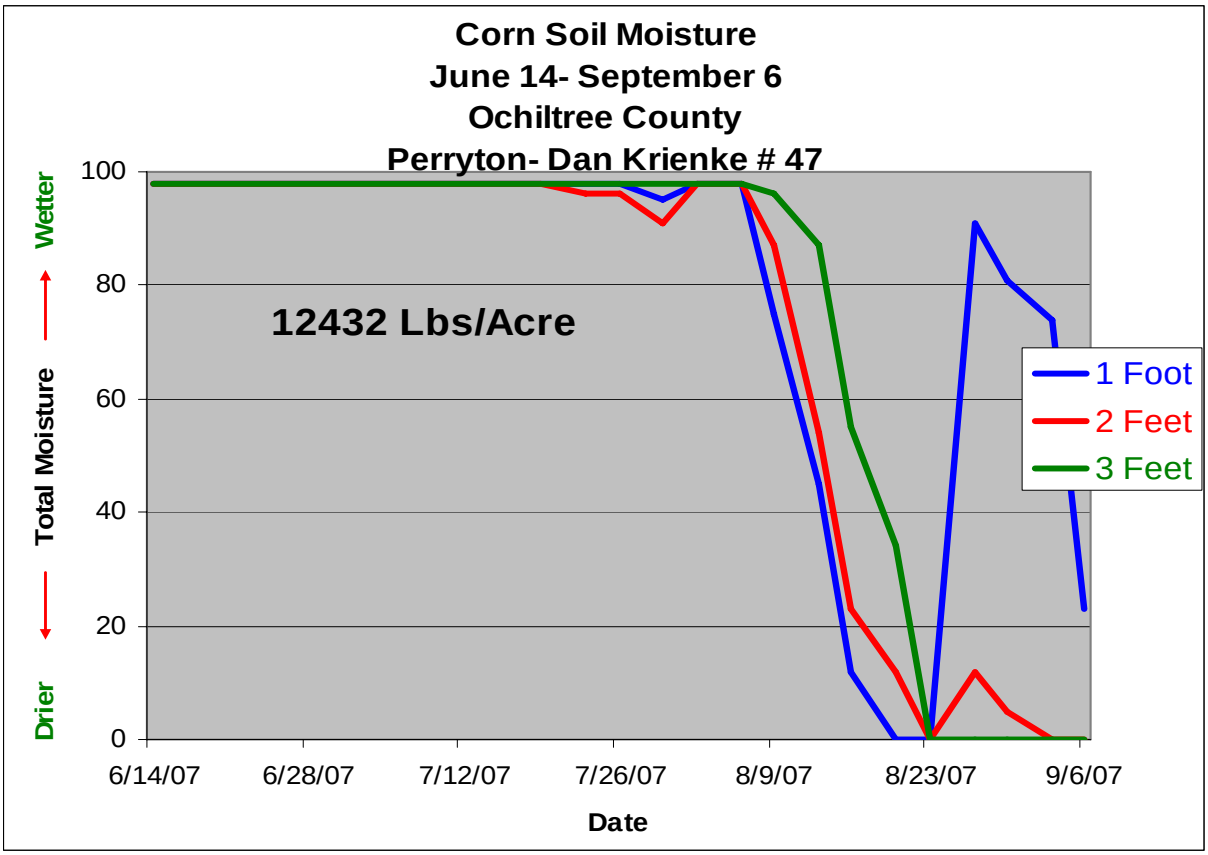
May – 3.60" June- 1.00" July- 1.40" August- 3.40" Total: 9.40"

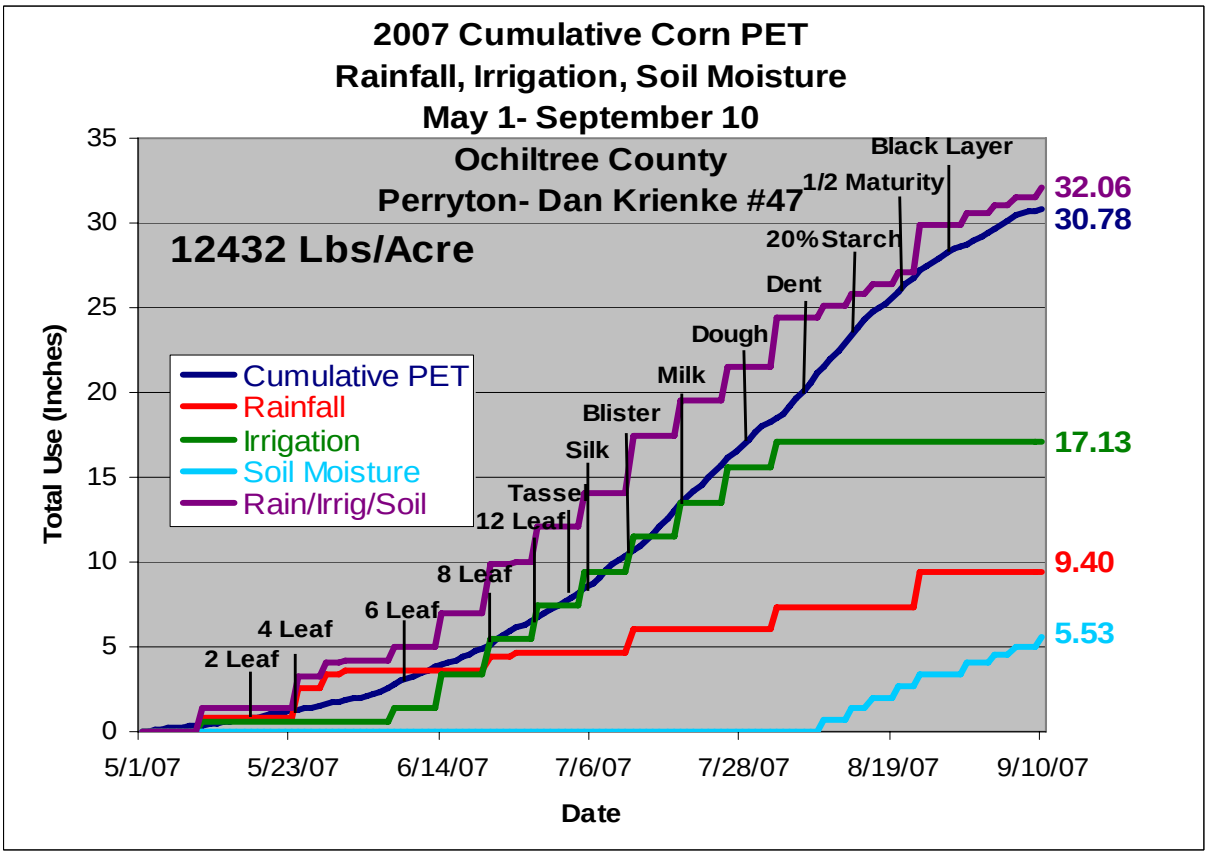
MATERIALS AND METHODS: One hundred and twenty acres irrigated by a center pivot nozzled at 625 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
17	**17.13**	**104***	**12,432**	**725.74**	**$870.24**	**$50.80**

***Includes 5.53 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water readings show the crop had sufficient water throughout the growing season. Periodic rainfall was enough to limit irrigation to 17.13 inches. Irrigation capacity was 5.21 GPM per acre. Production was 725 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 32.06 inches. Production was 388 pounds per inch measured. Irrigation, rainfall, and net soil water was 104 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
DALLAM COUNTY - 2007
ROBERT GORDON AND NICK SIMPSON

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	May 11	**Fertilizer:**	326-60-25
Variety:	dkc64-76	**Insecticide:**	Oberon & Headline Fungicide
Seeding Rate:	27,500	**Herbicide:**	Status prowl RT3
Soil Type:	Dallam Fine Sandy Loam	**Harvested:**	October 15
Row Width:	30 Inches	**No. Acres:**	88

RAINFALL

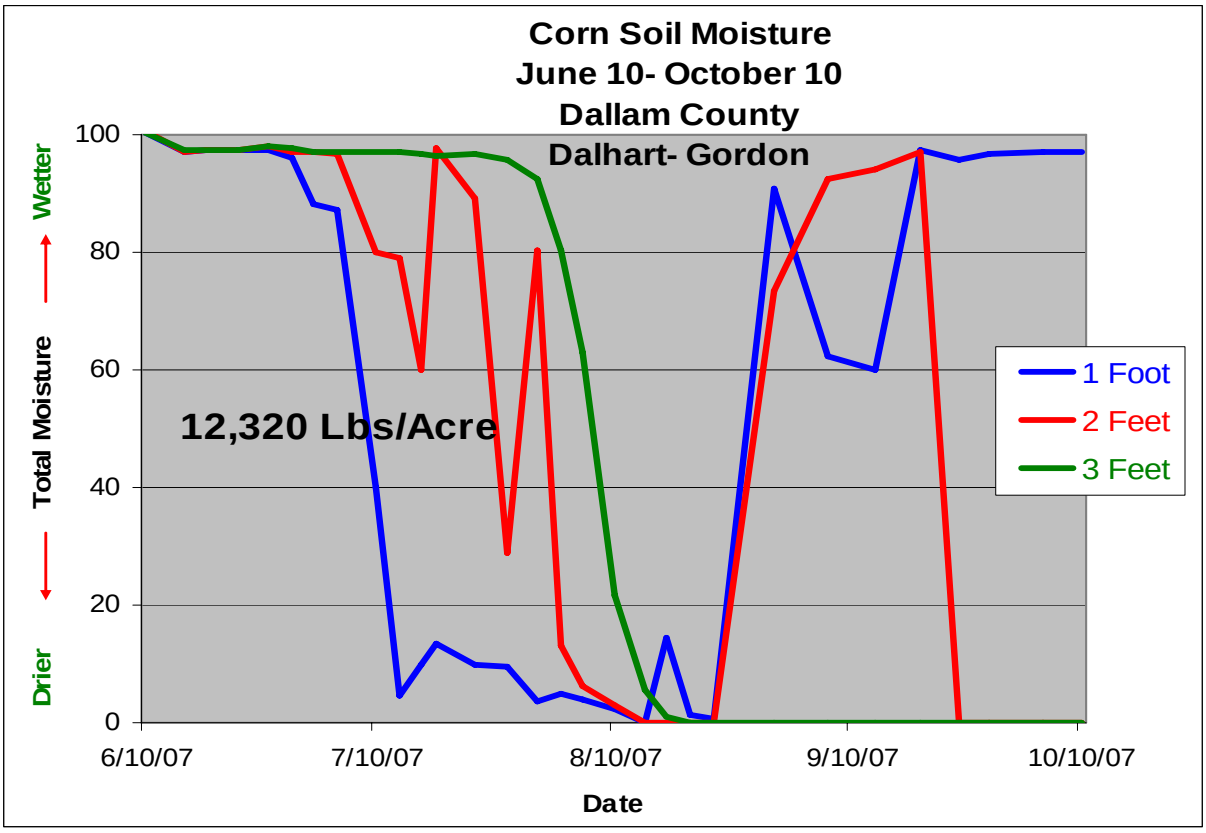
June- 0.50” July- 1.85” August- 1.10” September- 0.75” October: 0.40” Total: 4.60”

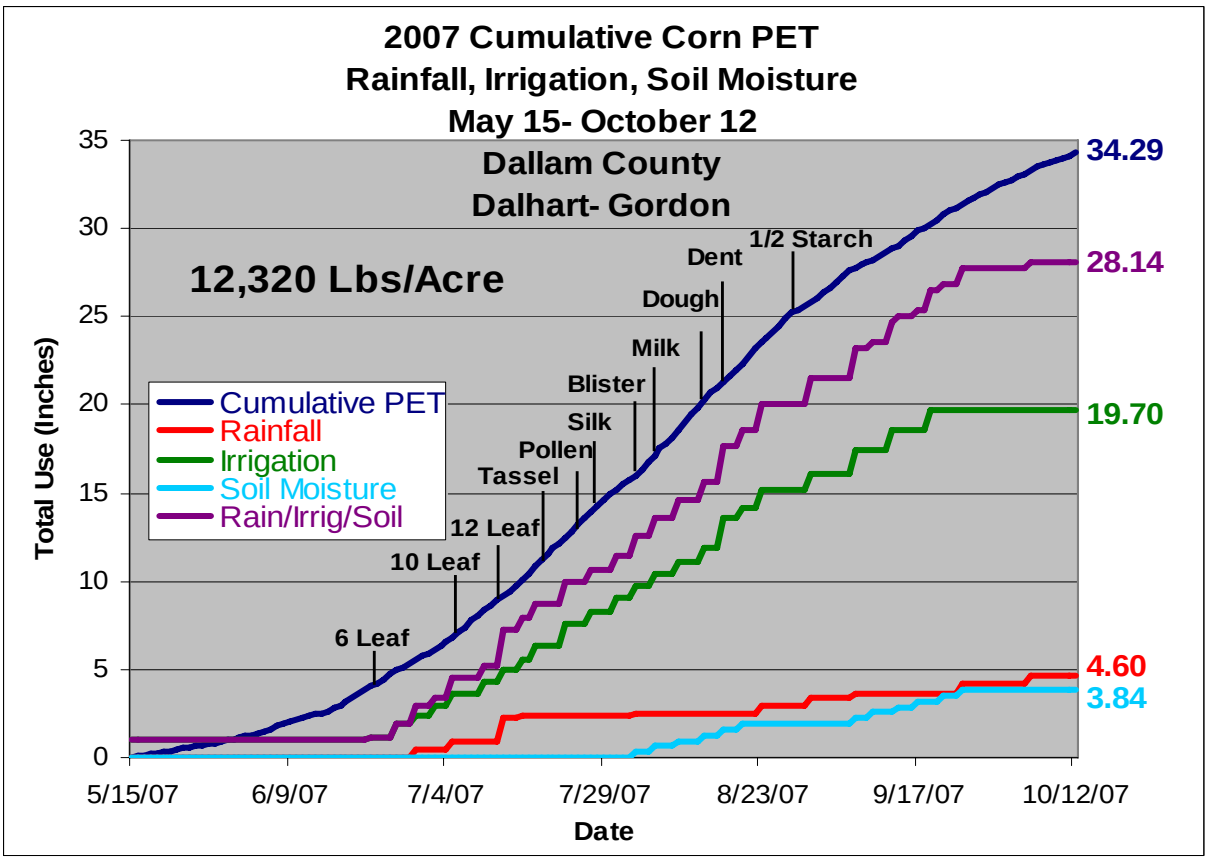
MATERIALS AND METHODS: Eighty-eight acres irrigated by a center pivot nozzled at 375 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
19	**19.70**	**82***	**12,320**	**625.38**	**$862.40**	**$43.77**

***Includes 3.84 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in June and remained good until mid July when crop water use was high at silk and pollination growth stages. The graph on the following page illustrates the crop’s high demand for water during July. Irrigation capacity was approximately 4.0 GPM per acre. Production was 625 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 28.14 inches. Production was 625 pounds per inch measured. Irrigation, rainfall, and net soil water was 82 percent of that reported by the North Plains PET Network for fully irrigated corn. Good corn production with limited water.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
HARTLEY COUNTY - 2007
BILL COLE AND NICK SIMPSON

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	April 30	**Fertilizer:**	250-50-0
Variety:	33B54	**Insecticide:**	Intrepid
Seeding Rate:	30,000	**Herbicide:**	Atrazine & 2-4 D
Soil Type:	Sunray Clay Loam	**Harvested:**	October 3
Row Width:	30 Inches	**No. Acres:**	252

RAINFALL

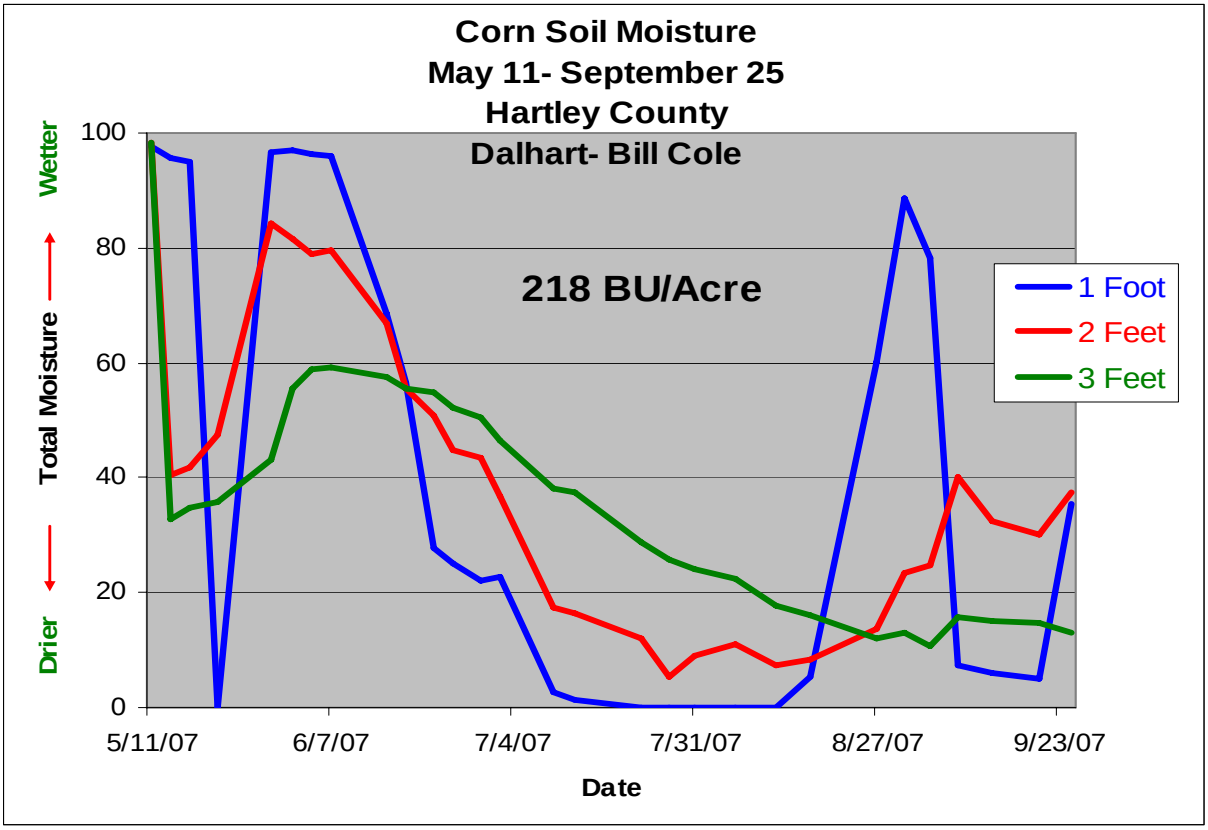
May- 1.15”__ June- 2.20”__ July- 1.35”_ August- 2.95”__ September- 1.00”_ Total: 8.65”

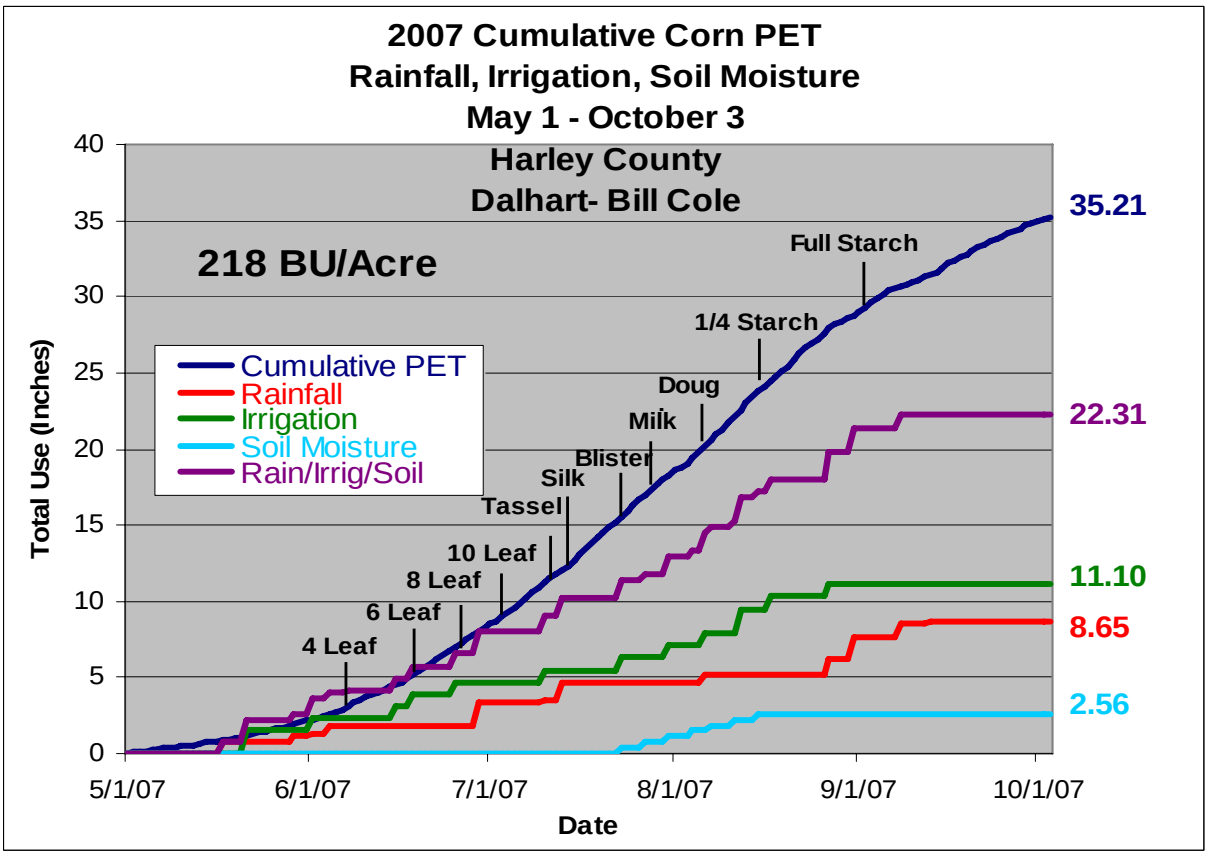
MATERIALS AND METHODS: Two hundred and fifty-two acres irrigated by center pivot nozzled at 1100 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
12	**11.10**	**63***	**12,208**	**1099.82**	**$854.56**	**$76.99**

***Includes 2.56 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was temporarily good at 1, 2 and 3 feet in early May. The crop used soil water from all depths by late July, plus rainfall and irrigation. Good corn production from limited water. Production was 1100 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 22.31 inches. Production was 547 pounds per inch measured. Irrigation, rainfall, and net soil water was 63 percent of that reported by the North Plains PET Network for fully irrigated corn. Apparently, rainfall and irrigation were very timely, producing a good yield with less than normal water.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
GRAY COUNTY - 2007
JOHN R. SPEARMAN, BRANDON McGINTY, AND CHARLEY RUSS

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	May 14	**Fertilizer:**	160-0-0
Variety:	Pioneer 32 B 29 R R	**Insecticide:**	2 Pts. Lorsban/Acre
Seeding Rate:	31,000/Acre	**Herbicide:**	1 lb Atrazine/Acre
Soil Type:	Pullman Clay Loam	**Harvested:**	September 26
Row Width:	30 Inches	**No. Acres:**	60

RAINFALL

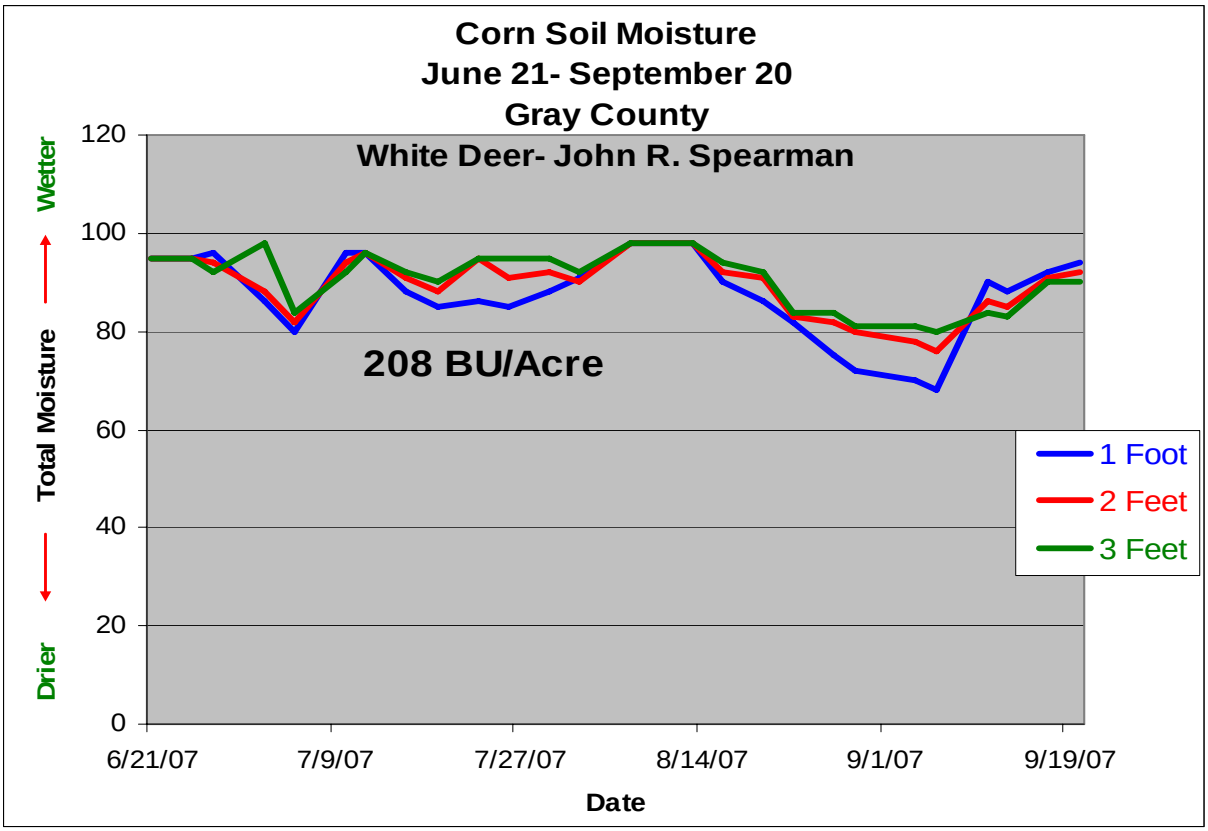
June- 0.3"_____ July- 1.40"___ August- 1.10"_____ September- 2.50"____ Total: 5.30"

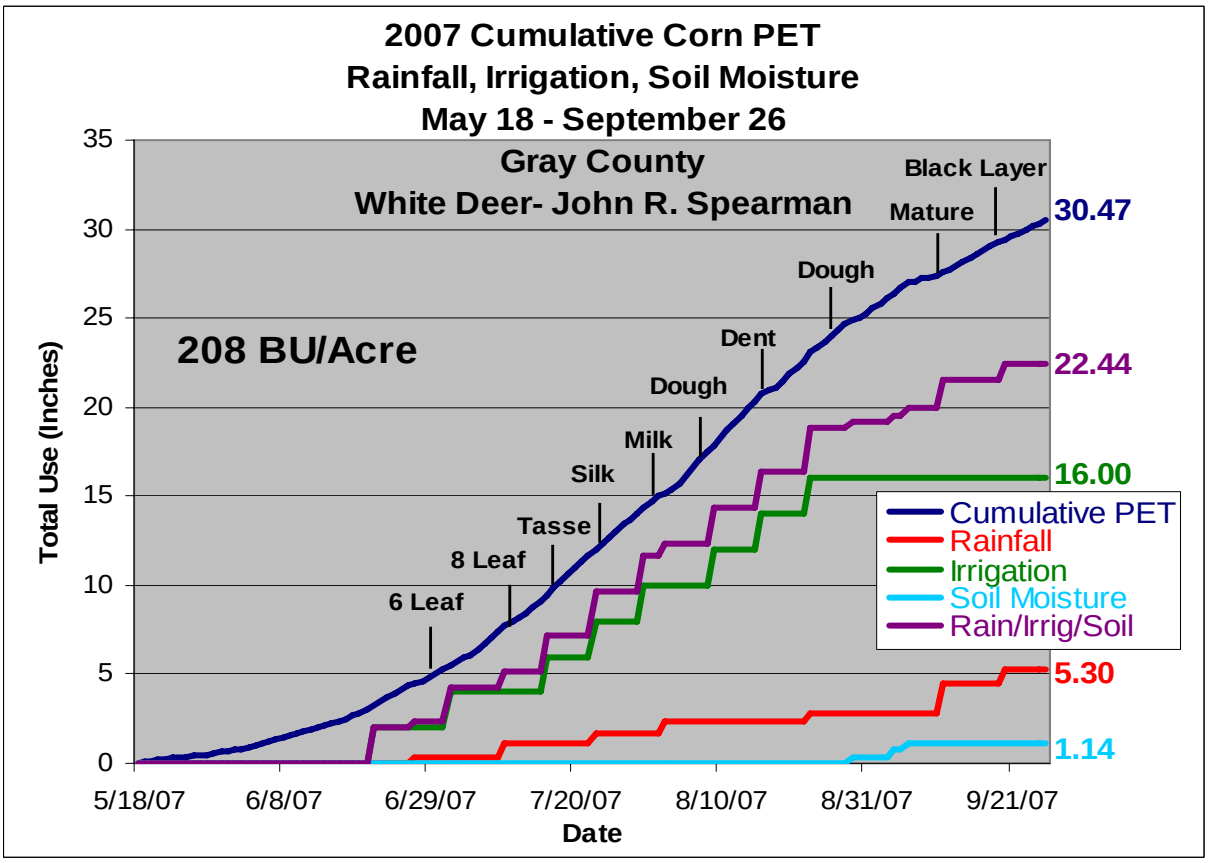
MATERIALS AND METHODS: Sixty acres irrigated by center pivot nozzled at 800 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
16	**16.00**	**74***	**11,648**	**728**	**$815.36**	**$50.96**

***Includes 1.14 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Weekly and seasonal soil water readings show the crop had sufficient water at 1, 2 and 3 feet throughout the growing season. However, corn yield was down slightly for the levels measured. Rainfall was less in this area than most in '07. A good yield for the water measured. Production was 728 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 22.44 inches. Production was 519 pounds per inch measured. Irrigation, rainfall, and net soil water was 74 percent of that reported by the North Plains PET Network for fully irrigated corn.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED CORN PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
DANNIE MORRIS, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on corn production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine corn production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated corn to help growers predict yields.

SUMMARY:

Planted:	April 4	**Fertilizer:**	Anhydrous ammonia & amino hydrate
Variety:	NC+	**Insecticide:**	None
Seeding Rate:	32,000	**Herbicide:**	RU atrozine Bicep
Soil Type:	Springer Loamy Fine Sand	**Harvested:**	September 3-4
Row Width:	36 Inches	**No. Acres:**	104

RAINFALL

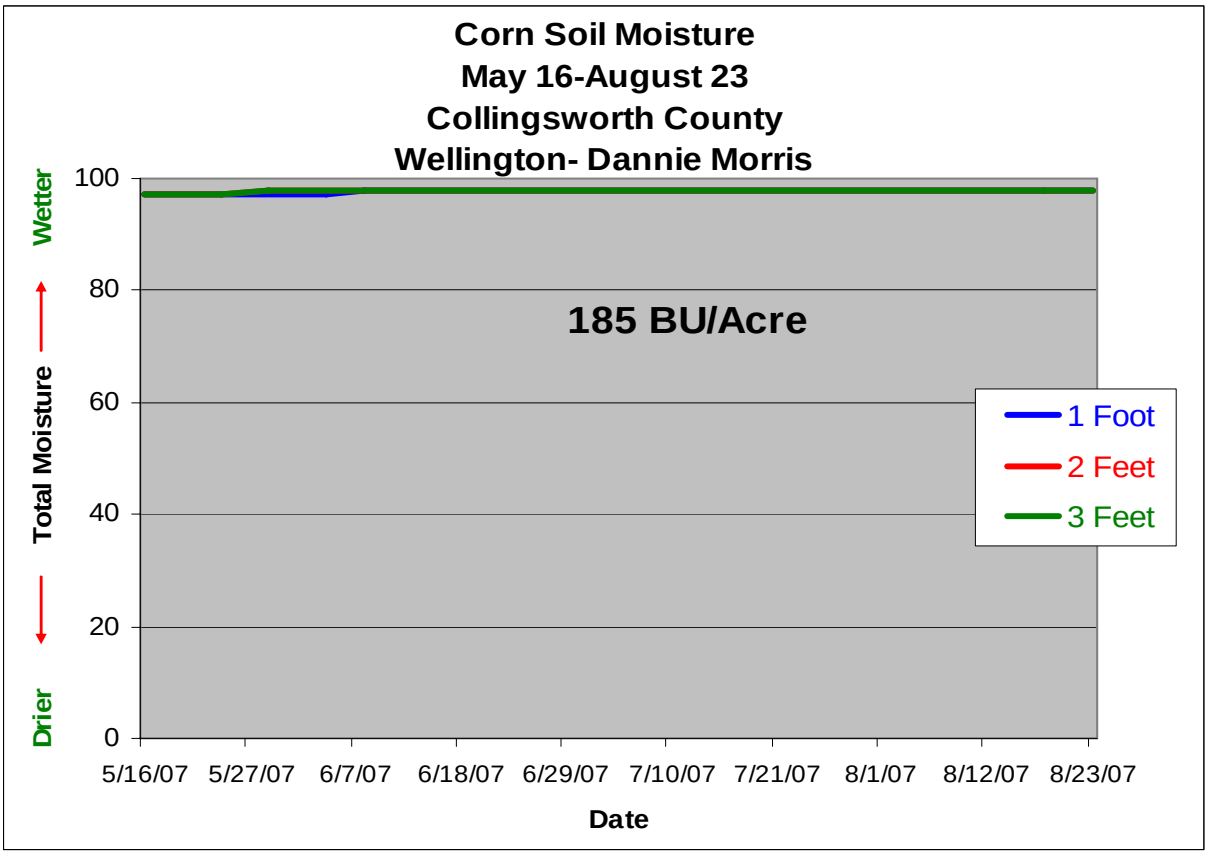
April- 1.15" May- 3.00" June- 2.15" July- 2.10" August- 2.00 Total: 10.40"

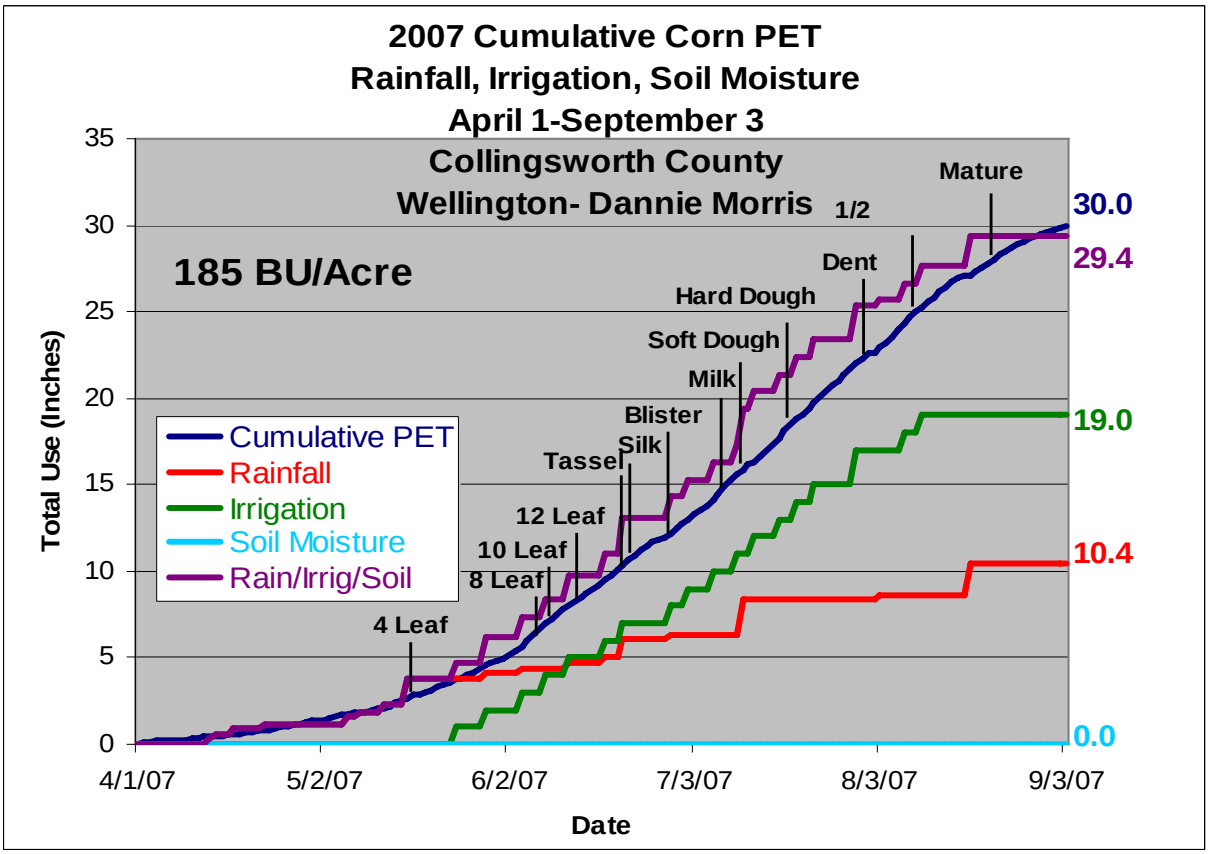
MATERIALS AND METHODS: One hundred and four acres irrigated by center pivot nozzled at 700 gpm were planted to corn. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated corn are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $7.00/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
19	**19.00**	**98***	**10,360**	**545.26**	**$725.20**	**$38.17**

***Includes 0.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Seasonal irrigation, rainfall and soil water was a close pattern to that reported by the North Plains PET Network Wellington weather station. Irrigation and rainfall produced a 185 bushel yield, where attempts to grow corn failed. Production was 545 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 29.40 inches. Production was 352 pounds per inch measured. Irrigation, rainfall, and net soil water was 98 percent of that reported by the North Plains PET Network for fully irrigated corn.





Cotton Irrigation And Production 2007

Cooperating Growers	*County*
Derrel Johnson	**Briscoe**
Geno Abbe	**Carson**
Kerry Cartright	**Sherman**
Tony Cox	**Collingsworth**
Dale Kleuskens	**Deaf Smith**
John R. Spearman	**Gray**
Pat & Rod White	**Collingsworth**
Keith Watson	**Moore**
Charles Schlabs	**Deaf Smith**

AgriPartners Cotton Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer-Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Nine cotton irrigation and production demonstrations were completed in 2007 in seven counties by nineteen growers. No demonstrations utilized furrow system. Nine used center pivot irrigation systems. None were dryland. The cotton demonstrations were on 986 acres.

Cotton production ranged from 2153 to 670 pounds of lint per acre. Average yield was 1522 pounds per acre. Yields are by stripper harvest. 2007 is the first year average yield was three bales per acre.

Irrigation amounts ranged from 10.0 to 1.5 inches per acre and averaged 6.47 inches. Average irrigation using center pivot was 6.47 inches. Average furrow irrigation was 0 inches. Irrigation using subsurface drip was 0 inches. Two of the nine growers pre-watered. Pre-water ranged from 1.0 to 2.0 inches and averaged 1.0.

Cotton production from each inch of irrigation water applied ranged from 467 to 164 pounds per acre and averaged 235 pounds. Average production with center pivot irrigation was 235 pounds per inch. It was 0 pounds per inch using subsurface drip irrigation. Furrow averaged 0 pounds per inch.

Rainfall, irrigation, and additional water stored in the top three feet of soil ranged from 27.70 to 14.09 inches and averaged 20.30 inches. Cotton production from 20.30 inches of water measured averaged 1522 pounds per acre and 75 pounds per inch.

Total irrigation, rainfall, and additional soil water measured ranged from 125 to 55 percent of that reported by the North Plains PET Network for fully irrigated cotton production. From an average of 83 percent of North Plains weather station PET, cotton production averaged 1522 pounds per acre.

The value of irrigation water in producing cotton priced at $0.64 per pound ranged from $299.07 to $105.34 and averaged $150.46 from each inch applied. These irrigation water values per inch include production from rainfall and additional water used from the soil as well as irrigation system efficiency and management of resources. A five year running average of cotton production per inch of water has helped growers improve water management.

A tabulated summary of 2007 cotton irrigation and production is listed in Table 1. Additional data and information concerning each demonstration are listed in each grower report.

One hundred seventeen cotton irrigation and dryland production demonstrations were conducted in ’98, ’99, ’00, ’01, ’02, ’03, ’04, ’05, ’06 and ’07. One hundred fifteen utilized center pivot, three subsurface drip, two side roll sprinkler, and four row water systems. Two were dryland. Irrigation averaged 10.60 inches. Cotton production averaged 1105 pounds per acre and 125 pounds from each inch applied. Rainfall, irrigation, and soil water averaged 23.62 inches and production 46 pounds per acre from each inch measured. Rainfall, irrigation, and soil water averaged 91 percent of that reported by the North Plains PET Network for fully irrigated cotton. The ’98, ’99, ’00, ’01, ’02, ’03, ’04, ’05, ’06 and ‘07 summary is included in Table 1.

Thanks to area cotton growers who provided facilities, personal time, operating data, and other information.

Table 1. Cotton Irrigation and Production, 2007

		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$0.64/LB-$	
						LBS/ACRE/IN		ACRE INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	LBS/AC	IRRIGATION	RAIN/IRRI/SOIL	IRRIGATION	RAIN/IRRI/SOIL
Briscoe	Derrel Johnson-CP	9.20	21.09	84	2153	234.02	102.09	149.77	65.34
Carson	Geno Abbe-CP	4.28	17.53	59	2000	467.29	114.09	299.07	73.02
Sherman	Kerry Cartright-CP	10.00	27.70	125	1923	192.30	69.42	123.07	44.43
Collingsworth	Tony Cox-CP	7.91	17.96	77	1590	201.01	88.53	128.65	56.66
Deaf Smith	Dale Kleuskens-CP	5.75	22.00	86	1573	273.57	71.50	175.08	45.76
Gray	John R. Spearman-CP	6.00	21.55	89	1488	248.00	69.05	158.72	44.19
Collingsworth	Pat & Rod White-CP	8.02	21.77	87	1320	164.59	60.63	105.34	38.81
Moore	Keith Watson-CP	5.60	19.02	86	980	175.00	51.52	112.00	32.97
Deaf Smith	Charles Schlabs-CP	1.50	14.09	55	670	446.67	47.55	285.87	30.43
AVERAGE 2007	9	6.47	20.30	83	1522	235.10	74.97	150.46	47.98
AVG '98'99'00'01'02'03'04'05'06'07	117	-	23.39	90	1095	-	46.82	-	29.96
AVG IRRIGATION	115	10.60	23.62	91	1105	125.50	46.79	80.32	29.95
AVG CENTER PIVOT	106	10.74	23.60	90	1129	126.18	47.57	80.76	30.44
AVG ROW WATER	4	8.28	21.27	85	746	90.49	36.10	57.91	23.10
AVG DRYLAND	2	-	10.51	39	513	-	48.69	-	31.16
AVG SF DRIP	3	10.80	26.89	106	1324	167.80	50.69	107.39	32.44
AVG SIDE ROLL	2	7.63	24.65	113	254	35.48	10.57	22.71	6.76

CP= CENTER PIVOT, RW= ROW WATER, SF= SUBSURFACE DRIP

AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
BRISCOE COUNTY - 2007
DERREL JOHNSON AND SETH MANNEY

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 5	**Fertilizer:**	104-20-0
Variety:	DP445BGRR	**Insecticide:**	3 ½ lbs Timic, Carbine
Seeding Rate:	54,000	**Herbicide:**	1 qt Trifloralin; 1 lb Direx; 2 applications of Roundup @ 22oz
Soil Type:	Pullman Clay Loam	**Harvested:**	November 6-7
Row Width:	40 Inches	**No. Acres:**	120

RAINFALL

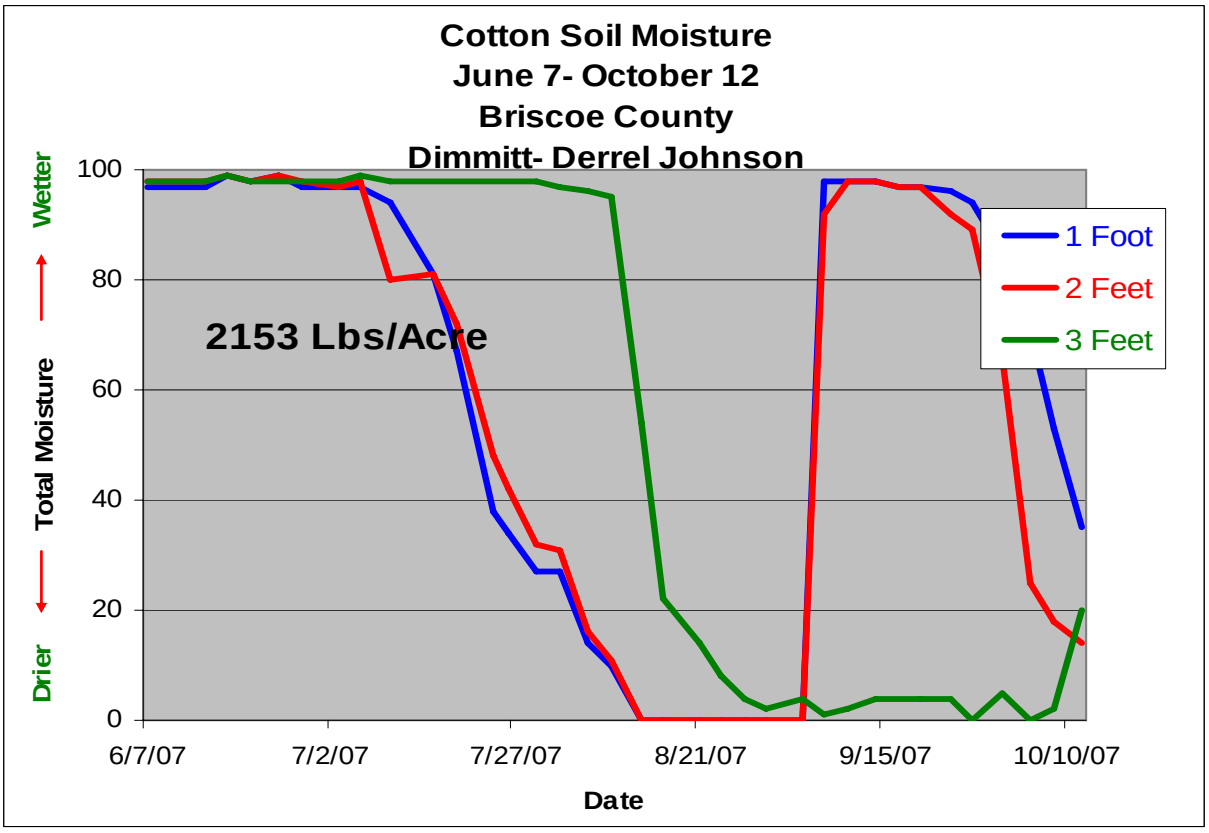
June- 1.50"_ July- 2.55"__ Aug- 0.60"__ Sept- 2.30"__ Oct: 0.30" Total: 7.25"

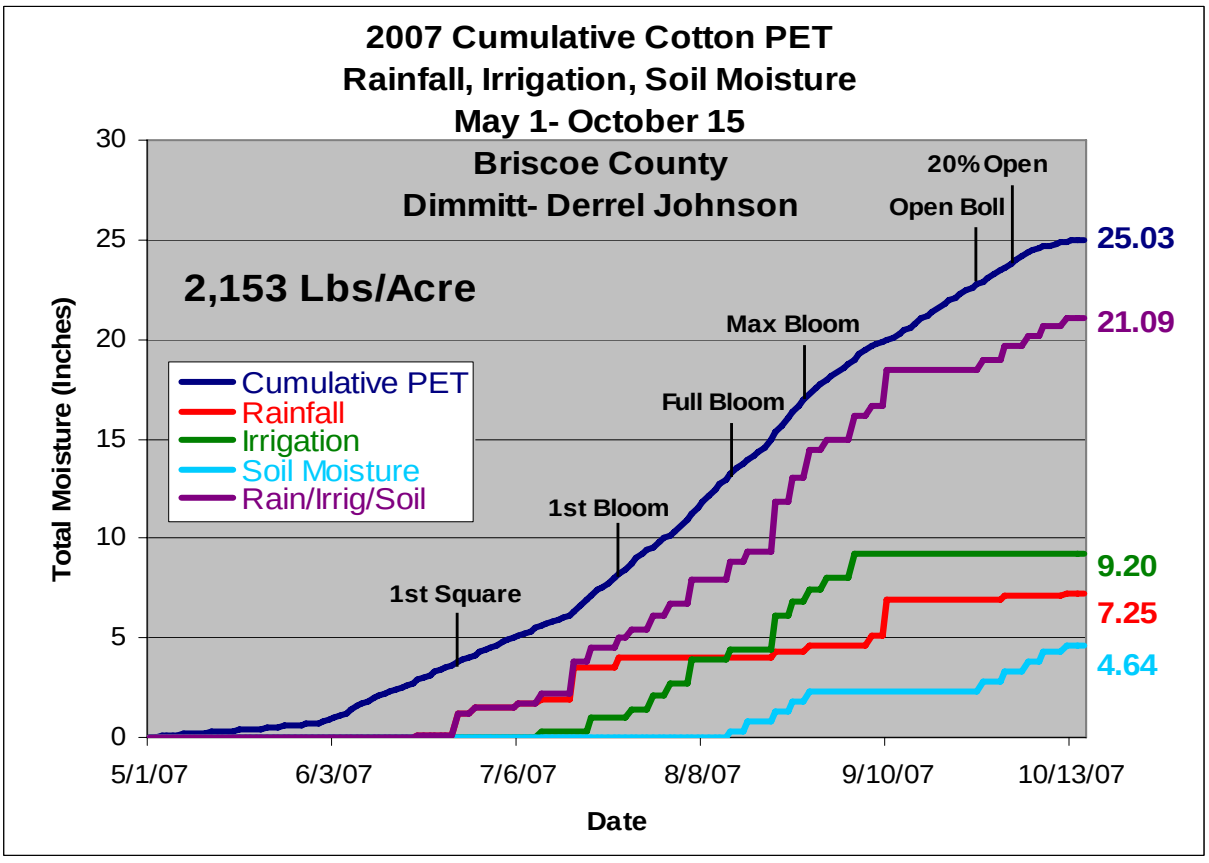
MATERIALS AND METHODS: One hundred and twenty acres irrigated by center pivot nozzled at 425 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
9	**9.20**	**84***	**2,153**	**234.02**	**$1377.92**	**$149.77**

***Includes 4.64 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in June. The crop used all soil water from 1, 2 and 3 feet plus 6. 1 inches of additional irrigation and rainfall. Soil water from 3 feet was then used in early August plus 6.50 inches of rainfall and irrigation during August. Production was 234 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 21.09 inches. Production was 102 pounds per inch measured. Irrigation, rainfall, and net soil water was 84 percent of that reported by the North Plains PET Network for fully irrigated cotton. Superior water management and cotton production.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
CARSON COUNTY - 2007

GENO ABBE AND JODY BRADFORD

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 14	**Fertilizer:**	45-35-10-2S
Variety:	Fibermax 9058	**Insecticide:**	Cruiser
Seeding Rate:	65,000 per acre	**Herbicide:**	Diurex, Dual
Soil Type:	Pullman Clay Loam	**Harvested:**	November 19
Row Width:	30 Inches	**No. Acres:**	65

RAINFALL

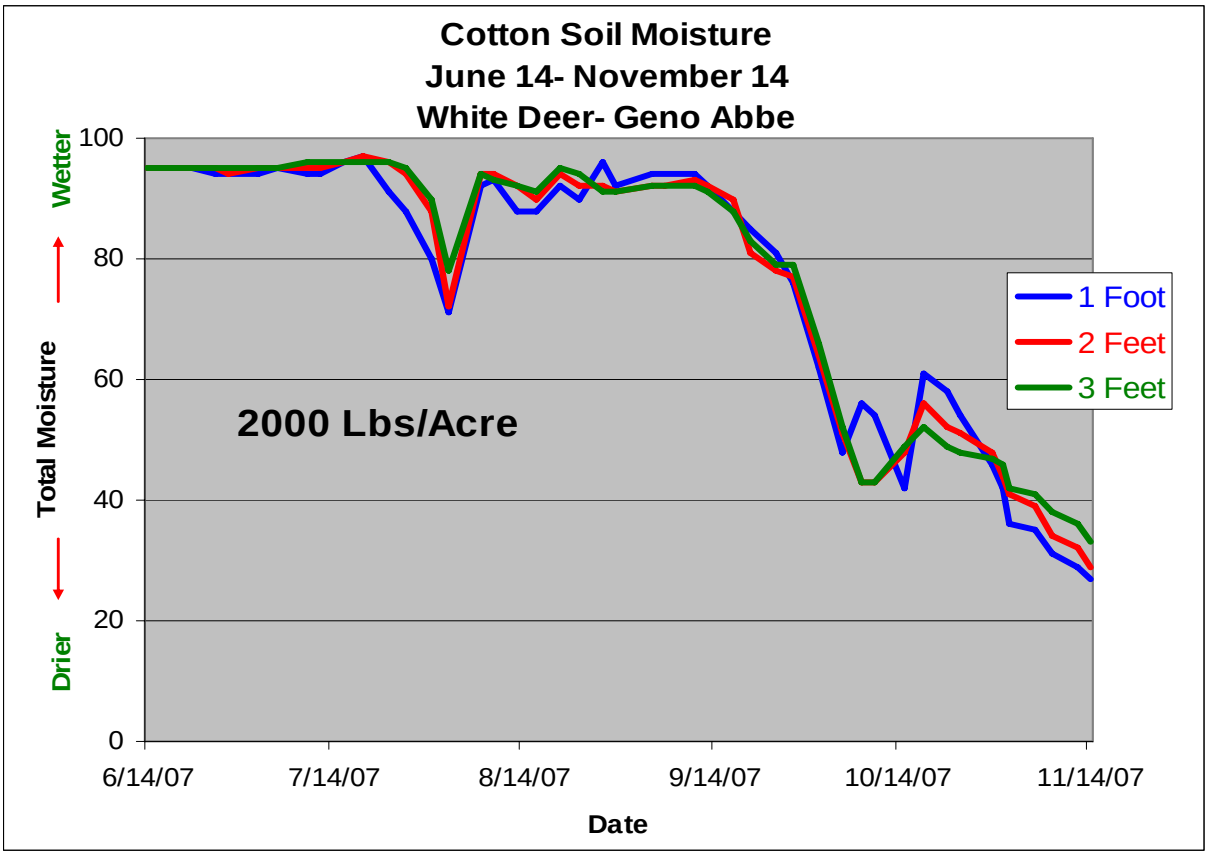
May- 0.15" June- 2.70" July- 1.80" Aug- 1.3" Sept- 2.55" Oct- 1.20" Total: 9.70"

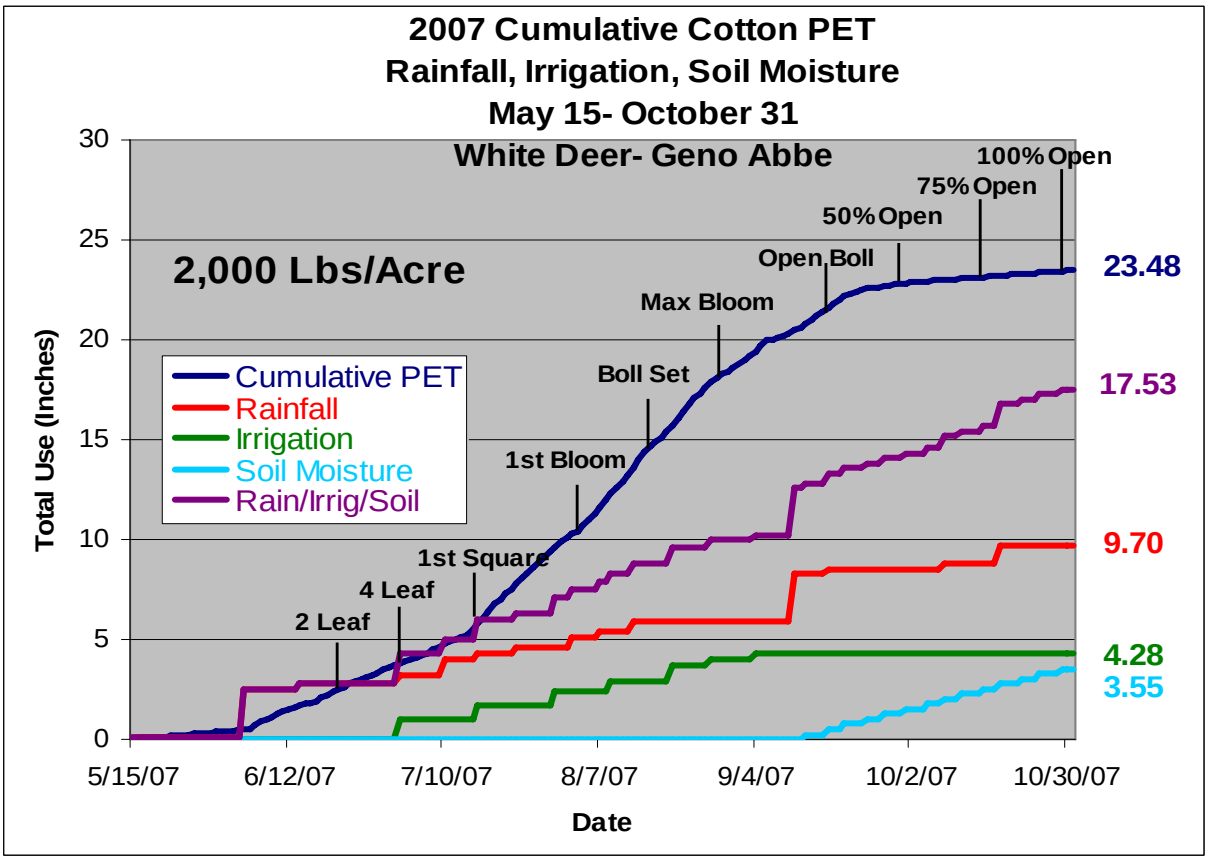
MATERIALS AND METHODS: Sixty-five acres irrigated by a center pivot nozzled at 900 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
6	**4.28**	**59***	**2,000**	**467.29**	**$1280.00**	**$299.07**

***Includes 3.55 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Superior water management that produced four bale per acre cotton. Soil water was good at 1, 2 and 3 feet in early June. It was maintained at all soil profile levels by timely rainfall and limited irrigation. The graph on the following page shows the crop had sufficient water. Production was 467 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 17.53 inches. Production was 114 pounds per inch measured. Irrigation, rainfall, and net soil water was 59 percent of that reported by the North Plains PET Network for fully irrigated cotton.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
SHERMAN COUNTY - 2007
KERRY CARTRIGHT, DAVID GRAF, AND DENNIS BEILUE

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 15	**Fertilizer:**	66-0-0-2mg
Variety:	AFD 50641	**Insecticide:**	None
Seeding Rate:	80,000 plt-70,000 stand	**Herbicide:**	Roundup, Prowl + PIX
Soil Type:	ShA-Sherm Silty Clay Loam	**Harvested:**	November 10
Row Width:	30 Inches	**No. Acres:**	240

RAINFALL

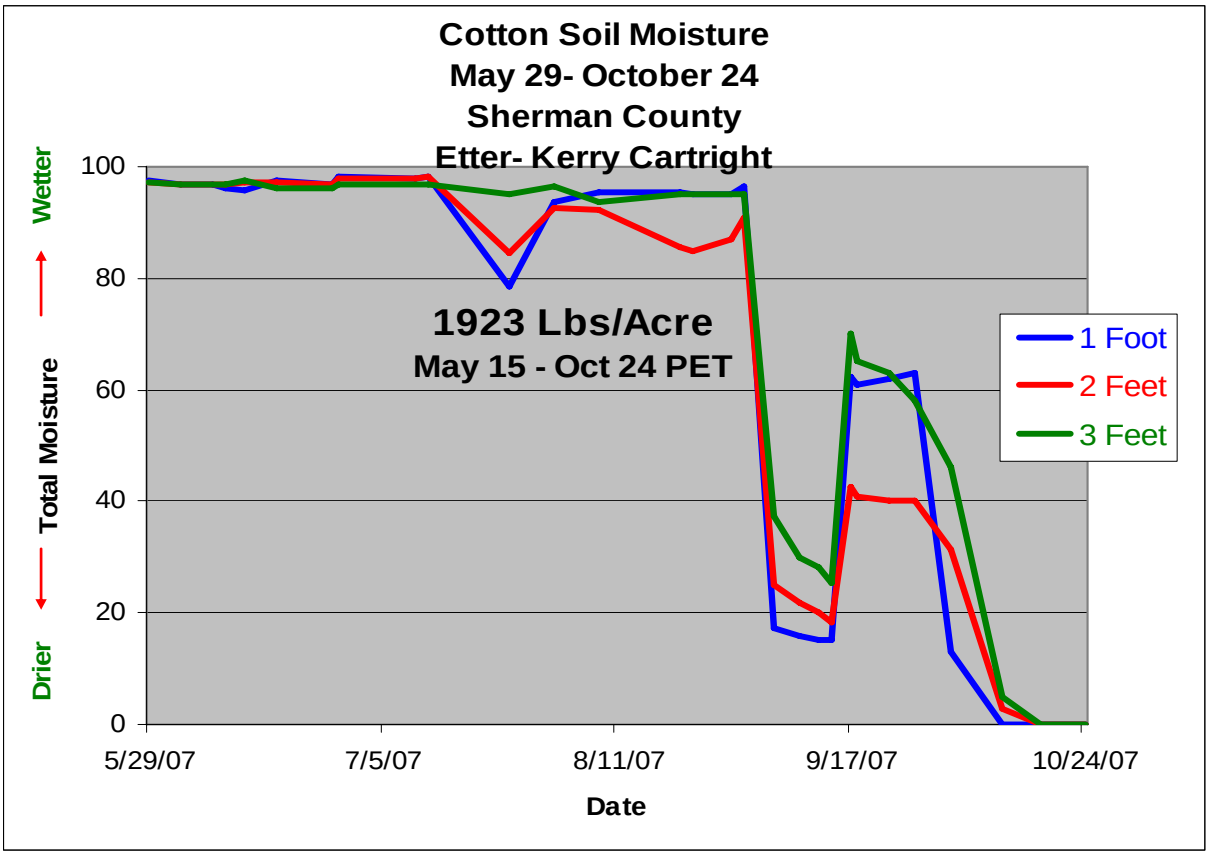
May- 0.30”___ June- 2.00”_ July- 1.00”___ Aug- 2.80”__ Sept- 5.60”____ Total: 11.70”

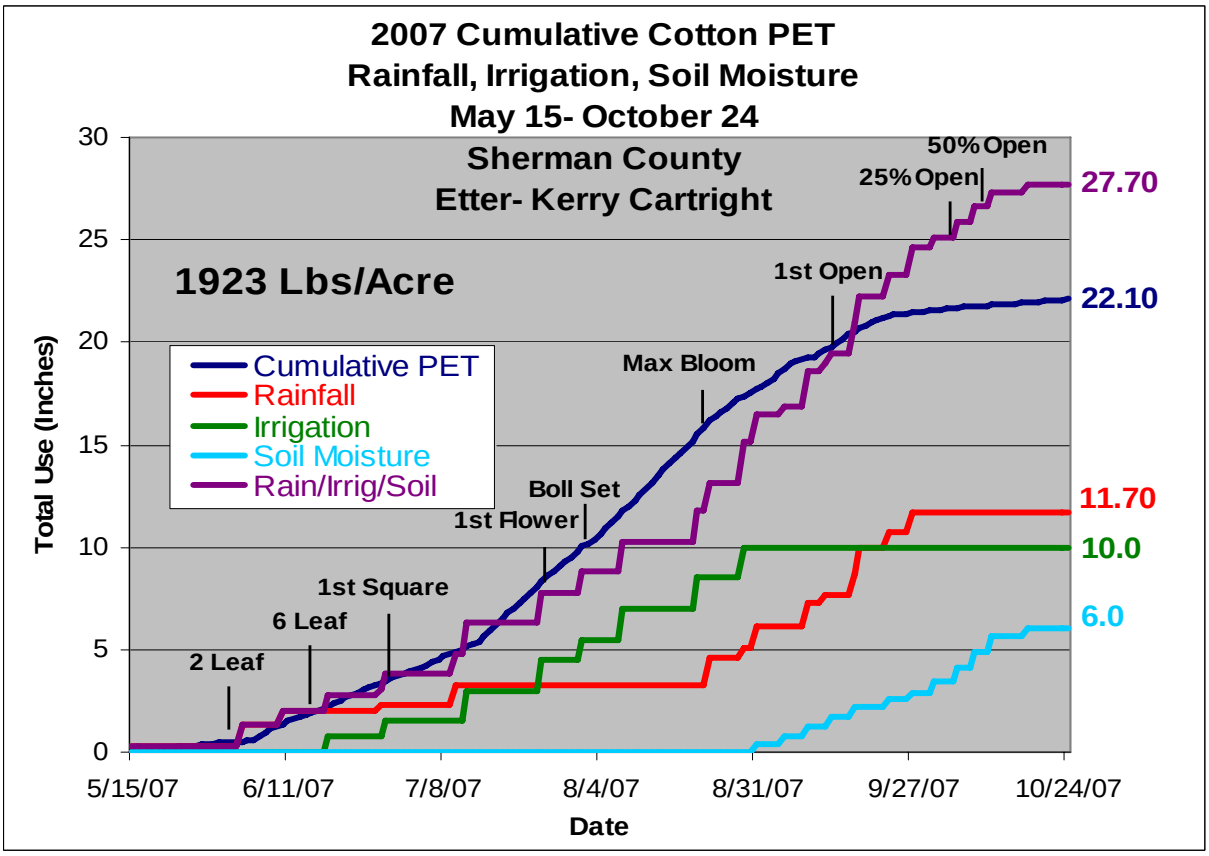
MATERIALS AND METHODS: Two hundred and forty acres irrigated by center pivot nozzled at 3000 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
13	**10.00**	**125***	**1,923**	**192.30**	**$1230.72**	**$123.07**

***Includes 6.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Good soil water at 1, 2 and 3 feet in early June. It was fully maintained throughout the growing season. Soil water, irrigation, and rainfall tracked cotton water use reported by the North Plains PET Network Etter weather station May through August. September rainfall that totaled 5.60 pushed it beyond that cotton needed. Production was 192 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 27.70 inches. Production was 69 pounds per inch measured. Irrigation, rainfall, and net soil water was 125 percent of that reported by the North Plains PET Network for fully irrigated cotton.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
TONY COX, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 25	**Fertilizer:**	76-40-0-10
Variety:	PM 960B2R	**Insecticide:**	None
Seeding Rate:	12.5 Lbs/Acre	**Herbicide:**	Prowl H2O lqt/22oz
Soil Type:	Woodward Loam	**Harvested:**	October 28
Row Width:	40 Inches	**No. Acres:**	121

RAINFALL

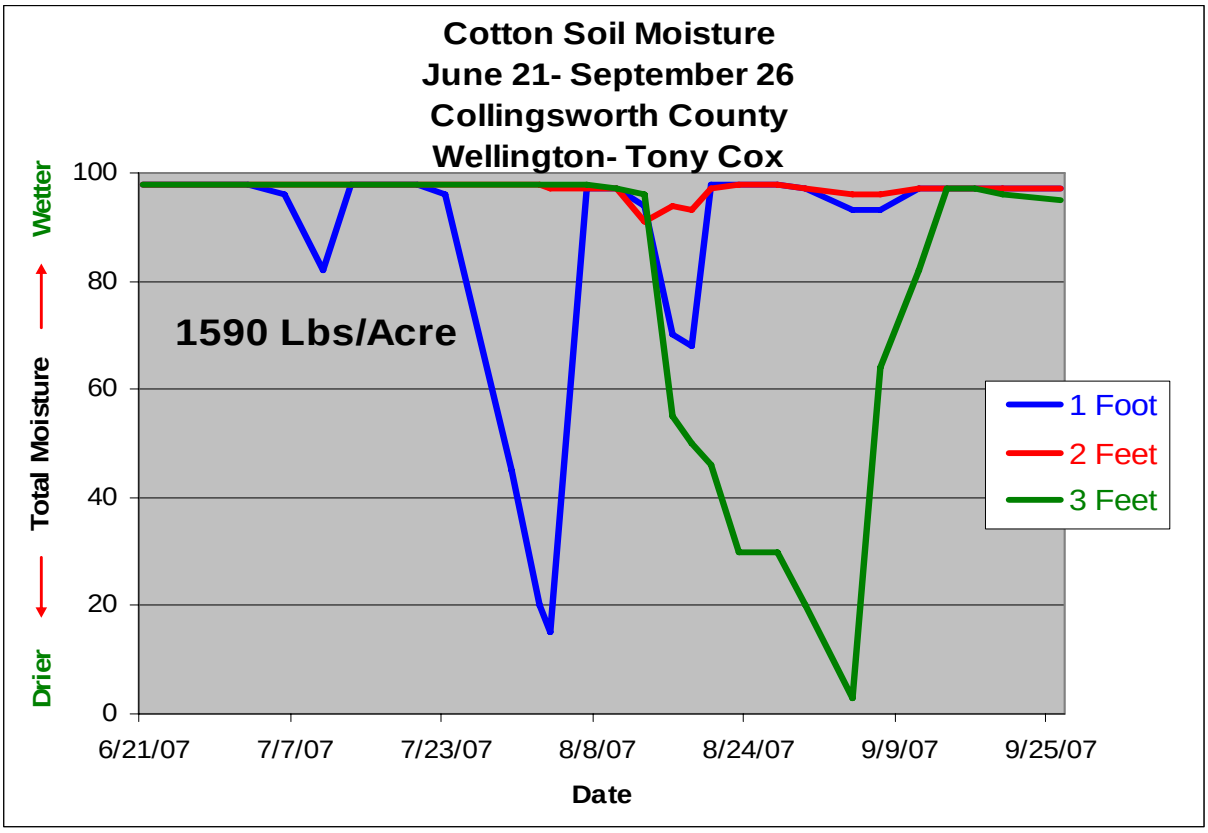
June- 1.25" July- 2.35" August- 3.20" September- 3.25" Total: 10.05"

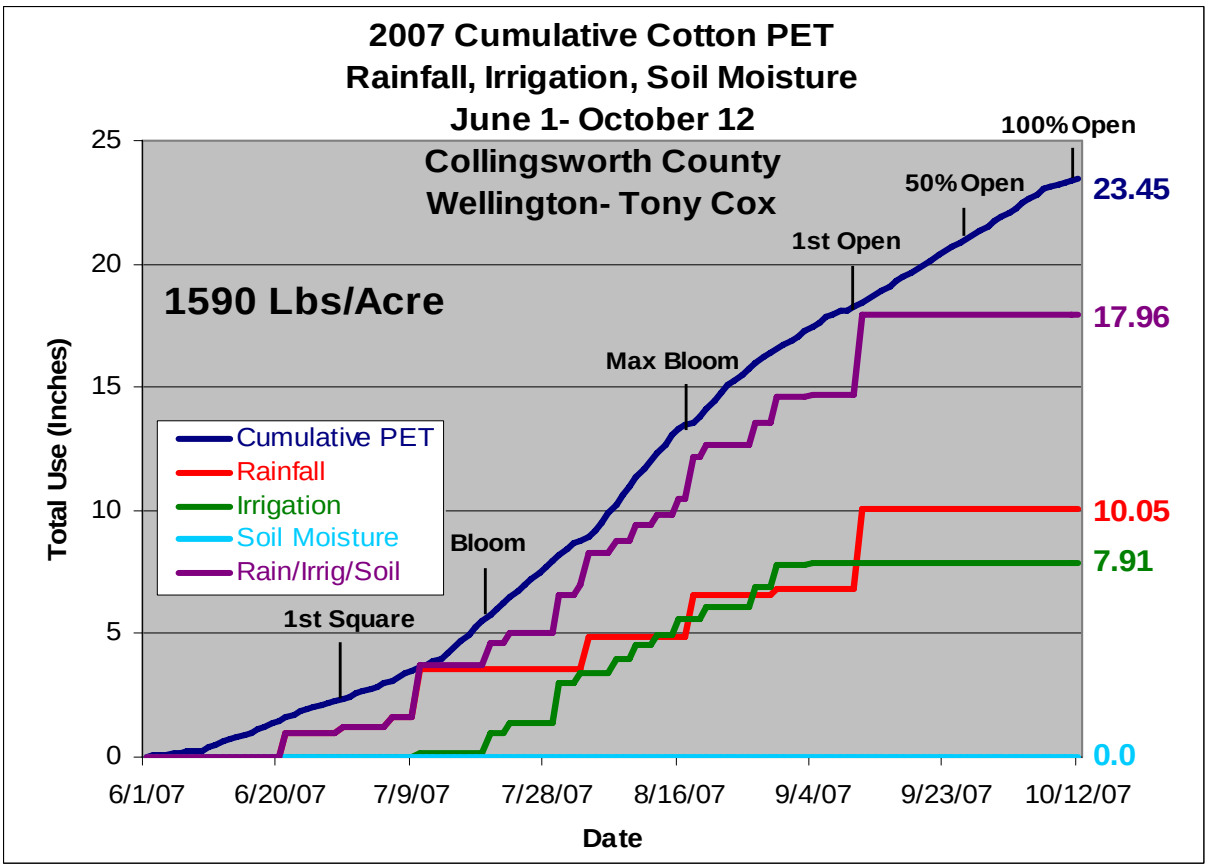
MATERIALS AND METHODS: One hundred and twenty-one acres irrigated by a center pivot nozzled at 500 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
9	**7.91**	**77***	**1,590**	**201.01**	**$1017.60**	**$128.65**

***Includes 0.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: There was sufficient soil water at 1, 2 and 3 feet throughout the growing season. August rainfall totaled 3.20 inches. It helped finish the crop, limited irrigation, and refilled the soil profile. Irrigation capacity was 4.10 GPM per acre. Production was 201 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 17.96 inches. Production was 89 pounds per inch measured. Irrigation, rainfall, and net soil water was 77 percent of that reported by the North Plains PET Network for fully irrigated cotton.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
DEAF SMITH COUNTY - 2007
DALE KLEUSKENS AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 1	**Fertilizer:**	10 Ton Manure + 100-0-0
Variety:	Fiber Max 958	**Insecticide:**	Orthene
Seeding Rate:	48,000	**Herbicide:**	Roundup, Treflan
Soil Type:	Pullman Clay Loam	**Harvested:**	October 29
Row Width:	30 Inches	**No. Acres:**	120

RAINFALL

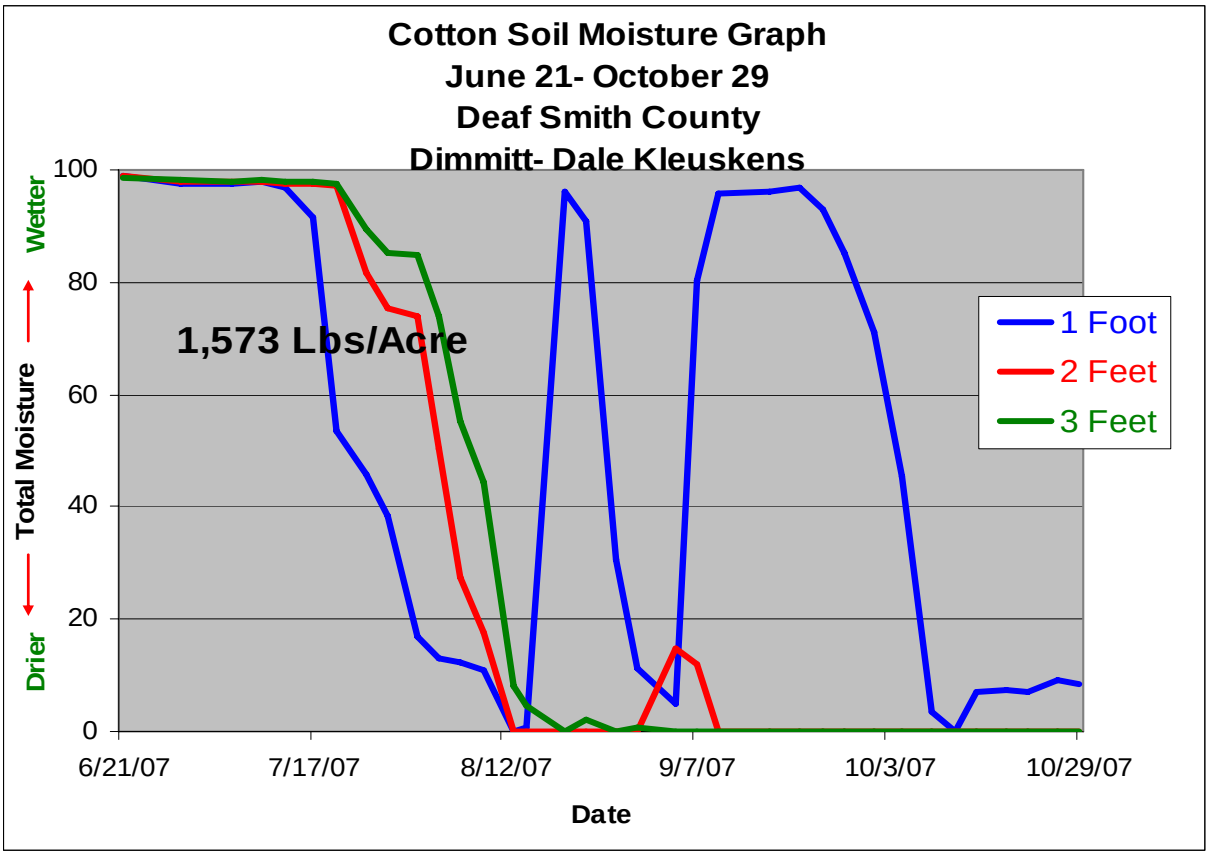
June- 1.73"___ July- 1.50"___ Aug- 2.70"___ Sept- 2.80"__ __Oct- 1.60" Total: 10.33"

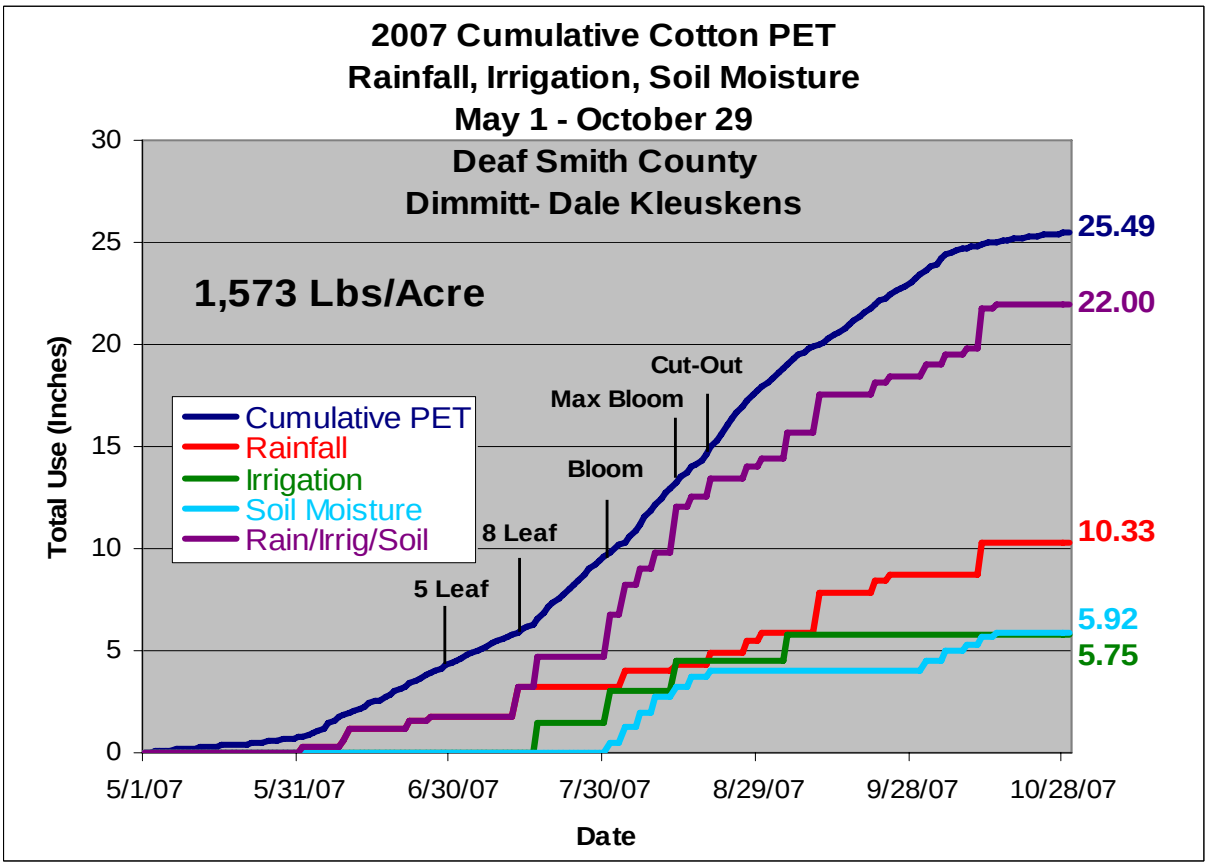
MATERIALS AND METHODS: One hundred and twenty acres irrigated by center pivot nozzled at 750 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
5	**5.75**	**86***	**1,573**	**273.57**	**$1006.72**	**$175.08**

***Includes 5.92 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: The crop used all soil water stored at 1, 2 and 3 feet by mid August, plus more than 7 inches of rainfall and irrigation. Soil water from one foot brought the crop through late August and September. Hail damage on October 20 was estimated to be 20 percent. Production was 273 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 22.00 inches. Production was 71.5 pounds per inch measured. Irrigation, rainfall, and net soil water was 86 percent of that reported by the North Plains PET Network for fully irrigated cotton.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
GRAY COUNTY - 2007

JOHN R. SPEARMAN, CHARLEY RUSS, AND BRANDON McGINTY

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 30	**Fertilizer:**	100-0-0
Variety:	Nex Gen 3550 Flex	**Insecticide:**	4 Lbs Timec
Seeding Rate:	95,000/Acre	**Herbicide:**	Diurex Roundup
Soil Type:	Pullman Clay Loam	**Harvested:**	December 1
Row Width:	Ultra Narrow Row	**No. Acres:**	60

RAINFALL

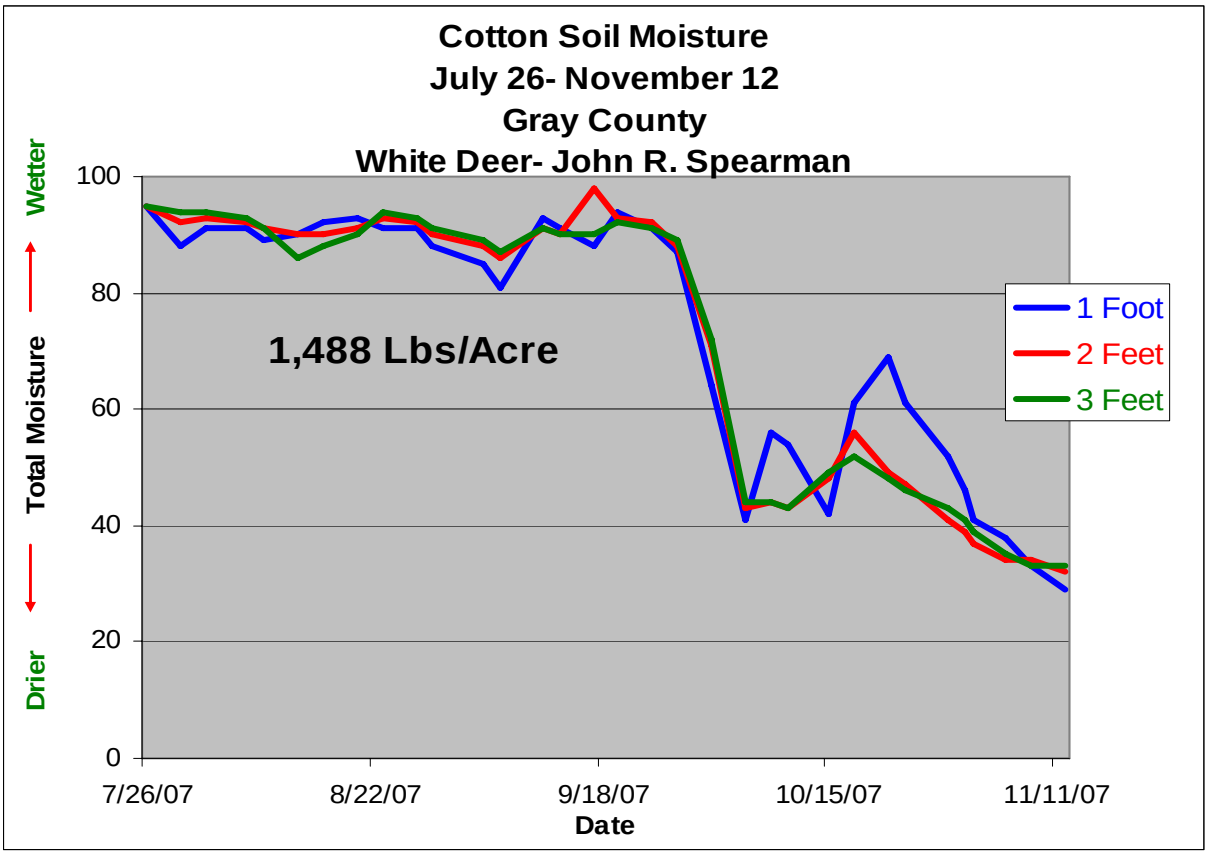
May- 3.97"_ June- 1.09"_ July- 0.50" Aug- 2.20"_ Sept- 2.50"__ Oct- 1.15" Total: 11.41"

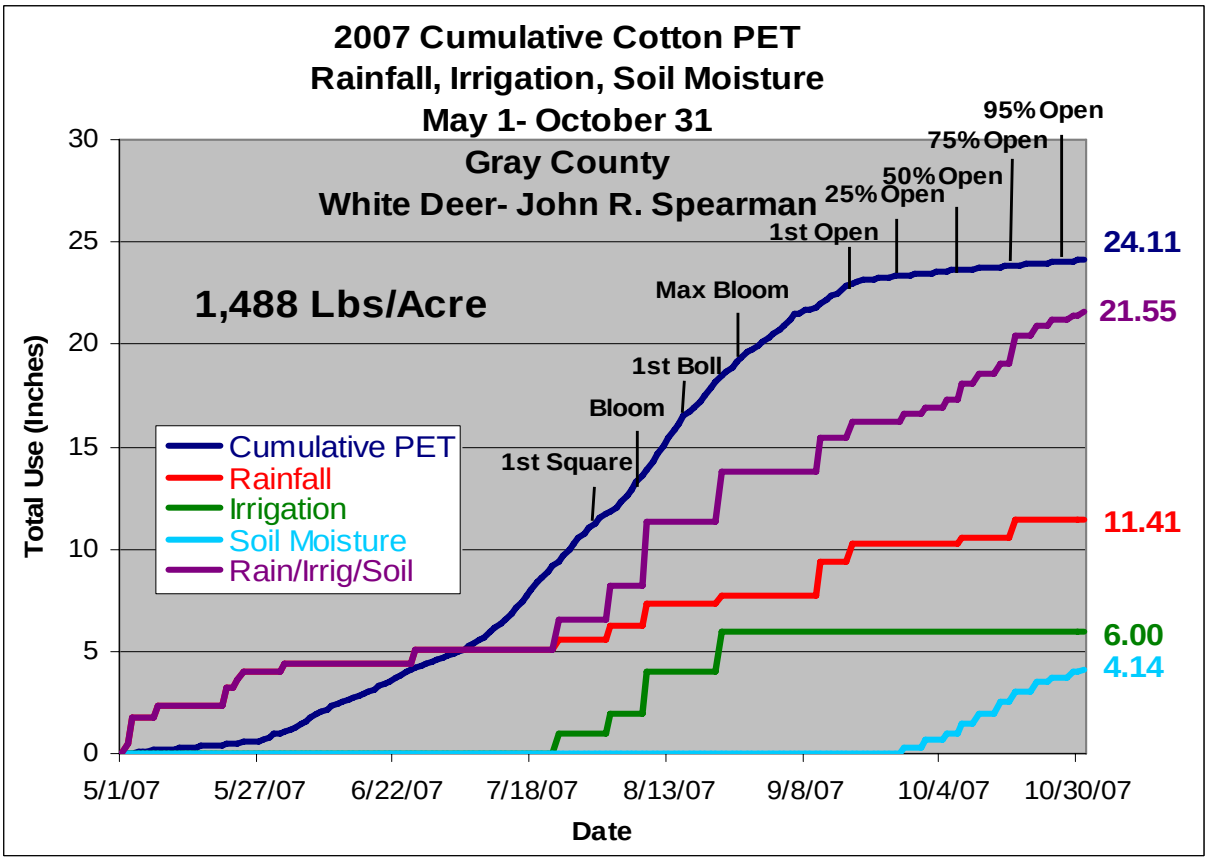
MATERIALS AND METHODS: Sixty acres irrigated by center pivot nozzled at 800 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
4	**6.00**	**89***	**1,488**	**248.00**	**$952.32**	**$158.72**

***Includes 4.14 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet throughout the growing season. Irrigation was in late July and early August when rainfall was limited. Planting was difficult in May due to wet fields from rainfall. Good cotton production and water management. Production was 248 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 21.55 inches. Production was 69 pounds per inch measured. Irrigation, rainfall, and net soil water was 89 percent of that reported by the North Plains PET Network for fully irrigated cotton.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
PAT & ROD WHITE, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 15	**Fertilizer:**	100-15-0
Variety:	ST 3892 BT	**Insecticide:**	None
Seeding Rate:	14 Lbs/Acre	**Herbicide:**	Roundup
Soil Type:	Miles Loamy Fine Sand	**Harvested:**	November 15
Row Width:	40 Inches	**No. Acres:**	60

RAINFALL

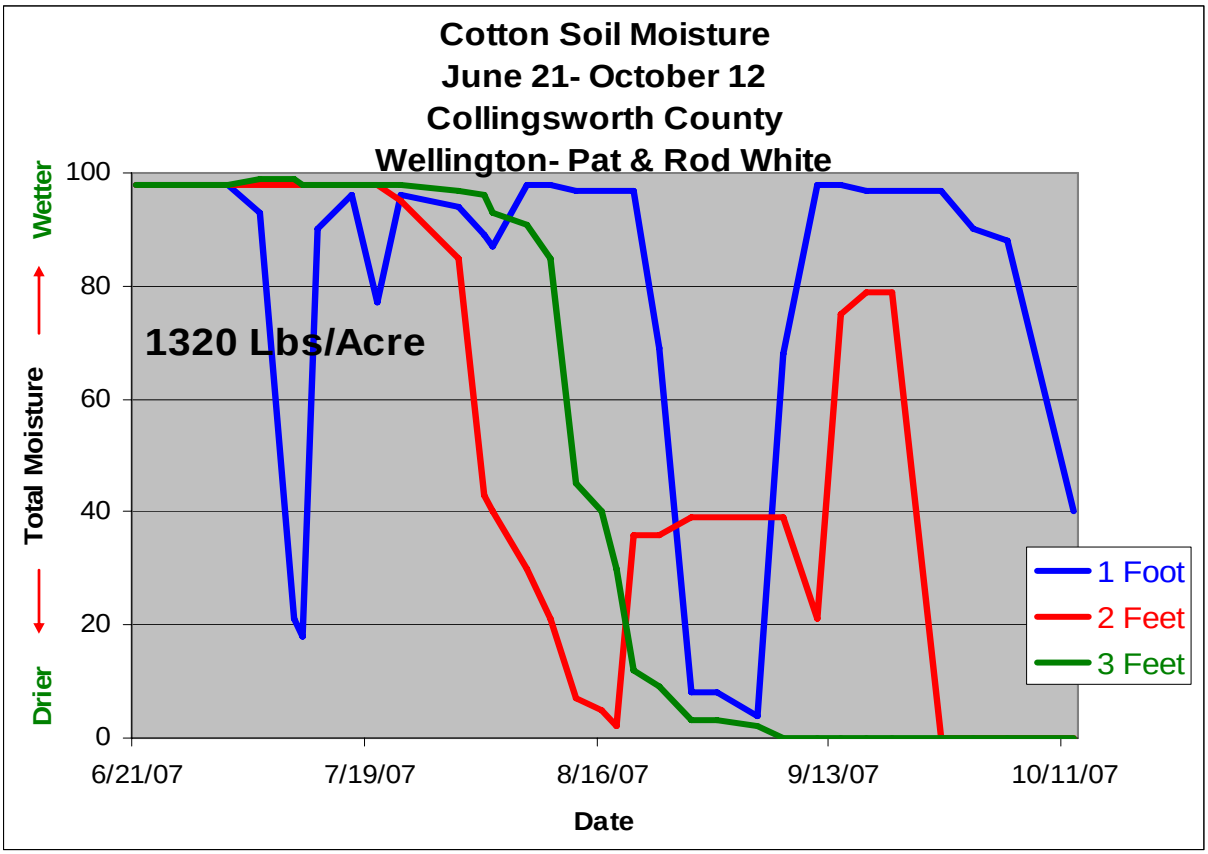
June- 2.25" July- 2.45" August- 2.10" September- 2.85" Total: 9.65"

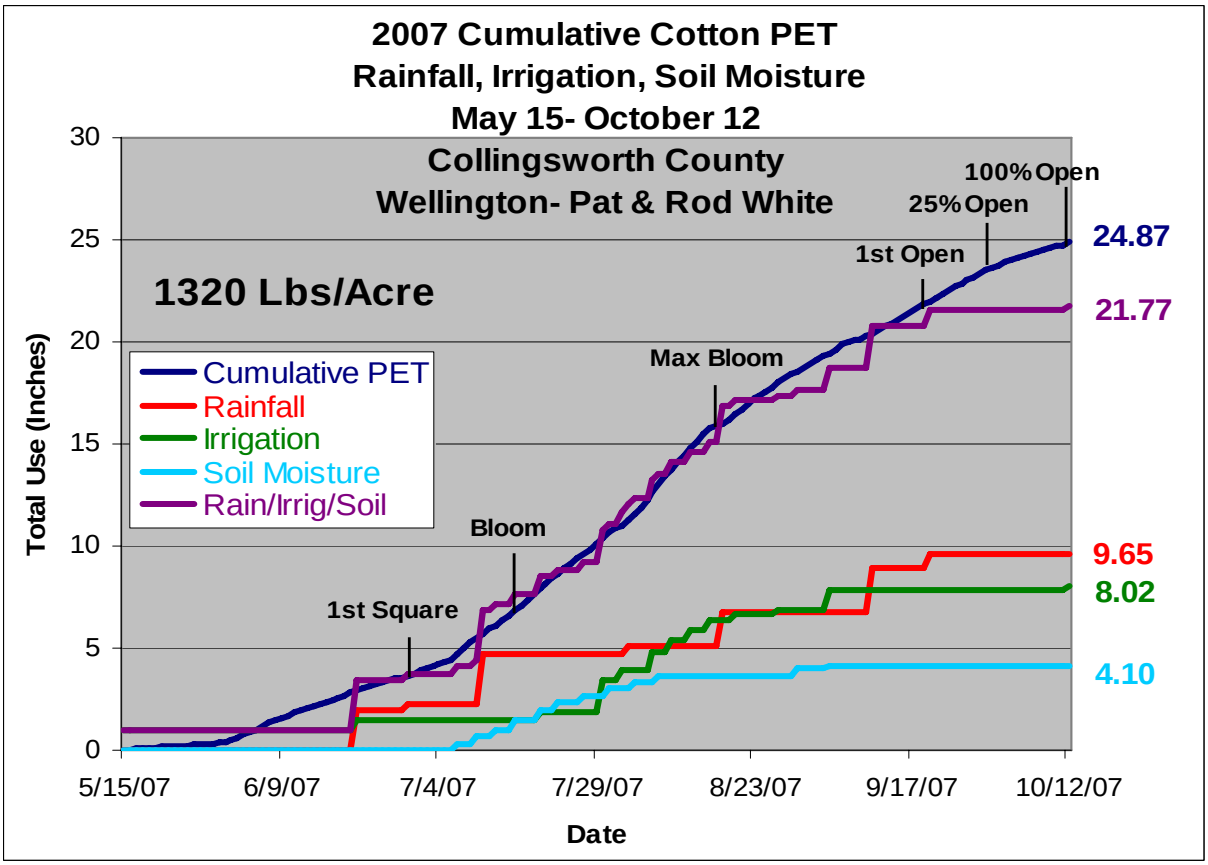
MATERIALS AND METHODS: Sixty acres irrigated by a center pivot nozzled at 600 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
9	**8.02**	**87***	**1,320**	**164.59**	**$844.80**	**$105.34**

***Includes 4.10 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Good accumulative irrigation and rainfall tracking of daily and progressive cotton water use reported by the North Plains PET Network Wellington weather station. Soil water was sufficient at 1, 2 and 3 feet. Soil water was mostly used in during late August and early September, but restored at 1, 2 and 3 feet by the 2.10 inch rainfall on September 11. Production was 164 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 21.77 inches. Production was 60 pounds per inch measured. Irrigation, rainfall, and net soil water was 87 percent of that reported by the North Plains PET Network for fully irrigated cotton.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
MOORE COUNTY - 2007
KEITH WATSON, MARCEL FISCHBACHER, AND DENNIS BEILUE

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 14	**Fertilizer:**	100 Lbs N
Variety:	Americot 556	**Insecticide:**	4 Lbs temik at planting
Seeding Rate:	62,000	**Herbicide:**	Roundup/pix
Soil Type:	ShA- Silt Clay Loam	**Harvested:**	November 12
Row Width:	30 Inches	**No. Acres:**	80

RAINFALL

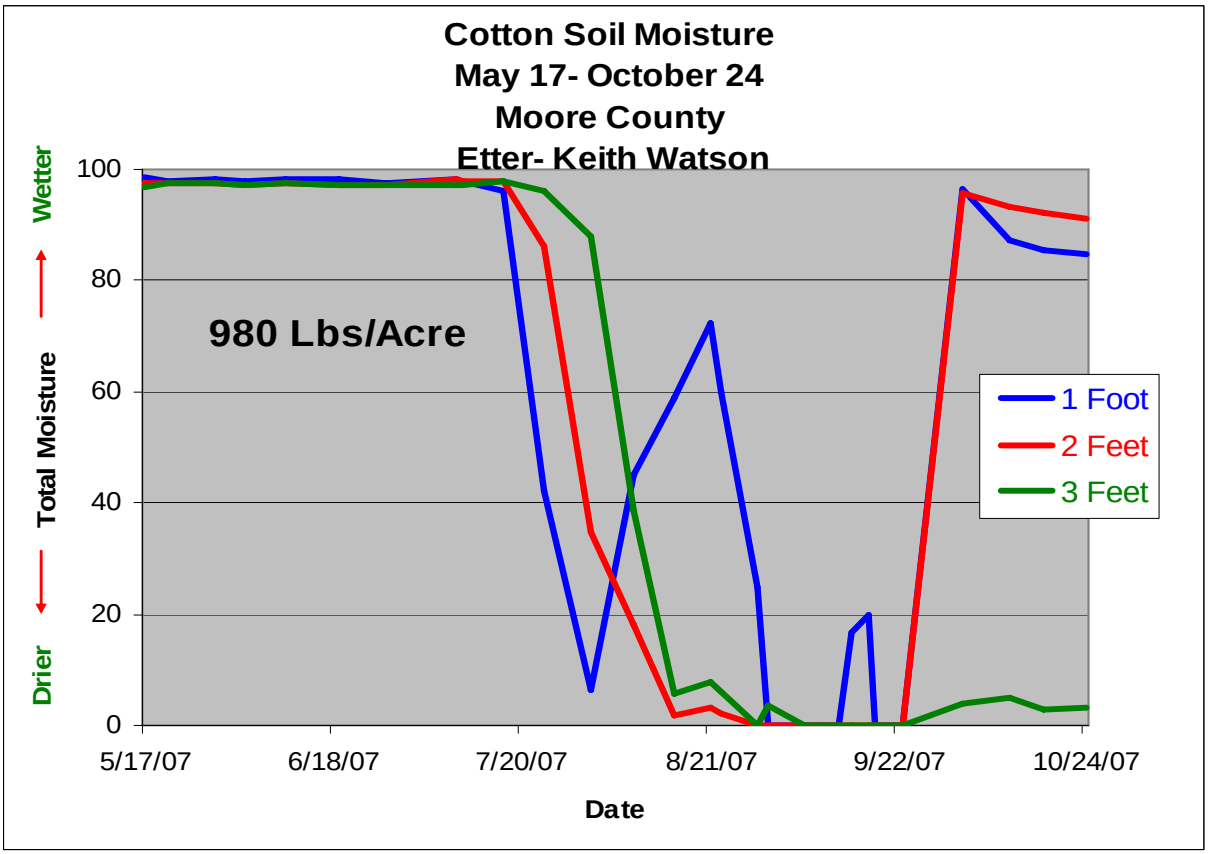
May- 1.10"_ June- 2.00"_ July- 1.30"_ Aug- 2.30" Sept- 3.50"__Oct- 0.20" Total: 10.40"

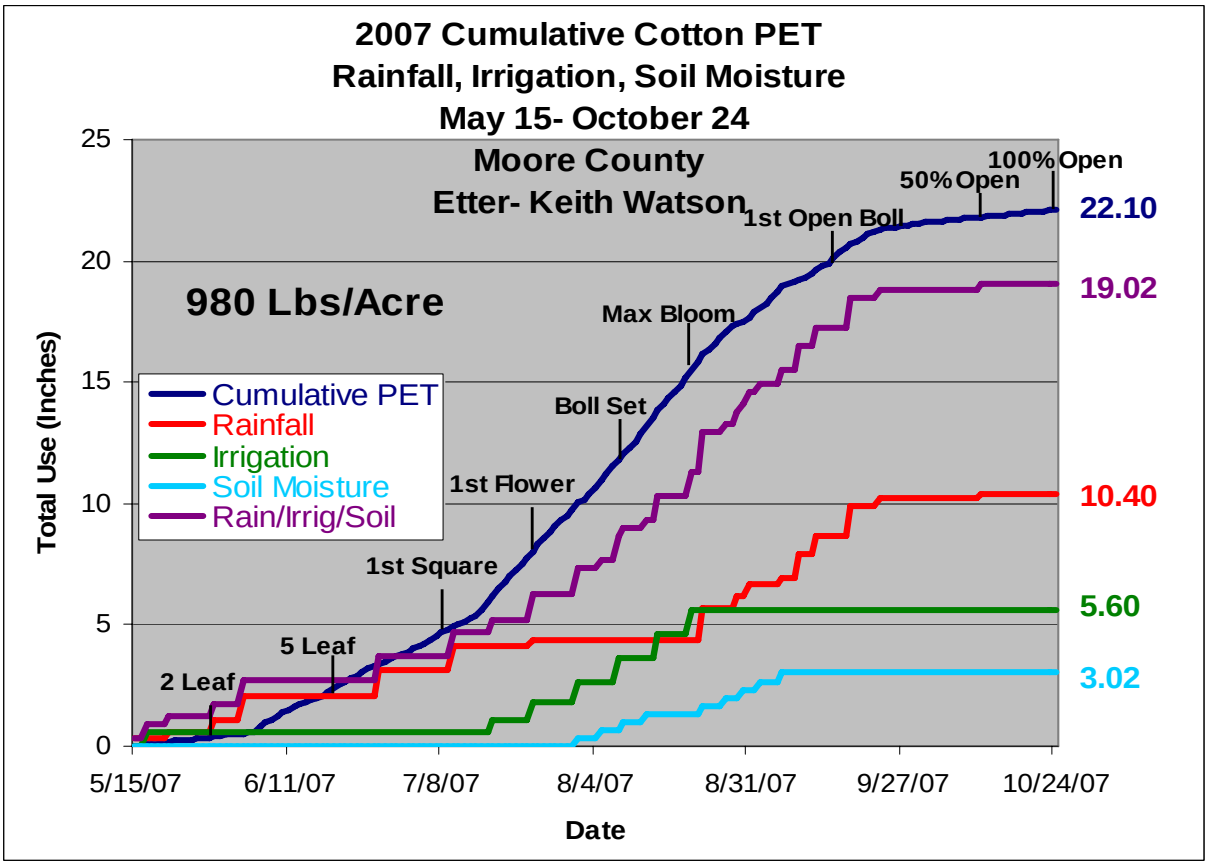
MATERIALS AND METHODS: Eighty acres irrigated by center pivot nozzled at 450 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
7	**5.60**	**86***	**980**	**175**	**$627.20**	**$112.00**

***Includes 3.02 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in May following planting. The crop used all soil water, irrigation, and rainfall in July and August. It used early September rainfall to help when additional heat units arrived. Production was 175 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 19.02 inches. Production was 51.5 pounds per inch measured. Irrigation, rainfall, and net soil water was 86 percent of that reported by the North Plains PET Network for fully irrigated cotton.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED COTTON PRODUCTION USING CENTER PIVOT
DEAF SMITH COUNTY - 2007
CHARLES SCHLABS AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on cotton production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine cotton production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated cotton to help growers predict yields.

SUMMARY:

Planted:	May 19	**Fertilizer:**	10 Ton Manure
Variety:	NG 2448	**Insecticide:**	Orthene
Seeding Rate:	48,000	**Herbicide:**	Roundup, Karmex
Soil Type:	Pullman Clay Loam	**Harvested:**	January 8-11
Row Width:	40 Inches	**No. Acres:**	120

RAINFALL

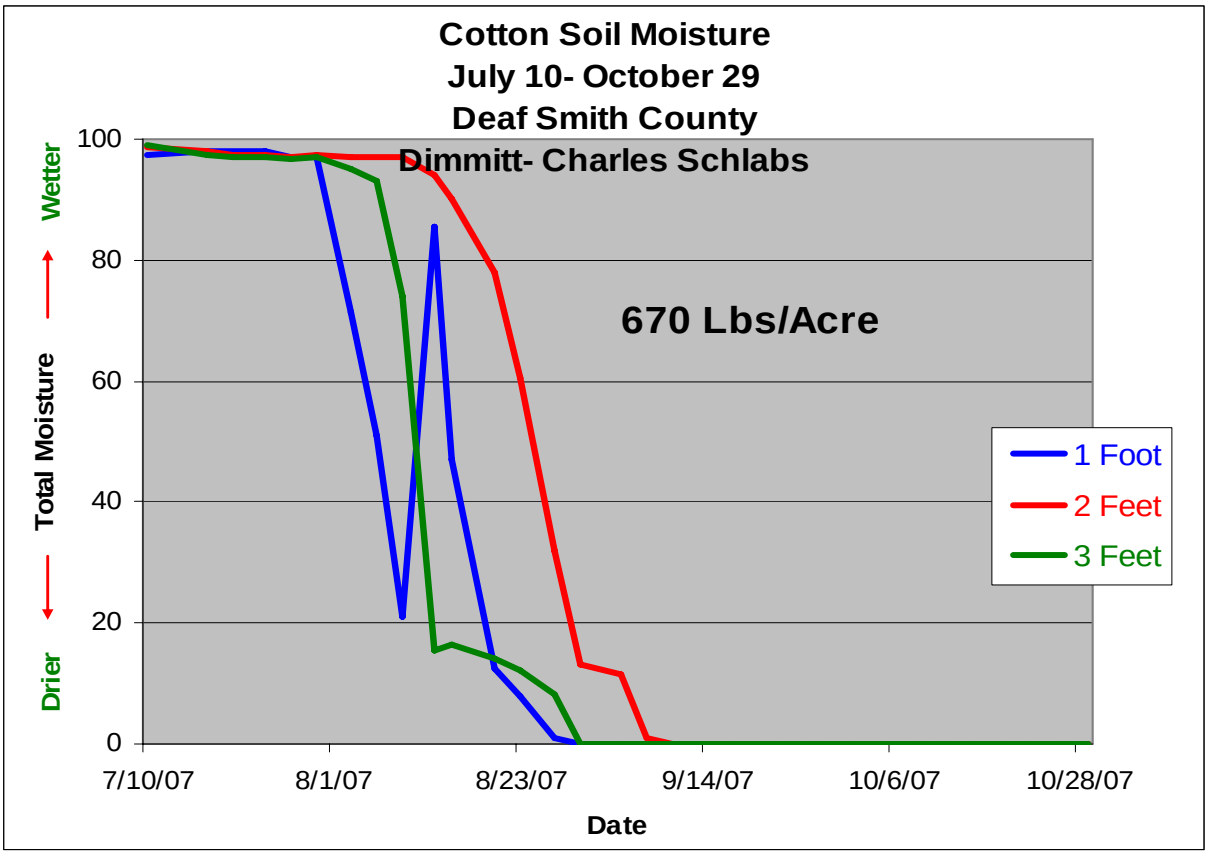
May- 0.56”__ June- 1.91”___ July- 0.82” Aug- 1.10”____ Sept- 2.20”____ Total: 6.59”

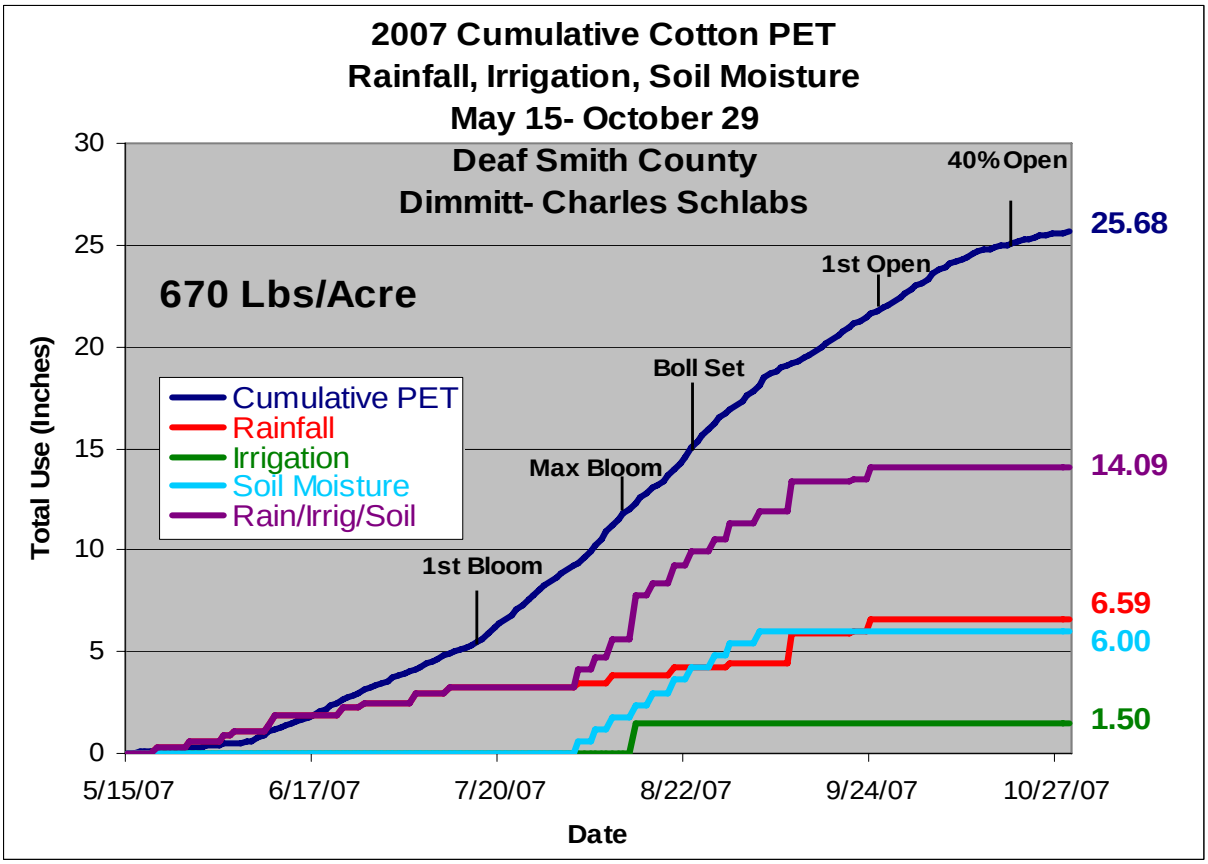
MATERIALS AND METHODS: One hundred and twenty acres irrigated by center pivot nozzled at 800 gpm were planted to cotton. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated cotton are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $0.64/ Lbs- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
1	**1.50**	**55***	**670**	**446.67**	**$428.80**	**$285.87**

***Includes 6.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: The crop used 6.0 inches of soil water, 3.29 inches of rainfall and 1.5 inches of irrigation, a total of 10.79 inches by mid August. September rainfall was not enough for the September and October heat units that finally arrived. Production was 447 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 14.09 inches. Production was 47 pounds per inch measured. Irrigation, rainfall, and net soil water was 55 percent of that reported by the North Plains PET Network for fully irrigated cotton.





Grain Sorghum Irrigation And Dryland Production 2007

Cooperating Growers	*County*
Dan Krienke- Full	**Ochiltree**
Greg Urbanczyk	**Deaf Smith**
Dan Krienke- Limited	**Ochiltree**
Dale Kleuskens	**Deaf Smith**
Terry Oneal	**Gray**
Neal Conrad- East	**Armstrong**
Neal Conrad- West	**Armstrong**
Neal Conrad- South	**Armstrong**

AgriPartners Grain Sorghum Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer-Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Eight grain sorghum irrigation and dryland production demonstrations were conducted in 2007 in four counties with five growers. Four were irrigated by center pivot and one with furrow systems. The remaining three demonstrations were dryland. The eight demonstrations occupied 810 acres. Five hundred forty acres were irrigated. Two hundred seventy acres, 33 percent was dryland.

Grain sorghum production ranged from 9128 to 1200 pounds per acre. Yield was 3000 pounds per acre or more at seven of the eight locations. Average irrigated production was 7321 pounds per acre. Dryland averaged 3033 pounds per acre. All yields are by combine harvest.

Irrigation amounts ranged from 13.00 to 4.05 inches and averaged 8.27 inches. Production per acre inch of irrigation water applied ranged from 1839 to 594 pounds. Average was 885 pounds from each inch of irrigation water applied. Irrigation with center pivot averaged 7.09 inches and production 7219 pounds per acre. Production was 1018 pounds per inch. The row water demonstration used 13.00 inches and production was 7731 pounds per acre. No demonstrations used prewater irrigation to establish the crop.

Rainfall, irrigation and additional water stored in the first three feet of soil and removed by the grain sorghum crop ranged from 24.22 to 16.50 inches. Average was 20.43 inches. Production from each inch of irrigation, rainfall and additional soil water ranged from 436 to 303 pounds per inch. Average production was 358 pounds from each inch of total water measured. Dryland soil water and rainfall averaged 10.63 inches. Production was 285 pounds from each inch measured.

Total irrigation, rainfall, and additional water stored in the top three feet of soil and measured ranged from 102 to 56 percent and averaged 79 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum. Grain sorghum yields averaged 7321 pounds per acre from 20.43 inches of total water measured. Dryland rainfall and soil water averaged 41 percent of that reported by the PET weather station network. Production averaged 3033 pounds from 10.63 inches.

Value of irrigation water in producing grain sorghum priced at $6.29 per hundred weight ranged from $115.67 to $37.41 per inch. Average was $55.67 from 8.27 inches of irrigation water. These values from irrigation water applied include production from rainfall and additional water stored in the soil and used by the crop as well as irrigation system efficiency and management of resources. An annual past five years running average of grain sorghum production per acre inch of irrigation water applied is a good management tool.

A tabulated summary of 2007 grain sorghum irrigation demonstrations is listed in Table 1. Additional data and information concerning each demonstration is listed in the site and grower individual reports. Beneficial irrigation grain sorghum production data was obtained.

Sixty-seven grain sorghum irrigation and production demonstrations were conducted in ’98, ’99, ’00, ’01, ’02, ’03, ’04, ’05, ’06, and ’07. Grain sorghum production averaged 6492 pounds per acre from 12.12 inches of irrigation. Production from each inch of irrigation averaged 536 pounds and 279 pounds per acre inch of rainfall, irrigation, and additional soil water measured. Rainfall, irrigation, and soil water averaged 23.22 inches, which is 87 percent of that reported by the North Plains PET Network. Twenty fields were furrow irrigated and 47 utilized center pivot systems. Production averaged 2465 pounds per acre in eighteen dryland demonstrations. Rainfall and net soil water averaged 10.85 inches per acre and 44 percent of PET. Production was 227 pounds per inch. The ten year summary is in Table 1.

Thanks to the area growers who cooperated, provided the facilities plus personal time, operating data, and other information. Hopefully, this report provides information that will help you, your neighbors, and many other growers, agri industry leaders and others.

Table 1. Grain Sorghum Irrigation and Production, 2007

		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$6.29/CWT	
						LBS/ACRE/IN		ACRE INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	LBS/AC	IRRIGATION	RAIN/IRRIG/SOIL	IRRIGATION	RAIN/IRRIG/SOIL
Ochiltree	Dan Krienke-CP	8.61	23.73	89	9128	1060.16	384.66	66.68	24.20
Deaf Smith	Greg Urbanczyk-RW	13.00	24.22	102	7731	594.69	319.20	37.41	20.08
Ochiltree	Dan Krienke-CP	4.05	20.96	78	7448	1839.01	355.34	115.67	22.35
Deaf Smith	Dale Kleuskens-CP	7.70	16.74	56	7300	948.05	436.08	59.63	27.43
Gray	Terry Oneal-CP	8.00	16.50	70	5000	625.00	303.03	39.31	19.06
Armstrong	Neal Conrad East-DRLND	-	9.69	38	4200	-	433.44	-	27.26
Armstrong	Neal Conrad West-DRLND	-	10.35	41	3700	-	357.49	-	22.49
Armstrong	Neal Conrad South-DRLND	-	11.84	45	1200	-	101.35	-	6.38
AVERAGE 2007	8	8.27	16.75	65	5713	690.69	341.02	43.44	21.45
AVG IRRIGATION	5	8.27	20.43	79	7321	885.08	358.37	55.67	22.54
AVG CENTER PIVOT	4	7.09	19.48	73	7219	1018.19	370.54	64.04	23.31
AVG ROW WATER	1	13.00	24.22	102	7731	594.69	319.20	37.41	20.08
AVG DRYLAND	3	-	10.63	41	3033	-	285.45	-	17.95
AVG '98'99'00'01'02'03'04'05'06'07	85	-	20.6	78	5639	-	273.82	-	14.81
AVG IRRIGATION	67	12.12	23.22	87	6492	535.58	279.66	28.97	15.13
AVG CENTER PIVOT	47	11.06	21.85	82	6104	552.02	279.41	29.86	15.12
AVG ROW WATER	20	14.62	26.13	98	7405	506.37	280.15	27.39	15.16
AVG DRYLAND	18	-	10.85	44	2465	-	227.27	-	12.30

CP= CENTER PIVOT, RW= ROW WATER, DRLND= DRYLAND

AgriLIFE EXTENSION
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IRRIGATED GRAIN SORGHUM PRODUCTION USING CENTER PIVOT
OCHILTREE COUNTY - 2007
DAN KRIENKE (FULL) AND SCOTT STRAWN

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict yields.

SUMMARY:

Planted:	May 20	**Fertilizer:**	135-0-0
Variety:	Pioneer 84G62	**Insecticide:**	None
Seeding Rate:	90,000	**Herbicide:**	Guardsmen
Soil Type:	Pullman Clay Loam	**Harvested:**	October 4
Row Width:	30 Inches	**No. Acres:**	60

RAINFALL

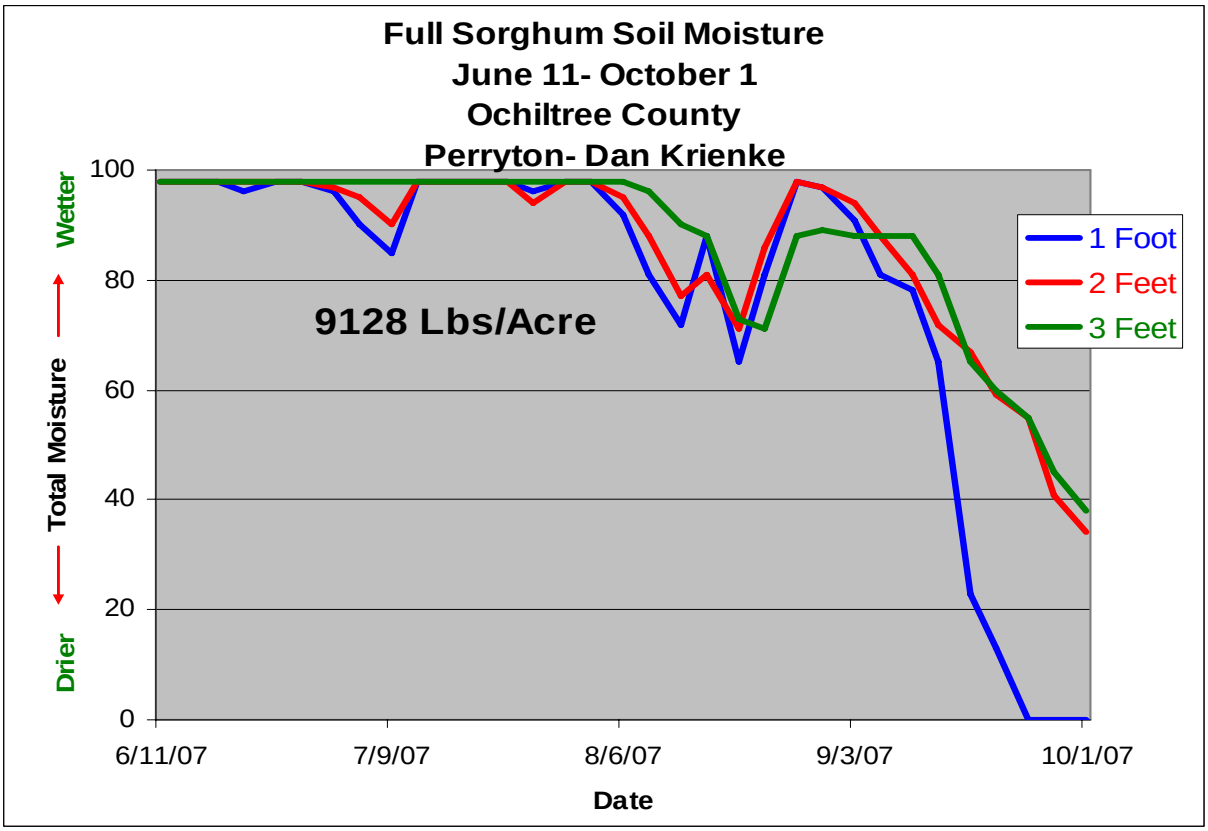
May- 3.10” June- 1.00” July- 1.40” Aug- 3.80” Sept- 1.17” Total: 10.47”

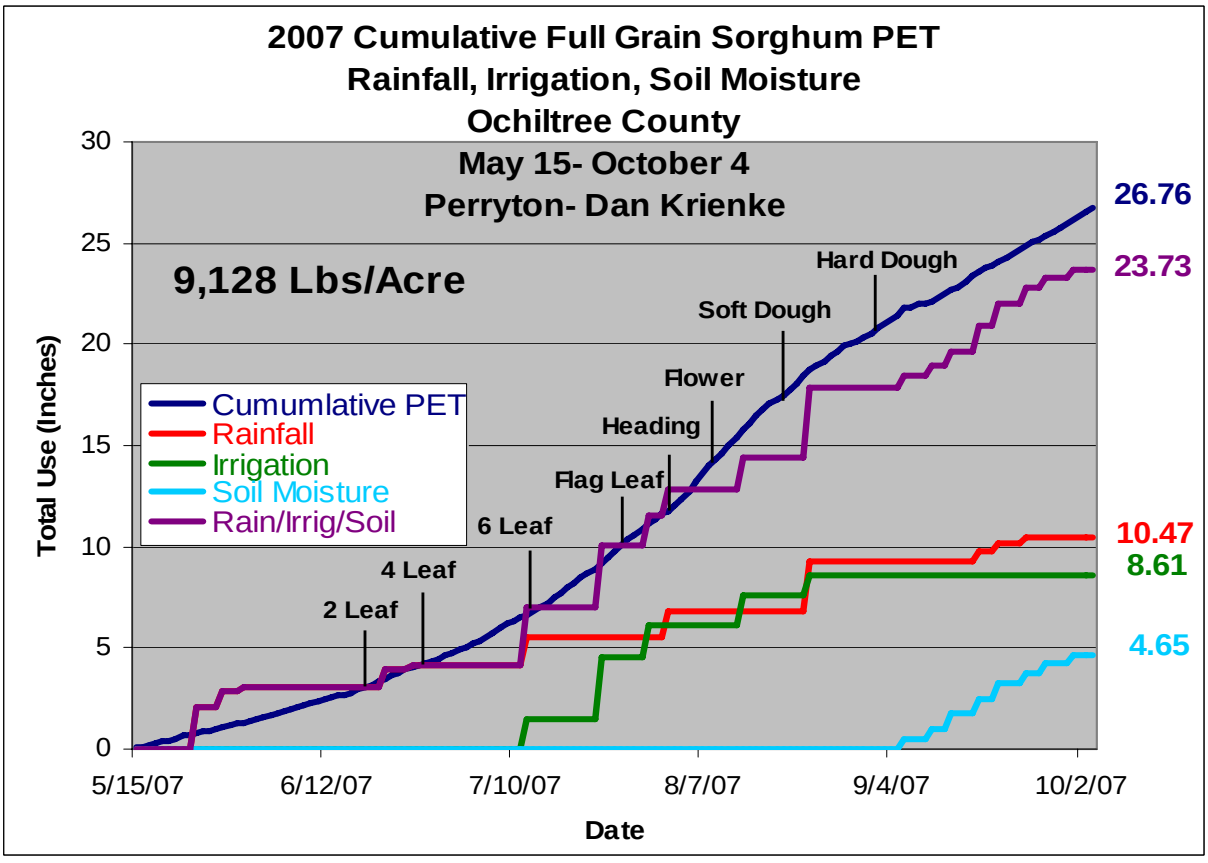
MATERIALS AND METHODS: Sixty acres irrigated by a center pivot nozzled at 450 gpm were planted to grain sorghum. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated grain sorghum are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
6	**8.61**	**89***	**9,128**	**1060.16**	**$574.15**	**$66.68**

***Includes 4.65 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Management of this demonstration provided the crop sufficient water to produce a top yield. In another comparative demonstration irrigation was approximately one-half. However, with timely rainfall only 8.61 inches of irrigation was applied to this field. Good water management utilizing rainfall and soil water. Production was 1060 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 23.73 inches. Production was 384 pounds per inch measured. Irrigation, rainfall, and net soil water was 89 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum.





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IRRIGATED GRAIN SORGHUM PRODUCTION USING ROW WATER
DEAF SMITH COUNTY - 2007
GREG URBANCZYK AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured irrigation, rainfall, and soil moisture quantities using furrow irrigation and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict annual yield potential, manage crop production and conserve water.

SUMMARY:

Planted:	May 30	**Fertilizer:**	15 Tons manure
Variety:	NC+8R18	**Insecticide:**	Lorsban
Seeding Rate:	90,000	**Herbicide:**	Atrazine+Dual Strane
Soil Type:	Pullman Clay Loam	**Harvested:**	October 16
Row Width:	30 Inches	**No. Acres:**	40

RAINFALL

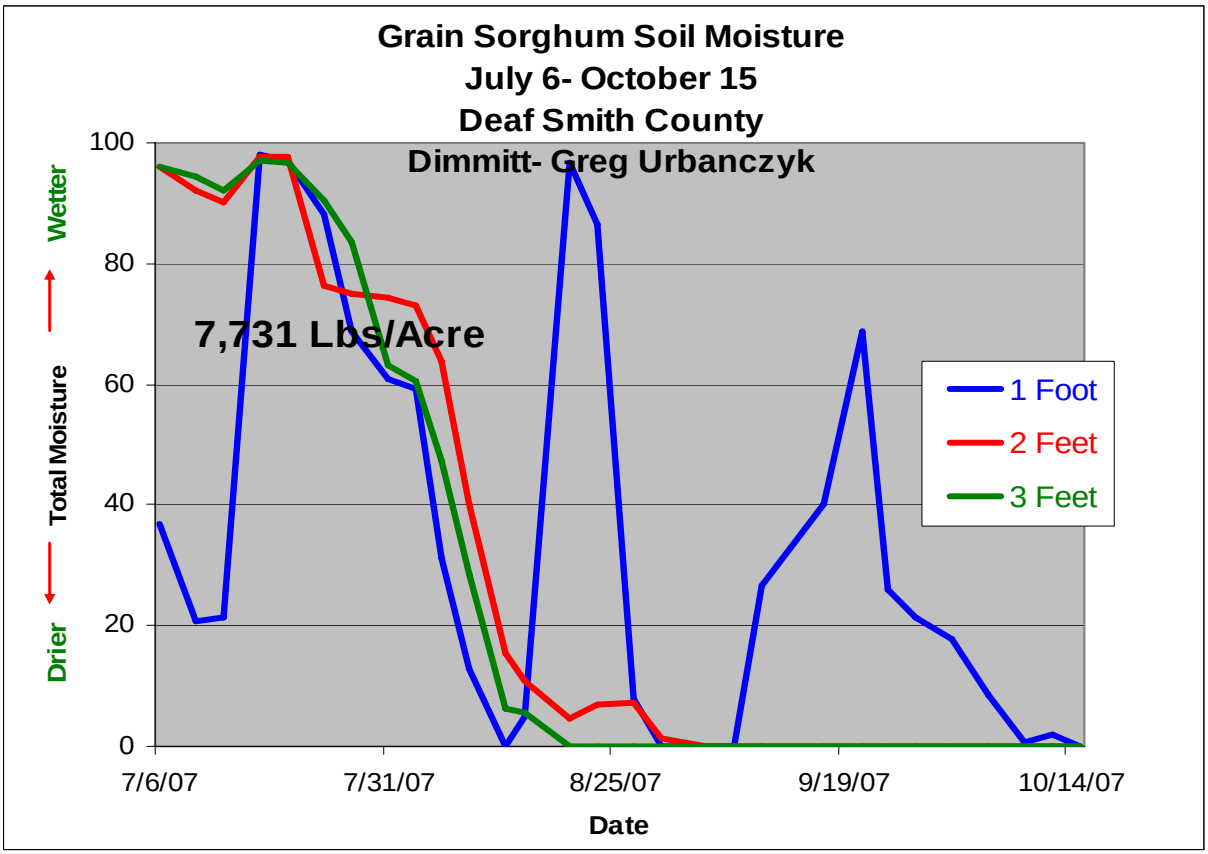
June- 1.93" July- 1.25" August- 0.80" September- 2.50" Total: 6.48"

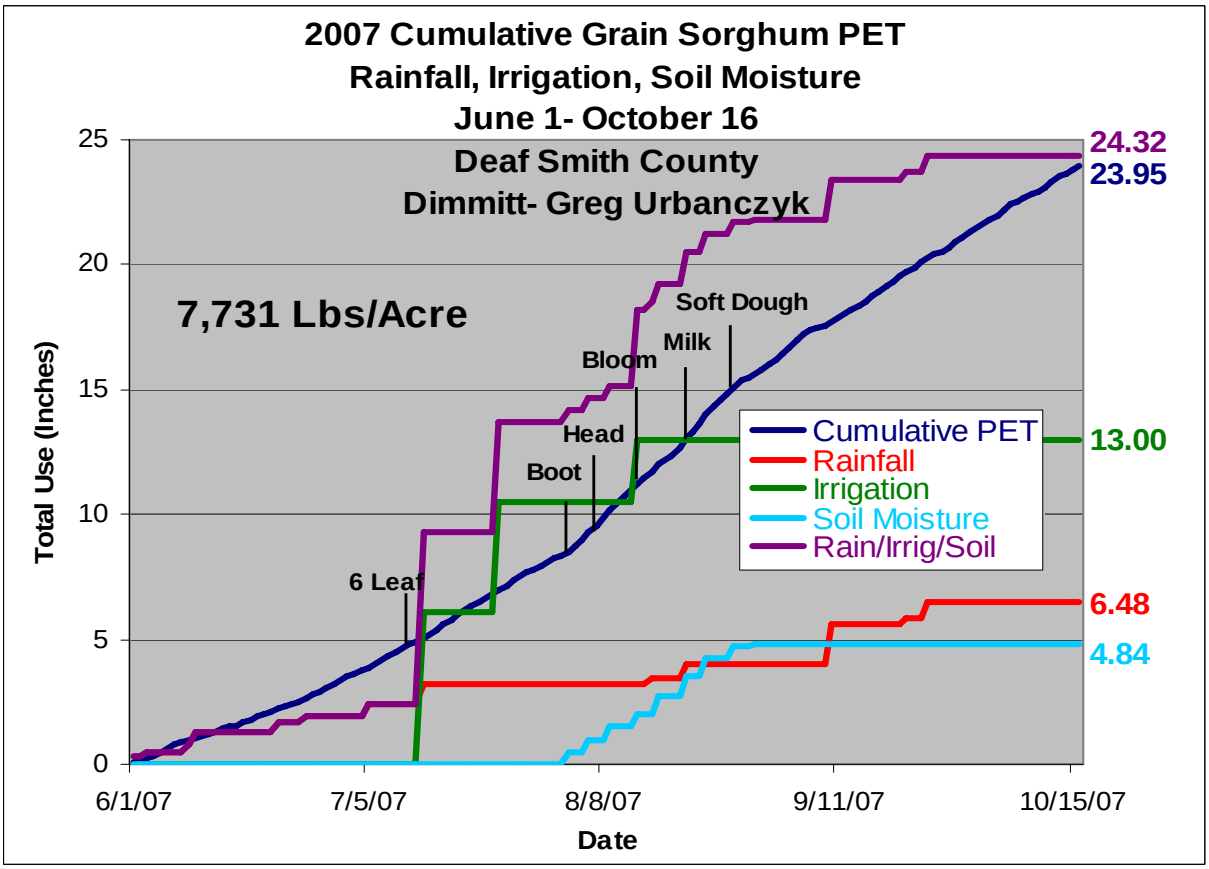
MATERIALS AND METHODS: Grain sorghum was planted on forty acres of a furrow irrigated field. The dates and numbers of irrigations from a well/s that delivered 850 GPM were recorded. Irrigation amounts were calculated from well water flow and the number of hours used to irrigate the acreage. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water during the growing season. Two measurements were made each week and recorded. They are reported at the top of the following page. Irrigation, rainfall, additional soil water measured and water use reported by the North Plains PET Network for fully irrigated grain sorghum is summarized on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
3	**13.00**	**102***	**7,731**	**594.69**	**$486.28**	**$37.41**

***Includes 4.74 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was low at 1 foot in early July, but was fully replenished by the July 13 irrigation. The crop used all available irrigation, rainfall and soil water. Graphs of weekly soil water sensor readings describe how water was available to the crop. Production was 594 pounds per inch of irrigation and 319 pounds per acre from each inch of irrigation, rainfall, and additional soil water measured. Irrigation, rainfall, and additional soil water totaled 24.32 inches, which is 102 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum.





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IRRIGATED GRAIN SORGHUM PRODUCTION USING CENTER PIVOT
OCHILTREE COUNTY - 2007
DAN KRIENKE (LIMITED) AND SCOTT STRAWN

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict yields.

SUMMARY:

Planted:	May 20	**Fertilizer:**	65-0-0
Variety:	Pioneer 84G62	**Insecticide:**	None
Seeding Rate:	45,000	**Herbicide:**	Gardsman
Soil Type:	Pullman Clay Loam	**Harvested:**	October 4
Row Width:	30 Inches	**No. Acres:**	20

RAINFALL

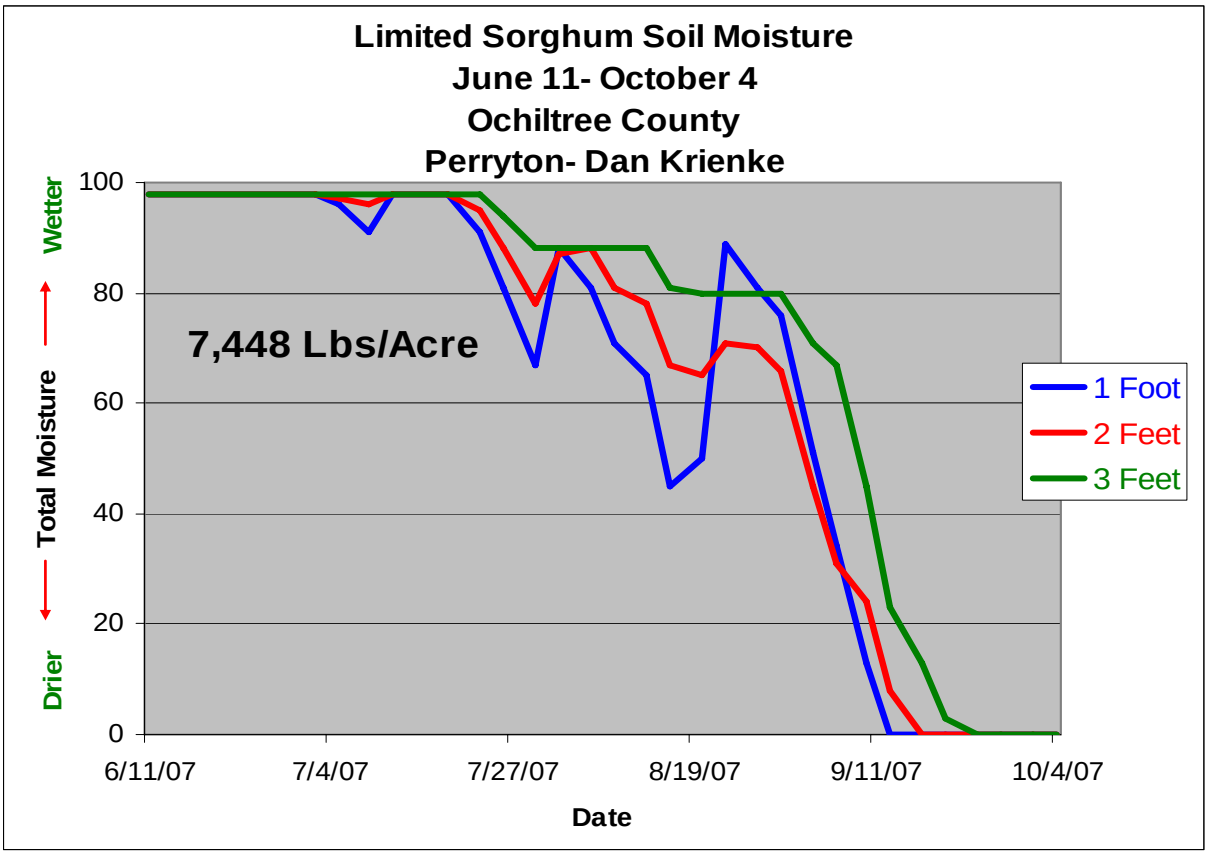
May- 3.10" June- 1.00" July- 1.40" Aug- 3.80" Sept- 0.86" Oct: 0.33" Total: 10.46"

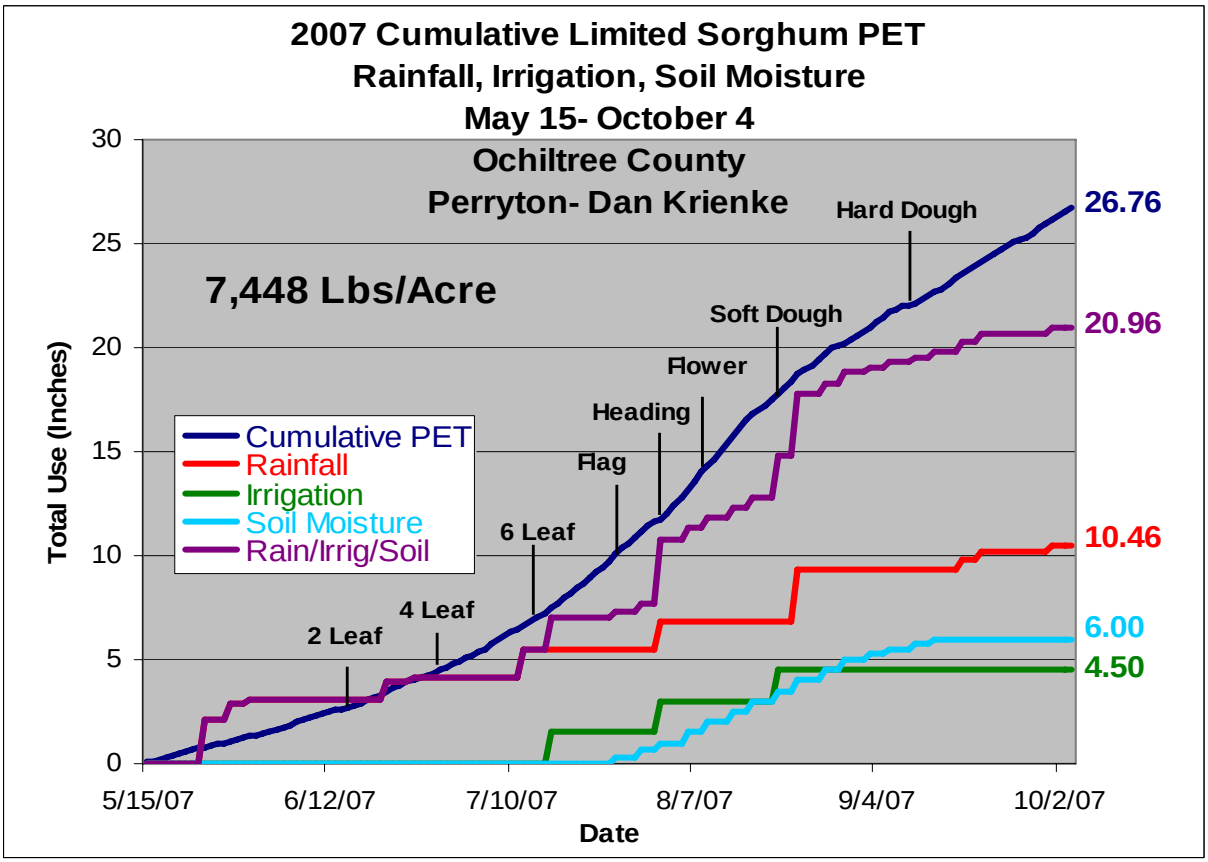
MATERIALS AND METHODS: Twenty acres irrigated by a center pivot nozzled at 450 gpm were planted to grain sorghum. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated grain sorghum are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
3	**4.05**	**78***	**7,448**	**1839.01**	**$468.47**	**$115.67**

***Includes 6.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Seeding rate, fertilizers, and irrigation were approximately one-half of that for the more fully irrigation comparison field. Irrigation, rainfall and soil water is 88 percent of the more fully irrigated grain sorghum. Comparative production is 82 percent. More soil water was used in September to finish the crop. Production was 1839 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 20.96 inches. Production was 355 pounds per inch measured. Irrigation, rainfall, and net soil water was 78 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum. Special thanks to Dan Krienke for using personal time and equipment to obtain the comparative grain sorghum production data.





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IRRIGATED GRAIN SORGHUM PRODUCTION USING CENTER PIVOT
DEAF SMITH COUNTY - 2007
DALE KLEUSKENS AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict yields.

SUMMARY:

Planted:	May 7	**Fertilizer:**	10 Tons Manure
Variety:	Seed Production	**Insecticide:**	One application of Lorsban
Seeding Rate:	102,000	**Herbicide:**	Atrazine 2, 4-D
Soil Type:	Pullman Clay Loam	**Harvested:**	October 5
Row Width:	30 Inches	**No. Acres:**	120

RAINFALL

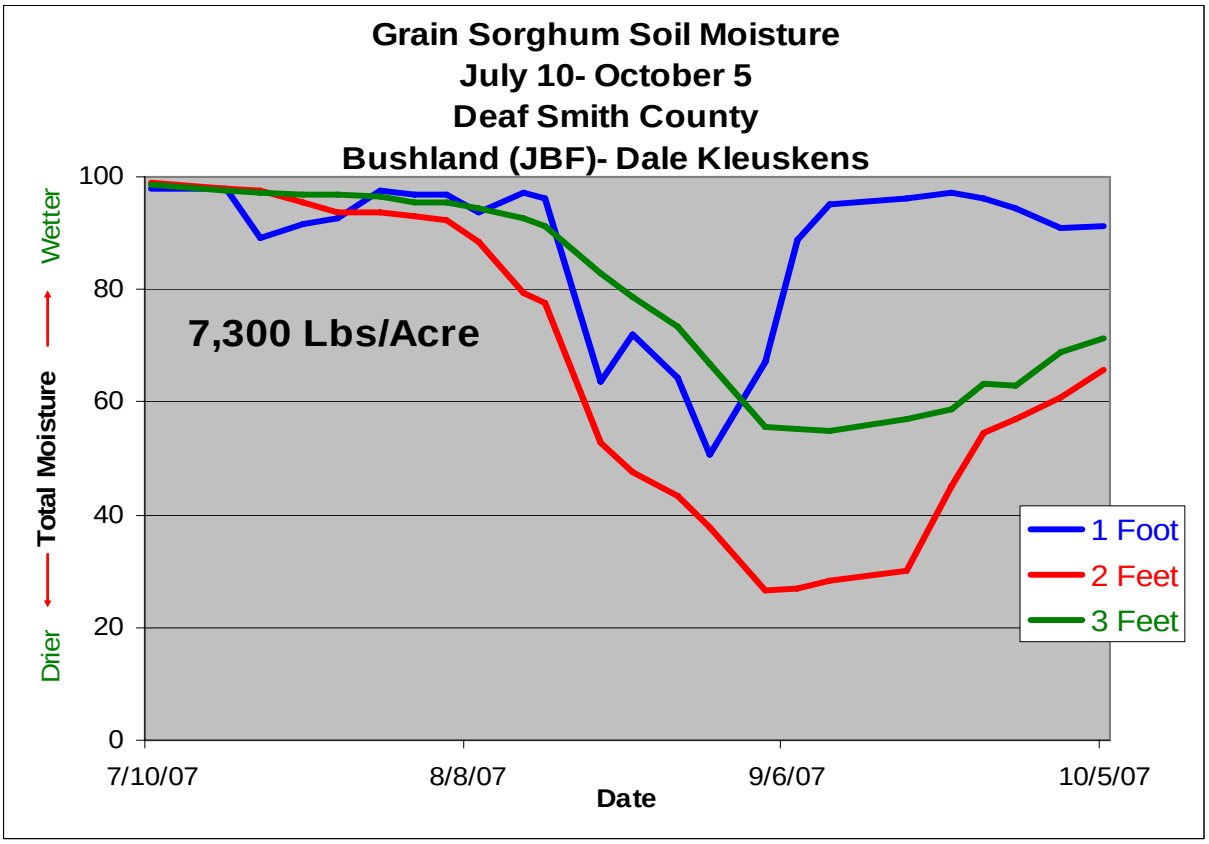
June- 1.63" July- 0.45" August- 2.20" September- 2.70" Total: 6.98"

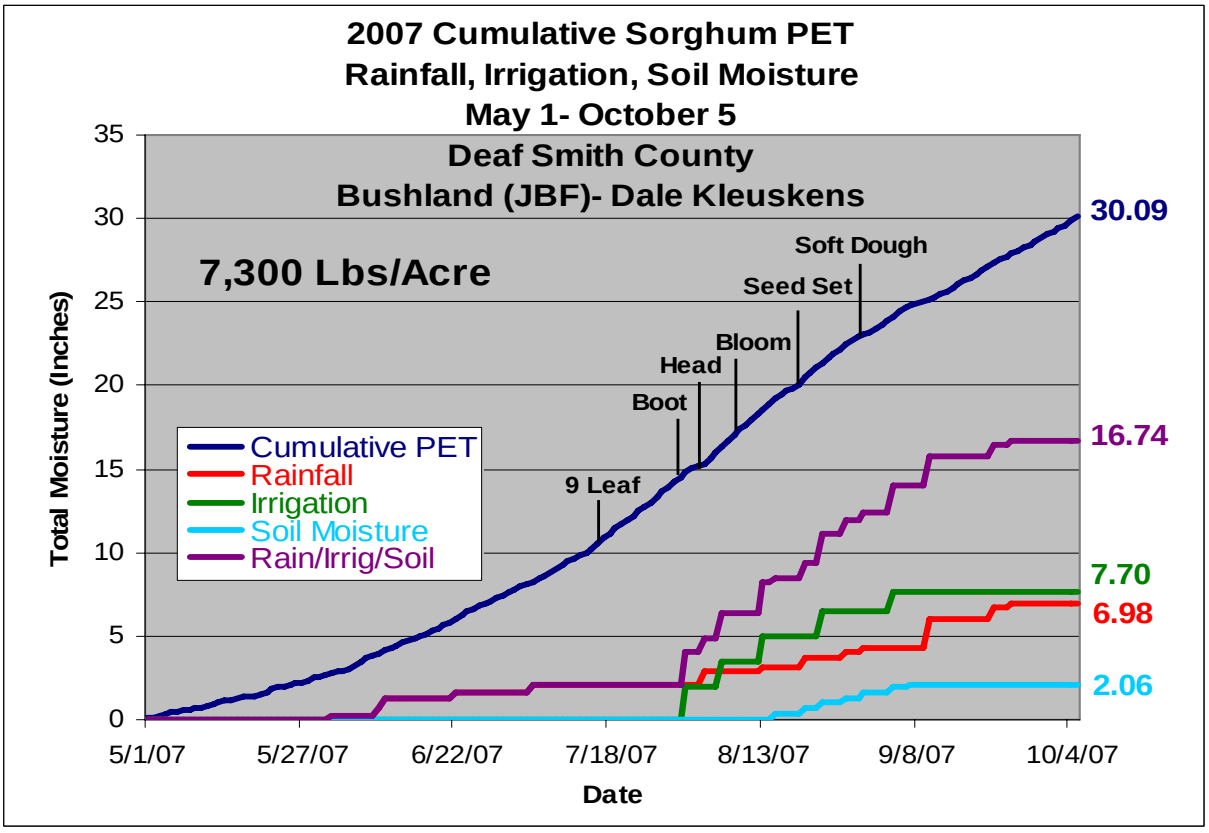
MATERIALS AND METHODS: One hundred and twenty acres irrigated by center pivot nozzled at 800 gpm were planted to grain sorghum. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated grain sorghum are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
6	**7.70**	**56***	**7,300**	**948.05**	**$459.17**	**$59.63**

***Includes 2.06 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Good beginning soil water at 1, 2 and 3 feet adequately maintained throughout the growing season by rainfall and irrigation management. Soil water was significant in producing a good yield. The crop partially depleted soil water at 1, 2 and 3 feet in August, however sufficient amounts were available for the crop. Production was 948 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 16.74 inches. Production was 436 pounds per inch measured. Irrigation, rainfall, and net soil water was 56 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum.





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IRRIGATED GRAIN SORGHUM PRODUCTION USING CENTER PIVOT
GRAY COUNTY - 2007
TERRY O'NEAL, CHARLEY RUSS, AND BRANDON McGINTY

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict yields.

SUMMARY:

Planted:	June 10	**Fertilizer:**	120-0-0
Variety:	D K 39 Y	**Insecticide:**	Green Bug Treatment
Seeding Rate:	36,000/Acre	**Herbicide:**	Lasso 1.5 Qts/Acre
Soil Type:	Pullman Clay Loam	**Harvested:**	October 20
Row Width:	30 Inches	**No. Acres:**	300

RAINFALL

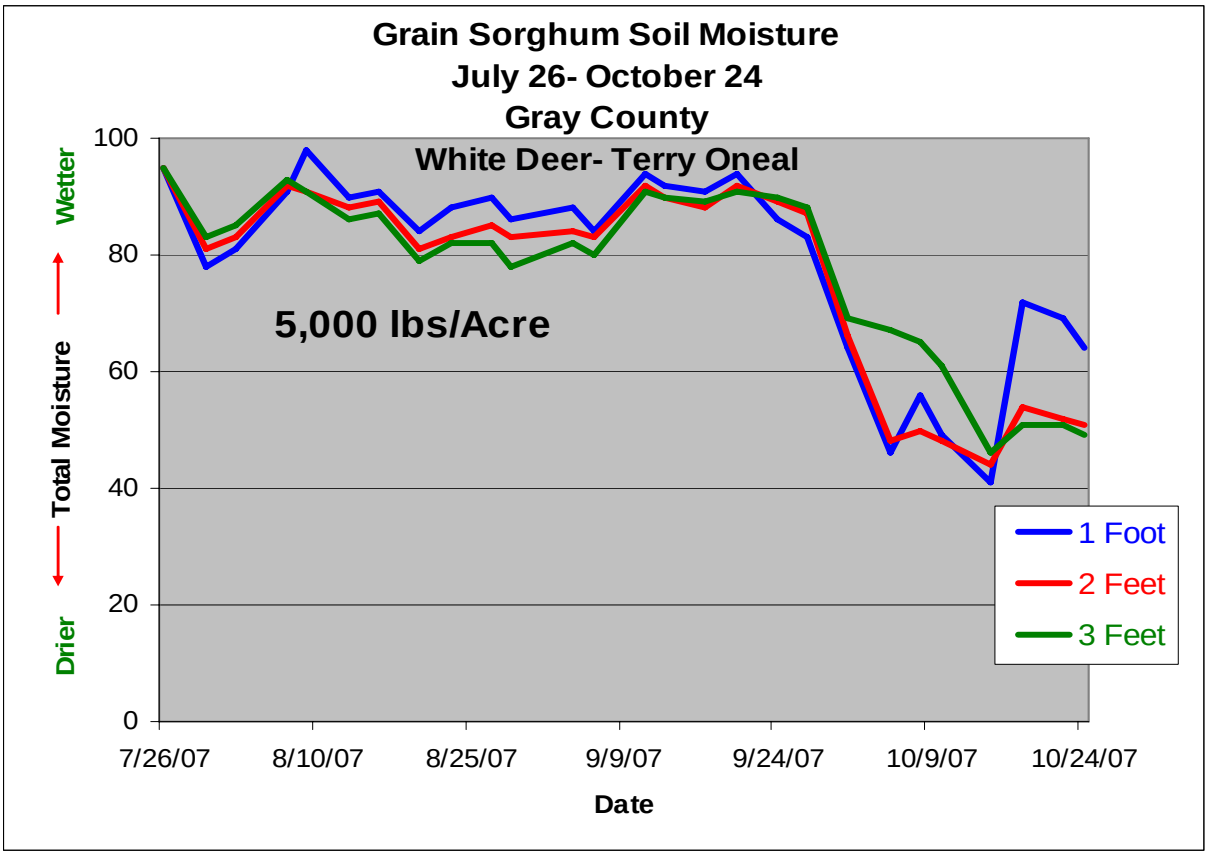
July- 0.50" August- 2.20" September- 2.35" October- 0.25" Total: 5.30"

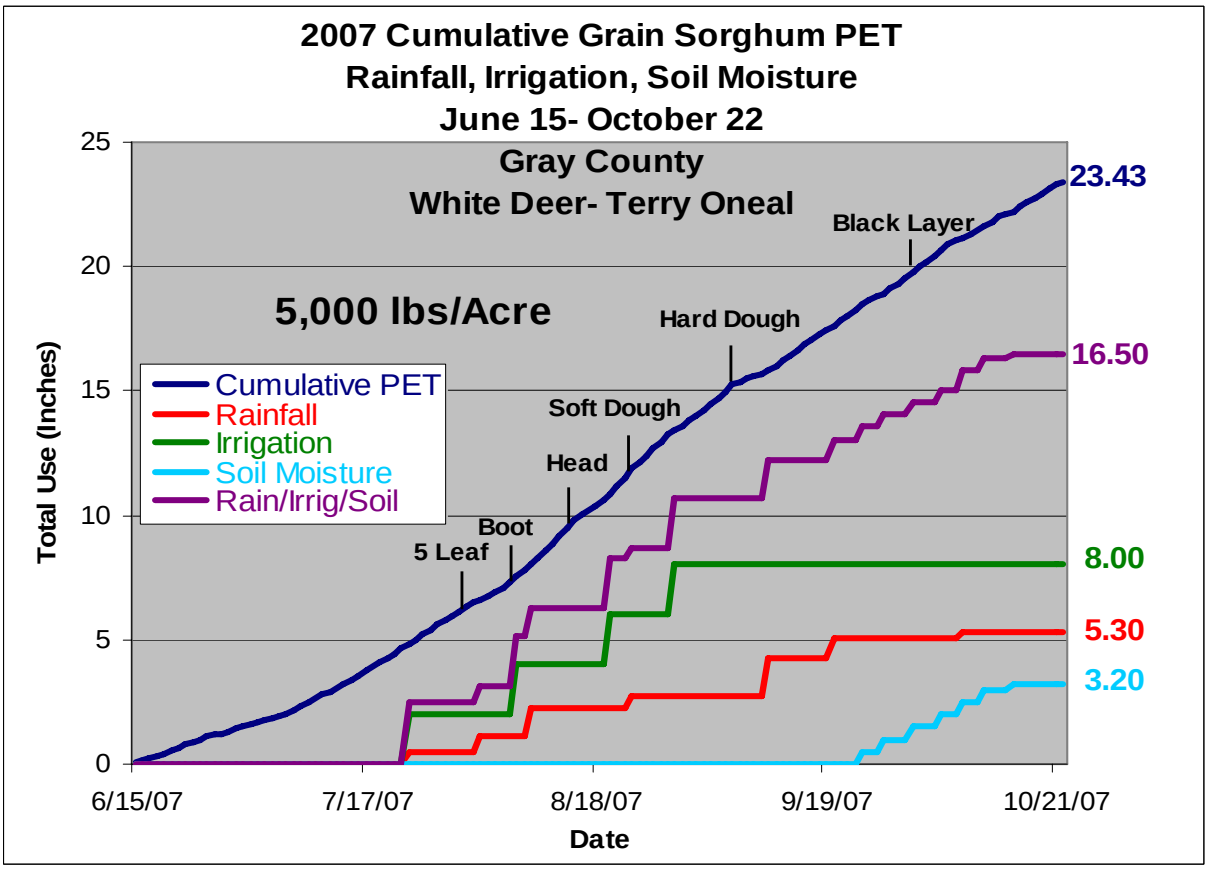
MATERIALS AND METHODS: Three hundred acres irrigated by center pivot nozzled at 750 gpm were planted to grain sorghum. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated grain sorghum are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/ CWT- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
4	**8.00**	**70***	**5,000**	**625.00**	**$314.50**	**$39.31**

***Includes 3.20 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Weekly soil water sensor measurements show sufficient water was available to the crop throughout the growing season. Soil was approximately one-half depleted in October to finish the crop. Look at the graph of seasonal soil water presented on the following page. Production was 625 pounds per inch of irrigation. Irrigation, rainfall, and soil water totaled 16.50 inches. Production was 303 pounds per inch measured. Irrigation, rainfall, and net soil water was 70 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum.





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DRYLAND GRAIN SORGHUM PRODUCTION
ARMSTRONG COUNTY - 2007
NEAL CONRAD (EAST) AND KYLE STEWART

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	June 2	**Fertilizer:**	50 lbs NH3
Variety:	NC + 6 B	**Insecticide:**	None
Seeding Rate:	1.3 Lbs/Acre	**Herbicide:**	None
Soil Type:	Pullman Clay Loam	**Harvested:**	October 3
Row Width:	40 Inches	**No. Acres:**	70

RAINFALL

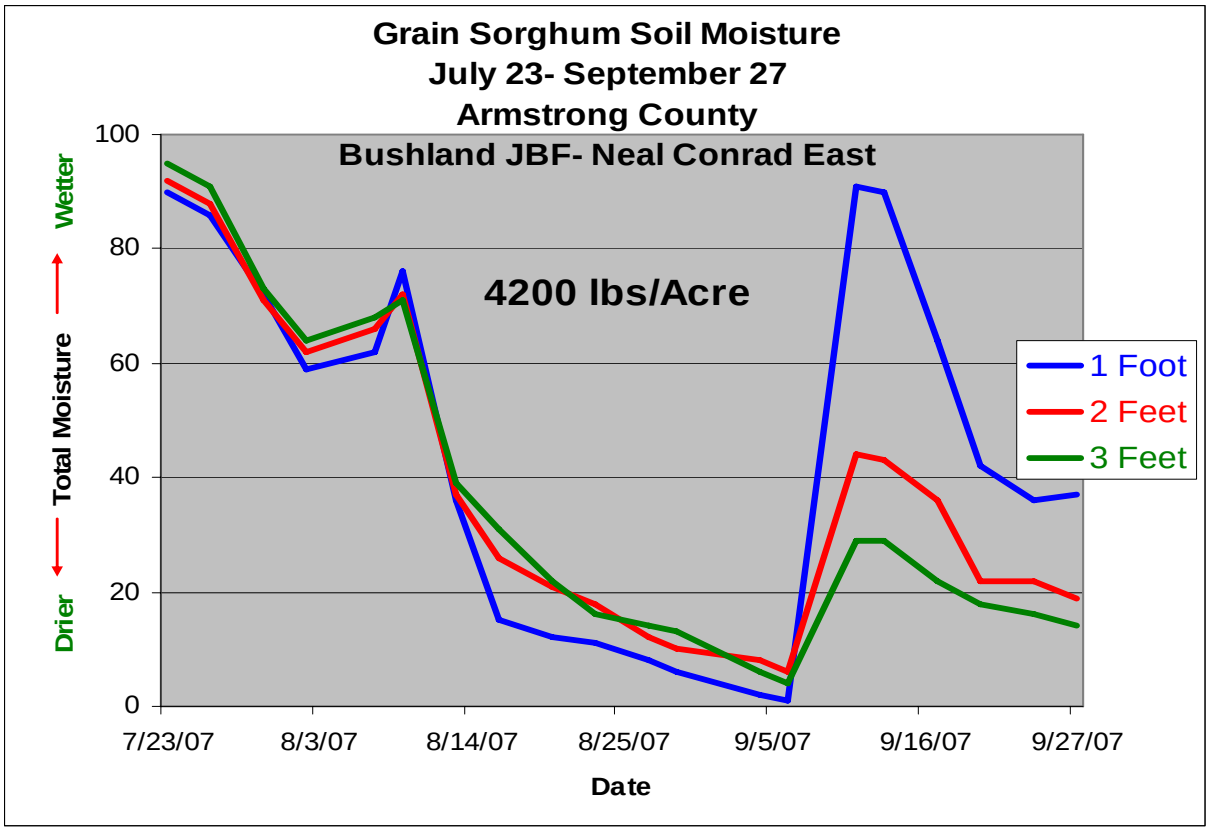
June- 1.51” July- 1.48” August- 1.00” September- 2.20” Total: 6.19”

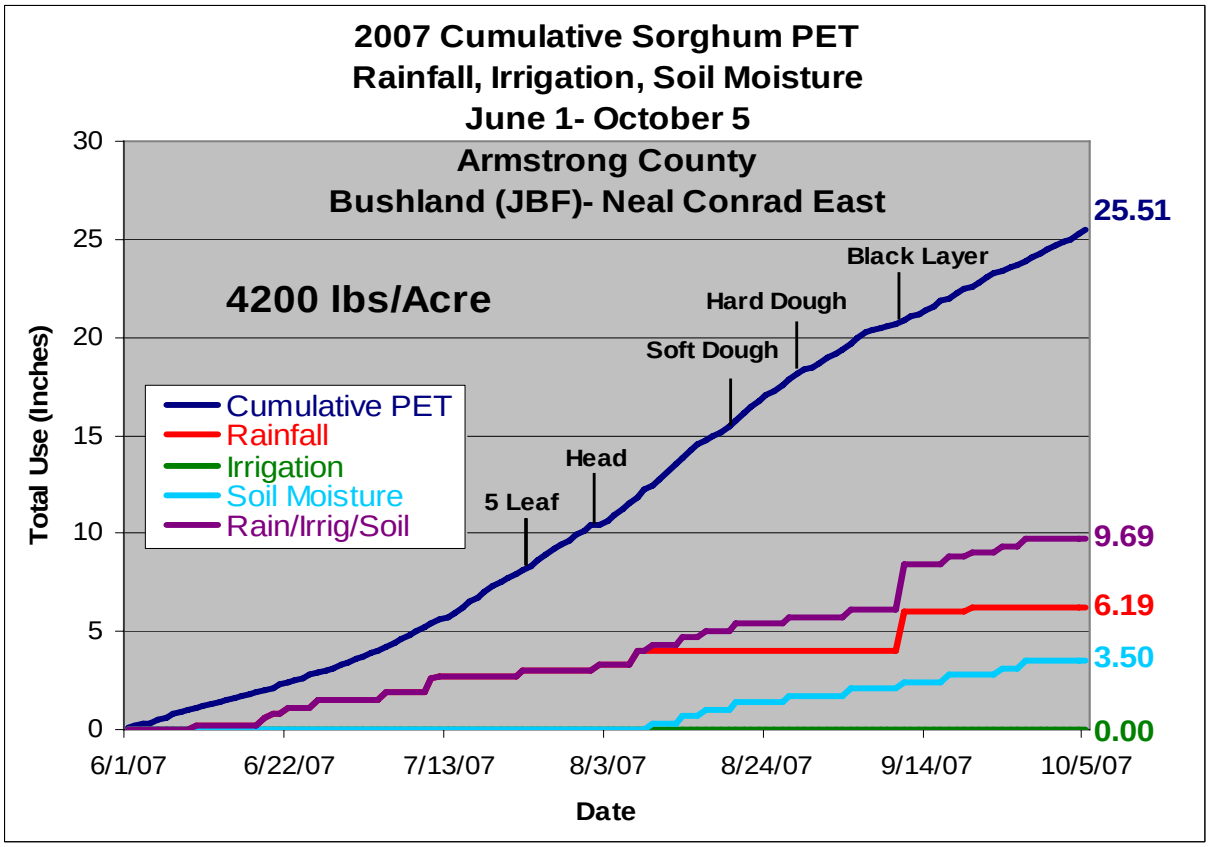
MATERIALS AND METHODS: Seventy acres of dryland were planted to grain sorghum. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated grain sorghum.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/ CWT- $**	
Inches	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
9.69	**38***	**4,200**	**433.44**	**$264.18**	**$27.26**

***Includes 3.50 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Good yield from very limited-timely seasonal rainfall. A full soil water profile beginning was significant in achieving good dryland production. Production was 433 per inch of rainfall and net soil water. Rainfall and soil water measured totaled 9.69 inches which was 38 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND GRAIN SORGHUM PRODUCTION
ARMSTRONG COUNTY - 2007
NEAL CONRAD (WEST) AND KYLE STEWART

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	June 3	**Fertilizer:**	50 lbs. NH 3/acre
Variety:	NC + 6 B	**Insecticide:**	None
Seeding Rate:	1/3 lbs/acre	**Herbicide:**	None
Soil Type:	Pullman Clay Loam	**Harvested:**	October 5
Row Width:	40 Inches	**No. Acres:**	130

RAINFALL

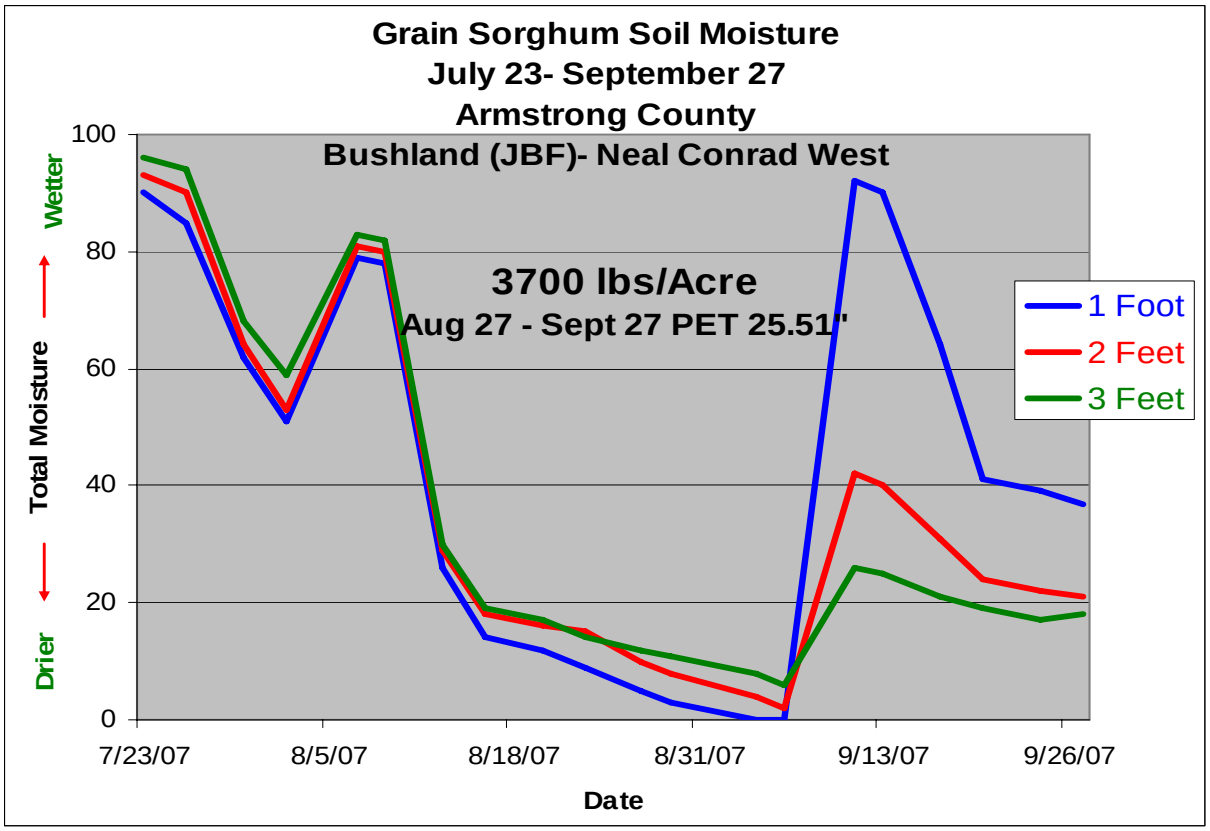
June- 1.43" July- 1.49" August- 1.40" September- 2.50" Total: 6.82"

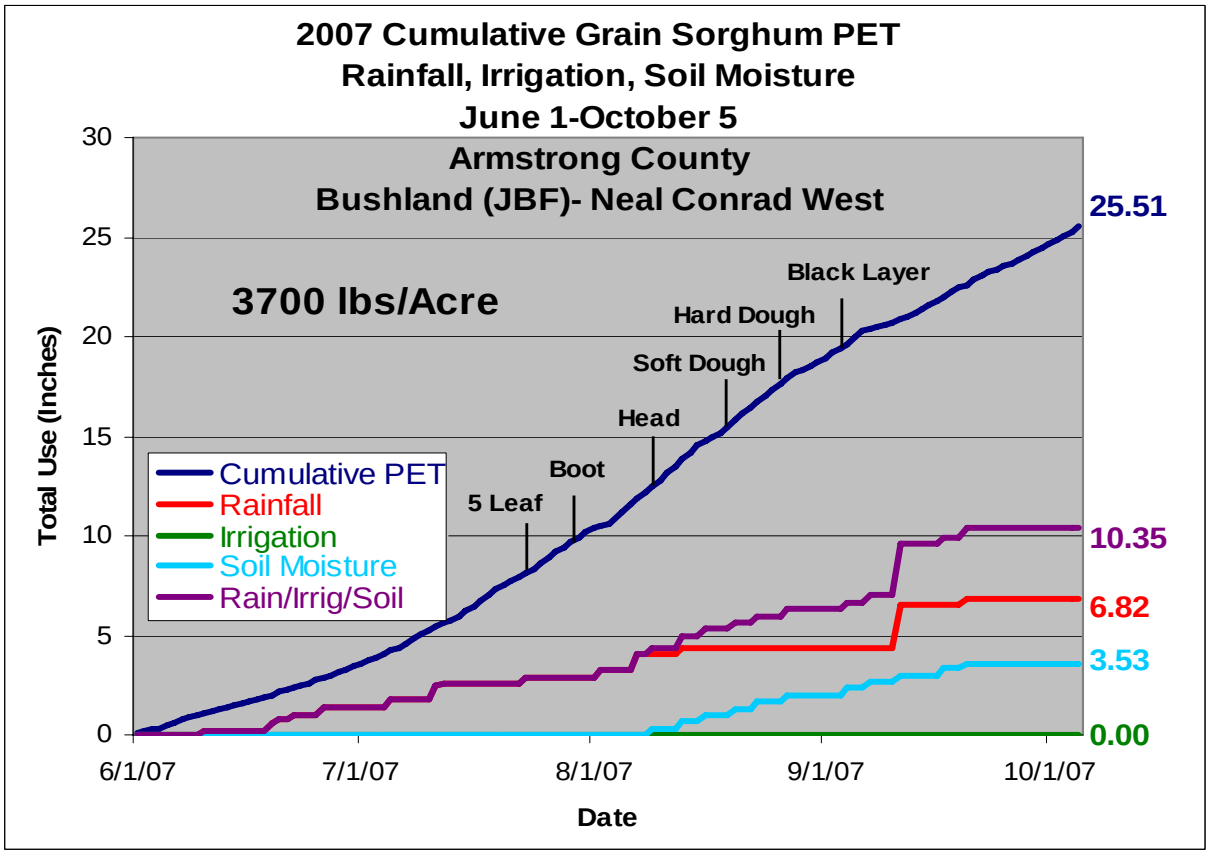
MATERIALS AND METHODS: One hundred and thirty acres of dryland were planted tog grain sorghum. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated grain sorghum.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/CWT- $**	
Inches	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
10.35	**41***	**3,700**	**357.49**	**$232.73**	**$22.49**

***Includes 3.53" inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in June due to abundant spring rainfall. Soil water that totaled approximately six inches plus 4.3 inches of rainfall was used by late August. The 2.25 inch rainfall on September 11 was timely and finished the crop. Production was 357 pounds per inch of rainfall and net soil water. Rainfall and soil water totaled 10.35 inches which was 41 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND GRAIN SORGHUM PRODUCTION
ARMSTRONG COUNTY - 2007
NEAL CONRAD (SOUTH) AND KYLE STEWART

PROBLEM: High Plains growers need more field measurements and documented data on grain sorghum production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine grain sorghum production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated grain sorghum to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	June 1	**Fertilizer:**	50 lbs. NH3
Variety:	D K 44 +	**Insecticide:**	None
Seeding Rate:	1.3 Lbs/Acre	**Herbicide:**	None
Soil Type:	Pullman Clay Loam	**Harvested:**	October 10
Row Width:	40 Inches	**No. Acres:**	70

RAINFALL

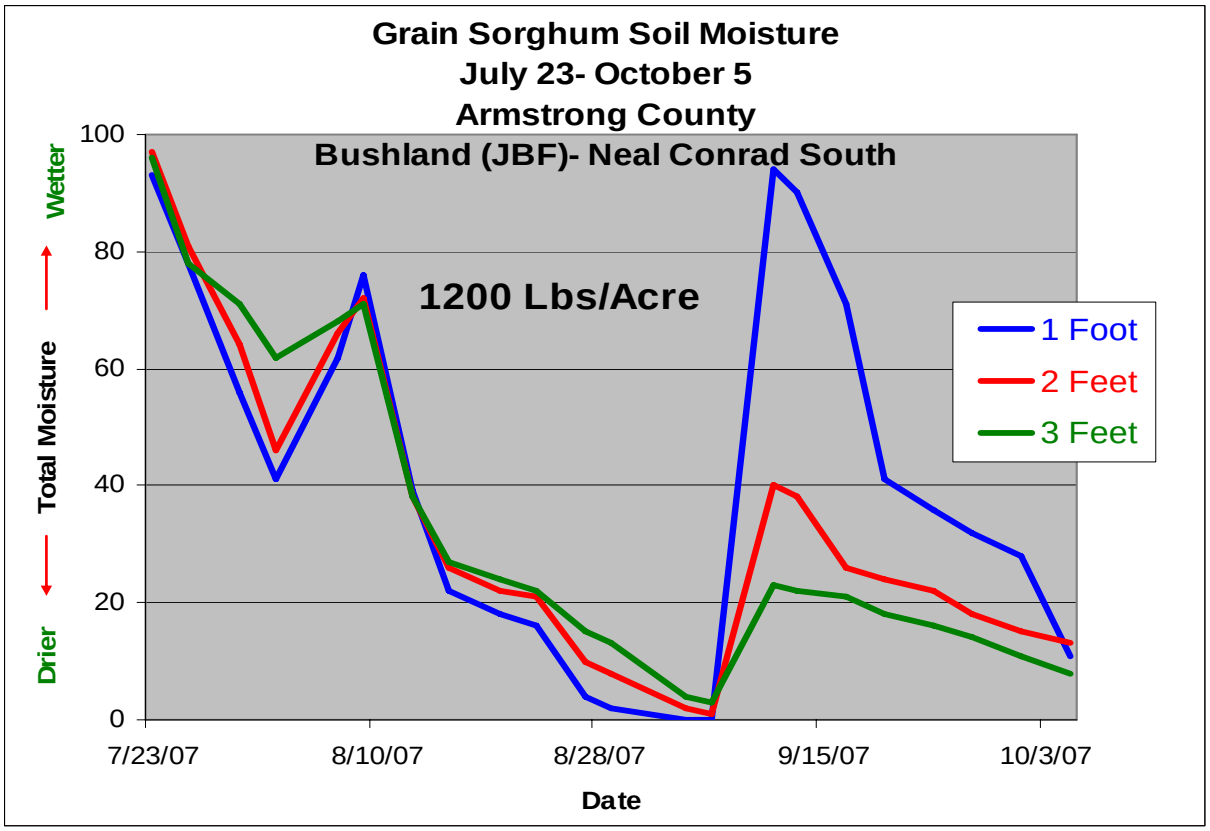
June- 1.43" July- 1.50" August- 1.20" September- 2.70" Total: 6.83"

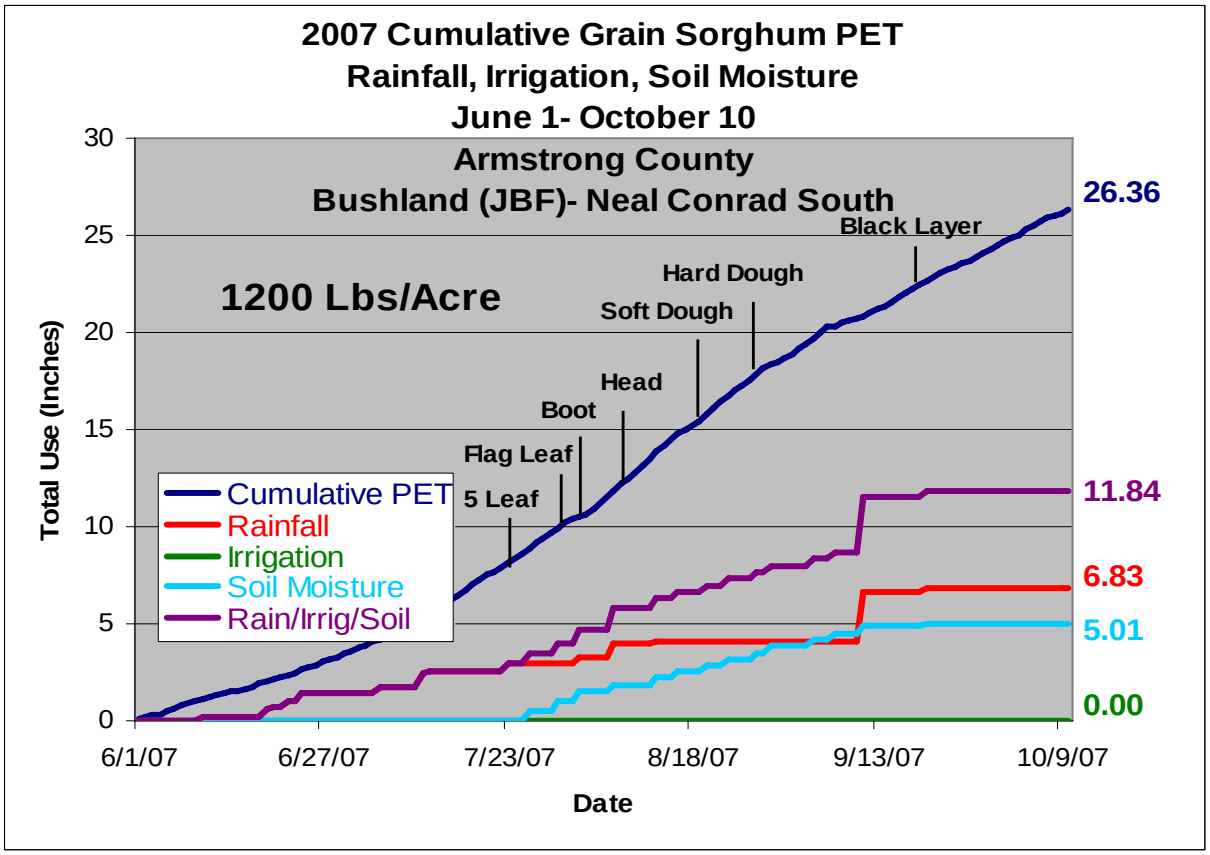
MATERIALS AND METHODS: Seventy acres of dryland were planted to grain sorghum. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated grain sorghum.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $6.29/CWT- $**	
Inches	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
11.84	**45***	**1,200**	**101.35**	**$75.48**	**$6.38**

***Includes 5.01 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: The soil profile was full at 1, 2 and 3 feet in early July, but was used quickly by the crop. July and August rainfall totaled 2.70 inches, but soil water was depleted in August. Plants in this field exhibited greater water stress than those in other area dryland fields. Production was one-third or less than from other dryland crops. Production was 101 pounds per inch of rainfall and net soil water. Rainfall and soil water was 45 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum.





Peanut Irrigation And Production 2007

Cooperating Growers	*County*
Joe Baumgardner	**Collingsworth**
Dan & Rex Henard	**Collingsworth**
Pat & Rod White	**Collingsworth**
Dannie Morris	**Collingsworth**

AgriPartners Peanut Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer-Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Four peanut irrigation and production demonstrations were conducted in 2007. Peanut row width was 30 and 40 inches. All were in Collingsworth County in cooperation with four growers. All irrigation was by center pivot. Production was on 294 acres.

Peanut production ranged from 4690 to 3100 pounds per acre and averaged 3838 pounds. The highest production was on 30 inch row spacing. Production averaged 3553 pounds per acre on 40 inch rows and 4690 on 30 inch. All yields are by thrasher harvest. One grower pre-watered. Pre-water averaged 1.0 inch.

Seasonal irrigation ranged from 6.82 to 13.47 inches per acre. Average was 10.91 inches per acre. Peanut production from each inch of irrigation water applied ranged from 230 to 513 pounds. It was highest for 40 inch rows and lowest for 40 inch. Average production was 351 pounds per inch of irrigation water.

Rainfall, irrigation, and additional water used from the top three feet of soil ranged from 18.90 to 22.26 inches. Average was 20.30 inches. Peanut production from each inch of irrigation, rainfall, and additional soil water measured ranged from 154 to 210 pounds. Average was 189 pounds.

Total irrigation, rainfall, and additional water removed from the soil measured ranged from 94 to 113 percent of that reported by the North Plains PET weather station network for fully irrigated Runner peanuts. Average was 103 percent when peanut production averaged 3838 pounds per acre from an average of 10.91 inches of irrigation and 20.30 inches of total rainfall, irrigation, and additional soil water.

The value of irrigation water in producing peanuts priced at $420 per ton ranged from $48.33 to $107.77 per inch applied. Average was $73.85 from each inch. These values for irrigation water include rainfall and additional water removed from the soil by the crop as well as irrigation system application efficiency and management of resources.

A tabulated summary of the 2007 peanut irrigation and production demonstrations are listed in Table 1. Additional information is presented in the individual grower reports.

Forty-seven peanut irrigation and production demonstrations were conducted during ’98, ’99, ’00, ’01, ’02, ’03, ’04, ’05, ’06, and ’07 growing seasons. All were irrigation by center pivot systems. Irrigation averaged 16.56 inches and production 3876 pounds per acre. Production per inch of irrigation averaged 234 pounds per acre. Rainfall, irrigation, and additional soil water averaged 27.68 inches from which peanut production was 140 pounds per inch measured. Rainfall, irrigation, and soil water averaged 127 percent of that reported by the North Plains PET Network for fully irrigated Runner peanuts. The ’98, ’99, ’00, ’01, ’02, ’03, ’04, ’05, ’06, and ’07 summary is included in Table 1.

Thanks to the peanut growers who cooperated in making the information presented available by providing personal facilities, management time, operating data and other information. Hopefully, the information reported will help you and other peanut growers.

Table 1. Peanut Irrigation and Production, 2007

		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$420.00/TON- $	
						LB/ACRE/IN		ACRE INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	LB/AC	IRRIGATION	RAIN/IRRIG/SOIL	IRRIGATION	RAIN/IRRIG/SOIL
Collingsworth	Joe Baumgardner	12.10	22.26	113	4690	387.60	210.69	81.40	44.25
Collingsworth	Dan & Rex Henard	11.26	19.91	101	4060	360.57	203.92	75.72	42.82
Collingsworth	Pat & Rod White	6.82	18.90	94	3500	513.20	185.19	107.77	38.89
Collingsworth	Dannie Morris	13.47	20.11	103	3100	230.14	154.15	48.33	32.37
AVERAGE 2007	4	10.91	20.30	103	3838	351.66	189.09	73.85	39.71
AVG '98'99'00'01'02'03'04'05'06'07	47	16.56	27.68	127	3876	234.14	140.05	49.17	29.41

All irrigated by Center Pivot Systems

AgriLIFE EXTENSION
Texas A&M System

IRRIGATED PEANUT PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
JOE BAUMGARDNER, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on peanut production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine peanut production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated peanuts to help growers predict yields.

SUMMARY:

Planted:	May 10	**Fertilizer:**	10-34-0
Variety:	Flavor Runner 458	**Insecticide:**	None
Seeding Rate:	75 Lbs	**Herbicide:**	Cadre & Prowl
Soil Type:	Miles Loamy Fine Sand	**Harvested:**	October 16
Row Width:	30 Inches	**No. Acres:**	132

RAINFALL

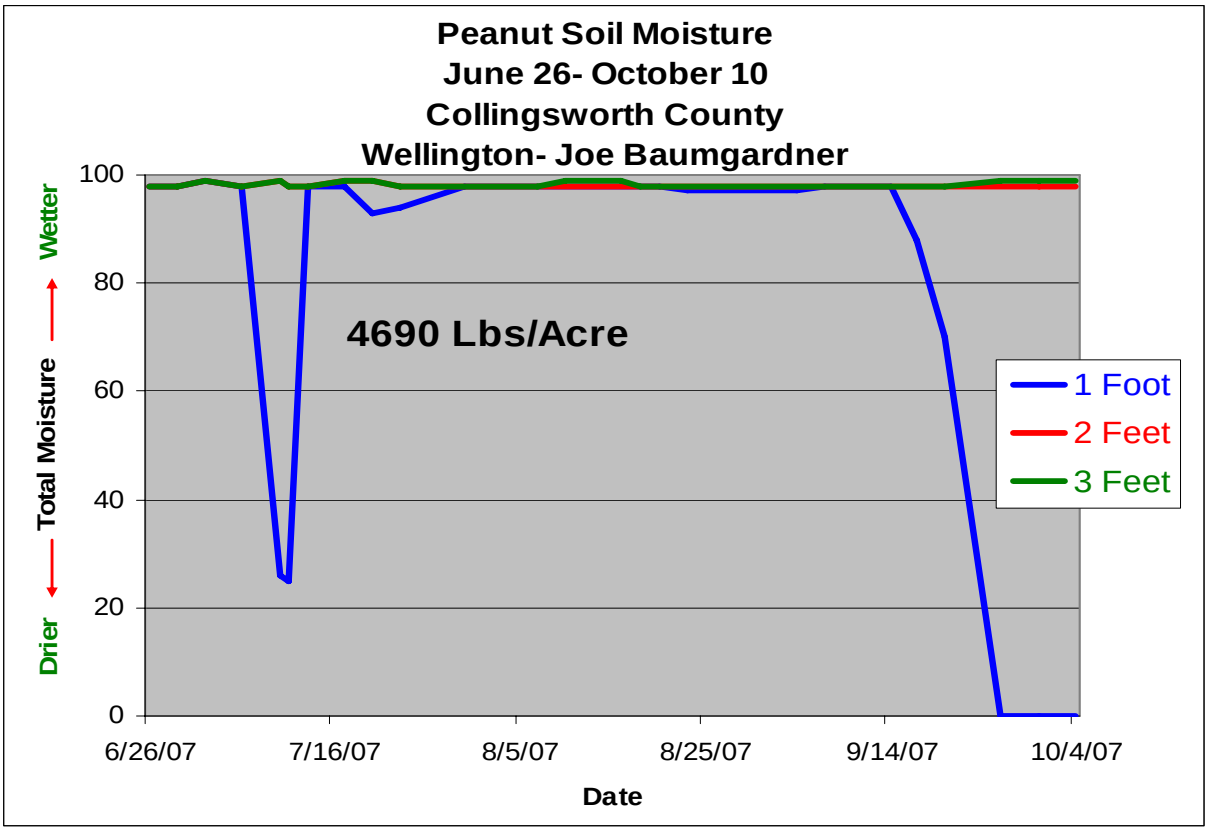
May – 1.50" June- 1.25" July- 2.10" August- 3.50" September- 0.50" Total: 8.85"

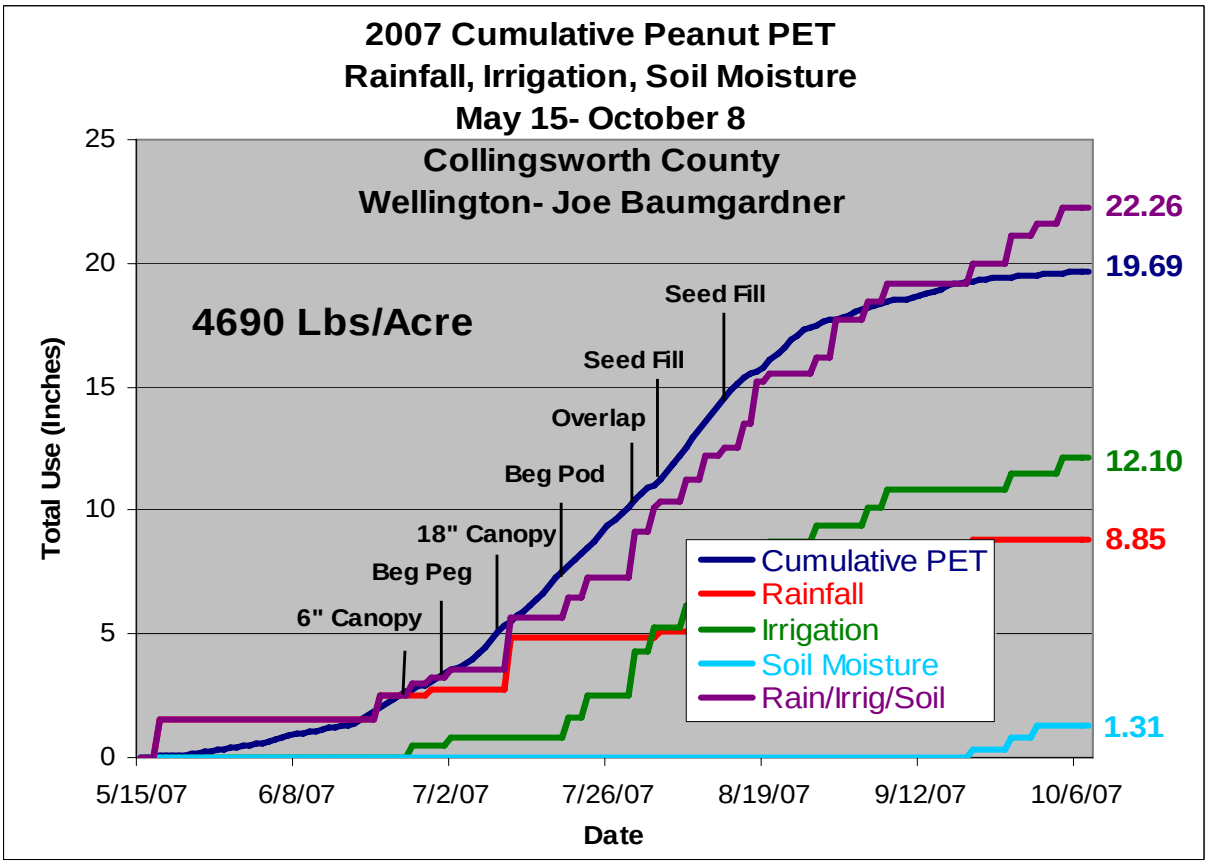
MATERIALS AND METHODS: One hundred and thirty-two acres irrigated by a center pivot nozzled at 800 gpm were planted to peanuts. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated peanuts are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $420.00/ Ton- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
12	**12.10**	**113***	**4690**	**387.60**	**$984.90**	**$81.40**

***Includes 1.31 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet throughout the growing season. The crop had adequate water. Early and late season rainfall helped produce a good peanut yield. Production was 387.6 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 22.26 inches. Production was 210 pounds per inch measured. Irrigation, rainfall, and net soil water was 113 percent of that reported by the North Plains PET Network for fully irrigated runner peanut.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED PEANUT PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
DAN & REX HENARD, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on peanut production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine peanut production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated peanuts to help growers predict yields.

SUMMARY:

Planted:	May 8	**Fertilizer:**	NA
Variety:	458	**Insecticide:**	None
Seeding Rate:	90 Lbs/Acre	**Herbicide:**	Butarack w/Select
Soil Type:	Miles Loamy Fine Sand	**Harvested:**	October 21
Row Width:	40 Inches	**No. Acres:**	60

RAINFALL

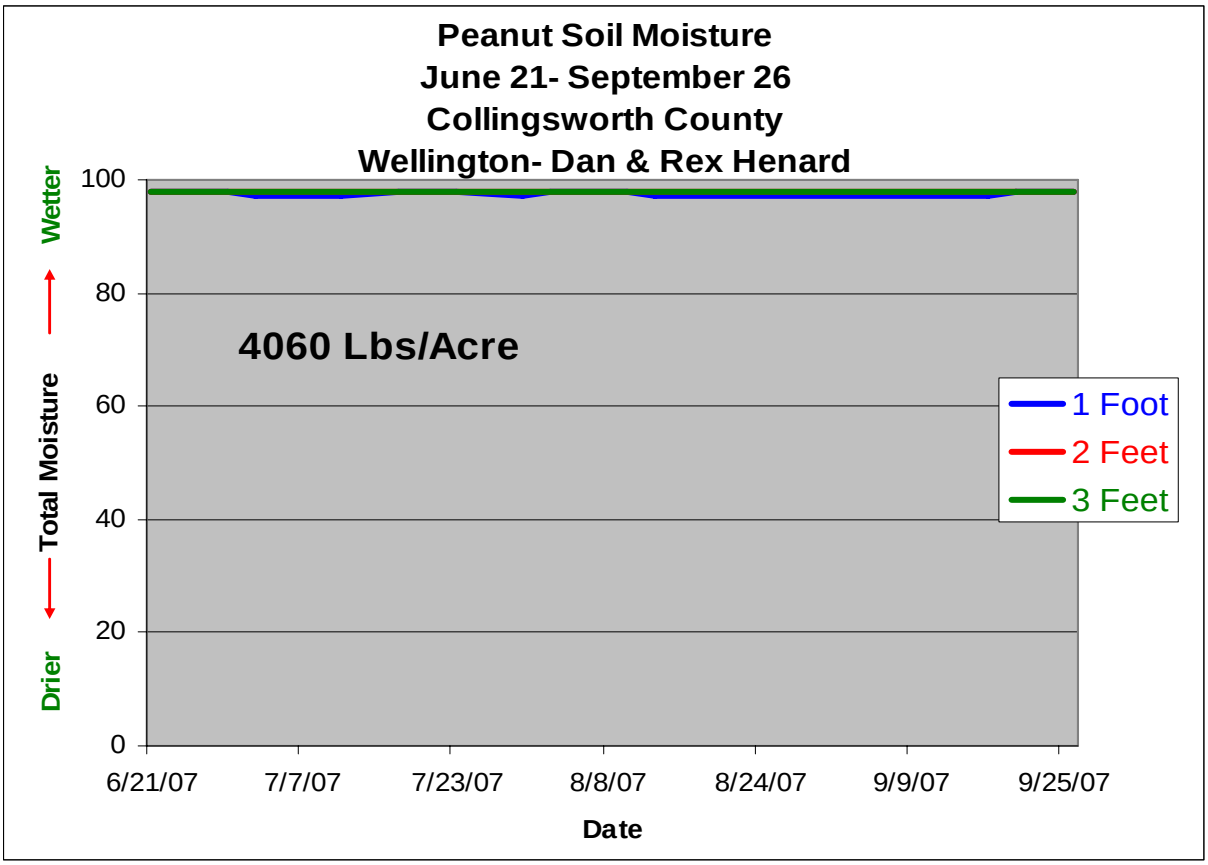
June- 1.30" July- 1.75" August- 2.85" September- 2.75" Total: 8.65"

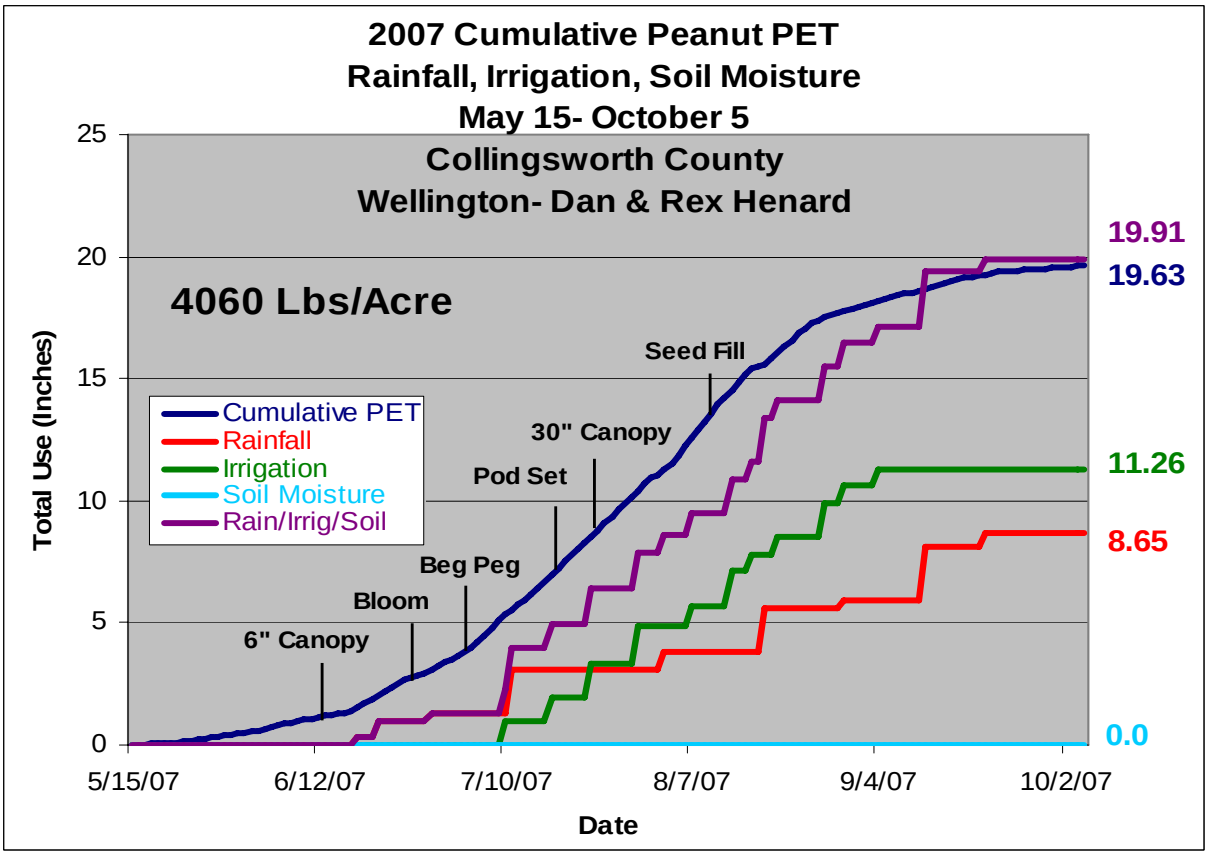
MATERIALS AND METHODS: Sixty acres irrigated by a center pivot nozzled at 750 gpm were planted to peanuts. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated peanuts are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $420.00/ Ton- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
11	**11.26**	**101***	**4,060**	**360.57**	**852.60**	**$75.72**

***Includes 0.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet throughout the growing season. Soil water readings show the crop had sufficient water. Summer rainfall helped produce a good peanut yield and conserve irrigation water. Production was 360 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 19.91 inches. Production was 204 pounds per inch measured. Irrigation, rainfall, and net soil water was 101 percent of that reported by the North Plains PET Network for fully irrigated runner peanut.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED PEANUT PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
PAT & ROD WHITE, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on peanut production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine peanut production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated peanuts to help growers predict yields.

SUMMARY:

Planted:	May 4	**Fertilizer:**	220 Lbs Dry Mix
Variety:	458's	**Insecticide:**	None
Seeding Rate:	80 Lbs	**Herbicide:**	Prowl
Soil Type:	Miles Loamy Fine Sand	**Harvested:**	October 4
Row Width:	40 Inches	**No. Acres:**	60

RAINFALL

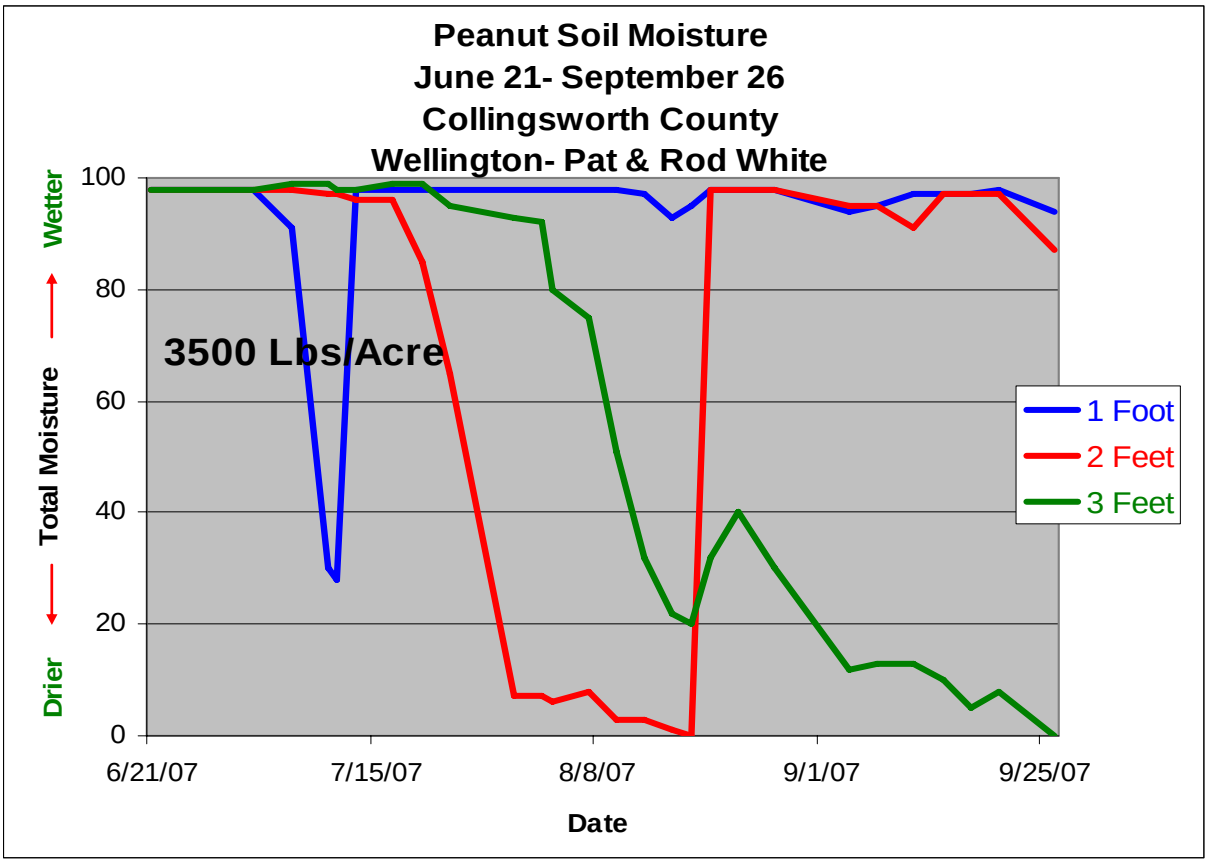
June- 2.25" July- 2.45" August- 2.10" September- 2.85" Total: 9.65"

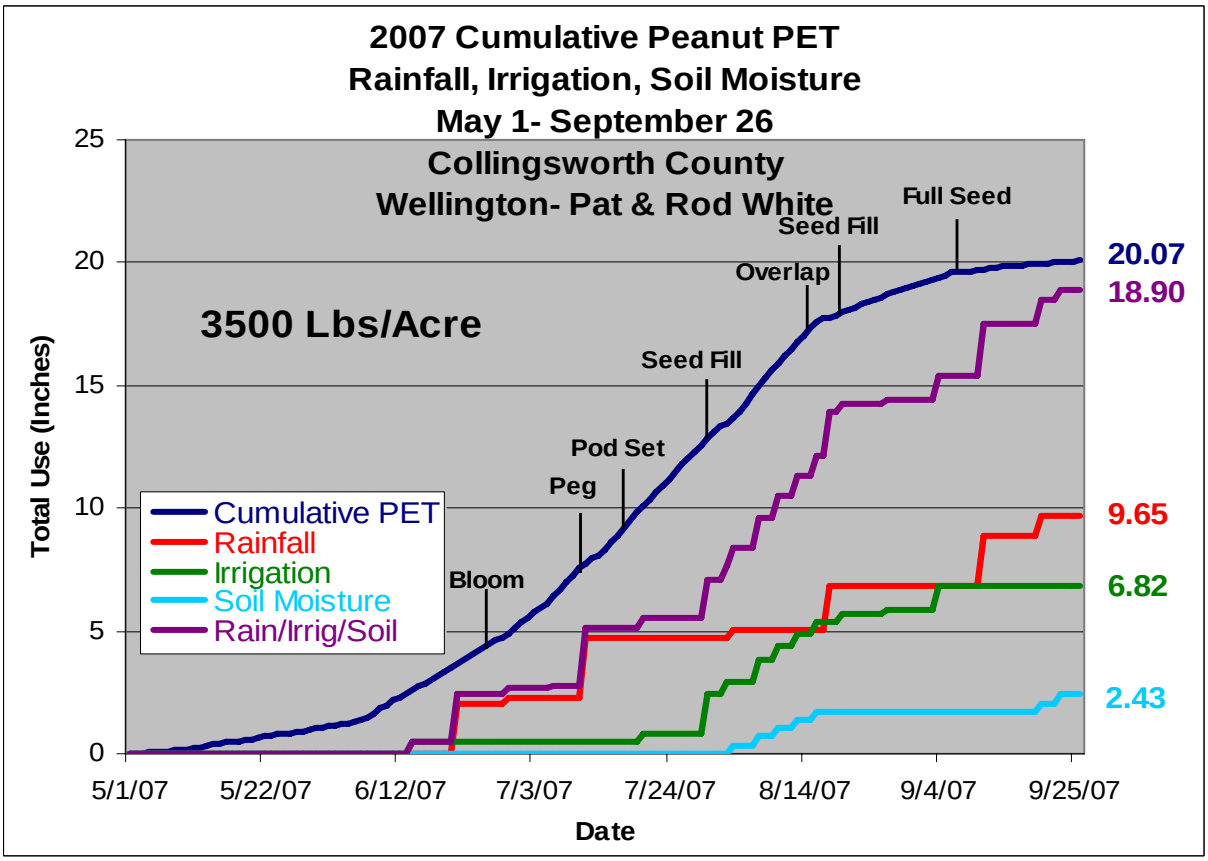
MATERIALS AND METHODS: Sixty acres irrigated by a center pivot nozzled at 600 gpm were planted to peanuts. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated peanuts are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $420.00/ Ton- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
7	**6.82**	**94***	**3,500**	**513.20**	**$735.00**	**$107.77**

***Includes 2.43 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Beginning Soil water was good at 1, 2 and 3 feet. It was used from 2 and 3 feet in August by high plant requirements. Early and late season rainfall helped produce a good crop and limit irrigation. Ending soil water was good at 1 and 2 feet, but depleted at 3 feet. Production was 513 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 18.90 inches. Production was 185 pounds per inch measured. Irrigation, rainfall, and net soil water was 94 percent of that reported by the North Plains PET Network for fully irrigated runner peanut.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED PEANUT PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
DANNIE MORRIS, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on peanut production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine peanut production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated peanuts to help growers predict yields.

SUMMARY:

Planted:	May 14	**Fertilizer:**	Ammonia Nitrate
Variety:	Flavor Runner 458	**Insecticide:**	Orthene/Fungicide w/ Foliar Feed
Seeding Rate:	100 Lbs	**Herbicide:**	Cadre & Butarac/Prowl & Roundup pp
Soil Type:	Springer-Heatley	**Harvested:**	October 12
Row Width:	40 Inches	**No. Acres:**	42

RAINFALL

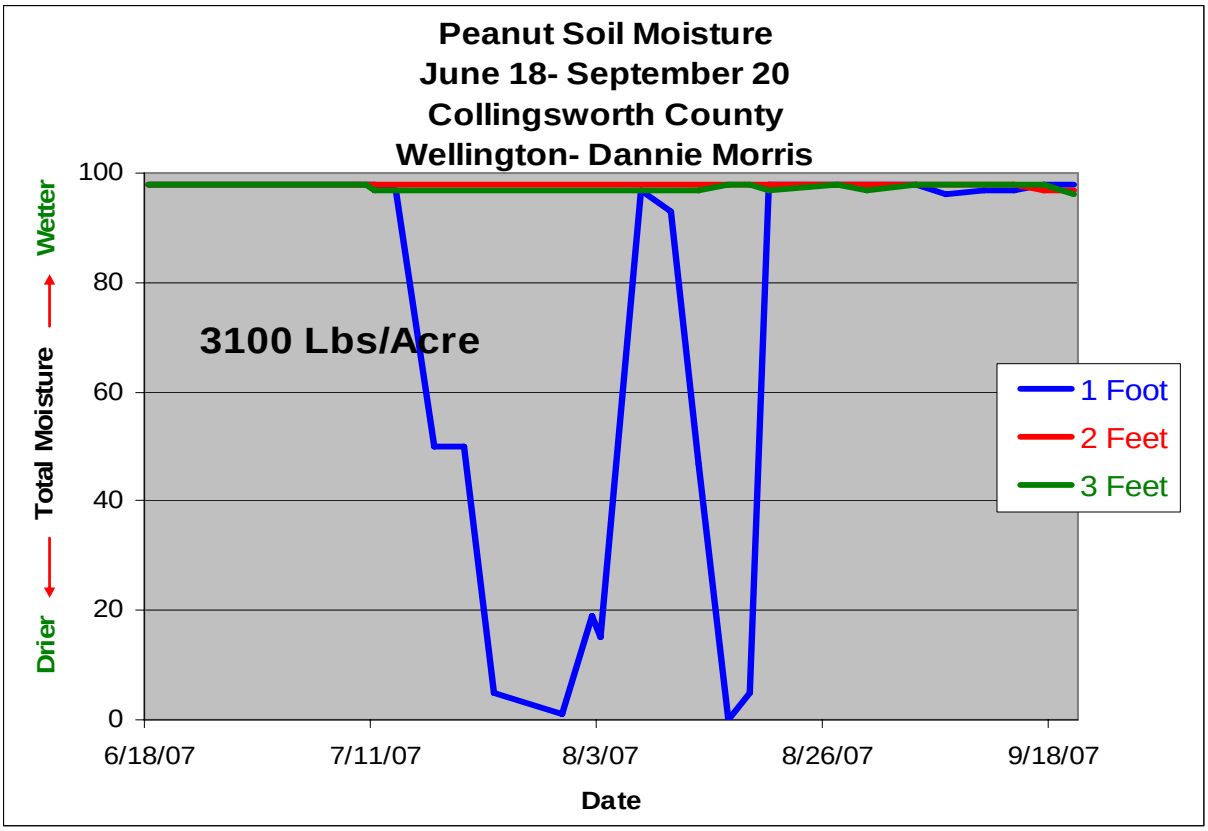
June- 1.85" July- 1.00" August- 2.29" September- 1.50" Total: 6.64"

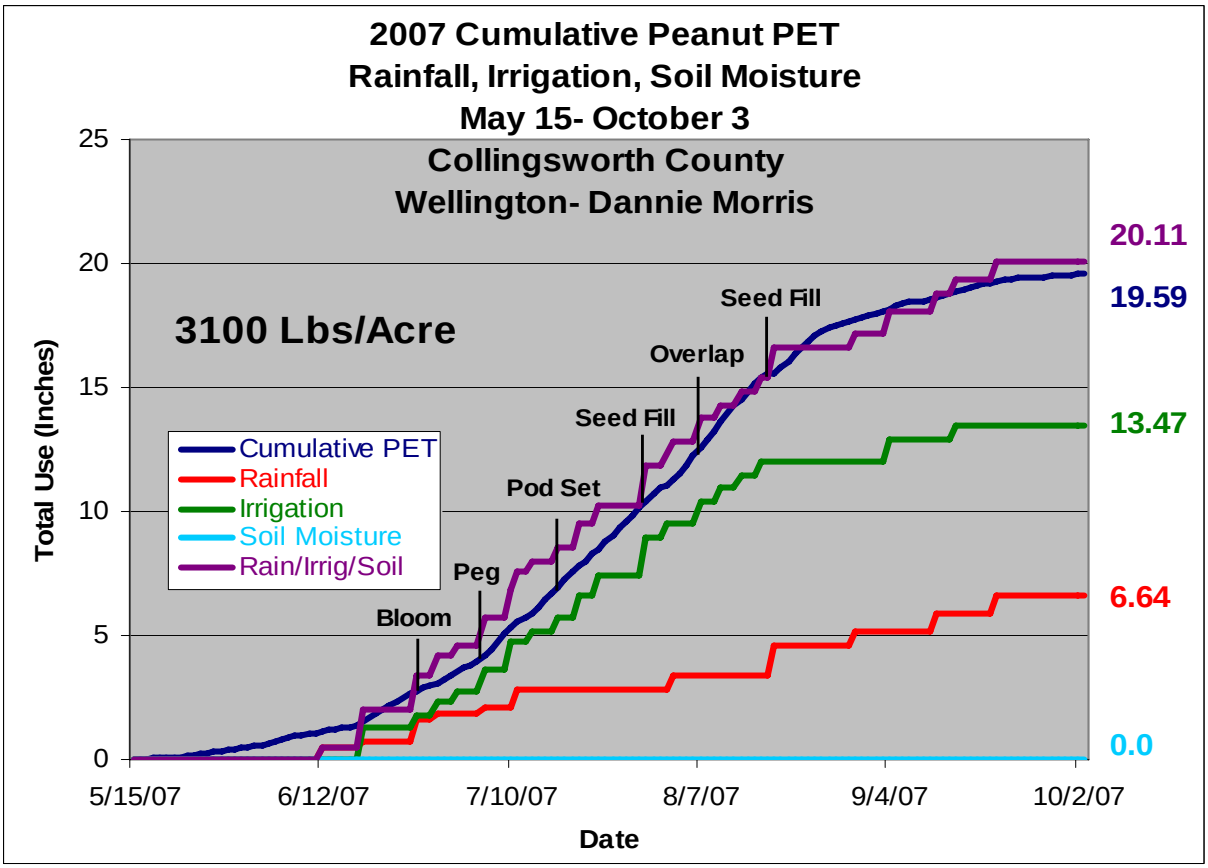
MATERIALS AND METHODS: Sixty acres irrigated by a center pivot nozzled at 250 gpm were planted to peanuts. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated peanuts are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $420.00/ Ton- $**	
Number	**Inches**	**% Of**	**Lbs/Ac**	**Lbs/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
14	**13.47**	**103***	**3,100**	**230.14**	**$651.00**	**$48.33**

***Includes 0.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet throughout the growing season. Summer rainfall helped maintain soil water. Weekly soil water readings shown in the graph on page two show the crop had sufficient water. Production was 230 pounds per inch of irrigation. Irrigation, rainfall and soil water totaled 20.11 inches. Production was 154 pounds per inch measured. Irrigation, rainfall, and net soil water was 103 percent of that reported by the North Plains PET Network for fully irrigated runner peanut.





Silage Irrigation And Production 2007

Cooperating Growers	*County*
Silage Sorghum	
Frankie Bezner	**Deaf Smith**
Mike Menke	**Potter**

AgriPartners Silage Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer-Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Two silage sorghum irrigation and production demonstrations were conducted on 222 acres in Potter and Deaf Smith Counties in 2007. One demonstration was irrigated using a center pivot system. The other used row water.

Silage sorghum production ranged from 20 to 24 tons per acre and averaged 22 tons per acre. All yields are by silage cutter harvest.

Silage sorghum irrigation ranged from 5.9 tons to 11.5 inches and averaged 8.7 inches. Production averaged 2.50 tons from each inch of irrigation applied. With center pivot production was 3.4 tons per inch of irrigation. It was 2.0 tons per inch using row water.

Irrigation, rainfall, and additional water removed from the soil by silage sorghum ranged from 18.43 to 23.32 and averaged 20.88 inches. Production averaged 1.04 tons from each inch of irrigation, rainfall, and soil water measured. Production was 1.09 tons per inch using center pivot and 1.01 with row water.

Rainfall, irrigation, and soil water for silage sorghum ranged from 92 to 123 percent and averaged 108 percent of that reported by the North Plains PET Network for fully irrigated grain sorghum. Rainfall, irrigation and net soil water averaged 102 percent.

Value of water in producing silage sorghum priced at $24.00 per ton ranged from $49.26 to $80.94 and averaged $60.00 per acre inch of irrigation. These values for irrigation include production from rainfall, additional soil water, irrigation system efficiency and management of resources.

A tabulated summary of 2007 silage irrigation and production demonstrations are listed in Table 1. Additional data and information on each demonstration are listed in the grower reports.

Thanks to the Potter and Deaf Smith County growers who cooperated, provided facilities and personal time, operating data and other information.

Table 1 includes average silage corn production for twenty-one irrigation demonstrations conducted in ’98, ’99, ’00, ’01, ’02, ’03, ’04, ’05, and ’06. Production averaged 25 tons per acre from 21.00 inches of irrigation, which is 1.19 tons per inch. Irrigation, rainfall, and soil water averaged 29.41 inches and production 0.85 tons from each inch of water measured. Rainfall, irrigation, and soil water totaled 89 percent of that reported by the North Plains PET Network for fully irrigated corn.

Also, Table 1 includes average silage sorghum production for eleven grower demonstrations conducted during ’98-’07. Five were irrigated by center pivot and six with row water. Silage sorghum production averaged 21 tons per acre. Irrigation averaged 13.92 inches. Production averaged 1.54 tons per inch of irrigation. Irrigation, rainfall, and soil water averaged 23.84 inches from which production was .90 tons per inch.

Table 1. Silage Irrigation and Production, 2007

		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$30.00/Ton-$	
						TON/ACRE/IN		ACRE INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	TONS/AC	IRRIGATION	RAIN/IRRIG/SOIL	IRRIGATION	RAIN/IRRIG/SOIL
CORN									
AVG '98 '99 '00 '01 '02 '03 '04 '05 '06 '07	21	21.00	29.41	89	25	1.19	0.85	35.70	25.50
AVG CENTER PIVOT	18	20.63	29.37	88	26	1.25	0.87	37.50	26.10
AVG ROW WATER	3	23.27	29.64	95	21	0.89	0.70	26.70	21.00

		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$24.00/Ton-$	
						TON/ACRE/IN		ACRE INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	TONS/AC	IRRIGATION	RAIN/IRRIG/SOIL	IRRIGATION	RAIN/IRRIG/SOIL
SORGHUM									
Deaf Smith	Frankie Bezner-RW	11.50	23.32	123	23.6	2.05	1.01	49.25	24.29
Potter	Mike Menke-CP	5.93	18.43	80	20	3.37	1.09	80.94	26.04
AVERAGE 2007	2	8.72	20.88	102	22	2.50	1.04	60.03	25.06
AVG CENTER PIVOT	1	5.93	18.43	80	20	3.37	1.09	80.94	26.04
AVG ROW WATER	1	11.50	23.32	123	24	2.05	1.01	49.25	24.29
AVG '98 '99 '00 '01 '02 '03 '04 '05 '06 '07	11	13.92	23.84	95	21	1.54	0.90	36.96	21.60
AVG CENTER PIVOT	5	16.46	27.81	101	25	1.52	0.90	36.48	21.60
AVG ROW WATER	6	11.81	20.53	90	19	1.57	0.90	37.68	21.60

CP- Center Pivot RW- Row Water

AgriLIFE EXTENSION
Texas A&M System

IRRIGATED SORGHUM SILAGE PRODUCTION USING ROW WATER
DEAF SMITH COUNTY - 2007
FRANKIE BEZNER AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on sorghum silage production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine sorghum silage production from measured irrigation, rainfall, and soil moisture quantities using furrow irrigation and relating it to the North Plains PET Network report of fully irrigated sorghum silage to help growers predict annual yield potential, manage crop production and conserve water.

SUMMARY:

Planted:	May 28	**Fertilizer:**	10 Ton Manure
Variety:	NC+	**Insecticide:**	None
Seeding Rate:	67,000	**Herbicide:**	Atrizine, 2, 4-D
Soil Type:	Pullman Clay Loam	**Harvested:**	September 18
Row Width:	30 Inches	**No. Acres:**	100

RAINFALL

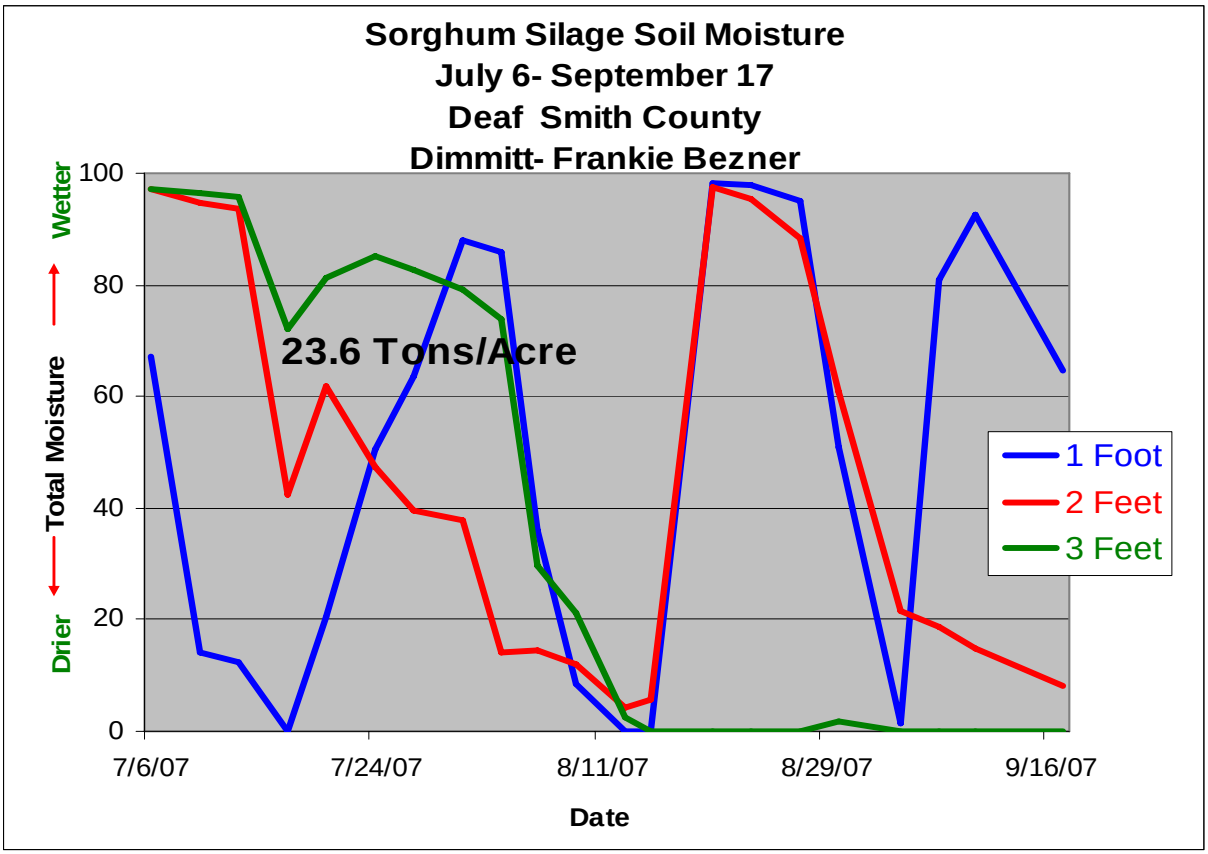
June- 1.85" July- 1.35" August- 1.90" September- 1.80" Total: 6.90"

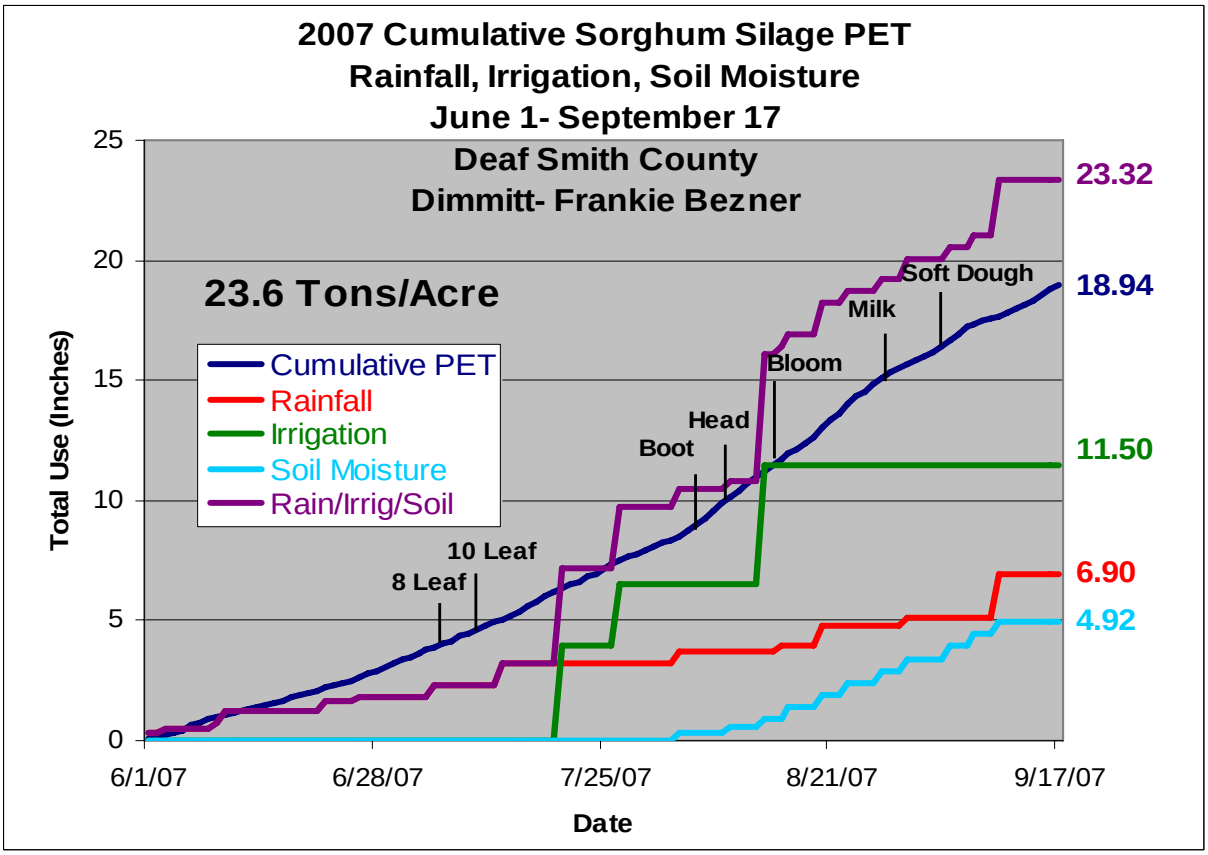
MATERIALS AND METHODS: Sorghum Silage was planted on one-hundred acres of a furrow irrigated field. The dates and number of irrigations from a well/s that delivered 650 GPM were recorded. Irrigation amounts were calculated from well water flow and the number of hours used to irrigate the acreage. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water during the growing season. Two measurements were made each week and recorded. They are reported at the top of the following page. Irrigation, rainfall, additional soil water measured and water use reported by the North Plains PET Network for fully irrigated sorghum silage is summarized on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $24.00/ Ton- $**	
Number	**Inches**	**% Of**	**Ton/Ac**	**Ton/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
3	**11.50**	**123***	**23.60**	**2.05**	**$566.40**	**$49.25**

***Includes 4.92 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil Water was good beginning and was maintained at one and two feet until mid august. It was replenished at one and two feet root zone depths by an irrigation and 1.10 inches of rainfall that followed. Timely late August rainfall helped finish the crop. Silage sorghum production was 2.05 Tons per inch of irrigation and 0.99 Tons per acre from each inch of irrigation, rainfall, and additional soil water measured. Irrigation, rainfall, and additional soil water totaled 23.32 inches, which is 123 percent of that reported by the North Plains PET Network for fully irrigated sorghum silage.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED SORGHUM SILAGE PRODUCTION USING CENTER PIVOT
POTTER COUNTY - 2007
MIKE MENKE AND LEON CHURCH

PROBLEM: High Plains growers need more field measurements and documented data on sorghum silage production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine sorghum silage production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated sorghum silage to help growers predict yields.

SUMMARY:

Planted:	May 27	**Fertilizer:**	Manure
Variety:	Net	**Insecticide:**	None
Seeding Rate:	60,000	**Herbicide:**	Atrazine
Soil Type:	Pullman Clay Loam	**Harvested:**	September 27
Row Width:	30 Inches	**No. Acres:**	122

RAINFALL

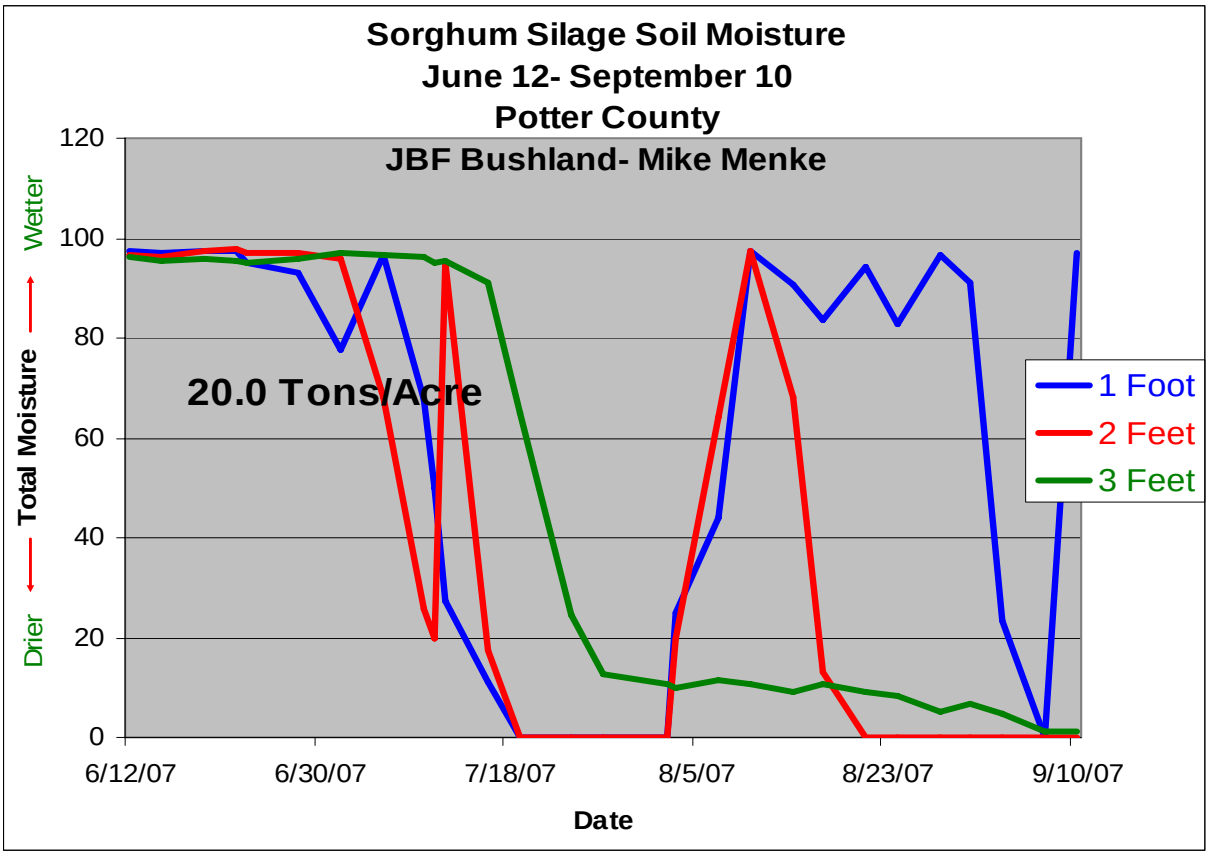
June- 2.40" July- 2.05" August- 3.10" September- 0.95" Total: 8.50"

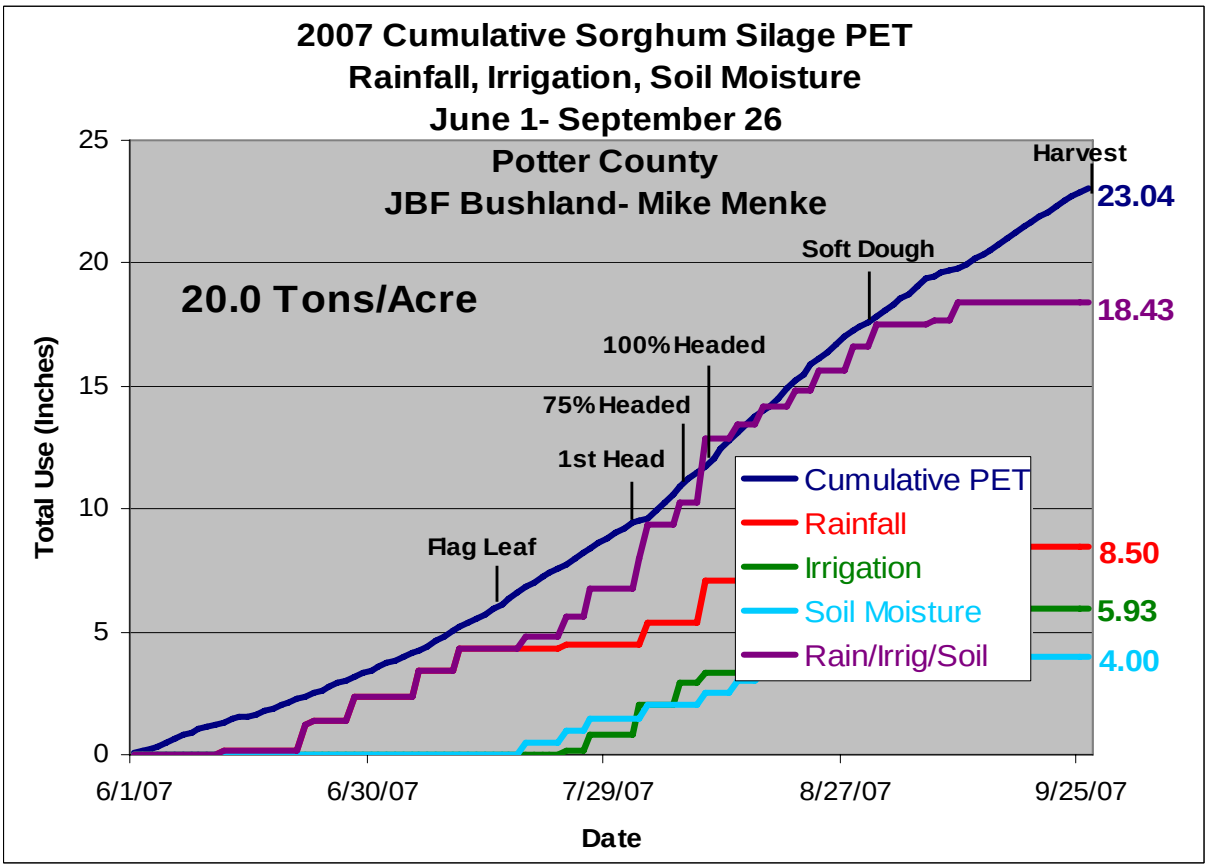
MATERIALS AND METHODS: One hundred and twenty-two acres irrigated by a center pivot nozzled at 450 gpm were planted to sorghum silage. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated sorghum silage are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $24.00/ Ton- $**	
Number	**Inches**	**% Of**	**Ton/Ac**	**Ton/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
7	**5.93**	**80***	**20**	**3.37**	**$480.00**	**$80.94**

***Includes 4.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in June soon after planting. The crop used all soil water, irrigation, and rainfall by mid July. Irrigation and rainfall replenished the 1 and 2 feet soil root zones in August to finish the crop. Production was 3.37 Tons per inch of irrigation. Irrigation, rainfall and soil water totaled 18.43 inches. Production was 1.08 Tons per inch measured. Irrigation, rainfall, and net soil water was 80 percent of that reported by the North Plains PET Network for fully irrigated sorghum silage.





Soybean Irrigation And Production 2007

Cooperating Growers	*County*
Joe Homer	**Carson**
Mike Dudenhoeffer	**Carson**

AgriPartners Soybean Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer-Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Two soybean irrigation and production demonstrations were conducted with two growers in Carson in 2007. All were irrigated by center pivot systems. The soybean demonstrations occupied 390 acres.

Soybean production ranged from 45 to 45 bushels per acre. Average production was 45 bushels. That is the truth. All yields are by combine harvest.

Seasonal irrigation ranged from 7.26 to 7.55 inches per acre and averaged 7.41 inches. Soybean production from each inch of irrigation water ranged from 5.96 to 6.20 bushels per acre and averaged 6.08 bushels. Production from each inch of irrigation using center pivot average 6.08 bushels per acre. Irrigation using center pivot systems averaged 7.41 inches per acre. None of the two growers used pre-water.

Rainfall, irrigation, and additional water used from that stored in the soil root zone and measured, ranged from 14.61 to 17.42 inches and averaged 16.02 inches. Average production from each inch of measured rainfall, irrigation and additional soil water was 2.81 bushels per acre.

Additional soil water, rainfall, and irrigation water measured ranged from 54 to 72 percent of that reported by the North Plains PET Weather Station Network for soybean daily and seasonal cumulative water use for group 4.0 soybeans. Average was 63 percent. Any water used below the top three feet of the root zone was not measured nor included.

Value of irrigation water in producing soybeans priced at $8.75 per bushel ranged from $52.15 to $54.24 from each inch applied. Average was $53.17 per inch of irrigation water. This gross return from irrigation water includes contributive production from rainfall and additional water measured and removed from the soil profile as well as irrigation system efficiency and management of resources.

A tabulated summary of soybean irrigation and production demonstrations are listed in Table 1. Additional site and grower information are presented in individual reports.

Fifty-four soybean irrigation and production demonstrations were conducted in 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, and 2007. Forty-two were irrigated by center pivot and twelve with row water systems. Production averaged 53 bushels per acre from 14.06 inches of irrigation. Production from each inch of irrigation averaged 3.78 bushels per acre. Production per inch of irrigation averaged 3.99 bushels per acre using center pivot. It averaged 3.12 bushels using row water. Soil water, irrigation, and rainfall averaged 26.51 inches from which production was 2.01 bushels per acre per inch. Irrigation, rainfall, and soil water averaged 92 percent of that reported by the North Plains PET Network for fully irrigated soybeans. Irrigation, rainfall, and net soil water using center pivot systems averaged 25.66 inches and production 2.15 bushels per inch measured. With row water, irrigation, rainfall, and soil water measured averaged 29.48 inches and soybean production 1.58 bushels from each inch. The ten year summary is included last in Table 1, on the following page.

Thanks to the soybean growers who provided their facilities, personal time, operating data and other information. Hopefully, this report is helpful to you and other soybean growers.

Table 1. Soybean Irrigation and Production, 2007

		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$8.75/BU	
						BU/ACRE/IN		ACRE INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	BU/AC	IRRIGATION	RAIN/IRRIG/SOIL	IRRIGATION	RAIN/IRRIG/SOIL
Carson	Joe Homer	7.26	14.61	54	45	6.20	3.08	54.24	26.95
Carson	Mike Dudenhoeffer	7.55	17.42	72	45	5.96	2.58	52.15	22.60
AVERAGE 2007	2	7.41	16.02	63	45	6.08	2.81	53.17	24.59
AVG CENTER PIVOT	2	7.41	16.02	63	45	6.08	2.81	53.17	24.59
AVG '98'99'00'01'02'03'04'05'06'07	54	14.06	26.51	92	53	3.78	2.01	33.08	17.59
AVG CENTER PIVOT	42	13.80	25.66	89	55	3.99	2.15	34.91	18.81
AVG ROW WATER	12	14.97	29.48	102	47	3.12	1.58	27.30	13.83
CP= CENTER PIVOT, RW= ROW WATER									

AgriLIFE EXTENSION
Texas A&M System

IRRIGATED SOYBEAN PRODUCTION USING CENTER PIVOT
CARSON COUNTY - 2007
JOE HOMER AND JODY BRADFORD

PROBLEM: High Plains growers need more field measurements and documented data on soybean production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine soybean production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated soybeans to help growers predict yields.

SUMMARY:

Planted:	May 11	**Fertilizer:**	65 lbs NH3
Variety:	NC +, Pioneer	**Insecticide:**	None
Seeding Rate:	55 lbs/acre	**Herbicide:**	2 QT Treflan
Soil Type:	Pullman Clay Loam	**Harvested:**	October 5
Row Width:	40 Inches	**No. Acres:**	150

RAINFALL

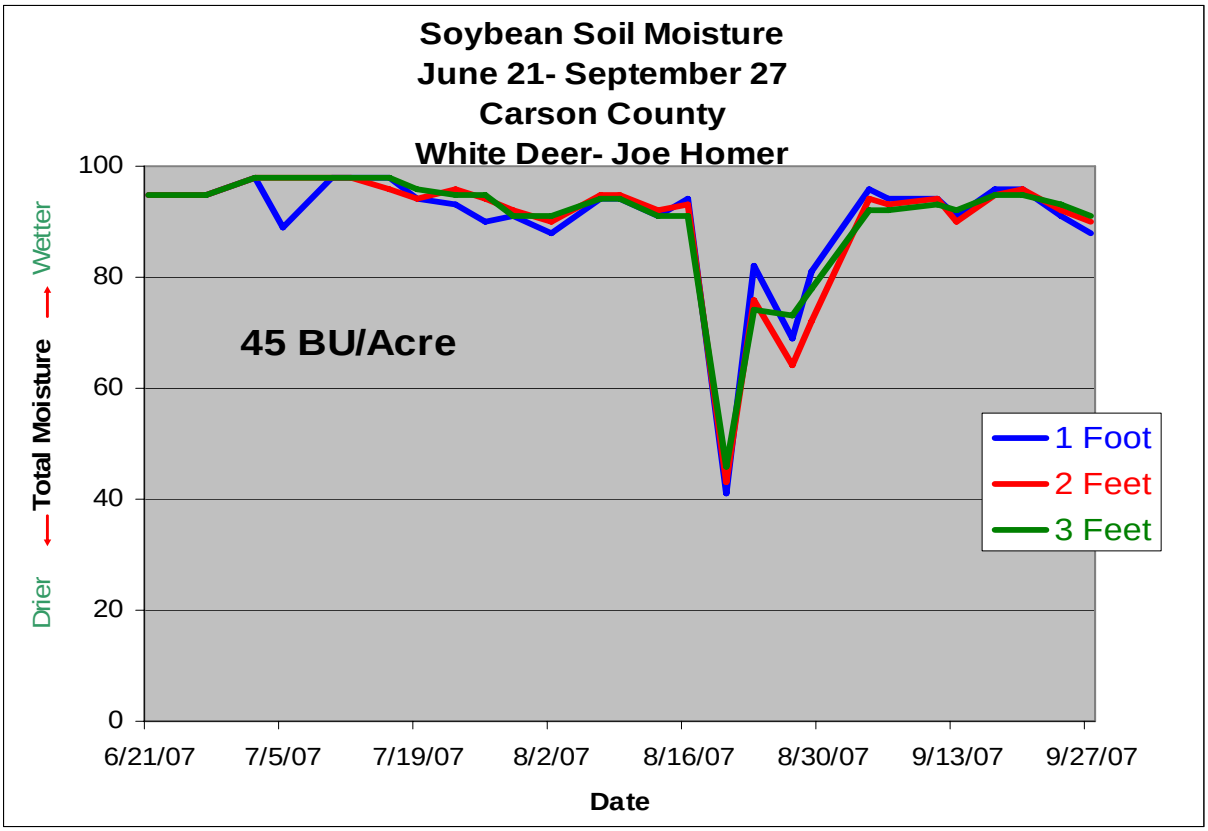
May – 0.90" June- 0.35" July- 1.30" August- 0.80" September- 2.60" Total: 5.95"

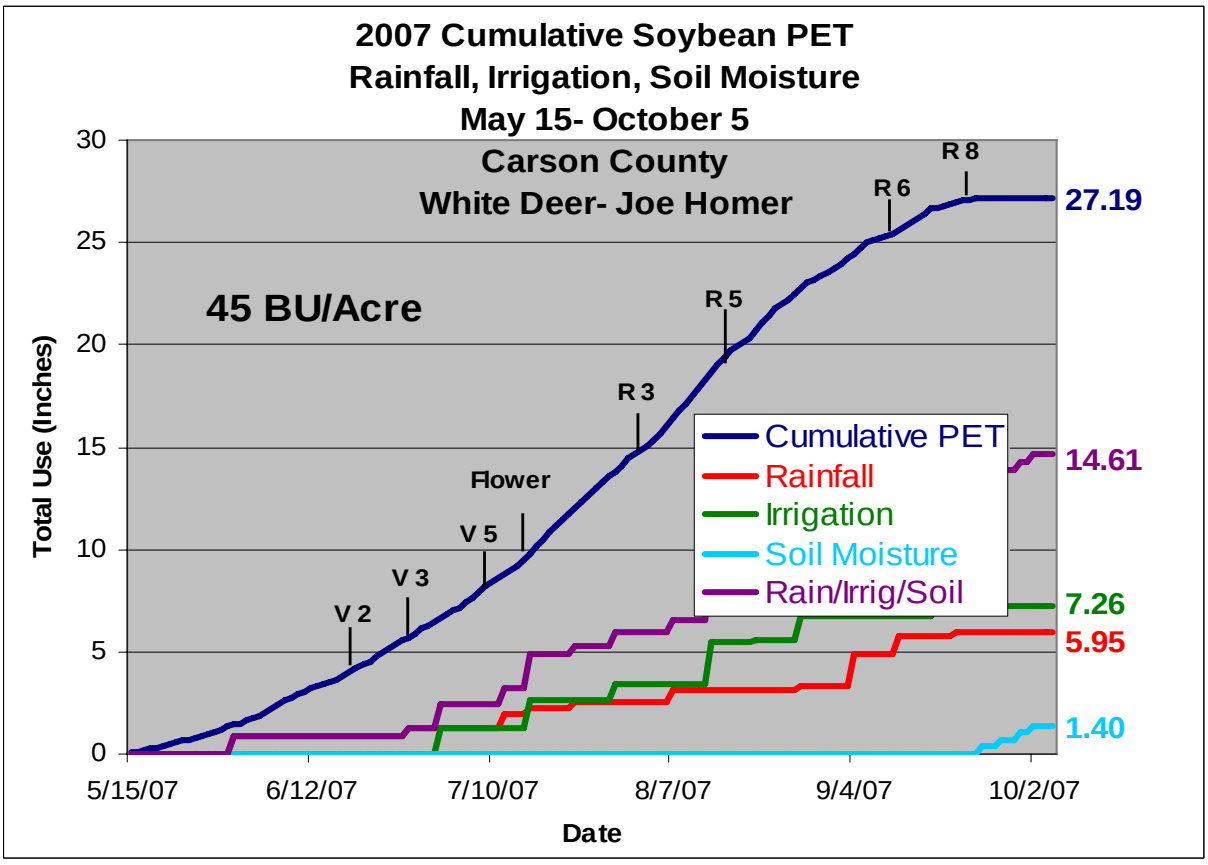
MATERIALS AND METHODS: One hundred and fifty acres irrigated by a center pivot nozzled at 700 gpm were planted to soybeans. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated soybeans are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $8.75/ BU- $**	
Number	**Inches**	**% Of**	**BU/Ac**	**BU/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
7	**7.26**	**54***	**45**	**6.20**	**$393.75**	**$54.24**

***Includes 1.40 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet. The graph on the following page shows significant water use at 1, 2 and 3 feet during reproduction stage R5 in August. Seasonal soil water readings show the crop has sufficient water. Production was 6.20 bushels per inch of irrigation. Irrigation, rainfall and soil water totaled 14.61 inches. Production was 3.08 bushels per inch measured. Irrigation, rainfall, and net soil water was 54 percent of that reported by the North Plains PET Network for fully irrigated soybean.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED SOYBEAN PRODUCTION USING CENTER PIVOT
CARSON COUNTY - 2007
MIKE DUDENHOEFFER AND JODY BRADFORD

PROBLEM: High Plains growers need more field measurements and documented data on soybean production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine soybean production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated soybeans to help growers predict yields.

SUMMARY:

Planted:	May 23	**Fertilizer:**	80-0-0
Variety:	Pioneer 94 M 80	**Insecticide:**	None
Seeding Rate:	60 lbs per acre	**Herbicide:**	Roundup
Soil Type:	Pullman Clay	**Harvested:**	October 1
Row Width:	Drilled 7.6 Inches	**No. Acres:**	240

RAINFALL

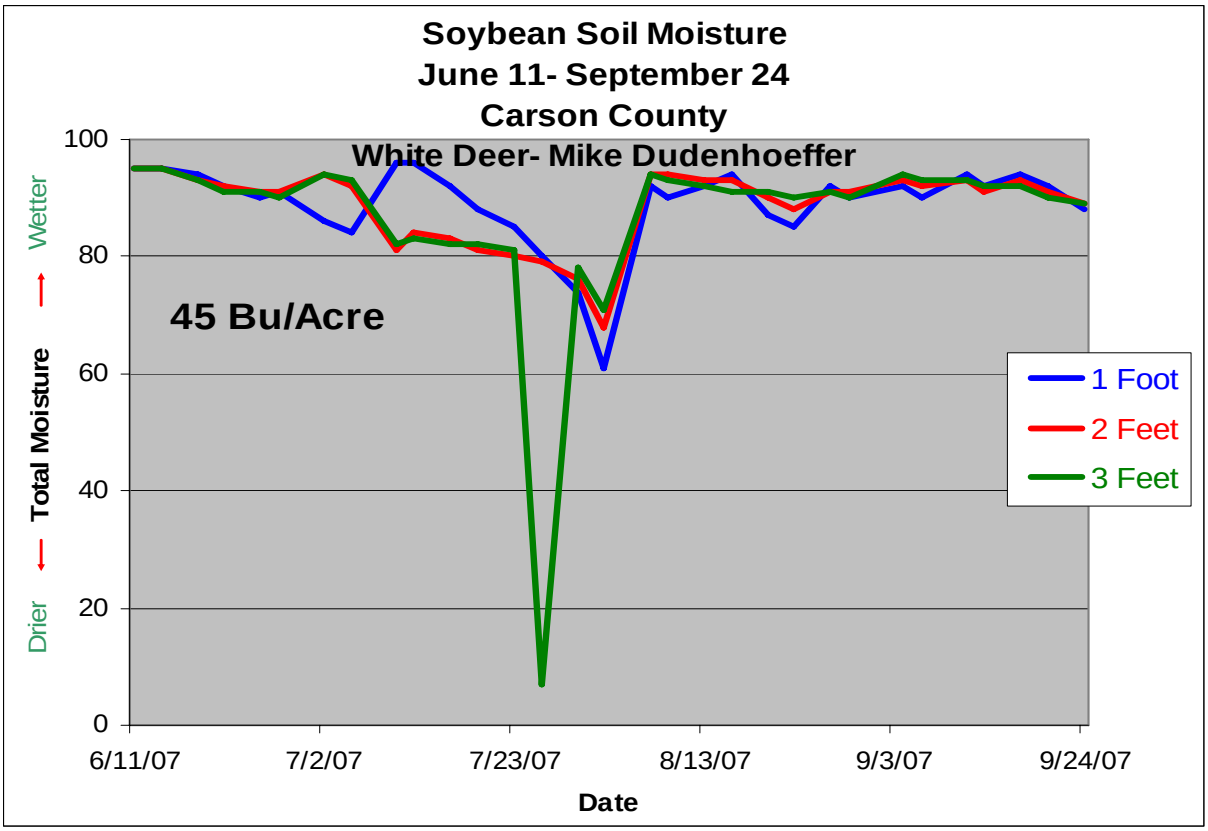
June- 2.00” July- 1.05” August- 1.65” September- 3.65” Total: 8.35”

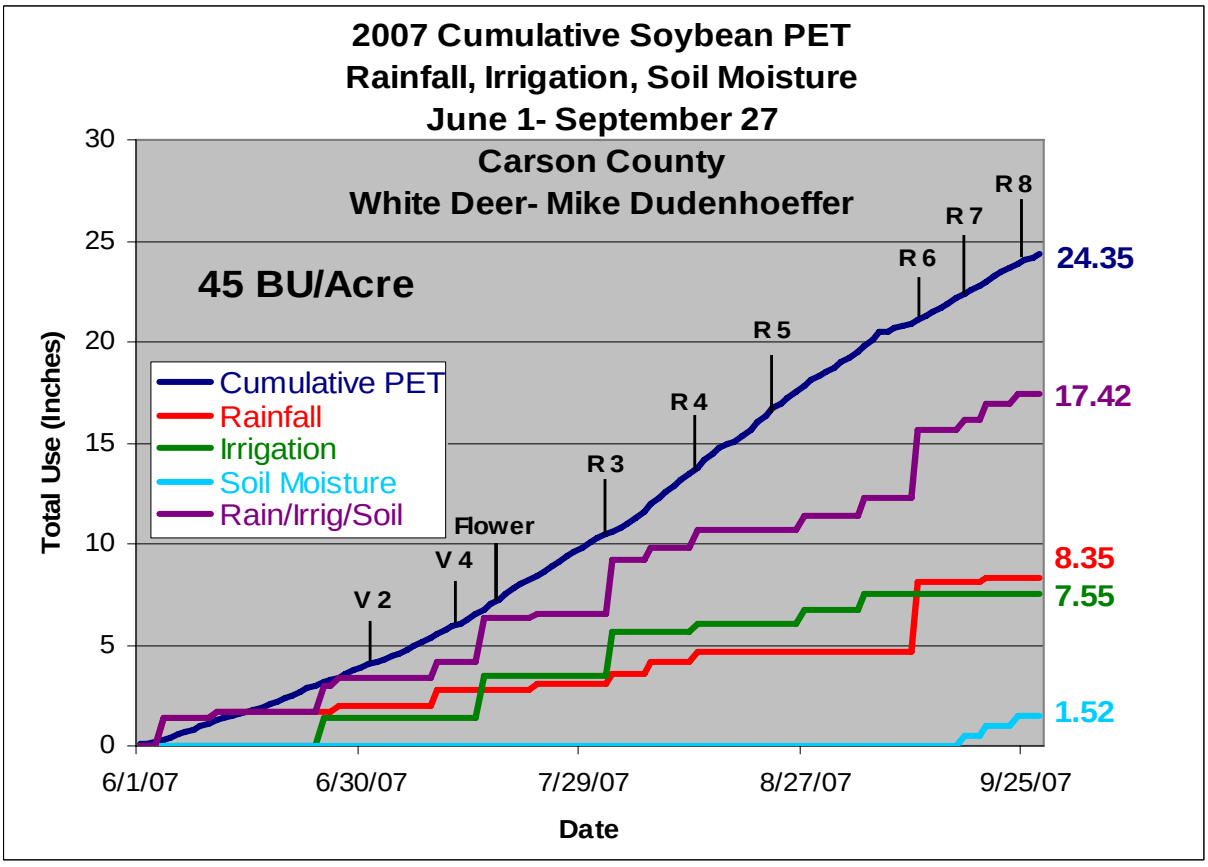
MATERIALS AND METHODS: Two hundred and forty acres irrigated by a center pivot nozzled at 600 gpm were planted to soybeans. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated soybeans are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $8.75/ BU.- $**	
Number	**Inches**	**% Of**	**BU/Ac**	**BU/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
6	**7.55**	**72***	**45**	**5.96**	**$393.75**	**$52.15**

***Includes 1.52 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet beginning and throughout most of the growing season. Soil water measurements indicate the crop did not utilize all water that was available. Production was 5.96 bushels per inch of irrigation. Irrigation, rainfall and soil water totaled 17.42 inches. Production was 2.58 bushels per inch measured. Irrigation, rainfall, and net soil water was 72 percent of that reported by the North Plains PET Network for fully irrigated Soybean.





Wheat Irrigation And Dryland Production 2007

Cooperating Growers	*County*
Dan Krienke- #8	**Ochiltree**
Dan Krienke- #47	**Ochiltree**
David Block	**Moore**
Greg Urbanczyk	**Deaf Smith**
Ray Schlabs Jr.	**Deaf Smith**
Troy Sharke	**Armstrong**
Neal Conrad- West	**Armstrong**
Mike Dudenhoeffer	**Carson**
Ray Schlabs Jr.	**Deaf Smith**
Dave Davis	**Gray**
Neal Conrad- East	**Armstrong**
Rex & Dan Henard	**Collingsworth**
Brian Bichsel- West	**Armstrong**
CJ Kuper	**Hartley**
Brian Bichsel- East	**Armstrong**
<u>Not Harvested</u>	
Rapstine Test Plot	**Gray**

AgriPartners Wheat Irrigation and Production Summary, 2007

Leon New
Professor and Extension Agricultural Engineer- Irrigation
Texas AgriLife Extension Service
Amarillo, Texas

Fifteen wheat irrigation and dryland demonstrations were conducted in 2007. One dryland demonstration was abandoned due to the lack of a good stand. Seven were irrigated by center pivot. There was no furrow irrigation. Eight were dryland. The demonstrations were conducted on 1933 acres.

Wheat yield ranged from 103 to 25 bushels per acre. Average yield was 57 bushels per acre. Irrigated wheat averaged 72 bushels. Yields averaged 72 bushels per acre using center pivot and 0 with row water. Dryland averaged 42 bushels per acre. All yields are by combined harvest.

Irrigation amounts ranged from 11.55 to 1.15 and averaged 6.09 inches per acre. Production ranged from 34.8 to 8.30 bushels per acre inch of irrigation. Average was 11.9 bushels per inch of irrigation. Wheat production averaged approximately 11.9 bushels from each inch of irrigation using center pivot and 0 bushels from row water. Irrigation fuel was expensive.

Rainfall, irrigation and additional water stored in the top three feet of soil and removed by the wheat crop ranged from 35.05 to 15.76 inches. Average was 21.83 inches. Production from one inch of rainfall, irrigation and additional soil water ranged from 4.86 bushels to 2.51 bushels per acre. Average production was 3.37 bushels per inch of total water measured. Rainfall and soil water ranged from 16.37 to 13.29 and averaged 14.06 inches in dryland. Production averaged 3.83 bushels from each inch of rainfall and net soil water. Rainfall was generally above normal during the spring but lacking at planting.

Total rainfall, irrigation and additional water stored in the top three feet of soil ranged from 168 to 73 percent of that reported by the North Plains PET Network for fully irrigated wheat. Average was 116 percent and wheat yields averaged approximately 72 bushels per acre. Any water used from the soil root zone below three feet was not measured nor included. Rainfall, irrigation and additional soil water averaged 116 percent of PET using center pivot and yield averaged 72 bushels per acre. It was 0 percent using row water and yield averaged 0 bushels per acre. In dryland, rainfall and soil water averaged 81 percent of that reported by the North Plains PET Weather Station Network and production 42 bushels per acre.

The value of irrigation, rainfall and soil water in producing wheat priced at $5.50 per bushel ranged from $26.74 to $13.81 per acre inch and averaged $18.28. These numbers include irrigation system efficiency and management of resources. A continuing past seven years average of wheat production per acre inch of irrigation, rainfall and soil water is a good management tool among others. In dryland, the value of rainfall and net soil water ranged from $27.72 to $9.92 and averaged $21.05 from each inch measured.

A tabulated summary of the wheat irrigation and dryland production demonstrations are listed in Table 1. Significant irrigated and dryland wheat production data were obtained when there was limited rainfall to get the crop germinated and up. Wheat production was boosted by rainfall that limited irrigation. Water stored in the soil was good early and quickly used. Reports of each ’07 wheat production demonstration follow in Table 1.

One hundred thirty-five wheat irrigation and dryland production result demonstrations were conducted in 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006 and 2007. They are included with the fifteen successfully conducted in 2007 in the summary report in Table 1. Wheat production averaged

61 bushels per acre. Irrigation, rainfall and soil water averaged 82 percent of that reported by the North Plains PET Network for fully irrigated wheat. Rainfall, irrigation and soil water averaged 18.15 inches per acre and production 3.64 bushels from each inch. The value per inch at $5.50 per bushels wheat is $20.02. Average irrigation was 8.08 inches for the one hundred one demonstrations irrigated. Production was 8.19 bushels from each inch applied. Averaged dryland production was 44 bushels per acre. Production averaged 3.31 bushels from each inch of soil water and rainfall. Rainfall and soil water averaged 67 percent wheat water use reported by the North Plains PET Weather Station Water Management Network.

Thanks to the area wheat growers who cooperated, provided the facilities and personal operating data and information. They are listed on the first page of the wheat section.

Table 1. Wheat Irrigation and Production, 2007									
		WATER-INCHES		PET		PRODUCTION		CROP VALUE @$5.50/BU-$	
						BU/ACRE/IN		ACRE INCH	
COUNTY	GROWER	IRRIGATION	RAIN/IRRIG/SOIL	% OF	BU/AC	IRRIGATION	RAIN/IRRIG/SOIL	IRRIGATION	RAIN/IRRIG/SOIL
Ochiltree	Dan Krienke- CP	11.55	31.38	154	103	8.92	3.28	49.05	18.05
Ochiltree	Dan Krienke- CP	6.21	35.05	168	88	14.17	2.51	77.94	13.81
Moore	David Block- CP	4.25	17.50	96	82	19.29	4.69	106.12	25.77
Deaf Smith	Greg Urbanczyk- CP	9.00	21.62	118	80	8.89	3.70	48.89	20.35
Deaf Smith	Ray Schlabs Jr.- CP	4.50	13.37	73	65	14.44	4.86	79.44	26.74
Armstrong	Troy Skarke- Drlnd	-	12.36	73	62.3	-	5.04	-	27.72
Armstrong	Neal Conrad West- Drlnd	-	14.67	84	51.5	-	3.51	-	19.31
Carson	Mike Dudenhoeffer- Drlnd	-	13.90	82	50	-	3.60	-	19.78
Deaf Smith	Ray Schlabs Jr.- CP	6.00	18.14	99	50	8.33	2.76	45.83	15.16
Gray	Dave Davis- Drlnd	-	14.85	90	49	-	3.30	-	18.15
Armstrong	Neal Conrad East- Drlnd	-	16.37	93	47	-	2.87	-	15.79
Collingsworth	Rex & Dan Henard- CP	1.15	15.76	105	40	34.78	2.54	191.30	13.96
Armstrong	Bryan Bichsel West- Drlnd	-	13.29	76	34	-	2.56	-	14.07
Hartley	CJ Kuper- Drlnd	-	13.80	78	32	-	2.32	-	12.75
Armstrong	Bryan Bichsel East- Drlnd	-	13.86	81	25	-	1.80	-	9.92
AVERAGE 2007	15	-	17.73	98	57.25	-	3.23	-	17.76
AVG IRRIGATION	7	6.09	21.83	116	72.57	11.91	3.32	65.49	18.28
AVG CENTER PIVOT	7	6.09	21.83	116	72.57	11.91	3.32	65.49	18.28
AVG DRYLAND	8	-	14.14	81	43.85	-	3.83	-	21.05
AVG '98'99'00'01'02',03',04,'05,'06,'07	135	-	16.91	79	61	-	3.58	-	19.69
AVG IRRIGATION	101	8.08	18.15	82	66	8.19	3.64	45.05	20.02
AVG CENTER PIVOT	85	7.95	18.38	83	66	8.25	3.57	45.38	19.64
AVG ROW WATER	16	8.72	16.94	77	69	7.90	4.07	43.45	22.40
AVG DRYLAND	34	-	13.23	67	44	-	3.31	-	18.21
CP= CENTER PIVOT, RW= ROW WATER, DRLND= DRYLAND									

AgriLIFE EXTENSION
Texas A&M System

IRRIGATED WHEAT PRODUCTION USING CENTER PIVOT
OCHILTREE COUNTY - 2007
DAN KRIENKE AND SCOTT STRAWN

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict yields.

SUMMARY:

Planted:	October 23	**Fertilizer:**	165-0-0
Variety:	TAM 111	**Insecticide:**	Spray for rust May 3
Seeding Rate:	90 lbs/acre	**Herbicide:**	None Reported
Soil Type:	Pullman Silty Clay Loam	**Harvested:**	June 25
Row Width:	7.5 Inches	**No. Acres:**	125

RAINFALL

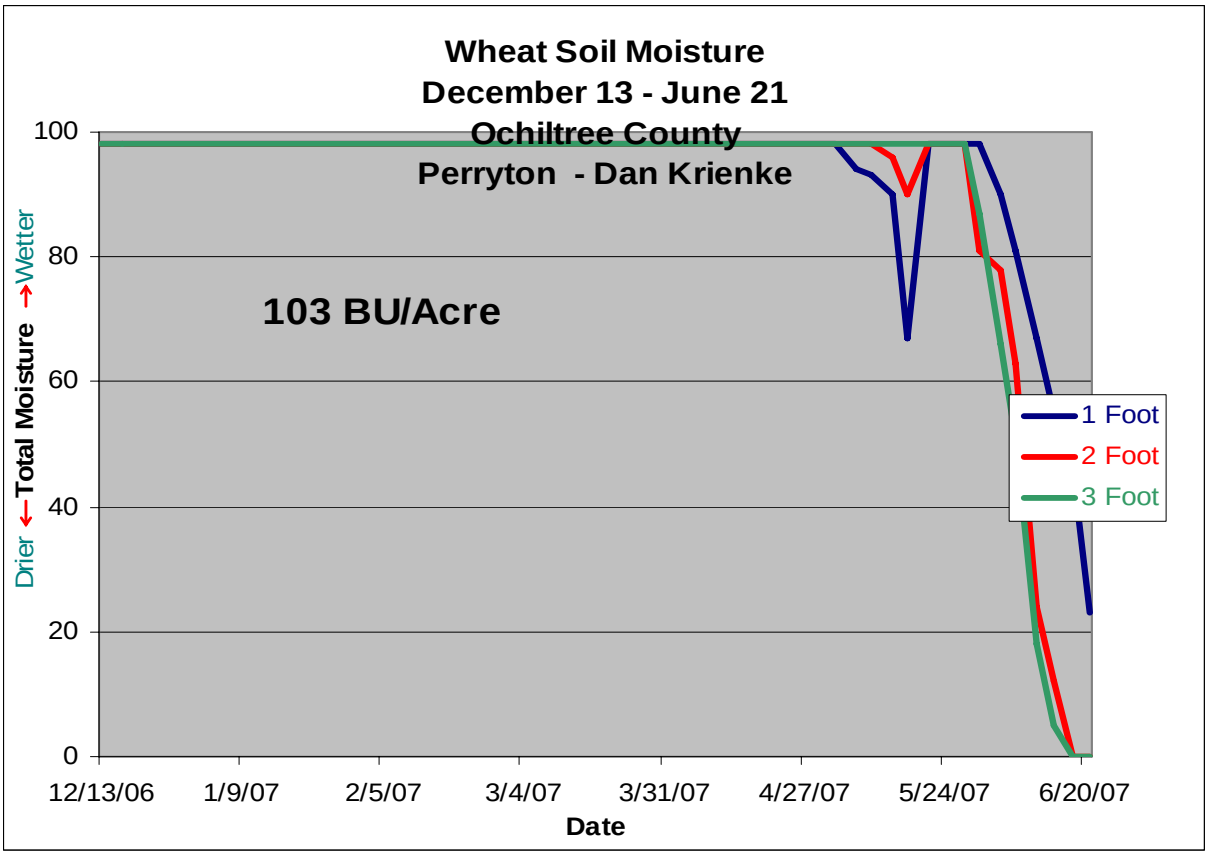
Dec- 1.65” Jan- 4.20” Feb- 0.30” Mar- 3.40” Apr- 1.95” May- 2.80” Total: 14.30”

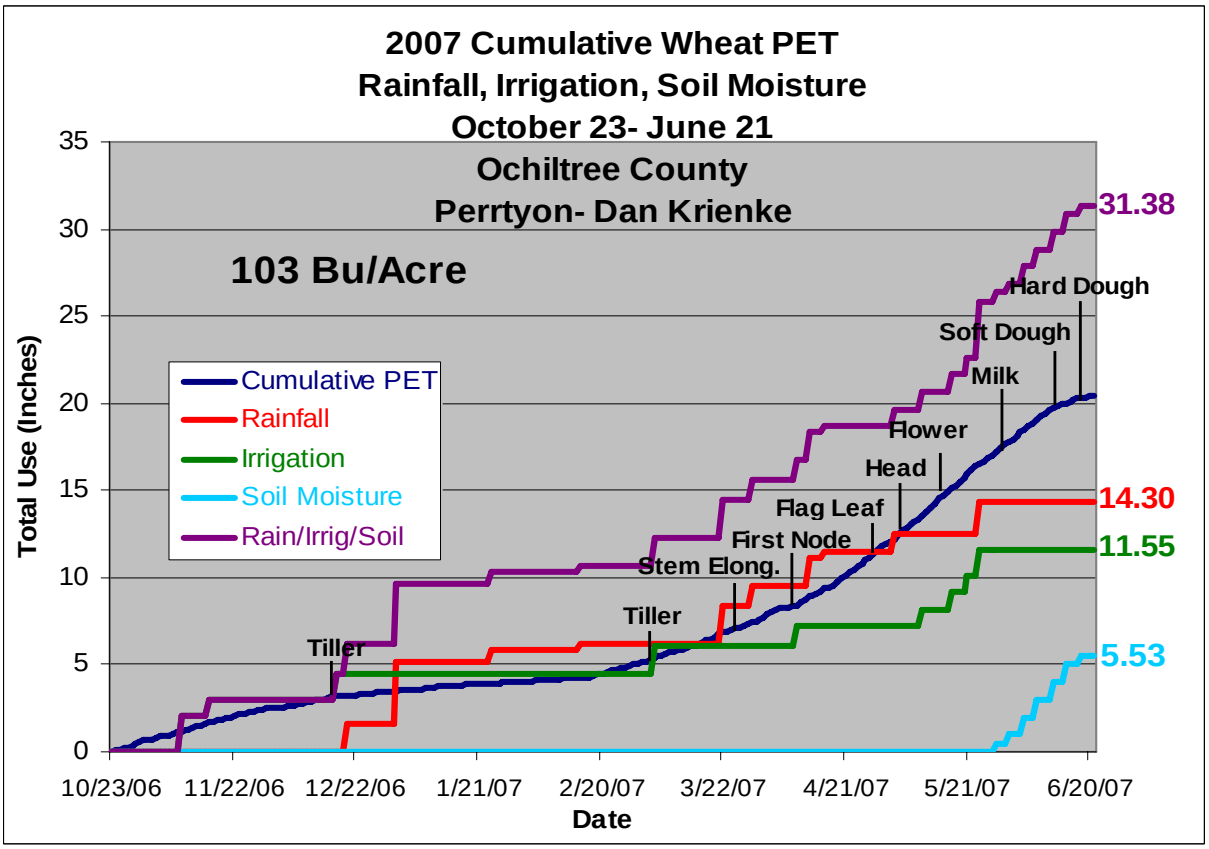
MATERIALS AND METHODS: One hundred twenty-five acres irrigated by a center pivot nozzled at 1000 gpm were planted to wheat. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated wheat are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/BU- $**	
Number	**Inches**	**% Of**	**Bu/Ac**	**Bu/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
10	**11.55”**	**154***	**103**	**8.92**	**$566.50**	**$49.05**

***Includes 5.53 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet throughout the growing season. Soil water was used in June to finish the crop. December and January rainfall totaled 5.85 inches and the primary reason irrigation, rainfall and soil water is 54 percent more than that reported by the PET Network. Production was 8.92 bushels per inch of irrigation. Irrigation, rainfall and soil water totaled 31.38 inches. Production was 3.25 bushels per inch measured. Irrigation, rainfall, and net soil water was 154 percent of that reported by the North Plains PET Network for fully irrigated wheat. Without December and January unusual high rainfall, irrigation, rainfall and soil water totaled 25.53 inches which is 125 percent of weather station PET.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED WHEAT PRODUCTION USING CENTER PIVOT
OCHILTREE COUNTY - 2007

DAN KRIENKE AND SCOTT STRAWN

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict yields.

SUMMARY:

Planted:	September 29	**Fertilizer:**	145-0-0/ 10 Ton Manure
Variety:	Dumas	**Insecticide:**	None Reported
Seeding Rate:	50 lbs/acre	**Herbicide:**	None Reported
Soil Type:	Pullman Silty Clay Loam	**Harvested:**	June 21
Row Width:	7.5 Inches	**No. Acres:**	120

RAINFALL

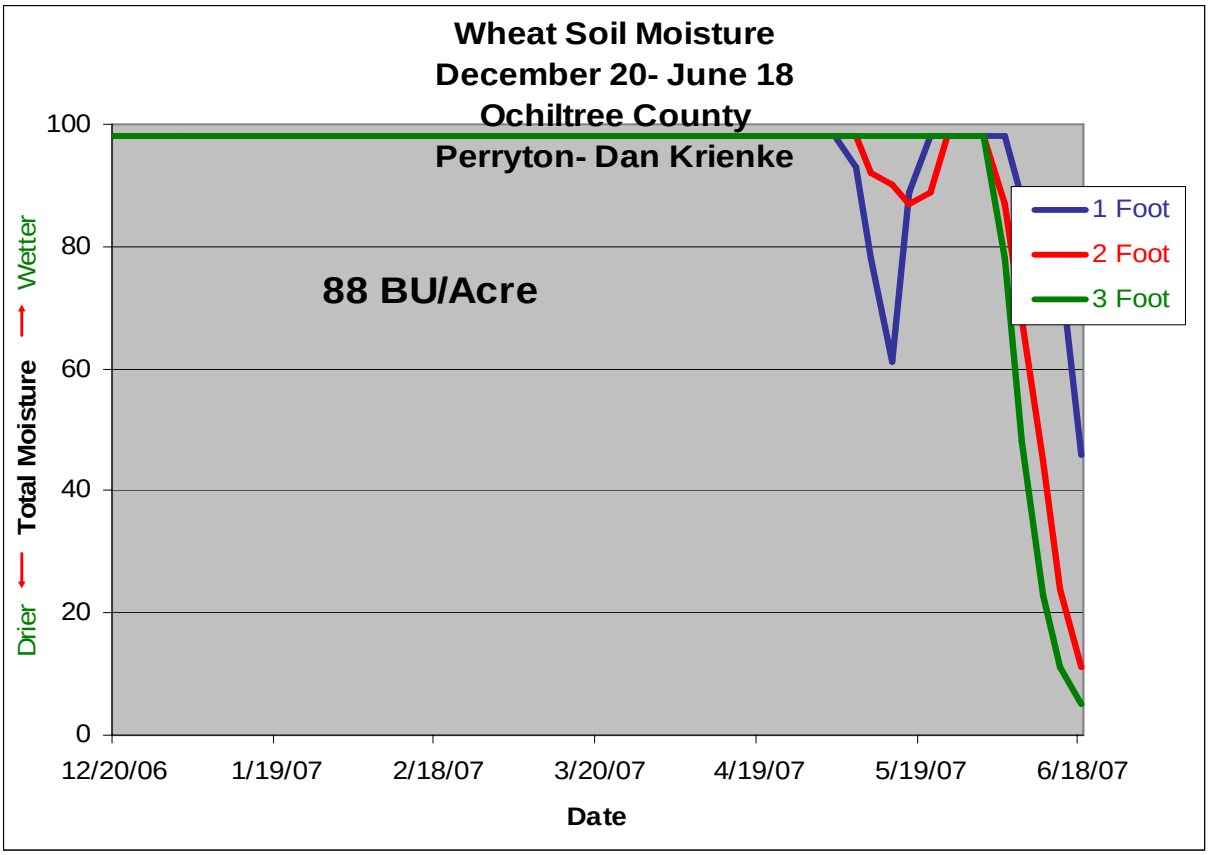
Oct-2.90" Nov-0.0" Dec-1.65" Jan-4.20" Feb-0.35" Mar-8.75" Apr-1.55" May-4.40" Total: 23.80"

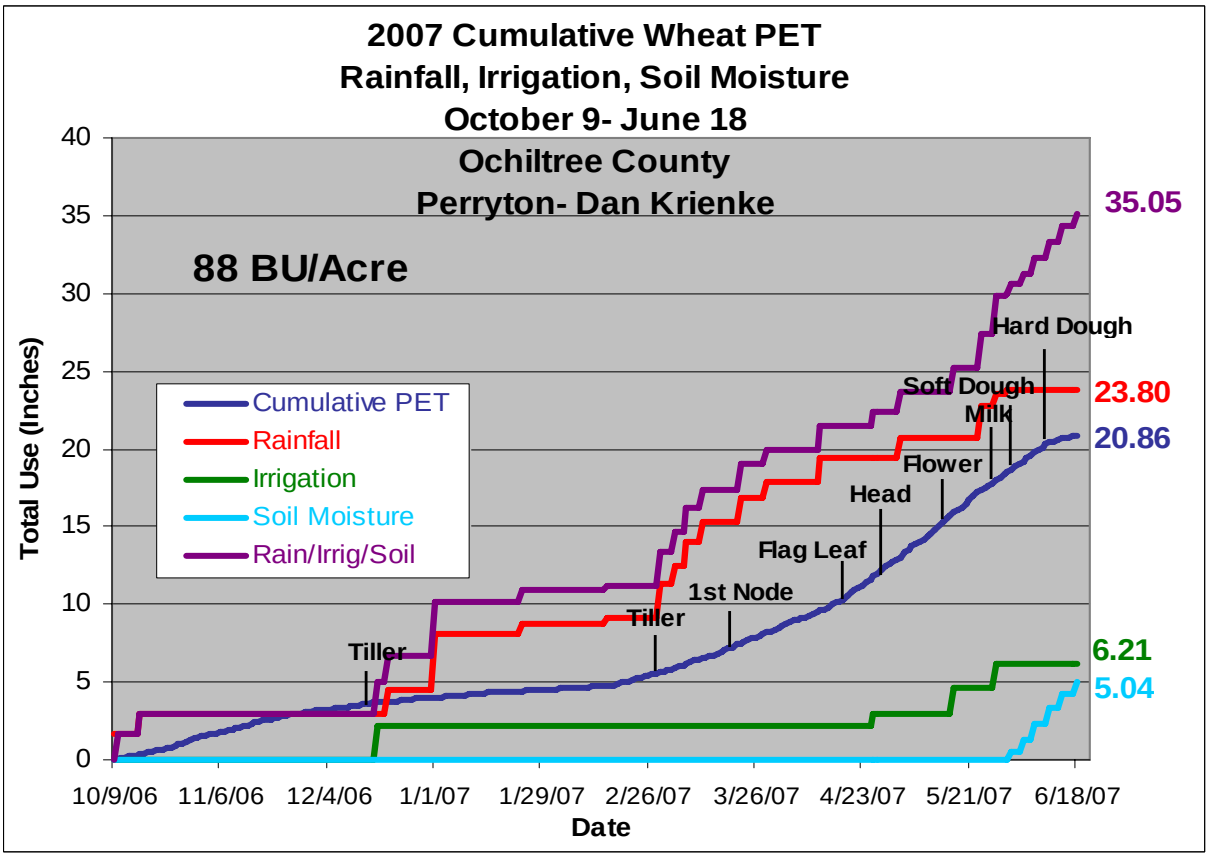
MATERIALS AND METHODS: One hundred and twenty acres irrigated by a center pivot nozzled at 600 gpm were planted to wheat. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated wheat are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/BU- $**	
Number	**Inches**	**% Of**	**Bu/Ac**	**Bu/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
4	**6.21**	**168***	**88**	**14.17**	**$484.00**	**$77.94**

***Includes 5.04 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good throughout the growing season. Rainfall was unusually abundant. Four irrigations that totaled 6.21 inches were used when rainfall was lacking and to apply nitrogen fertilizer. Production was 14.17 bushels per inch of irrigation. Irrigation, rainfall and soil water totaled 35.05 inches. Production was 2.51 bushels per inch measured. Irrigation, rainfall, and net soil water was 168 percent of that reported by the North Plains PET Network for fully irrigated wheat due to unusually high rainfall.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED WHEAT PRODUCTION USING CENTER PIVOT
MOORE COUNTY - 2007

DAVID BLOCK, MARCEL FISCHBACHER, AND DENNIS BEILUE

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict yields.

SUMMARY:

Planted:	November 1	**Fertilizer:**	100-0-0
Variety:	TAM 111	**Insecticide:**	None Reported
Seeding Rate:	120 lbs/Acre	**Herbicide:**	None Reported
Soil Type:	Sha- Sherm Silty Clay Loam	**Harvested:**	July 9
Row Width:	Drilled	**No. Acres:**	60

RAINFALL

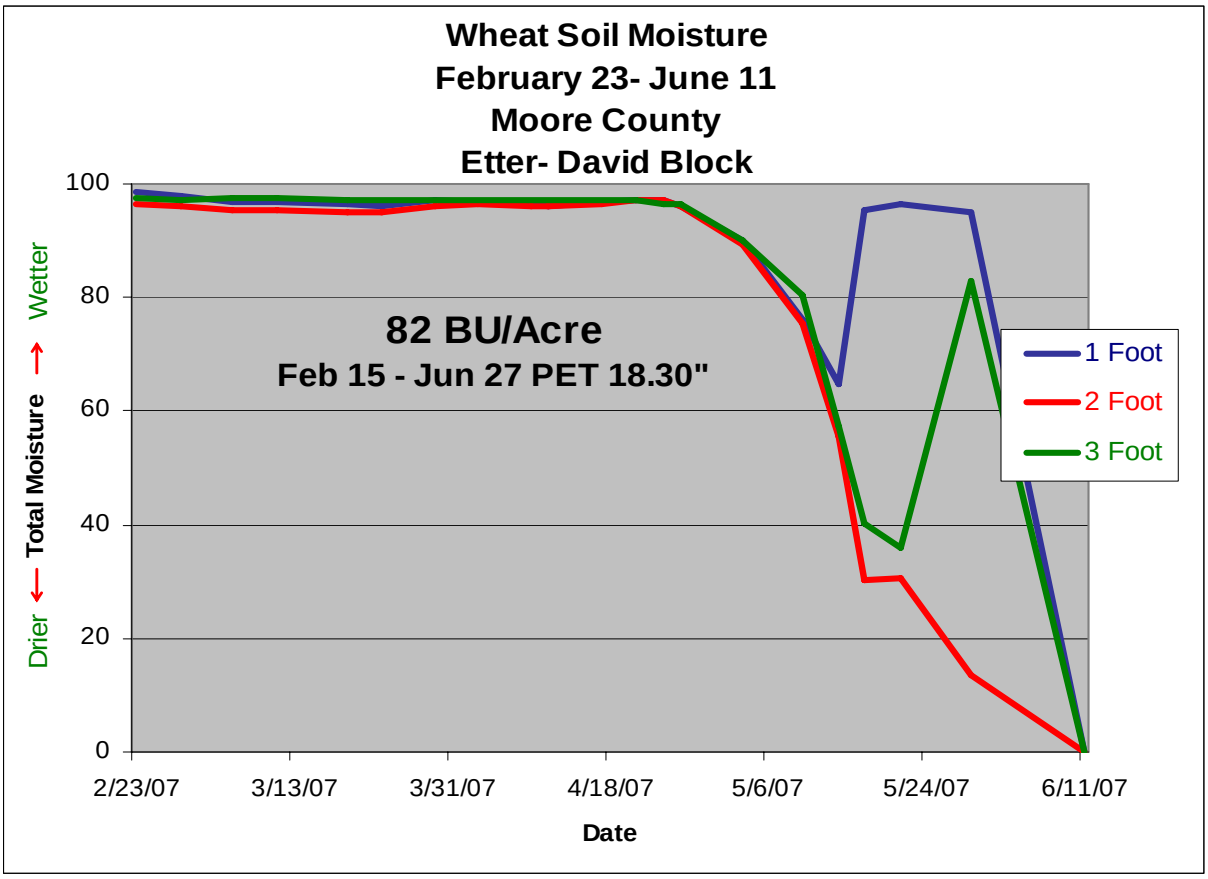
Feb- 0.00" Mar- 2.75" Apr- 4.20" May- 0.30" June- 0.00" Total: 7.25"

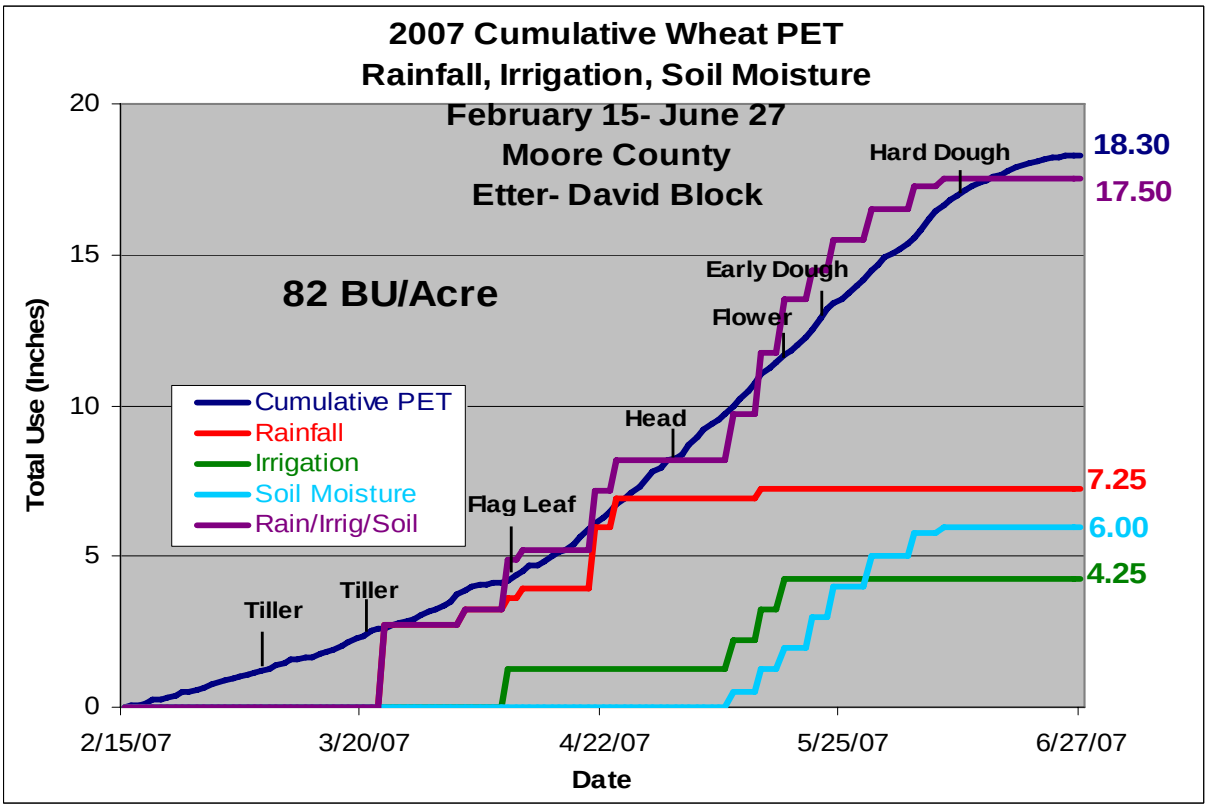
MATERIALS AND METHODS: Sixty acres irrigated by center pivot nozzled at 500 gpm were planted to wheat. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated wheat are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Number	**Inches**	**% Of**	**Bu/Ac**	**Bu/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
4	**4.25**	**96***	**82**	**19.29**	**$451.00**	**$106.12**

***Includes 6.00 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil moisture was good at 1, 2 and 3 feet throughout the spring growing season. Good rainfall in late March and April limited irrigation until May. Rainfall, irrigation and soil water was managed well to produce a good wheat yield. Production was 19.29 bushels per inch of irrigation. Irrigation, rainfall, and soil water totaled 17.50 inches. Production was 4.67 bushels per inch measured. Irrigation, rainfall, and net soil water was 96 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED WHEAT PRODUCTION USING CENTER PIVOT
DEAF SMITH COUNTY - 2007
GREG URBANCZYK AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict yields.

SUMMARY:

Planted:	November 6	**Fertilizer:**	10 Tons Manure
Variety:	None Reported	**Insecticide:**	None Reported
Seeding Rate:	90 lbs/Acre	**Herbicide:**	None Reported
Soil Type:	Pullman Clay loam	**Harvested:**	July 4
Row Width:	Drilled	**No. Acres:**	60

RAINFALL

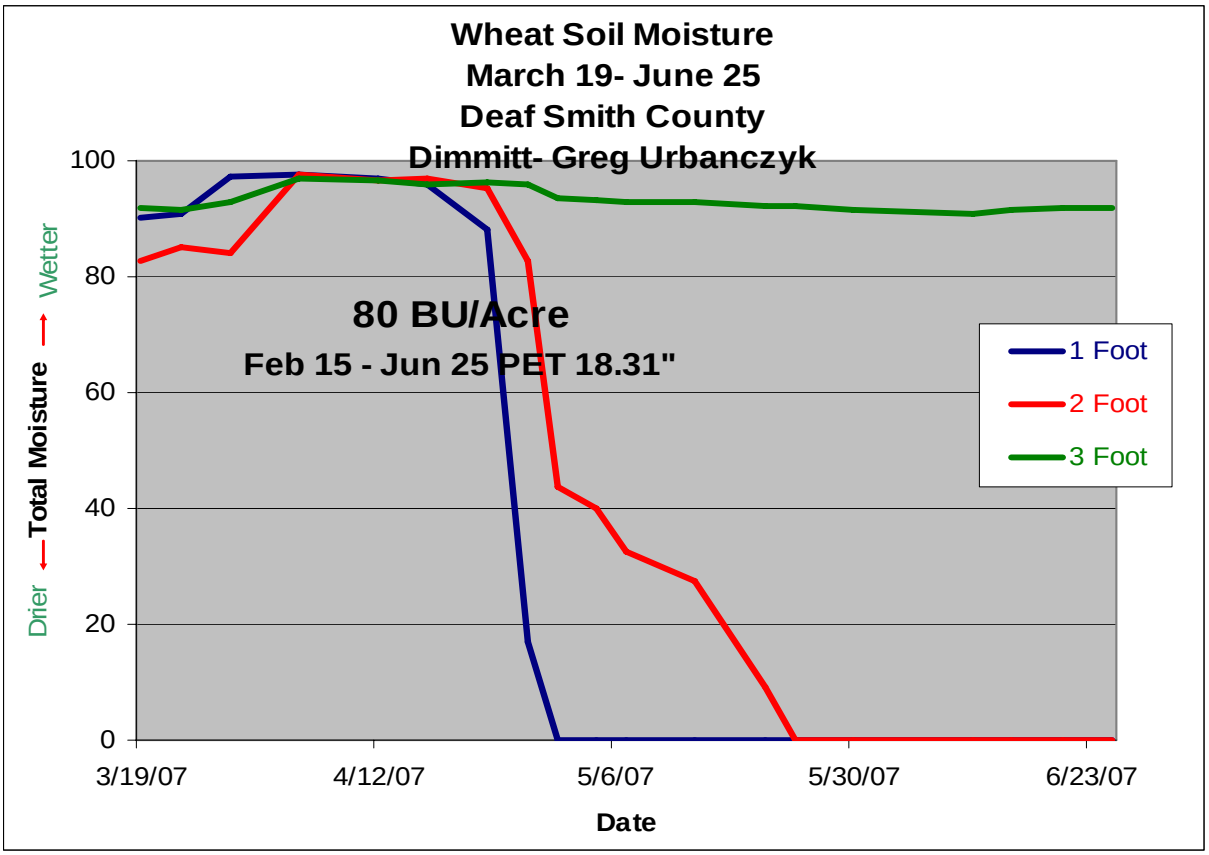
Feb- 0.00" Mar- 2.50" Apr- 0.00" May- 4.10" June- 3.10" Total: 9.70"

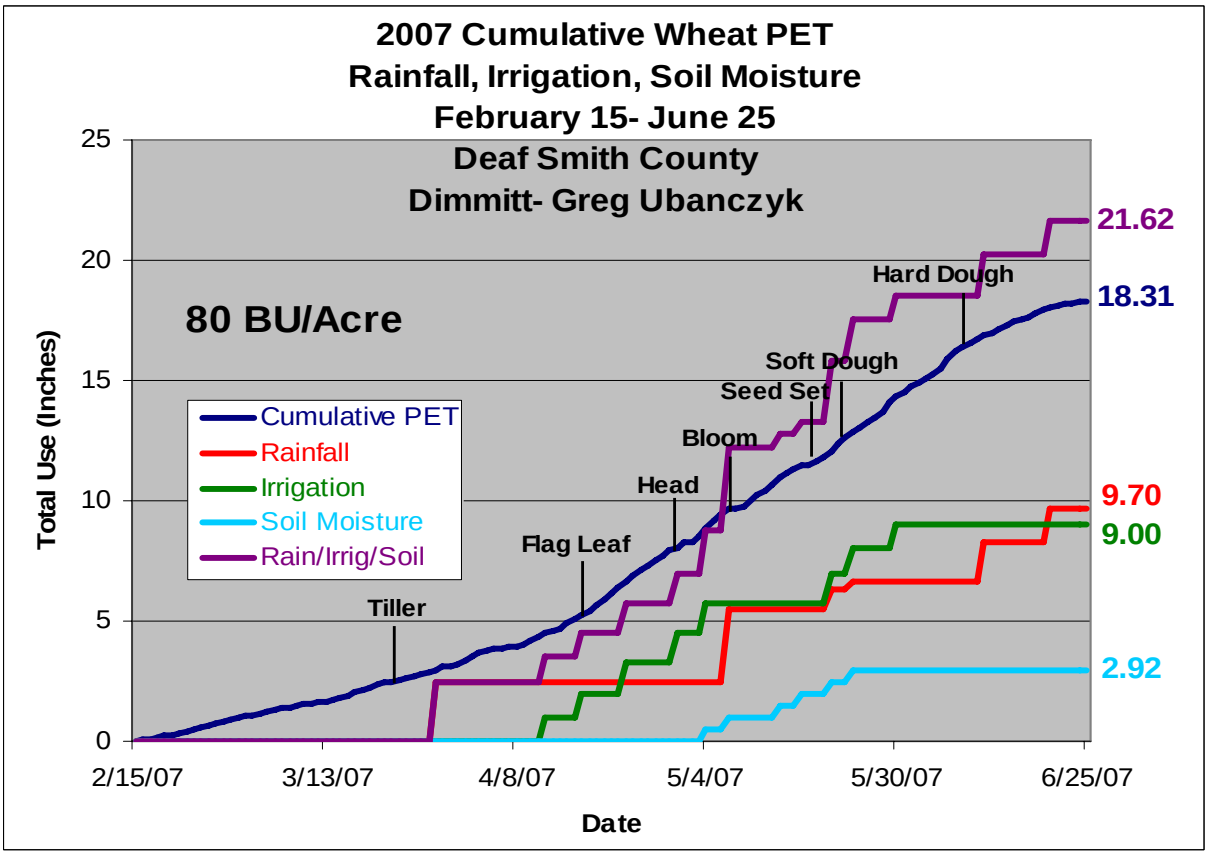
MATERIALS AND METHODS: Sixty acres irrigated by center pivot nozzled at 600 gpm were planted to wheat. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated wheat are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Number	**Inches**	**% Of**	**Bu/Ac**	**Bu/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
8	**9.00**	**118***	**80**	**8.89**	**$440.00**	**$48.89**

***Includes 2.92 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Beginning soil water was good at 1, 2 and 3 feet. High crop water use in late April and early May depleted soil water from 1 and 2 feet. Good rainfall in March and May was used by the crop plus irrigation. The yield indicates the crop had adequate water. Production was 8.89 bushels per inch of irrigation. Irrigation, rainfall, and soil water totaled 21.62 inches. Production was 3.7 bushels per inch measured. Irrigation, rainfall, and net soil water was 118 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED WHEAT PRODUCTION USING CENTER PIVOT
DEAF SMITH COUNTY - 2007
RAY SCHLABS JR. AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict yields.

SUMMARY:

Planted:	December 6	**Fertilizer:**	10 Tons Manure
Variety:	Tam 111	**Insecticide:**	None Reported
Seeding Rate:	150 lbs/Acre	**Herbicide:**	None Reported
Soil Type:	Pullman Clay Loam	**Harvested:**	July 6
Row Width:	Drilled	**No. Acres:**	60

RAINFALL

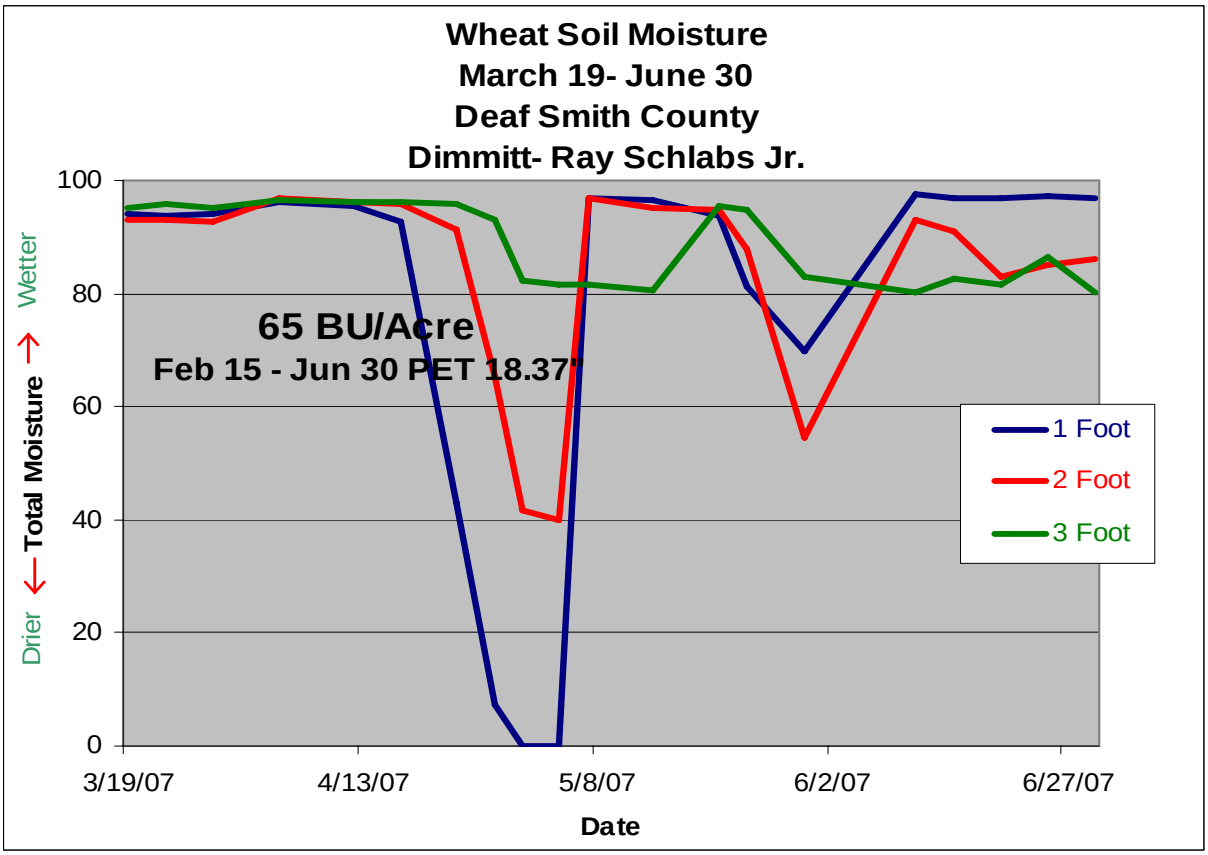
Feb- 0.00" Mar- 1.80" Apr- 0.30" May- 3.40" Jun- 2.70" Total: 8.20"

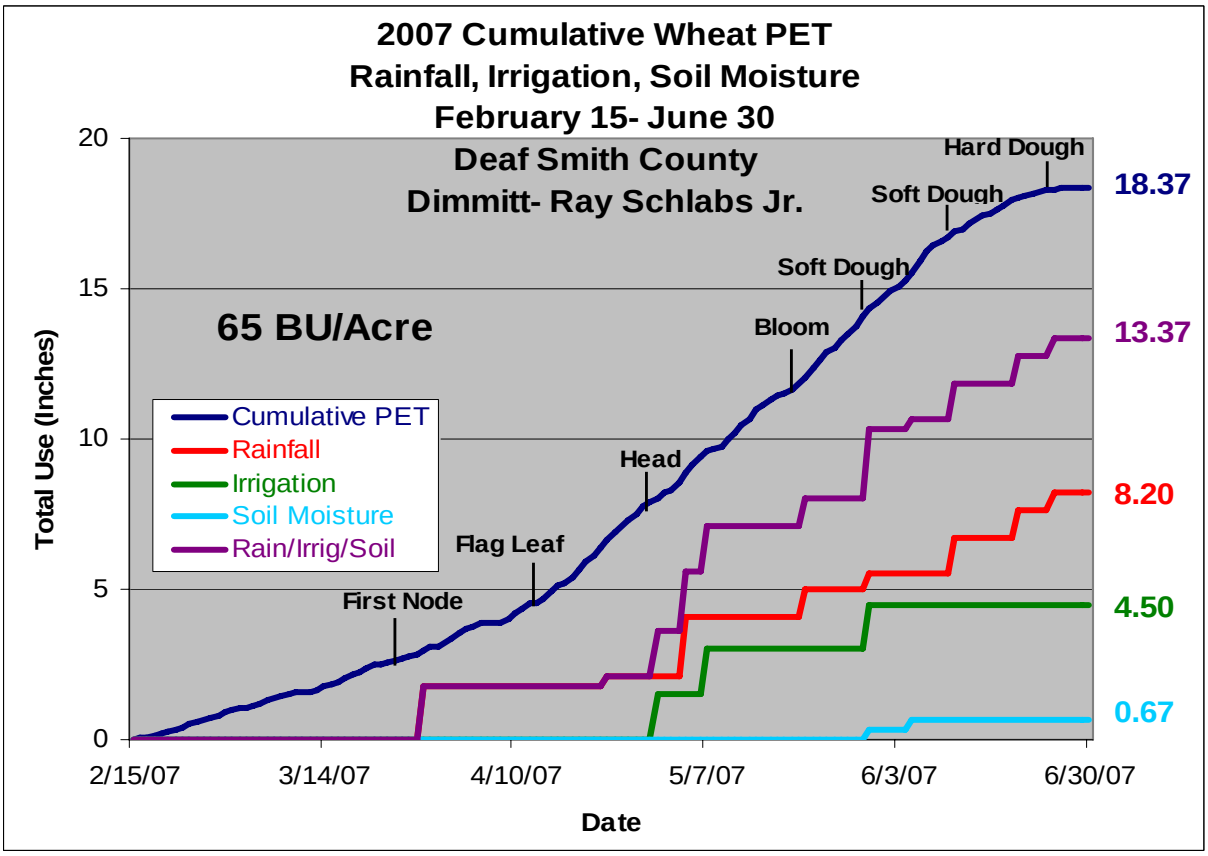
MATERIALS AND METHODS: Sixty acres irrigated by a center pivot nozzled at 500 gpm were planted to wheat. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated wheat are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Number	**Inches**	**% Of**	**Bu/Ac**	**Bu/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
3	**4.50**	**73***	**65**	**14.44**	**$357.50**	**$79.44**

***Includes 0.67 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in March and remained at sufficient levels throughout the growing season. Although soil water was depleted from one foot in early during Heading, approximately 40 percent was available at two feet and 80 percent at three feet. Both irrigation and rainfall refilled the soil profile. Production was 14.44 bushels per inch of irrigation. Irrigation, rainfall, and soil water totaled 13.37 inches. Production was 4.86 bushels per inch measured. Irrigation, rainfall, and net soil water was 73 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
ARMSTRONG COUNTY - 2007
TROY SKARKE AND KYLE STEWART

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	September 28	**Fertilizer:**	50 lbs NH 3
Variety:	Tam 110	**Insecticide:**	None Reported
Seeding Rate:	30 lbs	**Herbicide:**	None Reported
Soil Type:	Pullman Clay Loam	**Harvested:**	June 19
Row Width:	10 Inches	**No. Acres:**	168

RAINFALL

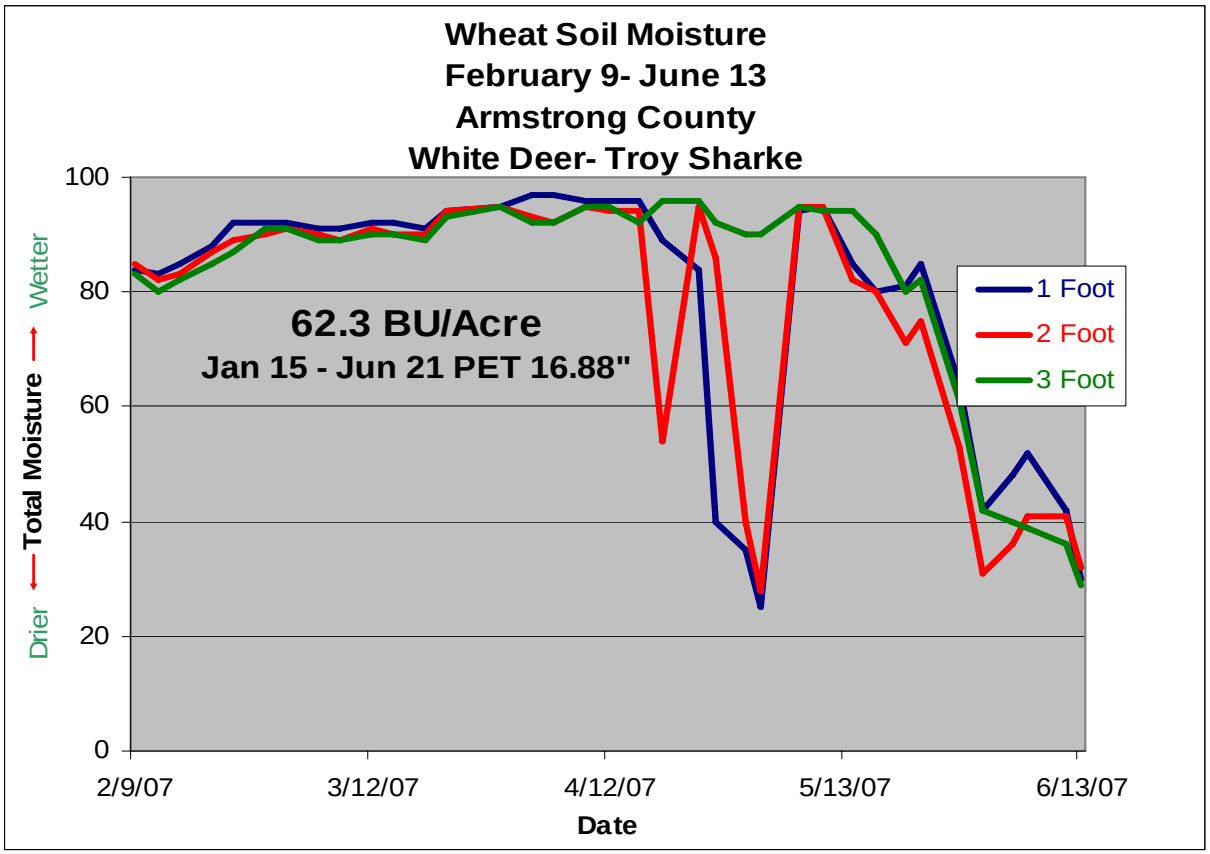
Jan- 0.80” Feb- 0.40” Mar- 2.95” Apr- 1.20” May- 3.85” Jun- 0.80” Total: 10.00”

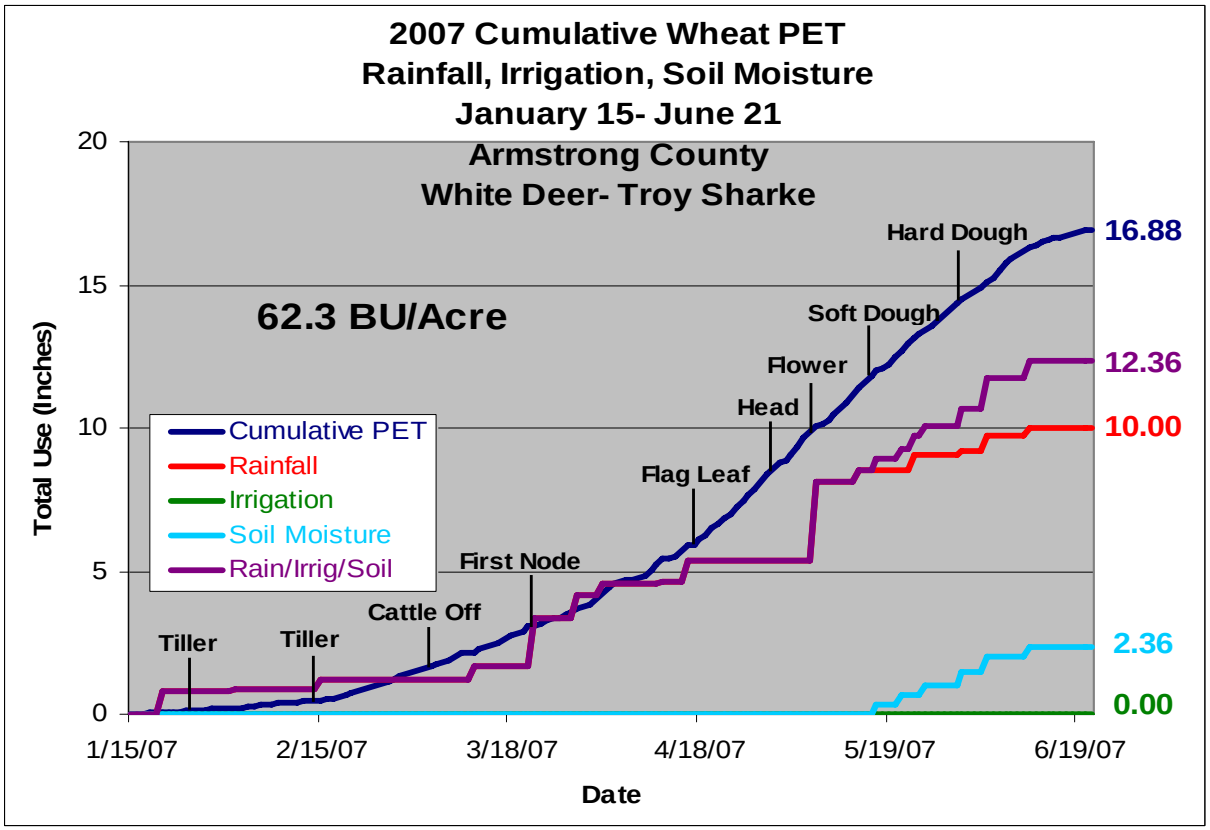
MATERIALS AND METHODS: One hundred and sixty-eight acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
12.36	**73***	**62.3**	**5.04**	**$342.65**	**$27.72**

***Includes 2.36 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in January. Snow and timely rainfall that followed maintained good soil water levels to make a very good dryland yield. Soil water was temporarily used to approximately 25 percent available water at Heading in early May. 2.8 inches of rainfall on was needed to finish the crop. Production was 5.04 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 12.36 inches which was 73 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
ARMSTRONG COUNTY - 2007
NEAL CONRAD AND KYLE STEWART- WEST

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	September 12	**Fertilizer:**	None Reported
Variety:	Jagline	**Insecticide:**	None Reported
Seeding Rate:	39 lbs/Acre	**Herbicide:**	None Reported
Soil Type:	Pullman Clay Loam	**Harvested:**	June 25
Row Width:	10 Inches	**No. Acres:**	135

RAINFALL

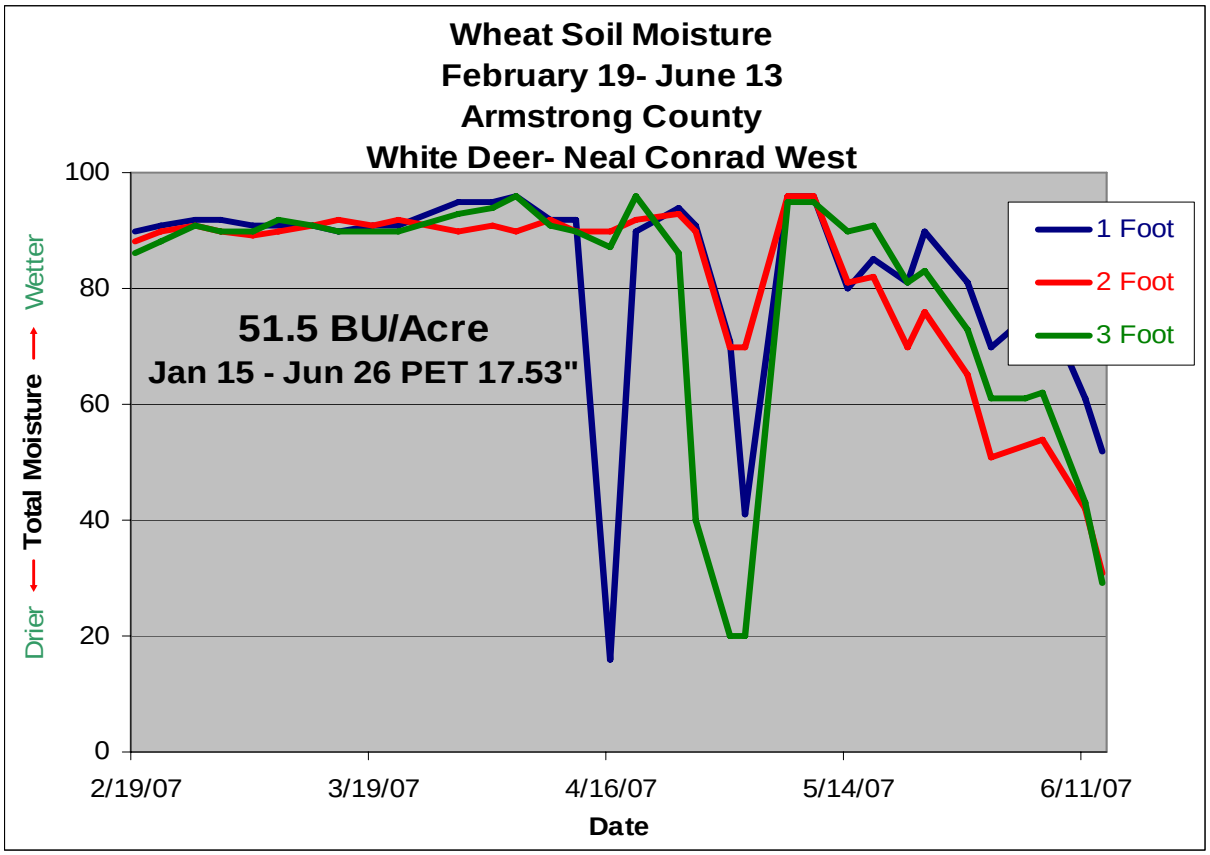
Jan- 0.80" Feb- 0.40" Mar- 4.65" Apr- 1.35" May- 4.65" Jun- 0.80" Total: 12.65"

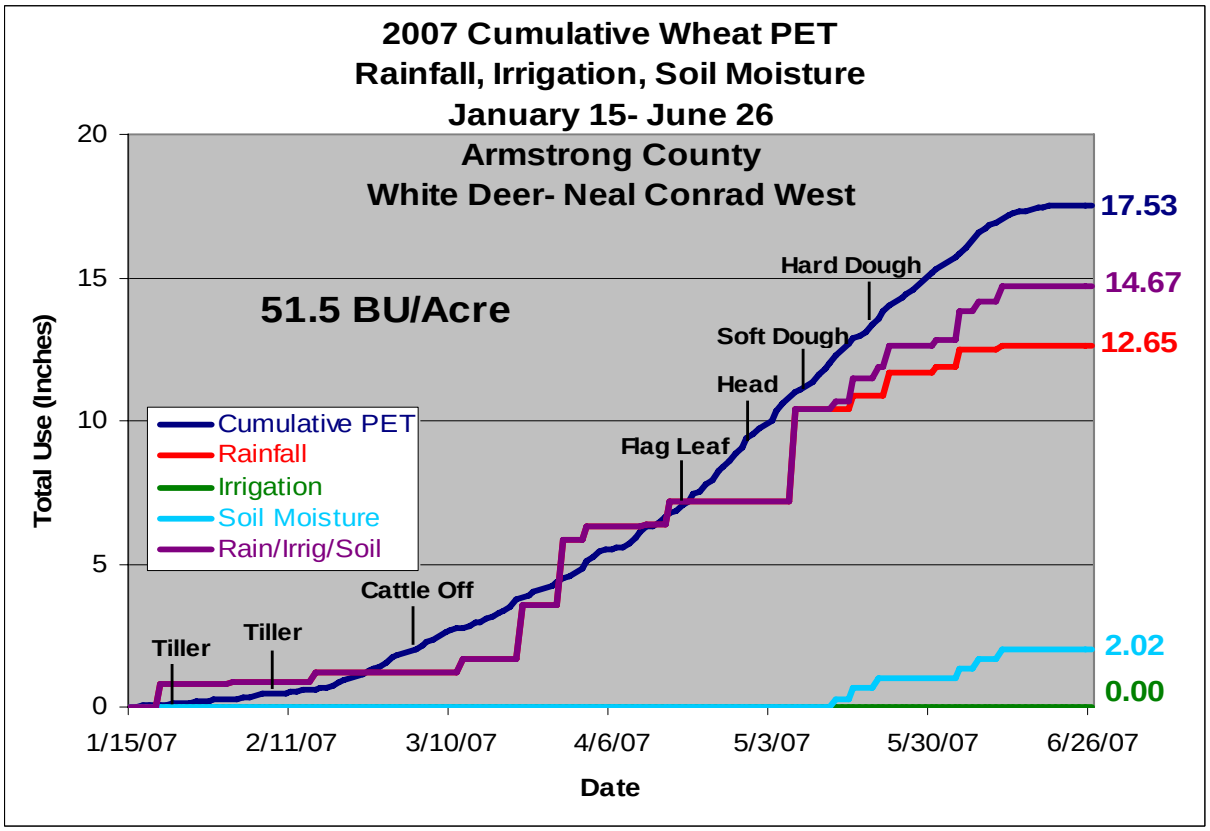
MATERIALS AND METHODS: One hundred and sixty-eight acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
14.67	**84***	**51.5**	**3.51**	**$283.25**	**$19.31**

***Includes 2.02 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet beginning in January and generally throughout the growing season. The crop used most soil water from one foot prior to 0.8 inches of rainfall on April 16. The crop used significant soil water from 1, 2 and 3 feet before it was replenished again by 3.20 inches of rain on May 7. Production was 3.51 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 14.67 inches which was 84 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
CARSON COUNTY - 2007

MIKE DUDENHOEFFER AND JODY BRADFORD

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	September 15	**Fertilizer:**	None Reported
Variety:	Tam 107	**Insecticide:**	None Reported
Seeding Rate:	35 lbs	**Herbicide:**	None Reported
Soil Type:	Pullman Clay Loam	**Harvested:**	July 2
Row Width:	10 Inches	**No. Acres:**	240

RAINFALL

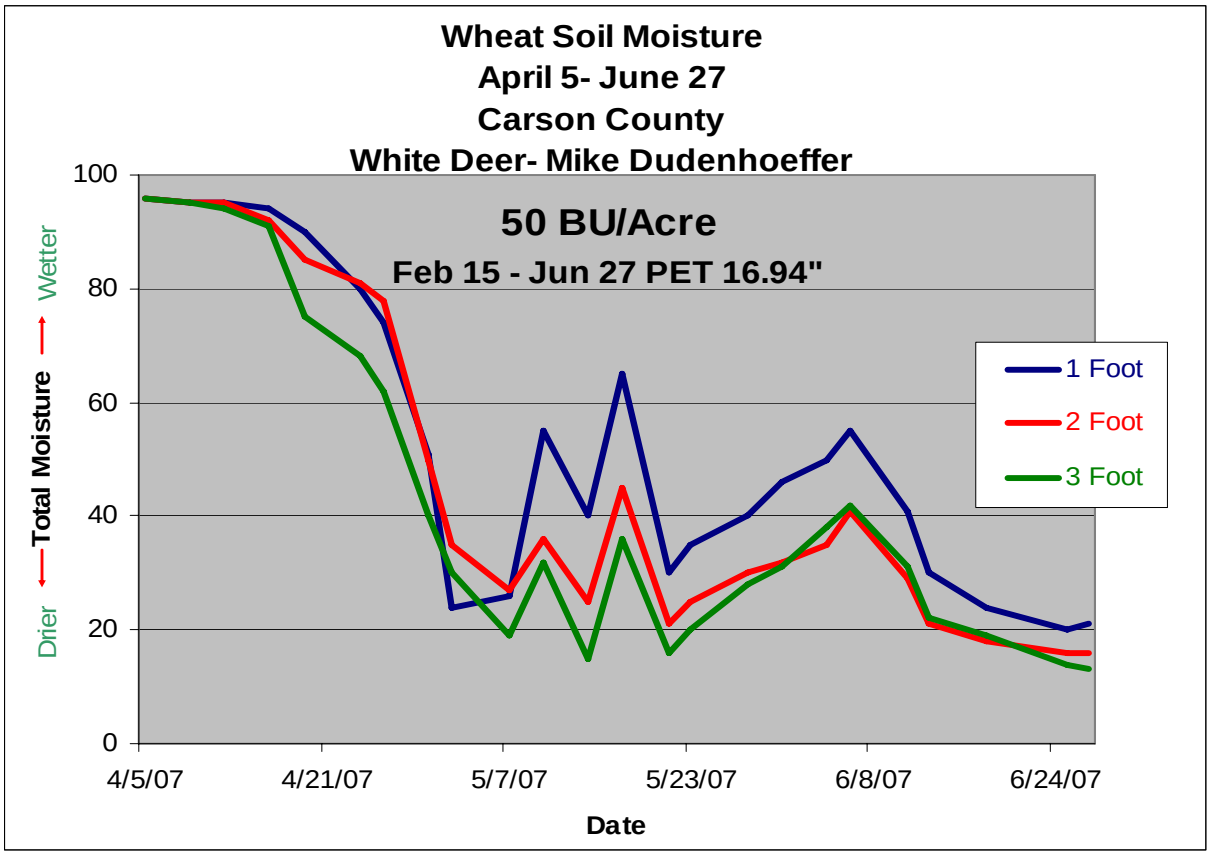
Jan- 0.00" Feb- 0.00" Mar- 3.25" Apr- 1.00" May- 2.90" Jun- 1.75" Total: 8.90"

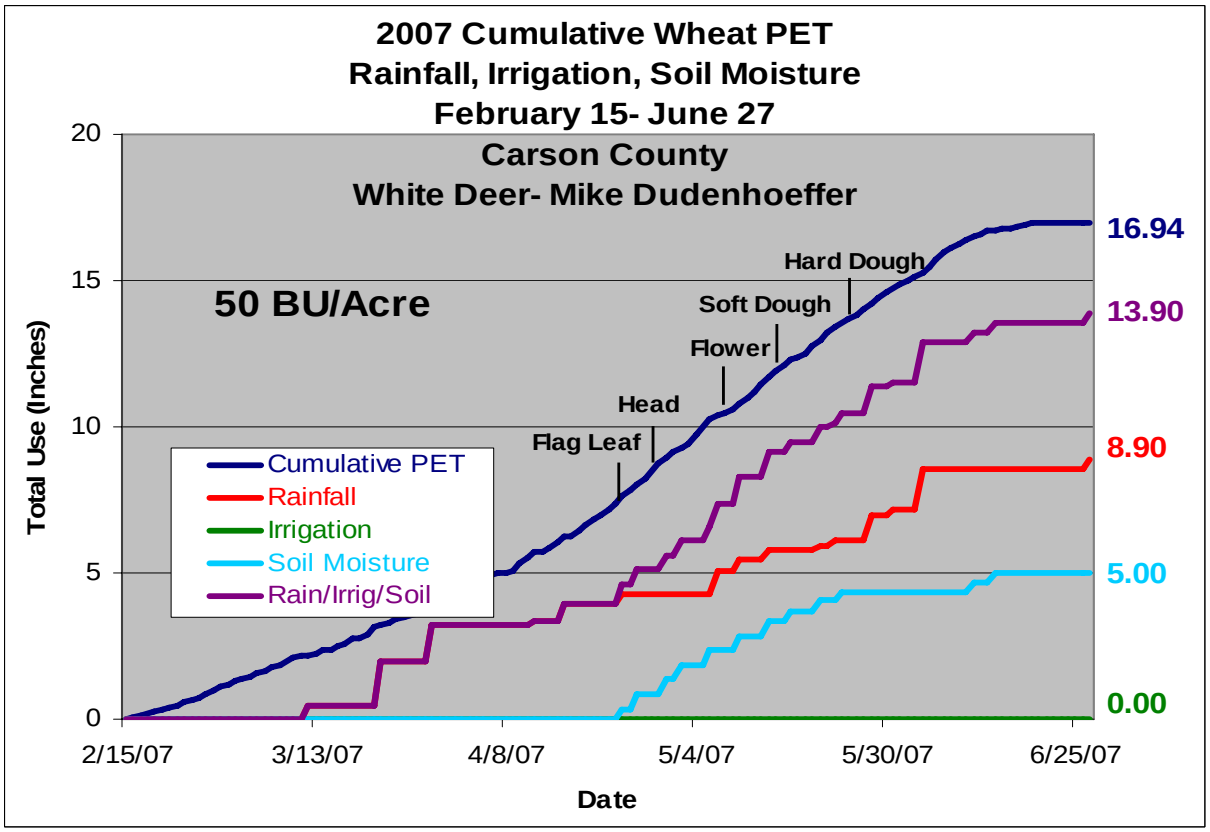
MATERIALS AND METHODS: Three hundred acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
13.90	**82***	**50**	**3.60**	**$275.00**	**$19.78**

***Includes 5.00 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was ninety-five percent at 1, 2 and 3 feet in early April. Corp water use was high in April, using most of the stored soil moisture. Periodic rainfall in May that totaled 2.90 inches helped finish the crop that made a very good dryland yield. Production was 3.60 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 13.90 inches which was 82 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED WHEAT PRODUCTION USING CENTER PIVOT
DEAF SMITH COUNTY - 2007
RAY SCHLABS JR. AND RICK AUCKERMAN

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict yields.

SUMMARY:

Planted:	December 6	**Fertilizer:**	10 Tons Manure
Variety:	Tam 105	**Insecticide:**	None Reported
Seeding Rate:	120 lbs/Acre	**Herbicide:**	None Reported
Soil Type:	Pullman Clay Loam	**Harvested:**	July 11
Row Width:	Not Reported	**No. Acres:**	60

RAINFALL

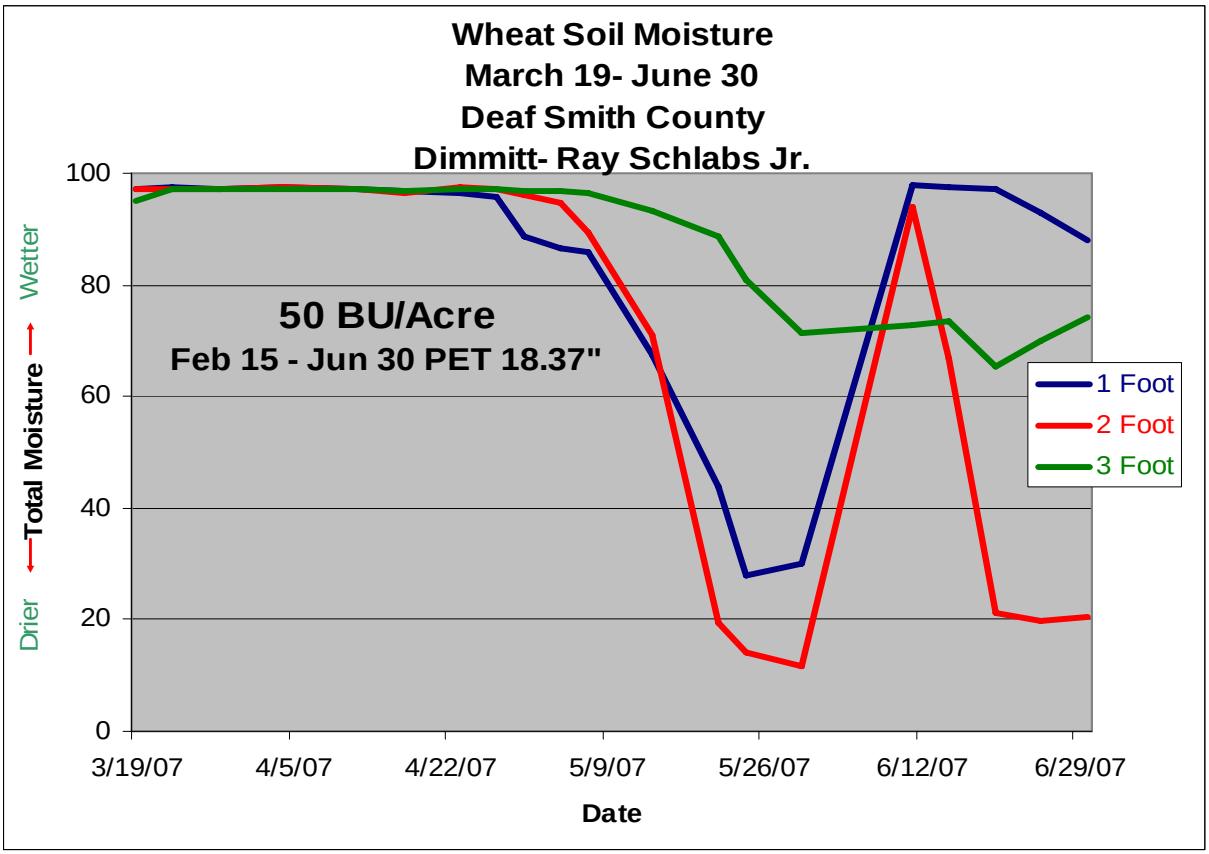
Feb- 0.00" Mar- 2.5" Apr- 0.40" May- 4.20" Jun- 2.20" Total: 9.30"

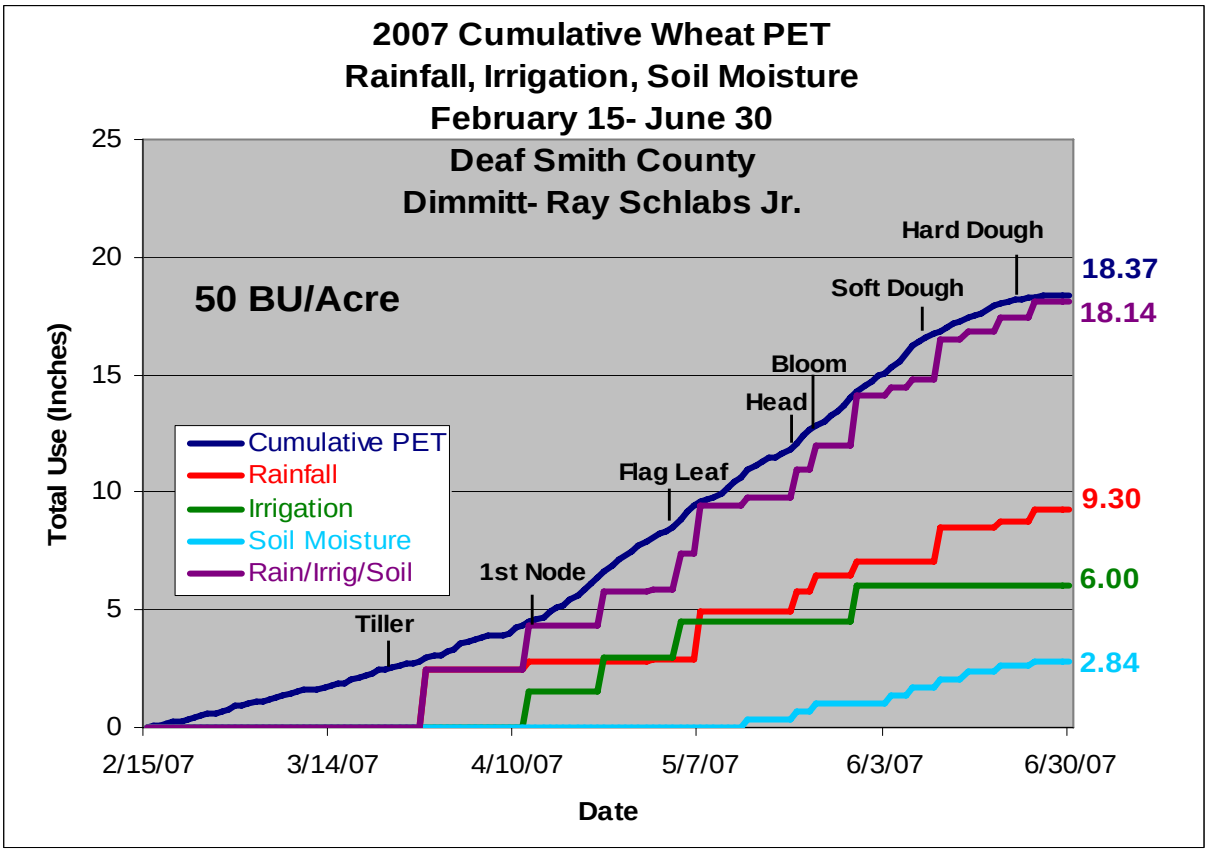
MATERIALS AND METHODS: Sixty acres irrigated by center pivot nozzled at 400 gpm were planted to wheat. The date, number, and amount of individual irrigations, as indicated by the precipitation chart, were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated wheat are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Number	**Inches**	**% Of**	**Bu/Ac**	**Bu/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
4	**6.00**	**99***	**50**	**8.33**	**$275.00**	**$45.83**

***Includes 2.84 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in March and remained at high levels until mid May at Heading. High crop water use depleted soil water at 1 and 2 feet to about 20 percent available water and used additional irrigation and rainfall. Production was 8.33 bushels per inch of irrigation. Irrigation, rainfall, and soil water totaled 18.14 inches. Production was 2.75 bushels per inch measured. Irrigation, rainfall, and net soil water was 99 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
GRAY COUNTY - 2007

DAVE DAVIS, BRANDON McGINTY, AND CHARLEY RUSS

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	November 9	**Fertilizer:**	80 lbs nh3 25 lbs topdress
Variety:	Jagaline	**Insecticide:**	None Reported
Seeding Rate:	100 lbs/Acre	**Herbicide:**	2 4 d ½ lb/Acre
Soil Type:	Pullman Clay	**Harvested:**	July 3
Row Width:	10 Inches	**No. Acres:**	120

RAINFALL

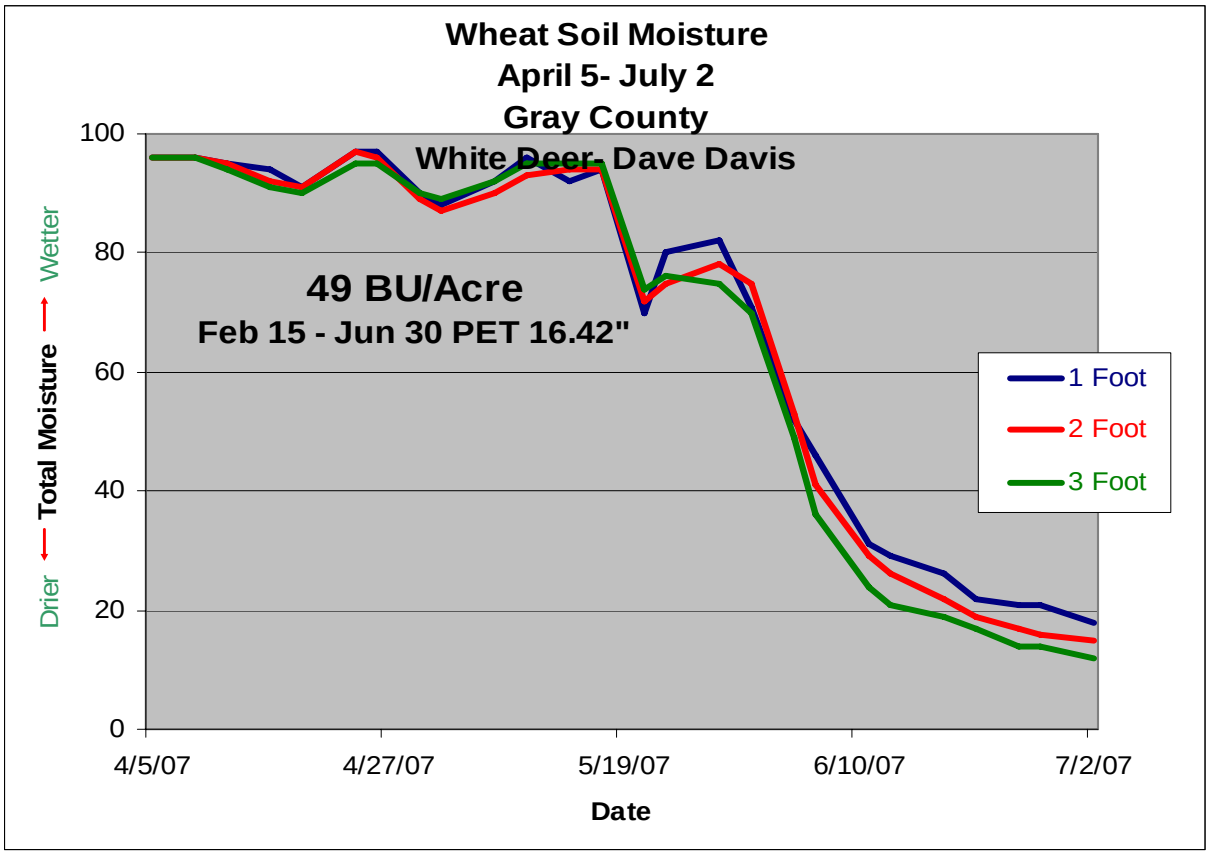
Jan- 0.00" Feb- 0.50" Mar- 3.25" Apr- 1.40" May- 3.70" Jun- 0.90" Total: 9.75"

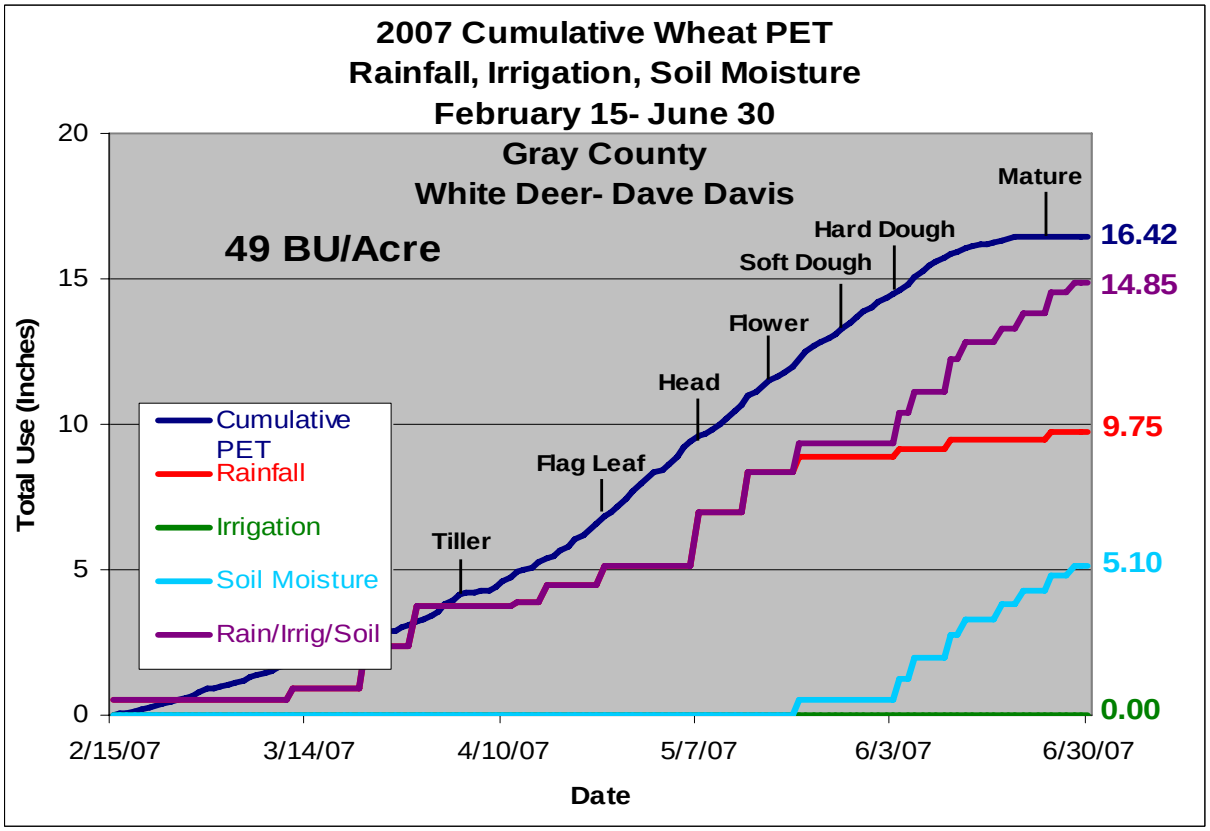
MATERIALS AND METHODS: One hundred and twenty acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
14.85	**90***	**49**	**3.30**	**$269.50**	**$18.15**

***Includes 5.10 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Wheat was planted for irrigation, but no spring irrigation was applied due to good rainfall. Three quarter inch of irrigation was used to establish the crop in November. Soil water was good in early April when soil water sensors were installed, and sufficient throughout the growing season. Production was 3.30 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 14. 85 inches which was 90 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
ARMSTRONG COUNTY - 2007
NEAL CONRAD AND KYLE STEWART- EAST

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	September 14	**Fertilizer:**	None Reported
Variety:	Tam 110	**Insecticide:**	None Reported
Seeding Rate:	38 lbs/Acre	**Herbicide:**	None Reported
Soil Type:	Pullman Clay Loam	**Harvested:**	June 25
Row Width:	10 Inches	**No. Acres:**	70

RAINFALL

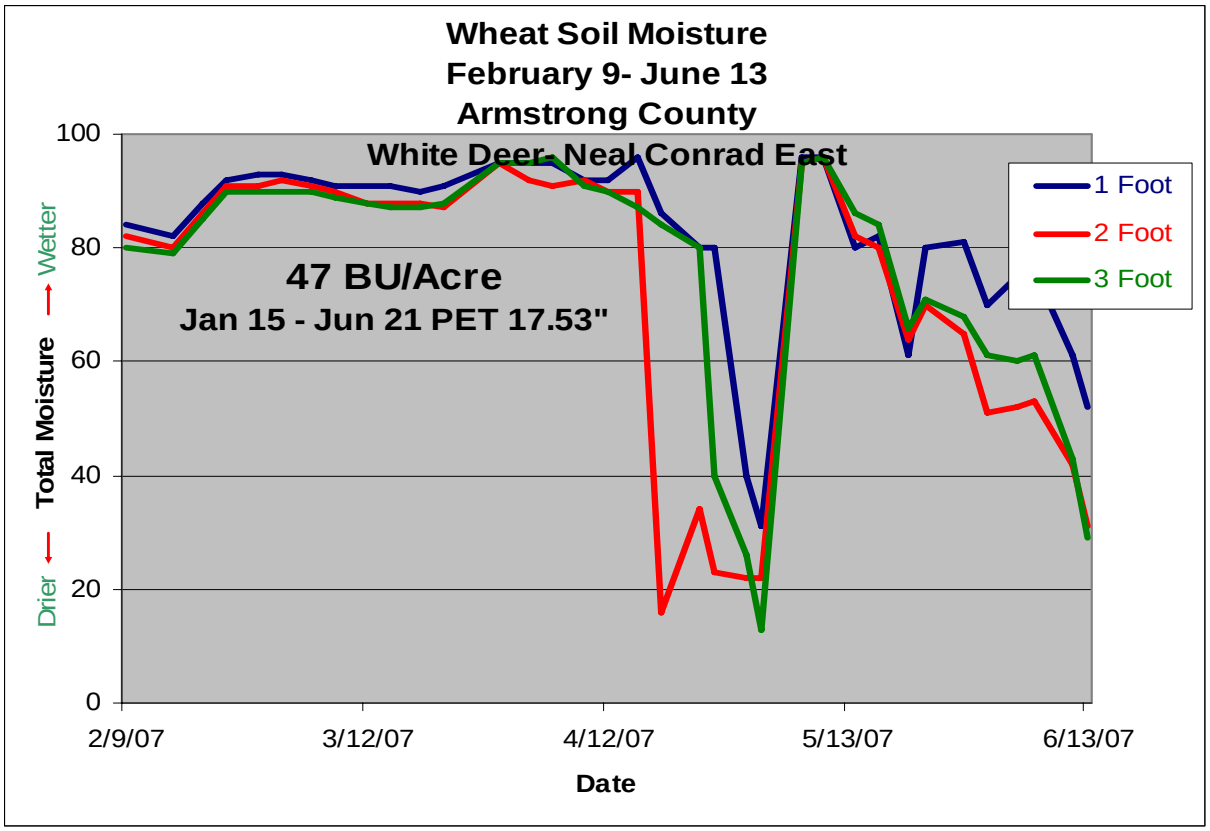
Jan- 0.80" Feb- 0.40" Mar- 4.55" Apr- 0.90" May- 5.00" Jun- 0.75" Total: 12.40"

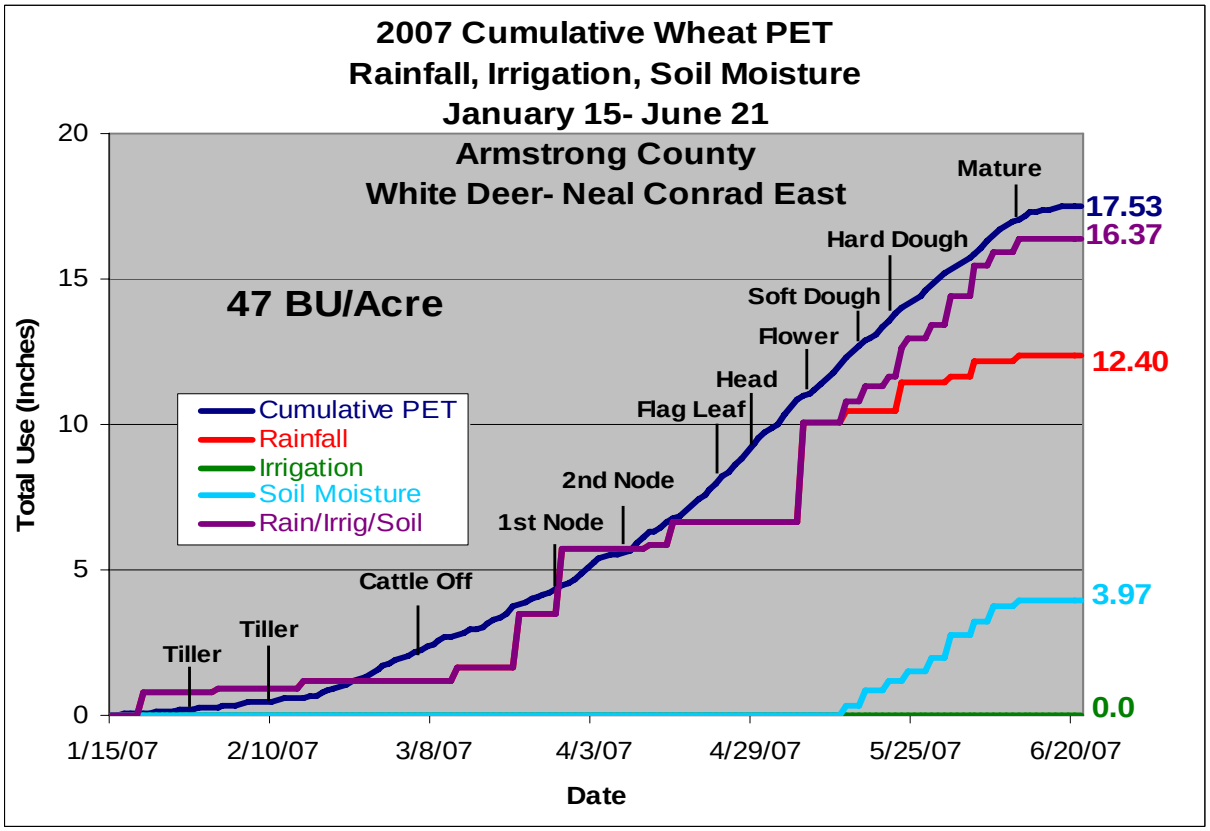
MATERIALS AND METHODS: Seventy acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
16.37	**93***	**47**	**2.87**	**$258.50**	**$15.79**

***Includes 3.97 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was about 80 percent at 1, 2 and 3 feet in February. It continued to be good until the Flag leaf growth stage in late April when crop water use was high. The crop depleted soil water from 1, 2 and 3 feet to approximately 20 percent during the Heading growth stage in early May prior to the saving rain on May 7. Production was 2.87 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 16.37 inches which was 93 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

IRRIGATED WHEAT PRODUCTION USING CENTER PIVOT
COLLINGSWORTH COUNTY - 2007
REX & DAN HENARD, DALE DUNLAP, AND PRISCILLA GREEN

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from selected or available irrigation and rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured irrigation, rainfall, and soil moisture levels using center pivot irrigation and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict yields.

SUMMARY:

Planted:	October 22	**Fertilizer:**	32-0-0
Variety:	Cutter	**Insecticide:**	None
Seeding Rate:	90 lbs/acre	**Herbicide:**	None Reported
Soil Type:	Miles Loamy Fine Sand	**Harvested:**	June 25
Row Width:	Drilled 6 Inches	**No. Acres:**	60

RAINFALL

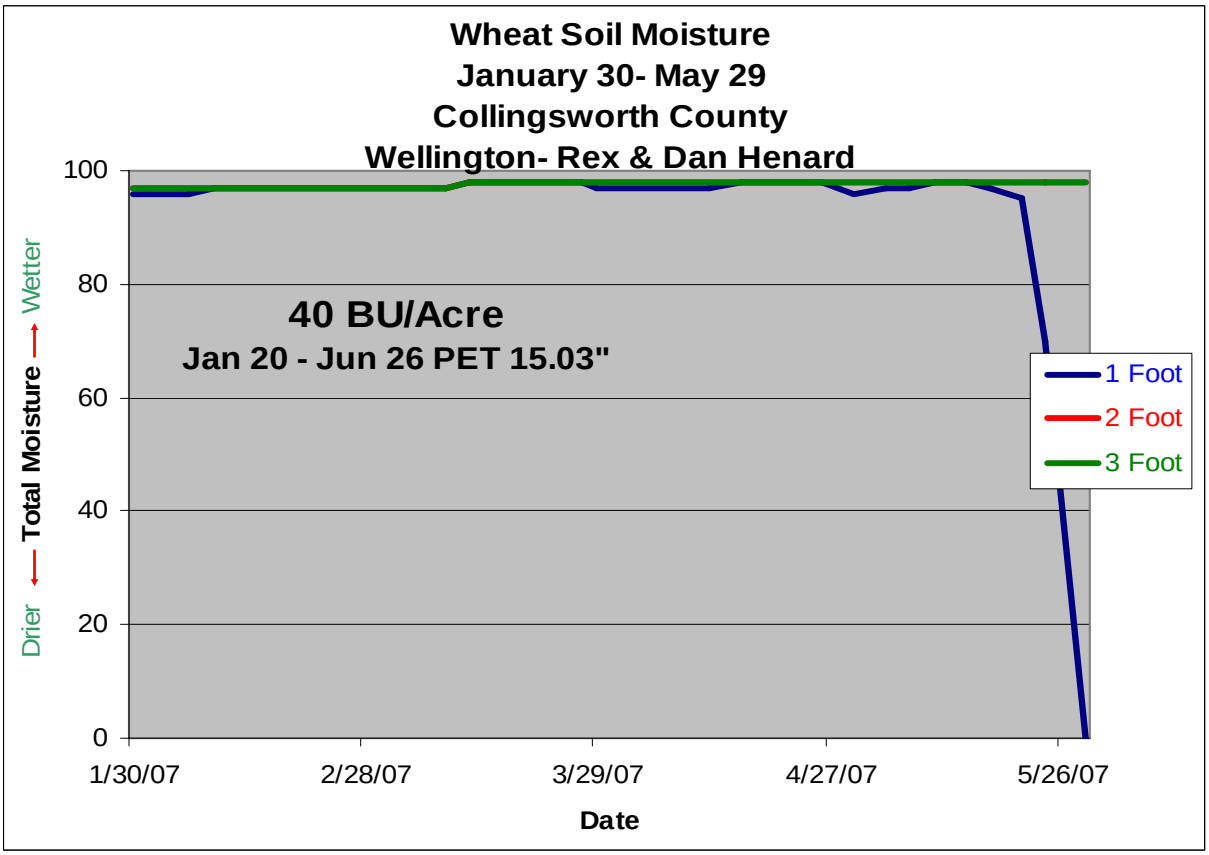
Jan- 0.10" Feb- 0.00" Mar- 5.75" Apr- 1.85" May- 5.25" Jun- 0.35" Total: 13.30"

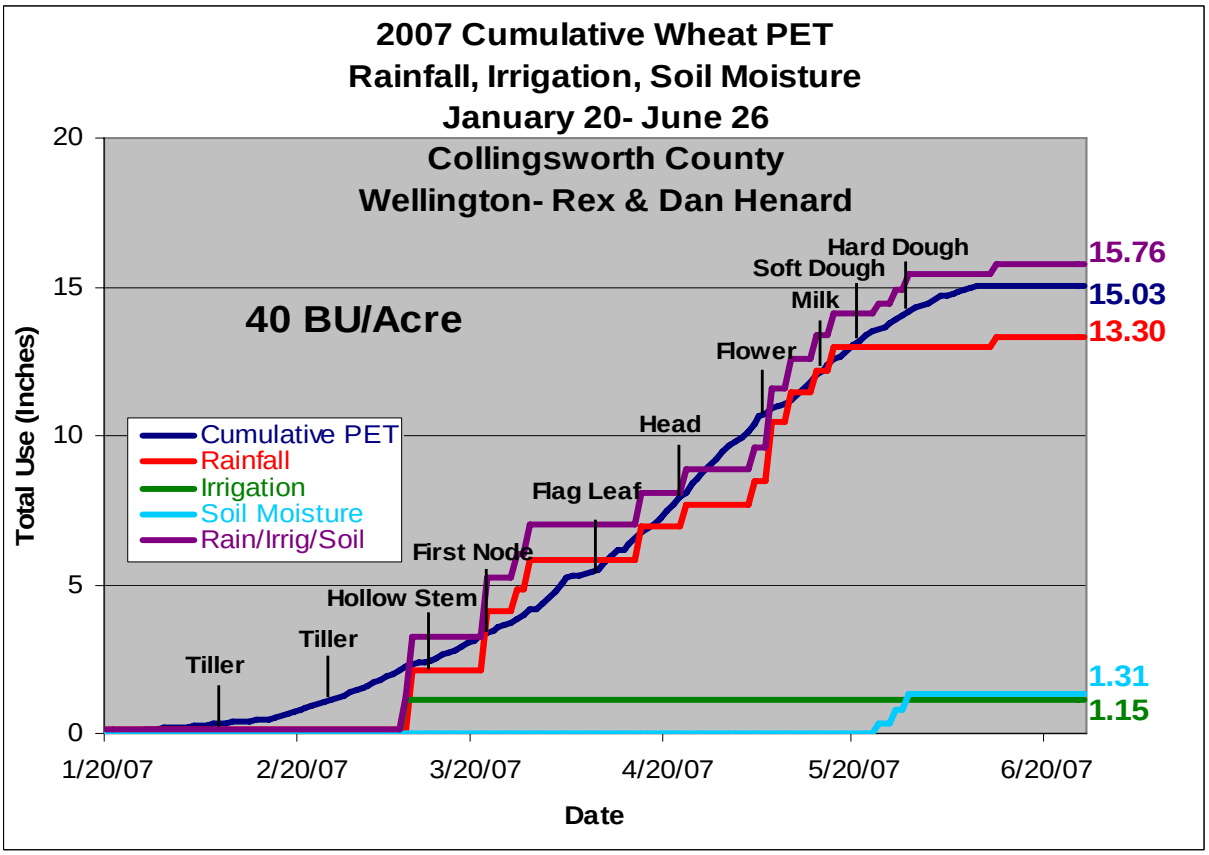
MATERIALS AND METHODS: Sixty acres irrigated by a center pivot nozzled at 1000 gpm were planted to wheat. The date, number, and amount of individual irrigations, as indicated by a water meter were recorded and operating pressure monitored. A rain gauge located at the site measured rainfall. Moisture sensors were installed at 1, 2 and 3 feet in the root zone to measure soil water levels. They were measured twice each week, recorded, and reported in a graph on the following page. Rainfall, irrigation, additional soil water, and water use reported by the North Plains PET Network for fully irrigated wheat are reported on the same page.

2007 Demonstration Results						
IRRIGATION		**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/BU- $**	
Number	**Inches**	**% Of**	**Bu/Ac**	**Bu/Ac-In Irrigation**	**Per Acre**	**Acre-Inch of Irrigation**
1	**1.15**	**105***	**40**	**34.78**	**$220.00**	**$191.30**

***Includes 1.31 inches of water removed from three feet of soil, rainfall, and irrigation.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet throughout the growing season. Soil water was used from one foot to finish the crop. Only one irrigation was used on March 9 just prior to the two inch rain on March 10. Rainfall was significantly above normal in March and April. Production was 34.78 bushels per inch of irrigation. Irrigation, rainfall and soil water totaled 15.76 inches. Production was 2.53 bushels per inch measured. Irrigation, rainfall, and net soil water was 105 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
ARMSTRONG COUNTY - 2007
BRYAN BICHSEL AND KYLE STEWART

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	September 20	**Fertilizer:**	30-30-0
Variety:	Cutter	**Insecticide:**	None Reported
Seeding Rate:	40 lbs	**Herbicide:**	Ally and 2-4-D
Soil Type:	Pullman Clay Loam	**Harvested:**	June 29
Row Width:	12 Inches	**No. Acres:**	150

RAINFALL

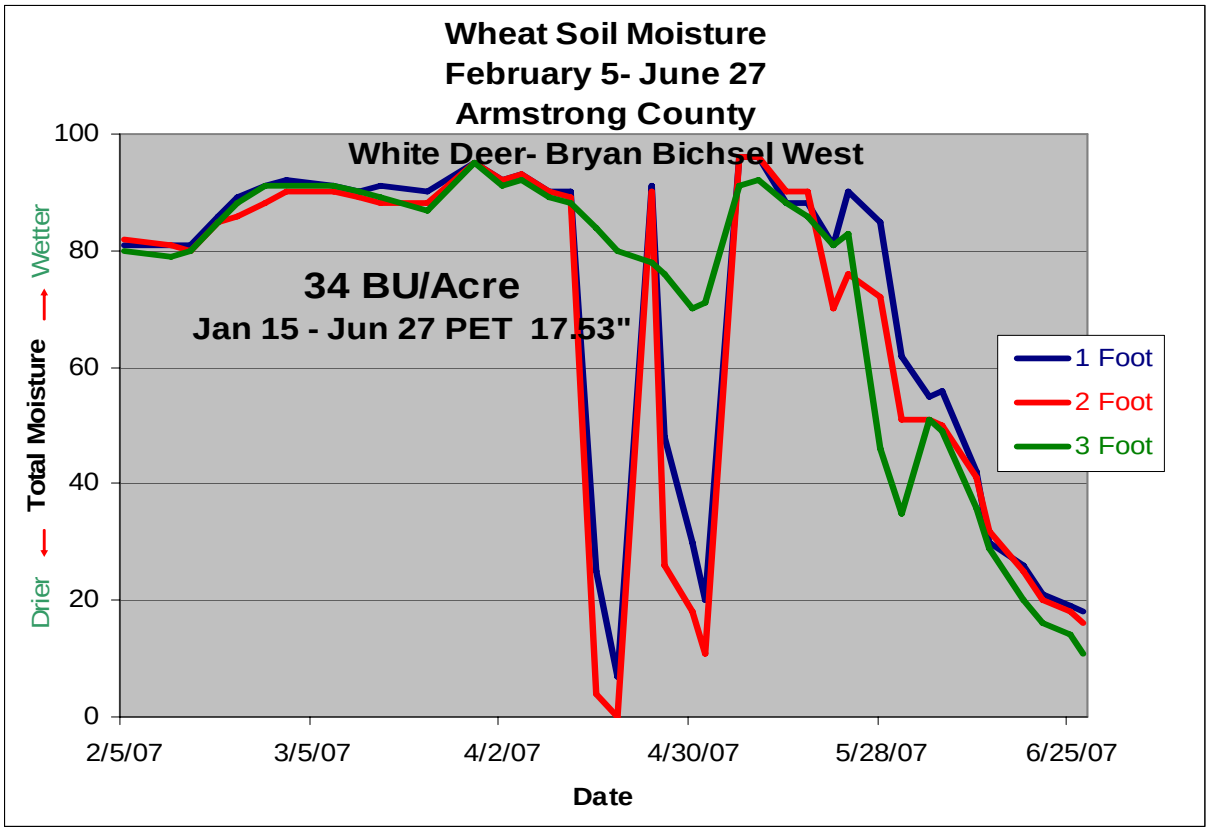
Jan- 0.80” Feb- 0.40” Mar- 2.85” Apr- 1.10” May- 4.10” Jun- 0.95” Total: 10.20”

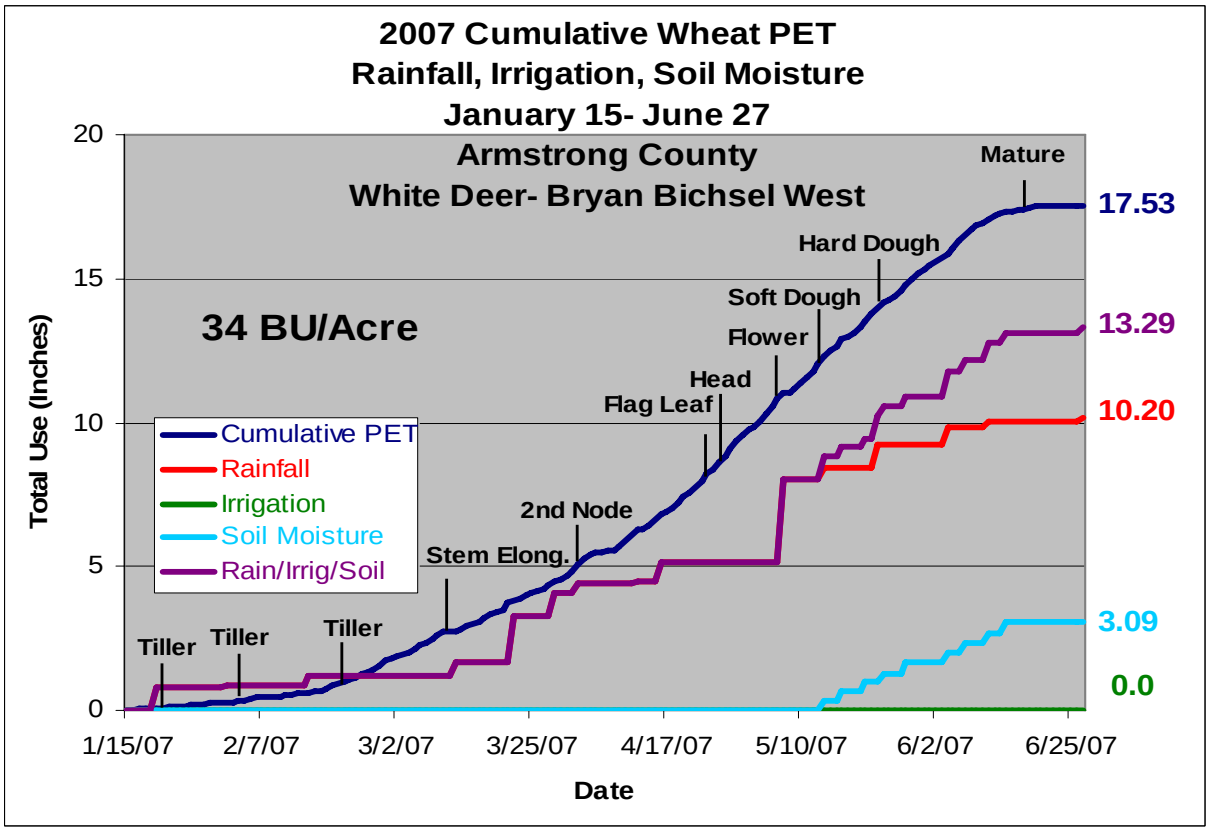
MATERIALS AND METHODS: One hundred and fifty acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
13.29	**76***	**34**	**2.56**	**$187.00**	**$14.07**

***Includes 3.09 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet until mid April. The crop used all soil water from one and two feet. The crop then used most of 6.15 inches of rainfall that followed plus two inches of soil water from three feet. Production was 2.56 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 13.29 inches which was 76 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
HARTLEY COUNTY - 2007
CJ KUPER AND NICK SIMPSON

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	October 12	**Fertilizer:**	None Reported
Variety:	Tam 111	**Insecticide:**	None Reported
Seeding Rate:	60 lbs	**Herbicide:**	None Reported
Soil Type:	Sunray Clay Loam	**Harvested:**	June 19
Row Width:	Drilled	**No. Acres:**	300

RAINFALL

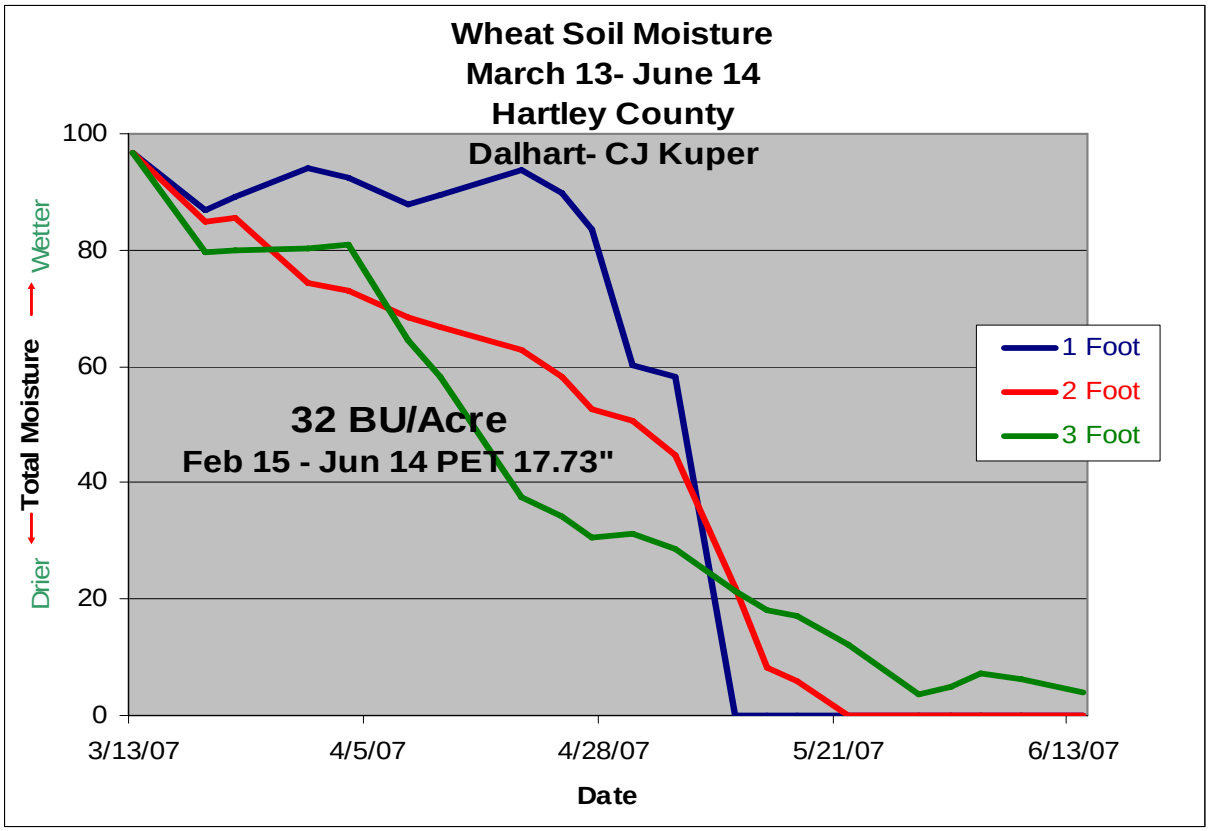
Jan- 0.00" Feb- 0.00" Mar- 2.60" Apr- 2.20" May- 2.25" Jun- 0.75" Total: 7.80"

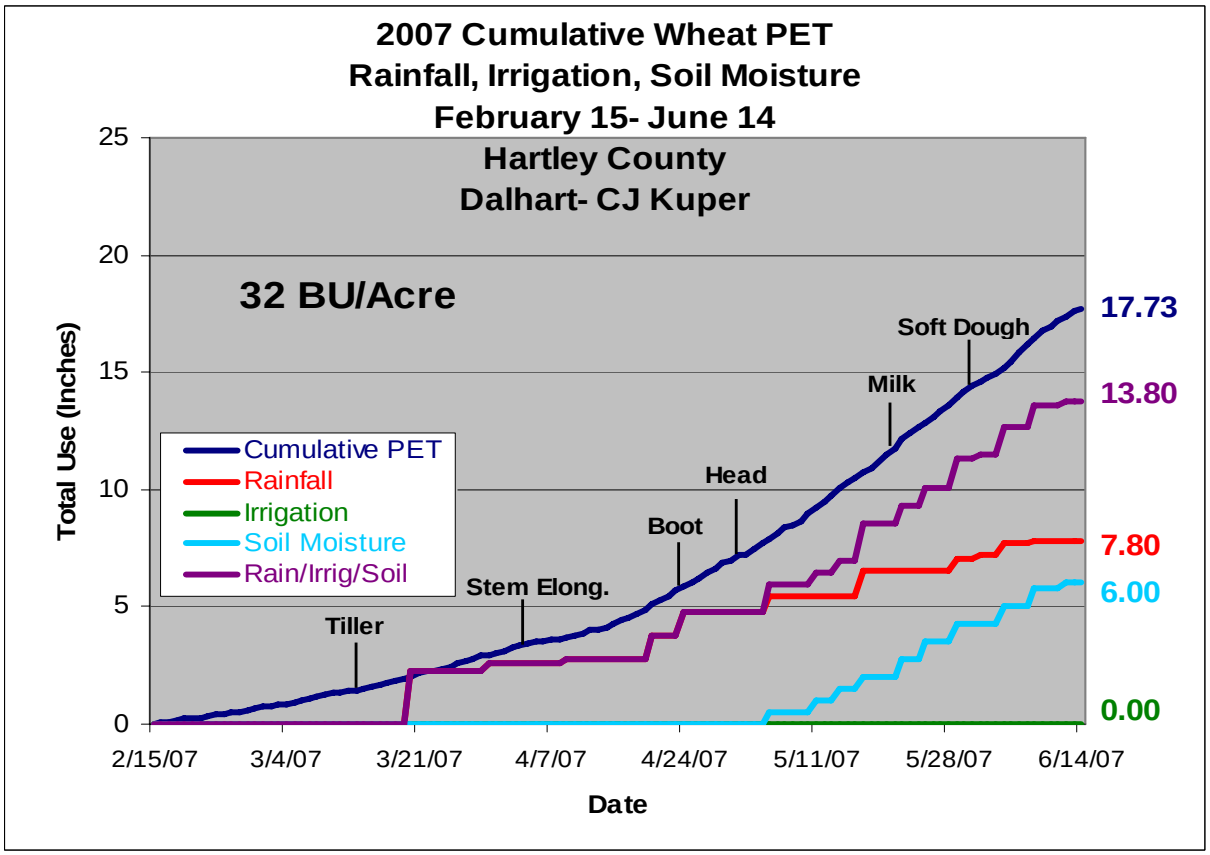
MATERIALS AND METHODS: Three hundred acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
13.80	**78***	**32**	**2.32**	**$176.00**	**$12.75**

***Includes 6.00 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet beginning. Timely rainfall in March, April and May totaled 7.05 inches was fully used by the crop plus 6.0 inches of soil water. Production was 2.32 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 13.80 inches which was 78 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
ARMSTRONG COUNTY - 2007
BRYAN BICHSEL AND KYLE STEWART

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report for fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	September 22	**Fertilizer:**	30-30-0
Variety:	Cutter	**Insecticide:**	None Reported
Seeding Rate:	40 lbs	**Herbicide:**	Ally and 2-4 D
Soil Type:	Pullman Clay Loam	**Harvested:**	June 29
Row Width:	12 Inches	**No. Acres:**	200

RAINFALL

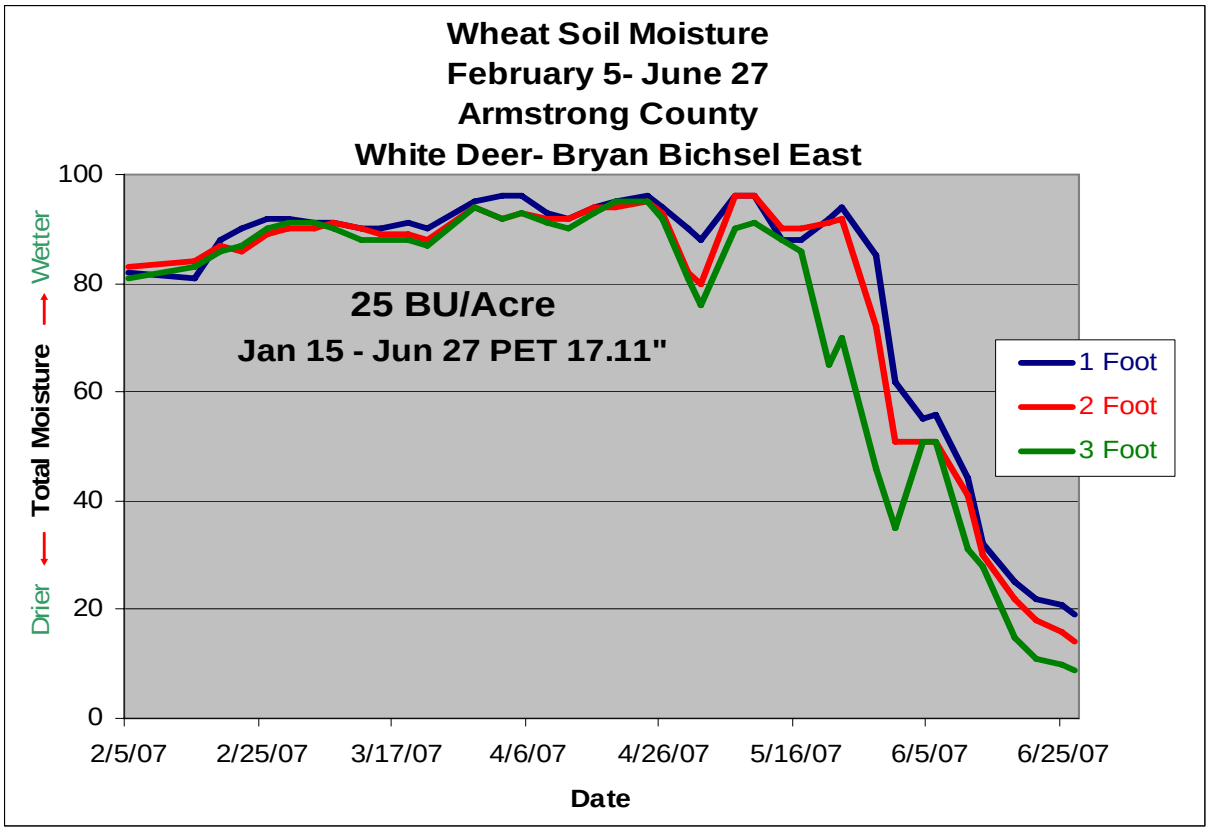
Jan- 0.80” Feb- 0.40” Mar- 2.75” Apr- 1.90” May- 3.85” Jun- 0.95” Total: 10.65”

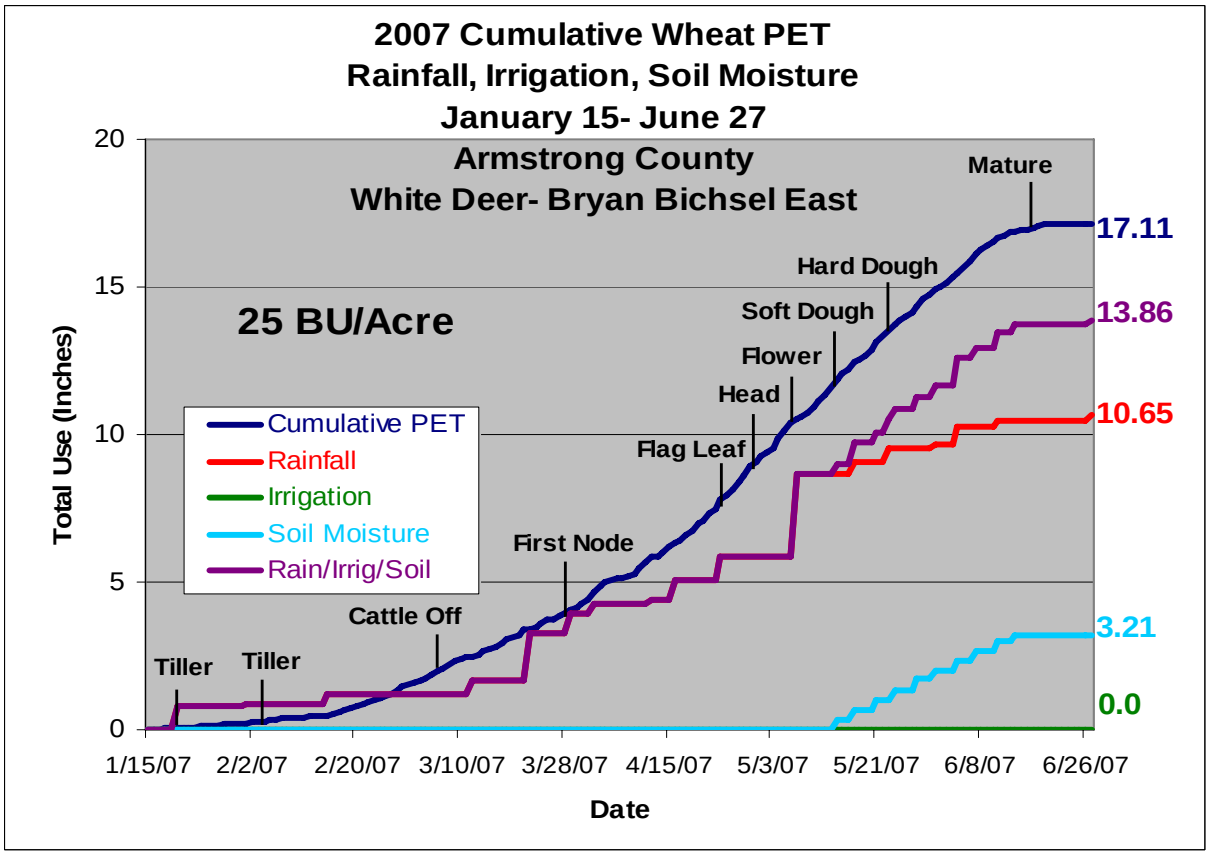
MATERIALS AND METHODS: One hundred and sixty-eight acres of dryland were planted to wheat. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
13.86	**81***	**25**	**1.80**	**$137.50**	**$9.92**

***Includes 3.21 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: The soil profile was approximately two-thirds full at 1, 2 and 3 feet beginning. That is about four inches of available plant water. Periodic, timely rainfall in March, April and May totaled 8.50 inches. Cattle were removed March 5. Production was 1.80 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 13.86 inches which was 81 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AgriLIFE EXTENSION
Texas A&M System

DRYLAND WHEAT PRODUCTION
GRAY COUNTY - 2007

RAY RAPSTINE, BRANDON McGINTY, AND CHARLEY RUSS

PROBLEM: High Plains growers need more field measurements and documented data on wheat production from available rainfall to make management decisions and conserve water.

OBJECTIVES: To determine wheat production from measured rainfall and soil moisture quantities and relating it to the North Plains PET Network report of fully irrigated wheat to help growers predict annual yield potential and manage crop production.

SUMMARY:

Planted:	November 15	**Fertilizer:**	50 lbs nh3
Variety:	Jagaline, TAM 110	**Insecticide:**	None Reported
Seeding Rate:	30 Lbs/Acre	**Herbicide:**	None
Soil Type:	Pullman Clay Loam	**Harvested:**	Abandoned May 11
Row Width:	10 Inches	**No. Acres:**	5

RAINFALL

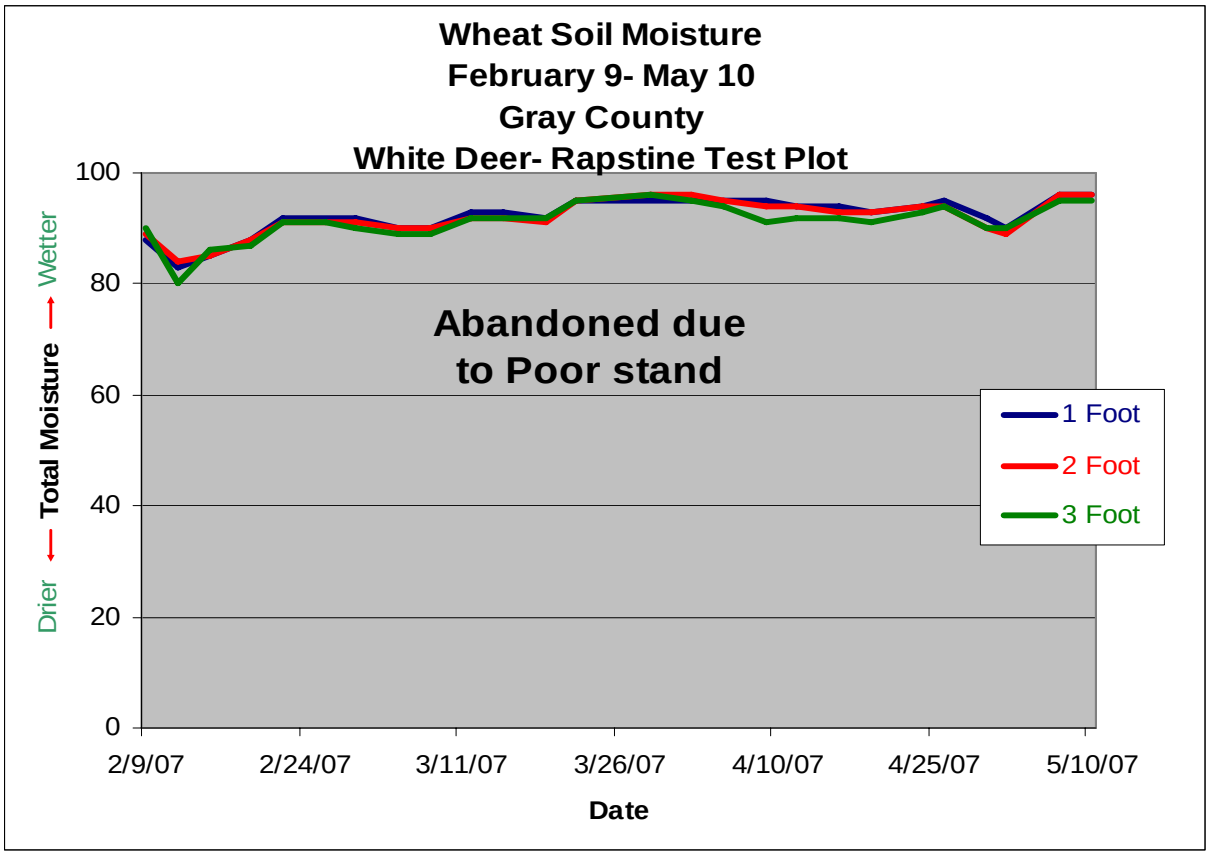
Dec- 2.10" Jan- 0.70" Feb- 0.40" Mar- 4.15" Apr- 1.25" May- 1.90" Total: 10.50"

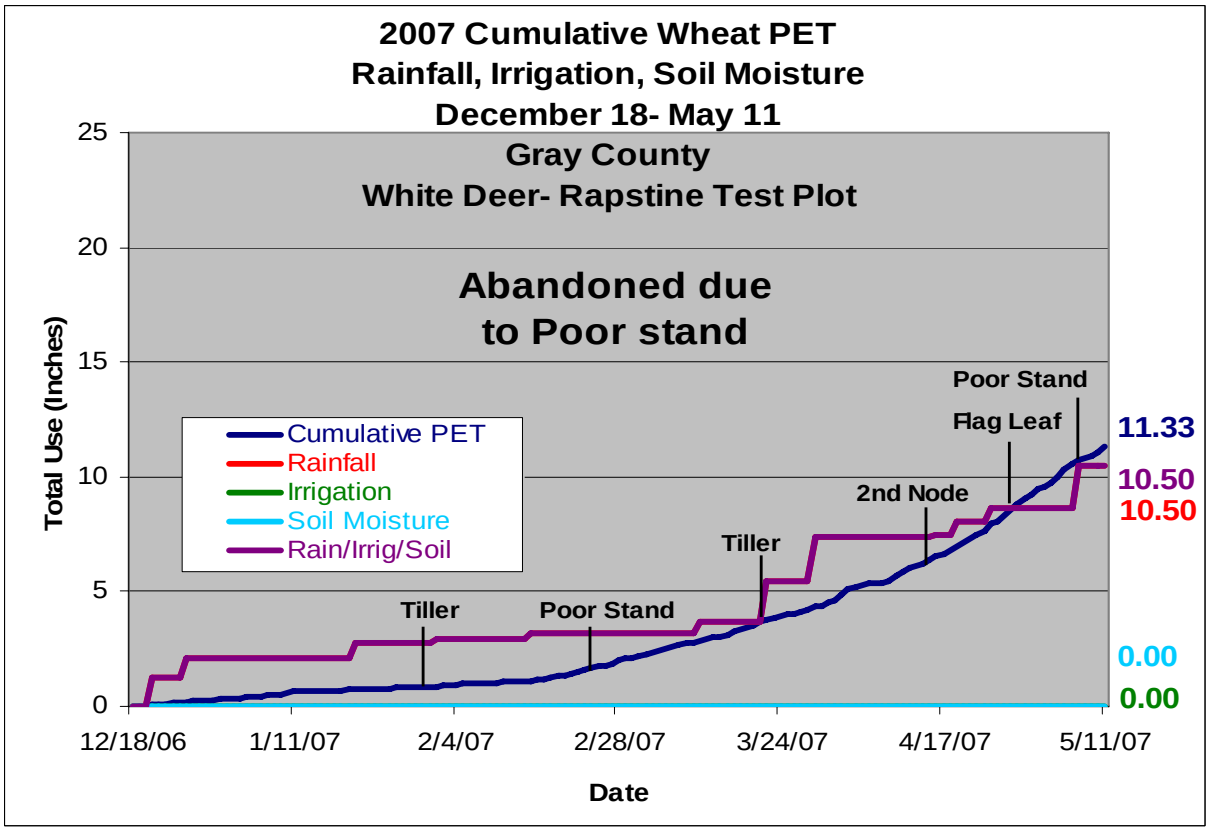
MATERIALS AND METHODS: Five acres of dryland were planted to wheat variety test plot. A rain gauge located at the site measured rainfall. Soil moisture sensors were installed at 1, 2, and 3 feet in the root zone to monitor soil water levels in variety Tam 110. They were read and recorded two times each week and reported on the following page. Seasonal rainfall and additional soil water used are reported on the following page in comparison to that reported by the North Plains PET Network for fully irrigated wheat.

2007 Demonstration Results					
RAIN/SOIL	**PET**	**PRODUCTION**		**CROP VALUE @ $5.50/ BU- $**	
Inches	**% Of**	**Bu/Ac**	**Bu/Ac-In Rain/ Soil**	**Per Acre**	**Acre-Inch of Rain/ Soil**
10.50	**79***	**None**	**None**	**None**	**None**

***Includes 0.00 inches of water removed from three feet of soil and rainfall.**

CONCLUSION: Soil water was good at 1, 2 and 3 feet in February and until the crop and test plot was abandoned on May 11. It appeared some plots would be sufficient plant stands to harvest. However because of poor plant populations, the test plots were abandoned May 11. It was too dry after seed were planted in November for germination. There were too many dryland acres that way. This was one. Production was 0 bushels per inch of rainfall and net soil water. Rainfall and soil water totaled 10.50 inches which was 79 percent of that reported by the North Plains PET Network for fully irrigated wheat.





AGRIPARTNER IRRIGATION

'98 - '07					
	INCHES		PRODUCTION		
CROP	IRRIGATION	RAIN/IRRIG/ SOIL	ACRE	INCH IRRIG	INCH RAIN/IRRIG/ SOIL
Corn (129)	21.42	30.71	10868	507.40	353.86
Cotton (115)	10.60	23.62	1105	125.5	46.79
Grain Sorg. (67)	12.12	23.22	6492	535.58	279.66
Peanut (47)	16.56	27.68	3876	234.14	140.05
Silage Corn (21)	21.00	29.41	25	1.19	0.85
Silage Sorg. (11)	13.92	23.84	21	1.54	0.90
Soybean (54)	14.06	26.51	53	3.78	2.01
Wheat (101)	8.08	18.15	66	8.19	3.64

In 1978, Texas AgriLife Extension Service launched the AgriPartner crop irrigation and production educational program in cooperation with Panhandle area growers, Agri-industry, Commodity and Groundwater District leaders and others. The above summary data recorded in more than 600 grower fields are one of a kind in the United States. The data shows average irrigation and crop production. It lists average seasonal irrigation, rainfall and net soil water measured in each grower's field during the ten year program. A unique measurement in soil water using sensors installed at 1, 2 and 3 feet in each field to combine with rainfall and irrigation measurements. Seasonal rainfall, irrigation and net soil water are added to obtain total water available to the crop during each annual growing season. Crop production per inch of irrigation provides individual growers and their neighbor's information to help make timely management decisions and crop production changes. Crop production per inch of irrigation is a unique management tool that reviews management decisions, irrigation system efficiency, crop production characteristics and the response to irrigation costs invested. Production per inch of total rainfall, irrigation and net soil water measured in producing a specific crop yield indicates how much water individual crops require and how to plan and commit available water. The number in parenthesis by each crop is the total number of grower field tests the average summary represents for that crop. For example, for corn the data represents 129 grower fields. This and similar data is the basis for the irrigation water demand from the Ogallala aquifer for Panhandle Region A's state water plan. 2007 is the last year the Texas AgriLife Extension educational program will be conducted. Special thanks to all growers who cooperated in the water management program and to the Texas Water Development Board for funding data collection for the '07 crop year. Additional data is available on Website http://amarillo.tamu.edu. Open AgriLife Extension programs located in the left and the AgriPartner link.

Economic Analysis of 2007 Agripartner Irrigation Result Demonstrations- Task 2

by

Steve Amosson and Fran Bretz

Texas AgriLife Research and Extension Center at Amarillo
Amarillo, Texas

Technical Report Submitted to the Texas Water Development Board
Austin, Texas 78701

May 2008

Economic Analysis of 2007 Agripartner Irrigation Result Demonstrations – Task 2

Steve Amosson and Fran Bretz[1]

The objective of Task 2 was to estimate the economic returns per acre-inch of irrigation water applied for each of the irrigated demonstrations.

Methodology

The value of irrigation water applied was measured by calculating the return over variable cost (ROVC) for each irrigated demonstration and subtracting the ROVC for the common dryland alternative. The net ROVC was divided by the acre-inches applied in that demonstration to estimate the value per acre-inch applied.

Texas AgriLife Extension Service crop budgets projected for 2007 were used to establish the variable costs associated with both the irrigated and dryland crops evaluated. No less than three sources are used to estimate the variable costs (seed, fertilizer, chemicals, etc.) associated with the budgets. The budgets were modified to reflect the water applied and production associated with each demonstration. Budgeted yields for the dryland alternatives (grain sorghum for the summer crops and wheat for the winter crops) were modified with an average of the 2007 yields reported by the Texas Agricultural Statistics Service (TASS). Substituting TASS yields helped negate yield variations caused by climatic factors, thus, resulting in a more representative accounting of the value of irrigation water. In addition, actual harvest prices were substituted for the

[1] Regents Fellow, Professor and Extension Economist, Texas AgriLife Extension Service, and Research Associate, Texas AgriLife Research, Amarillo, Texas.

projected prices in the budgets. An average of actual irrigation fuel prices from the three primary venders in the region during the irrigation season were utilized in the budgets. Examples of the irrigated and dryland budgets are given in Appendix A.

The fixed costs associated with each of the irrigated systems were not used in the analysis, since irrigators were faced with a short run decision and already had the investment in these systems. In addition, some of the demonstrators were double cropping which would have distorted the analysis if fixed cost were included. For more information on the fixed cost associated with each delivery system, consult the Texas AgriLife Extension Service crop budgets or Amosson et al. 2001.

Results

The dryland alternatives (grain sorghum and wheat) in 2007 were estimated to have a return over variable cost (ROVC) of $69.57 and $118.97 per acre after the budgets were adjusted for the actual 2007 yields. The average ROVC per acre by irrigated crop ranged from $502.43/acre for cotton to $136.95/acre for peanuts, Table 1. This resulted in a net ROVC to irrigation that varied from $432.86/acre (cotton) to $61.24/acre (wheat). Standardizing the value of the water to an acre-inch of applied ranged from $66.87/acre-inch for cotton to a low of $9.35/acre-inch for peanuts. The ROVC/acre-inch for the sorghum silage, corn, grain sorghum, soybeans and wheat were $29.88, $17.88, $14.74, $12.78 and $10.05, respectively.

Table 1. Economic returns per acre-inch of irrigation water applied to 2007 irrgated demonstrations in the Texas Panhandle.

Crop	Yield	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac-in
Corn	230	$3.92/bu	$903.11	$507.64	$395.47	$69.57	$325.89	18.22	$17.88
Cotton	Cotton Lint 1,522 Cottonseed 1.06	$0.64/lb $130/ton	$1,112.40	$609.97	$502.43	$69.57	$432.86	6.47	$66.87
Grain Sorghum	73.21	$6.29/cwt	$460.52	$269.04	$191.48	$69.57	$121.90	8.27	$14.74
Peanuts	1.919	420/ton	$805.88	$668.92	$136.95	$69.57	$102.03	10.91	$9.35
Sorghum Silage	21.80	$30/ton	$664.00	$334.06	$329.94	$69.57	$260.36	8.72	$29.88
Soybeans	45	$8.75/bu	$383.18	$218.97	$164.21	$69.57	$94.63	7.41	$12.78
Wheat	73	$5.50/bu	$399.14	$218.93	$180.21	$118.97	$61.24	6.09	$10.05

The economic evaluation for each of the irrigated demonstrations is given in Table 2. The net return over variable cost for the 13 corn demonstrations ranged from $154.17 per acre to $470.77 per acre. The ROVC/acre-inch applied varied from a low of $8.11 to $25.81 with an average of $17.88. The two demonstrators that applied the most water (25.62 and 23.32 acre-inches) had ROVC/acre-inch of $13.29 and $11.70, well below the average.

The exceptional yields in the cotton demonstrations resulted in the highest net ROVC among all the irrigated crops. Excluding the demonstration that had production problems, net ROVC ranged from $764.59 to -$8.60 and ROVC/acre-inch from $167.01 to -$5.73. Grain sorghum demonstrations yielded a net ROVC ranging from $223.09 per acre to -$10.26 with an associated ROVC/acre-inch range of negative to $39.34. The one demonstration that applied significantly more water (13 acre-inches) had the second lowest ROVC/acre-inch.

The peanut demonstrations had a net ROVC per acre ranging from $201.58 to $40.48 with a corresponding ROVC/acre-inch range of $16.66 to $4.74 for an average of $9.35. Only two sorghum silage and two soybean demonstrations were conducted, the sorghum silage demonstrations averaged a ROVC/acre-inch of $29.88 and the soybean demonstrations averaged $12.78 per acre-inch. The wheat demonstrations had a large variability in net ROVC

ranging from $178.82 to -$70.59/acres. The average ROVC/acre-inch for the wheat was $10.05. However, if the demonstration that was basically dryland (applied 1.15 acre-inches) was eliminated from the calculations, the average ROVC/acre-inch increased to $12.03.

There was insufficient data to draw any definitive conclusions between delivery systems with only one drip demonstration and two furrow demonstrations being conducted. However, results were consistent with expectations. The drip demonstration conducted on corn yielded a ROVC/acre-inch of $25.40 considerably better than the average of $17.88 suggesting the demonstration benefited from higher application efficiency. Conversely, the furrow demonstrations (grain sorghum and sorghum silage) had lower ROVC/acre-inch $8.69 and $23.98 compared with the demonstration averages of $14.74 and $29.88, respectively. This is consistent with the lower application efficiency expected with furrow irrigation relative to sprinkler.

Table 2. Economic returns per acre-inch of irrigation water for 2007 irrigated demonstrations including corn, cotton, grain sorghum, peanuts, sorghum silage, soybeans, and wheat in the Texas Panhandle.

Corn

County	Producer	Method of Irrigation	Corn Yield	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac in
Sherman	Justin Crownover	Sprinkler	270	$3.92/bu	$1,058.40	$518.06	$540.34	$69.57	$470.77	18.24	$25.81
Hartley	Wade Lenz	Sprinkler	263	$3.92/bu	$1,030.96	$518.34	$512.62	$69.57	$443.05	18.53	$23.91
Hutchinson	Craig McCloy	Drip	251	$3.92/bu	$983.92	$499.36	$484.56	$69.57	$414.99	16.34	$25.40
Dallam	Sieto Mellema	Sprinkler	249	$3.92/bu	$976.08	$566.03	$410.05	$69.57	$340.48	25.62	$13.29
Moore	Harold Grall	Sprinkler	228	$3.92/bu	$893.76	$501.78	$391.98	$69.57	$322.41	17.50	$18.42
Ochiltree	Dan Krienke #8	Sprinkler	228	$3.92/bu	$893.76	$488.60	$405.16	$69.57	$335.58	15.68	$21.40
Moore	Butch Harbert	Sprinkler	227	$3.92/bu	$889.84	$510.57	$379.27	$69.57	$309.70	18.75	$16.52
Sherman	John Engelbrecht	Sprinkler	226	$3.92/bu	$885.92	$543.40	$342.52	$69.57	$272.95	23.32	$11.70
Ochiltree	Dan Krienke #47	Sprinkler	222	$3.92/bu	$870.24	$497.54	$372.70	$69.57	$303.13	17.13	$17.70
Dallam	Robert Gordon	Sprinkler	220	$3.92/bu	$862.40	$515.63	$346.77	$69.57	$277.20	19.70	$14.07
Hartley	Bill Cole	Sprinkler	218	$3.92/bu	$854.56	$452.84	$401.72	$69.57	$332.14	11.10	$29.92
Gray	John R. Spearman	Sprinkler	208	$3.92/bu	$815.36	$485.72	$329.64	$69.57	$260.07	16.00	$16.25
Collingsworth	Dannie Morris	Sprinkler	185	$3.92/bu	$725.20	$501.46	$223.74	$69.57	$154.17	19.00	$8.11
		Average	230	$3.92/bu	$903.11	$507.64	$395.47	$69.57	$325.89	18.22	$17.88

Cotton

County	Producer	Method of Irrigation	Cotton Lint	Price/Unit	Cotton seed	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac in
Briscoe	Darrel Johnson	Sprinkler	2,153	$0.64/lb	1.5071	$130/ton	$1,573.84	$739.68	$834.16	$69.57	$764.59	9.20	$83.11
Carson	Geno Abbe	Sprinkler	2,000	$0.64/lb	1.4000	$130/ton	$1,462.00	$677.64	$784.36	$69.57	$714.79	4.28	$167.01
Sherman	Kerry Cartright	Sprinkler	1,923	$0.64/lb	1.3461	$130/ton	$1,405.71	$705.70	$700.01	$69.57	$630.44	10.00	$63.04
Collingsworth	Tony Cox	Sprinkler	1,590	$0.64/lb	1.1100	$130/ton	$1,161.90	$632.85	$529.05	$69.57	$459.47	7.91	$58.09
Deaf Smith	Dale Kleuskens	Sprinkler	1,573	$0.64/lb	1.1011	$130/ton	$1,149.86	$606.41	$543.46	$69.57	$473.88	5.75	$82.41
Gray	John R. Spearman	Sprinkler	1,488	$0.64/lb	1.0416	$130/ton	$1,087.73	$601.35	$486.38	$69.57	$416.80	6.00	$69.47
Collingsworth	Pat & Rod White	Sprinkler	1,320	$0.64/lb	0.9200	$130/ton	$964.40	$586.86	$377.54	$69.57	$307.97	8.02	$38.40
Moore	Keith Watson	Sprinkler	980	$0.64/lb	0.6860	$130/ton	$716.38	$510.41	$205.97	$69.57	$136.40	5.60	$24.36
Deaf Smith	Charles Schlabs	Sprinkler	670	$0.64/lb	0.4690	$130/ton	$489.77	$428.79	$60.98	$69.57	-$8.60	1.50	-$5.73
		Average	1,522	$0.64/lb	1.0645	$130/ton	$1,112.40	$609.97	$502.43	$69.57	$432.86	6.47	$66.87

Grain Sorghum

County	Producer	Method of Irrigation	Grain Sorghum Yield	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac in
Ochiltree	Dan Krienke	Sprinkler	91.28	$6.29/cwt	$574.15	$281.48	$292.67	$69.57	$223.09	8.61	$25.91
Deaf Smith	Greg Urbanczyk	Furrow	77.31	$6.29/cwt	$486.28	$303.74	$182.54	$69.57	$112.96	13.00	$8.69
Ochiltree	Dan Krienke	Sprinkler	74.48	$6.29/cwt	$468.48	$239.57	$228.91	$69.57	$159.34	4.05	$39.34
Deaf Smith	Dale Kleuskens	Sprinkler	73.00	$6.29/cwt	$459.17	$265.21	$193.96	$69.57	$124.39	7.70	$16.15
Gray	Terry O'Neal	Sprinkler	50.00	$6.29/cwt	$314.50	$255.19	$59.31	$69.57	-$10.26	8.00	-$1.28
		Average	73.21	$6.29/cwt	$460.52	$269.04	$191.48	$69.57	$121.90	8.27	$14.74

Table 2. (continued)

Peanuts											
County	Producer	Method of Irrigation	Peanuts Yield	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac in
Collingsworth	Joe Baumgardner	Sprinkler	2.345	$420/ton	$984.90	$713.75	$271.15	$69.57	$201.58	12.10	$16.66
Collingsworth	Dan & Rex Henard	Sprinkler	2.030	$420/ton	$852.60	$680.89	$171.71	$69.57	$102.13	11.26	$9.07
Collingsworth	Pat & Rod White	Sprinkler	1.750	$420/ton	$735.00	$624.95	$110.05	$69.57	$40.48	6.82	$5.94
Collingsworth	Dannie Morrris	Sprinkler	1.550	$420/ton	$651.00	$656.09	-$5.09	$69.57	$63.91	13.47	$4.74
		Average	1.919	$420/ton	$805.88	$668.92	$136.95	$69.57	$102.03	10.91	$9.35

Sorghum Silage											
County	Producer	Method of Irrigation	Sorghum SilageYield	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac in
Deaf Smith	Frankie Bezner	Furrow	23.60	$30/ton	$708.00	$362.62	$345.38	$69.57	$275.81	11.50	$23.98
Potter	Mike Menke	Sprinkler	20.00	$30/ton	$620.00	$305.51	$314.49	$69.57	$244.91	5.93	$41.30
		Average	21.80	$30/ton	$664.00	$334.06	$329.94	$69.57	$260.36	8.72	$29.88

Soybeans											
County	Producer	Method of Irrigation	Soybeans Yield	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac in
Carson	Mike Dudenhoeffer	Sprinkler	45	$8.75/bu	$393.75	$222.49	$171.26	$69.57	$101.68	7.55	$13.47
Carson	Joe Homer	Sprinkler	45	$8.75/bu	$372.60	$215.44	$157.16	$69.57	$87.58	7.26	$12.06
		Average	45	$8.75/bu	$383.18	$218.97	$164.21	$69.57	$94.63	7.41	$12.78

Wheat											
County	Producer	Method of Irrigation	Wheat Yield	Price/Unit	Gross Revenue	Variable Cost	ROVC (Irrigated)	ROVC (Dryland)	ROVC (Net)	Applied Ac-in	ROVC/ Ac in
Ochiltree	Dan Krienke	Sprinkler	103	$5.50/bu	$566.50	$268.71	$297.79	$118.97	$178.82	11.55	$15.48
Ochiltree	Dan Krienke	Sprinkler	88	$5.50/bu	$484.00	$226.49	$257.51	$118.97	$138.54	6.21	$22.31
Moore	David Block	Sprinkler	82	$5.50/bu	$451.00	$210.78	$240.22	$118.97	$121.25	4.25	$28.53
Deaf Smith	Greg Urbanczyk	Sprinkler	80	$5.50/bu	$440.00	$241.58	$198.42	$118.97	$79.45	9.00	$8.83
Deaf Smith	Ray Schlabs, Jr.	Sprinkler	65	$5.50/bu	$357.50	$204.97	$152.54	$118.97	$33.56	4.50	$7.46
Deaf Smith	Ray Schlabs, Jr.	Sprinkler	50	$5.50/bu	$275.00	$208.37	$66.63	$118.97	-$52.34	6.00	-$8.72
Collingsworth	Rex & Dan Henard	Sprinkler	40	$5.50/bu	$220.00	$171.62	$48.38	$118.97	-$70.59	1.15	-$61.39
		Average	73	$5.50/bu	$399.14	$218.93	$180.21	$118.97	$61.24	6.09	$10.05

Discussion and limitations

The direction of results was as anticipated with cotton, corn and sorghum silage generating the highest ROVC/acre-inch with grain sorghum, wheat and soybeans generating relatively lower returns. Peanuts had the lowest ROVC/acre-inch, which was not anticipated. While the number of demonstrations by drip and furrow delivery systems was limited, the anticipated impact of their relative application efficiencies was apparent in the analysis.

The magnitude of the returns should be viewed as somewhat distorted for several reasons. First, environmental factors in 2007 including above average rainfall and perfect growing conditions in the fall led to well above average production. An attempt was made to negate this distortion by using actual 2007 yields of alternative dryland crops in calculating the net return over variable cost due to irrigation. However, dryland cotton that is considered the primary alternative to irrigated cotton could not be used in the analysis because the 2007 production data is not yet available from TASS so dryland grain sorghum was utilized. In addition, the rapid price rise of approximately a dollar per bushel from 2006 to 2007 harvest prices in corn, wheat and soybeans (~ +$3.50) may have distorted the returns for corn, wheat, grain sorghum, sorghum silage and soybeans.

Economic analysis of the demonstration data does provide some valuable information relative to the economic value of irrigation by crop. However, utilizing a single year’s data limits the dimensions and validity of the analysis. It is imperative that this type of demonstrations be analyzed in the future and/or a

complete analysis of the historical data set associated with the Agripartner program which has been in existence the past ten years be conducted to be able to get statistically valid answers to such questions as the value of irrigation by crop, differences among systems, etc.

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Appendix A

Estimated costs and returns per Acre
Bt Corn (Corn Borer) for Grain, Sprinkler Irrig, (NG)
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
corn	bu.	3.92	220.0000	862.40
TOTAL INCOME				862.40
DIRECT EXPENSES				
SEED				
seed - Bt corngr.	bags	145.00	0.3500	50.75
INSECTICIDE				
miticide	acre	25.00	1.0000	25.00
HERBICIDE				
herb - corn pre	acre	17.30	1.0000	17.30
herb -corn post	acre	15.00	1.0000	15.00
FERTILIZER				
fert(N) - ANH_3	lb.	0.20	126.0000	25.20
fert(P) - liquid	lb.	0.41	60.0000	24.60
fert(N) - liquid	lb.	0.35	78.0000	27.30
CUSTOM				
fert appl - ANH_3	acre	9.00	1.0000	9.00
crop consultant	acre	6.00	1.0000	6.00
harv & haul - corn	bu.	0.26	220.0000	57.20
CROP INSURANCE				
corn -CP	acre	15.00	1.0000	15.00
OPERATOR LABOR				
Implements	hour	9.10	0.2925	2.66
Tractors	hour	9.10	0.3965	3.60
HAND LABOR				
Implements	hour	9.10	0.1527	1.38
IRRIGATION LABOR				
Center Pivot	hour	9.10	1.4080	12.81
DIESEL FUEL				
Tractors	gal	2.00	2.1861	4.37
GASOLINE				
Pickup	gal	2.25	2.0100	4.52
IRRIGATION ENERGY				
Center Pivot	ac-in	19.70	7.24	142.63
REPAIR & MAINTENANCE				
Implements	Acre	5.61	1.0000	5.61
Tractors	Acre	4.80	1.0000	4.80
Pickup	Acre	0.16	1.0000	0.16
Center Pivot	ac-in	2.03	22.0000	44.66
INTEREST ON OP. CAP.	Acre	16.08	1.0000	16.08
TOTAL DIRECT EXPENSES				515.63
RETURNS ABOVE DIRECT EXPENSES				346.77
FIXED EXPENSES				
Implements	Acre	10.19	1.0000	10.19
Tractors	Acre	8.55	1.0000	8.55
Pickup	Acre	0.30	1.0000	0.30
Center Pivot	Acre	33.60	1.0000	33.60
TOTAL FIXED EXPENSES				52.64
TOTAL SPECIFIED EXPENSES				568.27
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				294.13
ALLOCATED COST ITEMS				
cash rent - corn	acre	75.00	1.0000	75.00
RESIDUAL RETURNS				219.13

Projections for Planning Purposes Only.

Estimated costs and returns per Acre
Cotton, Sprinkler Irrigated (Herbicide Resistant Seed)
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
cotton lint	lb.	0.64	850.0000	544.00
cottonseed	ton	130.00	0.6000	78.00
TOTAL INCOME				622.00
DIRECT EXPENSES				
SEED				
seed - cotton	lb.	2.40	15.0000	36.00
seed treatment-cttn	acre	12.00	1.0000	12.00
FERTILIZER				
fert(P) - dry	lb.	0.30	25.0000	7.50
fert(N) - dry	lb.	0.35	100.0000	35.00
CUSTOM				
fert appl - dry	acre	4.50	1.0000	4.50
preplant herb + appl acre		12.00	1.0000	12.00
post emerg herb+appl acre		16.00	1.0000	16.00
insec+appl - cotton	appl	12.00	1.0000	12.00
harvaid appl-cot irr	acre	25.00	0.7500	18.75
strip & module-cotto	cwt.	1.45	31.2500	45.31
ginning - cotton	cwt.	2.40	31.2500	75.00
CROP INSURANCE				
cotton - CP	acre	20.00	1.0000	20.00
BOLL WEEVIL ASSESS				
Irrigated	acre	12.00	1.0000	12.00
OPERATOR LABOR				
Implements	hour	9.10	1.0587	9.63
Tractors	hour	9.10	1.0846	9.87
HAND LABOR				
Implements	hour	9.10	0.1908	1.73
IRRIGATION LABOR				
Center Pivot	hour	9.10	0.7680	6.98
DIESEL FUEL				
Tractors	gal	2.00	4.8545	9.70
GASOLINE				
Pickup	gal	2.25	3.5175	7.91
IRRIGATION ENERGY				
Center Pivot	ac-in	7.24	12.0000	86.88
REPAIR & MAINTENANCE				
Implements	Acre	12.45	1.0000	12.45
Tractors	Acre	11.77	1.0000	11.77
Pickup	Acre	0.28	1.0000	0.28
Center Pivot	ac-in	2.03	12.0000	24.36
INTEREST ON OP. CAP.	Acre	19.58	1.0000	19.58
TOTAL DIRECT EXPENSES				507.20
RETURNS ABOVE DIRECT EXPENSES				114.80
FIXED EXPENSES				
Implements	Acre	22.35	1.0000	22.35
Tractors	Acre	19.84	1.0000	19.84
Pickup	Acre	0.54	1.0000	0.54
Center Pivot	Acre	33.60	1.0000	33.60
TOTAL FIXED EXPENSES				76.33
TOTAL SPECIFIED EXPENSES				583.53
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				38.47
ALLOCATED COST ITEMS				
cash rent - cottoni	acre	45.00	1.0000	45.00
RESIDUAL RETURNS				-6.53

Estimated costs and returns per Acre
Cont. Sorghum, Sprinkler Irrigated, (NG)
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
sorghum	cwt	6.29	70.0000	440.30
TOTAL INCOME				440.30
DIRECT EXPENSES				
SEED				
seed - sorghum	lb.	1.25	4.5000	5.62
FERTILIZER				
fert(N) - ANH_3	lb.	0.20	60.0000	12.00
fert(P) - liquid	lb.	0.41	50.0000	20.50
fert(N) - liquid	lb.	0.35	40.0000	14.00
CUSTOM				
fert appl - ANH_3	acre	9.00	1.0000	9.00
herb&appl-sorghumi	acre	21.12	1.0000	21.12
insec+appl - sorghum	appl	13.00	0.3300	4.29
harvest & haul - sor	cwt.	0.53	70.0000	37.10
OPERATOR LABOR				
Implements	hour	9.10	0.5437	4.94
Tractors	hour	9.10	0.6058	5.51
HAND LABOR				
Implements	hour	9.10	0.1527	1.38
IRRIGATION LABOR				
Center Pivot	hour	9.10	0.8960	8.15
DIESEL FUEL				
Tractors	gal	2.00	3.1646	6.32
GASOLINE				
Pickup	gal	2.25	2.0100	4.52
IRRIGATION ENERGY				
Center Pivot	ac-in	7.24	14.0000	101.36
REPAIR & MAINTENANCE				
Implements	Acre	7.37	1.0000	7.37
Tractors	Acre	7.72	1.0000	7.72
Pickup	Acre	0.16	1.0000	0.16
Center Pivot	ac-in	2.03	14.0000	28.42
INTEREST ON OP. CAP.	Acre	12.02	1.0000	12.02
TOTAL DIRECT EXPENSES				311.50
RETURNS ABOVE DIRECT EXPENSES				128.80
FIXED EXPENSES				
Implements	Acre	13.43	1.0000	13.43
Tractors	Acre	14.07	1.0000	14.07
Pickup	Acre	0.30	1.0000	0.30
Center Pivot	Acre	33.60	1.0000	33.60
TOTAL FIXED EXPENSES				61.40
TOTAL SPECIFIED EXPENSES				372.90
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				67.40
ALLOCATED COST ITEMS				
cash rent - sorghumf	acre	45.00	1.0000	45.00
RESIDUAL RETURNS				22.40

Projections for Planning Purposes Only.

Estimated costs and returns per Acre
Peanuts, Runner, Sprinkler Irrigated
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
peanuts - runner	ton	420.00	2.2500	945.00
TOTAL INCOME				945.00
DIRECT EXPENSES				
SEED				
innoculant peanut	acre	6.00	1.0000	6.00
seed - peanut	lb.	0.81	100.0000	81.00
HERBICIDE				
herb.- peanut	acre	15.00	1.0000	15.00
FERTILIZER				
fert(N) - dry	lb.	0.35	80.0000	28.00
fert(P) - dry	lb.	0.30	50.0000	15.00
CUSTOM				
fert appl - peanut	acre	4.50	1.0000	4.50
insec+appl - peanut	appl	12.00	1.0000	12.00
fung & appl - peanut	appl	14.00	3.0000	42.00
hoeing - peanut	acre	15.00	1.0000	15.00
dig & shake - peanut	acre	22.50	1.0000	22.50
harv&haul - peanuts	ton	55.00	2.2500	123.75
drying - peanut	ton	30.00	2.2500	67.50
OPERATOR LABOR				
Implements	hour	9.10	1.5913	14.48
Tractors	hour	9.10	1.7942	16.32
HAND LABOR				
Implements	hour	9.10	0.4681	4.25
IRRIGATION LABOR				
Center Pivot	hour	9.10	1.3440	12.23
DIESEL FUEL				
Tractors	gal	2.00	9.1968	18.39
GASOLINE				
Pickup	gal	2.25	2.0100	4.52
IRRIGATION ENERGY				
Center Pivot	ac-in	7.24	21.0000	152.04
REPAIR & MAINTENANCE				
Implements	Acre	19.59	1.0000	19.59
Tractors	Acre	22.57	1.0000	22.57
Pickup	Acre	0.16	1.0000	0.16
Center Pivot	ac-in	2.03	21.0000	42.63
INTEREST ON OP. CAP.	Acre	30.68	1.0000	30.68
TOTAL DIRECT EXPENSES				736.36
RETURNS ABOVE DIRECT EXPENSES				208.64
FIXED EXPENSES				
Implements	Acre	32.75	1.0000	32.75
Tractors	Acre	41.46	1.0000	41.46
Pickup	Acre	0.30	1.0000	0.30
Center Pivot	Acre	33.60	1.0000	33.60
TOTAL FIXED EXPENSES				108.12
TOTAL SPECIFIED EXPENSES				844.47
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				100.53
ALLOCATED COST ITEMS				
cash rent - peanuts	acre	75.00	1.0000	75.00
RESIDUAL RETURNS				25.53

Projections for Planning Purposes Only.

Estimated costs and returns per Acre
Sorghum Silage, Sprinkler Irrigated
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
sorghum silage	ton	30.00	18.0000	540.00
TOTAL INCOME				540.00
DIRECT EXPENSES				
SEED				
seed - sorghum	lb.	1.25	7.0000	8.75
FERTILIZER				
fert(N) - ANH_3	lb.	0.20	174.0000	34.80
fert(P) - dry	lb.	0.30	60.0000	18.00
CUSTOM				
fert appl - ANH_3	acre	9.00	1.0000	9.00
fert application	acre	4.50	1.0000	4.50
herb+appl - sorghum	acre	10.50	1.0000	10.50
insec+appl - sorghum	appl	13.00	0.3300	4.29
harv & haul - sorgh	ton	4.66	18.0000	83.88
OPERATOR LABOR				
Implements	hour	9.10	0.3796	3.45
Tractors	hour	9.10	0.4691	4.26
HAND LABOR				
Implements	hour	9.10	0.1527	1.38
IRRIGATION LABOR				
Center Pivot	hour	9.10	0.8320	7.57
DIESEL FUEL				
Tractors	gal	2.00	2.4264	4.85
GASOLINE				
Pickup	gal	2.25	3.0150	6.78
IRRIGATION ENERGY				
Center Pivot	ac-in	7.24	13.0000	94.12
REPAIR & MAINTENANCE				
Implements	Acre	6.28	1.0000	6.28
Tractors	Acre	5.90	1.0000	5.90
Pickup	Acre	0.24	1.0000	0.24
Center Pivot	ac-in	2.03	13.0000	26.39
INTEREST ON OP. CAP.	Acre	12.44	1.0000	12.44
TOTAL DIRECT EXPENSES				347.38
RETURNS ABOVE DIRECT EXPENSES				192.62
FIXED EXPENSES				
Implements	Acre	11.32	1.0000	11.32
Tractors	Acre	10.62	1.0000	10.62
Pickup	Acre	0.46	1.0000	0.46
Center Pivot	Acre	33.60	1.0000	33.60
TOTAL FIXED EXPENSES				56.00
TOTAL SPECIFIED EXPENSES				403.38
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				136.62
ALLOCATED COST ITEMS				
cash rent - sorghsil	acre	75.00	1.0000	75.00
RESIDUAL RETURNS				61.62

Projections for Planning Purposes Only.

Estimated costs and returns per Acre
Soybeans, Roundup Ready, Sprinkler Irr., (NG)
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
soybeans	bu.	8.75	60.0000	525.00
TOTAL INCOME				525.00
DIRECT EXPENSES				
SEED				
seed - soybeans	lb.	0.45	60.0000	27.00
innoculant soybeans	acre	7.00	1.0000	7.00
FERTILIZER				
fert(P) - liquid	lb.	0.41	45.0000	18.45
CUSTOM				
herb+appl-soybeans i	acre	9.00	2.0000	18.00
insec+appl-soybeans	acre	10.24	0.5000	5.12
harv & haul - soybea	bu.	0.33	60.0000	19.80
OPERATOR LABOR				
Implements	hour	9.10	0.3225	2.93
Tractors	hour	9.10	0.4215	3.83
HAND LABOR				
Implements	hour	9.10	0.1527	1.38
IRRIGATION LABOR				
Center Pivot	hour	9.10	0.8960	8.15
DIESEL FUEL				
Tractors	gal	2.00	2.3443	4.68
GASOLINE				
Pickup	gal	2.25	2.0100	4.52
IRRIGATION ENERGY				
Center Pivot	ac-in	7.24	14.0000	101.36
REPAIR & MAINTENANCE				
Implements	Acre	5.55	1.0000	5.55
Tractors	Acre	4.75	1.0000	4.75
Pickup	Acre	0.16	1.0000	0.16
Center Pivot	ac-in	2.03	14.0000	28.42
INTEREST ON OP. CAP.	Acre	8.29	1.0000	8.29
TOTAL DIRECT EXPENSES				269.39
RETURNS ABOVE DIRECT EXPENSES				255.61
FIXED EXPENSES				
Implements	Acre	10.52	1.0000	10.52
Tractors	Acre	8.46	1.0000	8.46
Pickup	Acre	0.30	1.0000	0.30
Center Pivot	Acre	33.60	1.0000	33.60
TOTAL FIXED EXPENSES				52.88
TOTAL SPECIFIED EXPENSES				322.27
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				202.73
ALLOCATED COST ITEMS				
cash rent- soybeans	acre	45.00	1.0000	45.00
RESIDUAL RETURNS				157.73

Projections for Planning Purposes Only.

Estimated costs and returns per Acre
Cont. Wheat, Sprinkler Irrigated, (NG)
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
wheat	bu.	5.50	65.0000	357.50
TOTAL INCOME				357.50
DIRECT EXPENSES				
SEED				
seed- wheat g	bu.	7.00	1.5000	10.50
FERTILIZER				
fert(N) - ANH_3	lb.	0.20	60.0000	12.00
fert(P) - dry	lb.	0.30	50.0000	15.00
CUSTOM				
fert appl - ANH_3	acre	9.00	1.0000	9.00
fert appl - dry	acre	4.50	1.0000	4.50
insec+appl - wheat	acre	11.00	1.0000	11.00
harv&haul-wheat irr	bu.	0.44	65.0000	28.60
OPERATOR LABOR				
Implements	hour	9.10	0.3636	3.30
Tractors	hour	9.10	0.5151	4.68
HAND LABOR				
Implements	hour	9.10	0.2121	1.93
IRRIGATION LABOR				
Center Pivot	hour	9.10	0.9600	8.73
DIESEL FUEL				
Tractors	gal	2.00	2.4615	4.92
GASOLINE				
Pickup	gal	2.25	2.0100	4.52
IRRIGATION ENERGY				
Center Pivot	ac-in	7.24	15.0000	108.60
REPAIR & MAINTENANCE				
Implements	Acre	4.47	1.0000	4.47
Tractors	Acre	5.55	1.0000	5.55
Pickup	Acre	0.16	1.0000	0.16
Center Pivot	ac-in	2.03	15.0000	30.45
INTEREST ON OP. CAP.	Acre	15.64	1.0000	15.64
TOTAL DIRECT EXPENSES				283.55
RETURNS ABOVE DIRECT EXPENSES				73.95
FIXED EXPENSES				
Implements	Acre	8.34	1.0000	8.34
Tractors	Acre	9.99	1.0000	9.99
Pickup	Acre	0.30	1.0000	0.30
Center Pivot	Acre	33.60	1.0000	33.60
TOTAL FIXED EXPENSES				52.23
TOTAL SPECIFIED EXPENSES				335.78
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				21.72
ALLOCATED COST ITEMS				
cash rent - wheati	acre	45.00	1.0000	46.00
RESIDUAL RETURNS				21.72

Projections for Planning Purposes Only.

Estimated costs and returns per Acre
Sorghum, Dryland, Continuous, Minimum Tillage
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
Sorghum	cwt	6.29	24.5800	154.61
TOTAL INCOME				154.51
DIRECT EXPENSES				
SEED				
Seed - sorghum	lb.	1.25	2.2500	2.81
FERTILIZER				
Fert(N) - ANH_3	lb.	0.20	40.0000	8.00
CUSTOM				
Fert appl - ANH_3	acre	9.00	1.0000	9.00
Herb+appl - sorghum	acre	10.50	1.0000	10.50
Insec+appl - sorghum	appl	13.00	0.3300	4.29
Cust harv-sorgh dry	acre	12.60	1.0000	12.60
Cust haul-sorgh dry	cwt	0.25	24.5800	6.15
OPERATOR LABOR				
Implements	hour	9.10	0.1569	1.42
Tractors	hour	9.10	0.4412	4.01
HAND LABOR				
Implements	hour	9.10	0.3104	2.82
DIESEL FUEL				
Tractors	gal	2.00	2.4507	4.90
GASOLINE				
Pickup	gal	2.25	2.0100	4.52
REPAIR & MAINTENANCE				
Implements	Acre	5.81	1.0000	5.81
Tractors	Acre	5.02	1.0000	5.02
Pickup	Acre	0.16	1.0000	0.16
INTEREST ON OP. CAP.	Acre	3.03	1.0000	3.03
TOTAL DIRECT EXPENSES				85.04
RETURNS ABOVE DIRECT EXPENSES				69.57
FIXED EXPENSES				
Implements	Acre	10.10	1.0000	10.10
Tractors	Acre	8.96	1.0000	8.96
Pickup	Acre	0.30	1.0000	0.30
TOTAL FIXED EXPENSES				19.36
TOTAL SPECIFIED EXPENSES				104.40
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				50.21
ALLOCATED COST ITEMS				
cash rent- sorghum	acre	15.00	1.0000	15.00
RESIDUAL RETURNS				35.21

Projections for Planning Purposes Only.

Estimated costs and returns per Acre
Continuous Wheat, Dryland
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT
		dollars		dollars
INCOME				
wheat	bu.	5.50	35.4800	195.14
TOTAL INCOME				195.14
DIRECT EXPENSES				
SEED				
seed- wheat	bu.	7.00	1.0000	7.00
FERTILIZER				
fert(N) - ANH_3	lb.	0.20	30.0000	6.00
CUSTOM				
fert appl - ANH_3	acre	9.00	1.0000	9.00
insec+appl - wheat	acre	11.00	0.5000	5.50
cust harv-wheat dry	acre	12.60	1.0000	12.60
cust haul-wheat dry	bu.	0.14	35.4800	4.97
OPERATOR LABOR				
Implements	hour	9.10	0.2764	2.51
Tractors	hour	9.10	0.4425	4.02
HAND LABOR				
Implements	hour	9.10	0.2121	1.93
DIESEL FUEL				
Tractors	gal	2.00	2.2211	4.44
GASOLINE				
Pickup	gal	2.25	2.0100	4.52
REPAIR & MAINTENANCE				
Implements	Acre	3.80	1.0000	3.80
Tractors	Acre	4.46	1.0000	4.46
Pickup	Acre	0.16	1.0000	0.16
INTEREST ON OP. CAP.	Acre	5.26	1.0000	5.26
TOTAL DIRECT EXPENSES				76.17
RETURNS ABOVE DIRECT EXPENSES				118.97
FIXED EXPENSES				
Implements	Acre	7.21	1.0000	7.21
Tractors	Acre	7.92	1.0000	7.92
Pickup	Acre	0.30	1.0000	0.30
TOTAL FIXED EXPENSES				15.43
TOTAL SPECIFIED EXPENSES				91.60
RETURNS ABOVE TOTAL SPECIFIED EXPENSES				103.54
ALLOCATED COST ITEMS				
cash rent - wheatd	acre	15.00	1.0000	15.00
RESIDUAL RETURNS				88.54

Projections for Planning Purposes Only.

Texas Soybean Board

North Plains Groundwater Conservation District

Plains Cotton Growers