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College of Agricultural Sciences

Arkansas Valley Research Center

Extension

The Effect on Corn Yield, Nutrient Needs and Economics When Fallowing Land One, Two or Three Years in the Arkansas Valley of Colorado: Project Period 2007-1010

2008 Progress Report



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THE EFFECT ON CORN YIELD, NUTRIENT NEEDS AND ECONOMICS
WHEN FALLOWING LAND, ONE, TWO OR THREE YEARS
IN THE ARKANSAS VALLEY OF COLORADO
Colorado State University Arkansas Valley Research Center
Rocky Ford, Colorado
Project Period 2007 through 2010

2008 Progress Report

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ABSTRACT

Leasing of ag waters to cities during times of drought will give farmers a new crop, "WATER", and provide additional revenue. As a result, several ditch companies are joining together as the "Super Ditch Company" and will market their water as a group. One of the main concerns of farmers about leasing their water rights during short water periods is the effect of fallowing on reclaiming the land for optimum corn production.

Many farmers fertilize and prepare the land for corn production in the fall of the year for the next year's crop with the hope there will be adequate water to irrigate all their planned acres. But if the snow pack is not adequate, they cannot grow all the acres and produce a profitable corn crop. By leasing their water to the cities and fallowing some of their land, they can produce an optimum corn yield on part of their land and receive additional income from the leased water.

Colorado State University Arkansas Valley Research Center near Rocky started a study in 2007 to determine the effect of fallowing on yields, nutrients and economics. Land was fertilized in the fall of 2006 for 200 bushel production in 2007. Corn was grown on part of the land in 2007 and made 178 bushels per acre. The rest of the land was fallowed in 2007. Soil tests showed enough nutrient carry-over, N, P and K, in the fallowed land to produce 200 bushel corn in 2008. The area fallowed in 2007 grew as much corn, 232 bushels per acre, as continuous corn which was fertilized in 2007 and received an additional 204 pounds of nitrogen in 2008. Soil tests taken at the end of the 2008 year on the fallowed ground, fertilized in 2006, showed enough nutrients to produce 200 bushel per acre in 2009. This emphasizes the need to soil test these lands instead of just assuming the need for additional fertilizer.

The return to land, operator's labor, management and risk in 2007 was \$122 per acre while the cost of fallowing was \$205 per acre. Return, in 2008, on the corn-corn area was \$398, \$478 on the fallow-corn area and a cost of \$98 for fallowing the land. These results indicate that under the conditions of 2007 and 2008, fallowing of the land for one-year did not have an adverse effect on yields, nutrients or economics as compared to land in continuous corn.

Introduction

Water sales in the Arkansas River Valley of Colorado have been on a Buy and Dry-up basis for many years. Agricultural water rights have been sold to cities on the Front Range and, as the water is moved to the cities, the agricultural land has been removed from production. These lands revert to dryland production and, in the desert environment of the high plains area, have limited agricultural productivity. In many instances, these lands have erosion and weed problems.

An old idea but recently used practice is leasing of ag waters to the cities during time of drought. These leases give the ag shareholders a new crop, "WATER", and provide additional revenue. Under the leasing program, land is not permanently dried up but is fallowed or set aside from irrigation for a number of years, depending on the conditions of the lease.

Leasing of these ag waters could possibly improve the economic stability of the farming towns of the Valley. The farmers would keep much of their land under production, fallowing only the necessary acres to meet the needs of the leasing agreements. The monies from the leased waters would allow farmers to upgrade equipment such as tractors, implements and irrigation systems. Also, when the fallowed land is put back into production during years of adequate water supplies, monies would be spent locally for seed, fertilizer and other production items.

Several ditch companies are joining together as the "Super Ditch Company" and will be marketing their water as a group, especially during times of drought. However; one of the questions growers are asking is, "How will fallowing my ground for a period of years affect my yields, nutrient needs and the economics of corn production when I decide to farm this ground again?"

Project Description

In an effort to determine the effect of fallowing land for one, two or three years, Colorado State University started a study in 2007 with corn as the index crop. The study will look at the effect on yield, nutrient needs and the economics involved in maintaining or improving yields on these fallowed lands when put back into corn production as compared to growing corn on land for a four-year period.

Project Objectives

Objective 1. Farm the corn areas according to recommended practices necessary to produce optimum yields and returns in the Arkansas Valley.

Record practices and costs for field operations.

Take and analyze soil samples in 2007 to determine the baseline nutrient levels in each of the planted and fallowed areas at depths of 0-8, 8-16 and 16-24 inches.

Use soil sample analyses to determine the movement of nitrates, salts and selenium under production corn land and fallowed land to a depth of 24 inches.

Objective 2. Determine the practices and costs necessary to maintain the fallowed lands. This would include preventing weed infestation and protecting these lands from excessive erosion.

Perform operations as necessary to prevent weed infestation and erosion and to record practices and costs.

Objective 3. Determine nutrient needs and costs necessary in 2008, 2009 and 2010 to return these fallowed lands to levels of production comparable to two, three and four years of continuous corn.

Objective 3. Determine the effect of fallowing on the movement of nitrates and salts in the soil profile.

Use soil sample analyses to determine the movement of nitrates, salts and selenium under production corn land and fallowed land to a depth of 24 inches.

Objective 4. Provide information on the results of the study through field days, workshops and reports. Also, make information from the study available to the public through news releases and on University and related websites.

Hold information events at the Arkansas Valley Research Center and throughout the Valley and state to present the information to the public. Present project information to the Lower Arkansas Valley Conservancy District Board each year of the project.

Objective 5. Compile and analyze the results of the study and publish a progress report the second, third and fourth year and publish a bulletin after the final year containing the information, conclusions and recommendations for proper practices when fallowing land from corn production for one, two or three years.

Project Situation

The study was set up to have a situation that would have a farmer prepare his land for corn production in 2007. The ground has been worked, fertilized and furrowed for planting a corn crop. This would be done before the March 15 release date of irrigation from reservoir storage.

It is assumed that the snow pack at planting time was low and there would be a need for cities or other users to lease the water for the coming year. Under such a situation, the farmer would look at the possibility of leasing his water because of the lack of adequate water for optimum crop production and the need of cities to augment their water supplies. These were the conditions setting up the study.

Study Design

The study area was randomly replicated as shown in Figure 1. The soil type is Rocky Ford Silty Clay Loam with a 0 to 1 percent slope. These soils are well suited to high value crops and high yielding grain crops.



Table 1. Corn – Fallow Study, Study Design, 2007 through 2010, Arkansas Valley Research Center, Rocky Ford, CO.

2007 Crop	2008 Crop	2009 Crop	2010 Crop
<u>Replication 1</u>			
CORN	CORN	CORN	CORN
CORN	CORN	CORN	CORN
FALLOW	CORN	CORN	CORN
FALLOW	CORN	CORN	CORN
FALLOW	FALLOW	CORN	CORN
FALLOW	FALLOW	CORN	CORN
FALLOW	FALLOW	FALLOW	CORN
FALLOW	FALLOW	FALLOW	CORN
<u>Replication 2</u>			
FALLOW	FALLOW	CORN	CORN
FALLOW	FALLOW	CORN	CORN
FALLOW	FALLOW	FALLOW	CORN
FALLOW	FALLOW	FALLOW	CORN
CORN	CORN	CORN	CORN
CORN	CORN	CORN	CORN
FALLOW	CORN	CORN	CORN
FALLOW	CORN	CORN	CORN
<u>Replication 3</u>			
FALLOW	FALLOW	FALLOW	CORN
FALLOW	FALLOW	FALLOW	CORN
CORN	CORN	CORN	CORN
CORN	CORN	CORN	CORN
FALLOW	CORN	CORN	CORN
FALLOW	CORN	CORN	CORN
FALLOW	FALLOW	CORN	CORN
FALLOW	FALLOW	CORN	CORN
<u>Replication 4</u>			
FALLOW	CORN	CORN	CORN
FALLOW	CORN	CORN	CORN
FALLOW	FALLOW	CORN	CORN
FALLOW	FALLOW	CORN	CORN
FALLOW	FALLOW	FALLOW	CORN
FALLOW	FALLOW	FALLOW	CORN
CORN	CORN	CORN	CORN
CORN	CORN	CORN	CORN

Each line is 4 rows, each plot would be 8 rows wide
Each treatment is replicated four times
Soil samples will be taken from 0-8, 8-16 and 16-24 inches in each treatment

Table 2. Field Preparation for 2006-07 Corn-Fallow Study
 Arkansas Valley Research Center, Rocky Ford, CO
 Field 3E (Smith) – 4.75 acres (346' X 598')

Date	Activity	Status
11/04/06	Harvest 2006 Corn Crop	Completed
11/06/06	Chop/Shred Corn Stalks	Completed
11/08/06	Apply 200 lbs per acre of 11-52-0 as a dry spread	Completed
11/09/06	Disk	Completed
11/10/06	Plow	Completed
11/27/06	Brillion, Cultipacker	Completed
3/14/07	Field Cultivator (To dry out soil)	Completed
3/22/07	Inject Anhydrous Ammonia (85% N) at 235lbs/acre Cost+= \$26.00 per cwt	Completed
3/22/07	Brillion, Cultipacker	Completed
3/23/07	Float / land level	Completed
3/16/07	Furrow-out into 30" beds	Completed

This field preparation was done in anticipation of planting corn to the entire area in 2007. This would be typical of a farmer preparing land to plant corn and then finding that the snow pack did not receive hoped for snow in March and April, the months of the heaviest snow accumulation. As a result, the predicted runoff would be lower than required for optimum corn production and there was the possibility of leasing water to cities and other users. Under these conditions, leasing part of the water and growing a reduced number of corn acres could possibly result in more profitable returns for the farmer.

Cultural practices in 2007 for both the corn and fallow areas are shown in Tables 2 and 3. The weeds were allowed to grow to about a 4 to 6 inch height to reduce wind and water erosion. At these early stages of growth, nutrient use is low and much of the growth is energy from the seed.

Table 3. Cultural Practices for the 2007 Corn-Fallow Study
 Arkansas Valley Research Center, Rocky Ford, CO
 Field 3E (Smith) – 4.75 acres (346' X 598')

Date	2007 Continuous Corn Area	Date	2007 Fallow Areas
NOTE	No irrigation need to germinate crop		
4/30/07	Plant corn ~ (Asgrow RX752 RR2)~37,500 seed per acre		LEFT FALLOW
5/11/07	Spray with Dual (1 pint/a) and Glyphosate (1 lb/a)	5/11/07	Spray with Dual (1 pint/a) and Glyphosate (1 lb/a)
5/22/07	Cultivate		
5/30/07	Irrigate		
6/07/07	Cultivate		
6/22/07	Irrigate	6/21/07	Mow weeds in fallow area
7/04/07	Spray COMITE insecticide - airplane		
7/11/07	Irrigate		
7/31/07	Irrigate		
8/11/07	Irrigate	8/06/07	Disk fallow area
8/21/07	Irrigate		
10/11/07	Harvest	10/02/07	Mow weeds in fallow area

Table 4. 2007 Yield of Grain Corn Corn/Fallow Study Arkansas Valley Research Center 2007			
Yield Bu/Ac	Moisture %	Weight Lbs/Bu	Date Harvested
178.3	14.2	57.8	10-11-2007

Soil tests were taken in each of the 16 areas as depths of 0 to 8, 8 to 16 and 16 to 24 inches. The results of the soil test indicated adequate amounts of nutrients to produce 200 bushels per acre of corn. There were variations in amounts of nutrients but most indicated adequate nutrient levels.

It should be noted that most nitrate levels were high as were most phosphorus levels. Soluble salts were very low at all three depths. Carry-over of nutrients in the fallow areas provides adequate levels for 200 bushel per acre corn, Table 5.



Table 5. Nutrient Amounts Before and After Growing Corn
Corn-Fallow Study, Arkansas Valley Research Center, 2007

Area	Date	Nitrogen Lbs/Ac			Phosphorus ppm P			Potassium ppm K			Soluble Salts 1:1 mmho/cm		
		0-8	8-16	16-24	0-8	8-16	16-24	0-8	8-16	16-24	0-8	8-16	16-24
Samples taken in May 2007													
Corn 07	Before	212	72	65	51	28	13	247	202	149	0.79	0.49	0.45
Corn 08	Total	Top	3 ft=	349	Top	3 ft=	92	Top	3 ft=	598			
Corn 09	Samples taken in November 2007												
Corn 10	After	42	30	85	46	22	20	245	197	146	0.52	0.47	0.45
	Total	Top	3 ft=	157	Top	3 ft=	88	Top	3 ft=	588			
Fallow 07	Before	212	63	44	50	21	11	238	189	138	0.75	0.45	0.40
Corn 08	Total	Top	3 ft=	319	Top	3 ft=	82	Top	3 ft=	565			
Corn 09	Samples taken in November 2007												
Corn 10	After	241	136	75	52	34	13	255	231	160	0.83	0.60	0.46
	Total	Top	3 ft=	452	Top	3 ft=	161	Top	3 ft=	646			
Fallow 07	Before	317	79	63	44	21	15	244	187	154	0.93	0.50	0.44
Fallow 08	Total	Top	3 ft=	459	Top	3 ft=	80	Top	3 ft=	585			
Corn 09	Samples taken in November 2007												
Corn 10	After	231	110	73	56	35	13	250	228	157	0.95	0.67	0.53
	Total	Top	3 ft=	414	Top	3 ft=	104	Top	3 ft=	635			
Fallow 07	Before	186	55	33	60	22	9	238	192	126	0.71	0.44	0.37
Fallow 08	Total	Top	3 ft=	274	Top	3 ft=	91	Top	3 ft=	556			
Fallow 09	Samples taken in November 2007												
Corn 10	After	195	105	49	44	25	11	251	232	143	0.61	0.73	0.58
	Total	Top	3 ft=	349	Top	3 ft=	80	Top	3 ft=	626			

Table 6. Economics of Irrigated Corn
 Corn-Fallow Study
 Arkansas Valley Research Center, 2007

	Per Acre	Per Bushel
Gross Receipts = 178.30 Bu @ \$3.29	\$ 586.61	\$ 3.29
Direct Expenses, Including Interest	434.93	2.44
Property and Ownership Costs Irrigation System (Gated Pipe) General Farm Overhead Real Estate Taxes	30.00	0.17
Returns to Land, Operator's Labor, Management, and Risk If \$2,000 borrowed against land at 7.00%, interest payment in year 1 would be \$140/acre	\$ 121.68	\$ 0.68

Table 7. Economics of Fallowed Corn Land
 Corn-Fallow Study
 Arkansas Valley Research Center, 2007

	Per Acre
Gross Receipts	\$ 0.00
Direct Expenses, Including Interest	-174.82
Property and Ownership Costs Irrigation System (Gated Pipe) General Farm Overhead Real Estate Taxes	-30.00
Returns to Land, Operator's Labor, Management, and Risk If \$2,000 borrowed against land at 7.00%, interest payment in year 1 would be \$140/acre	\$-204.82

Discussion of Results-2007

Soil tests taken in May of 2007 were compared to soil tests taken in November at the end of the 2007 growing season. These results, Table 5, show that little, if any, of the fertilizer, N, P, or K, was lost during the 2007 year of fallowing.



Table 8. Cultural Practices for the 2007-2008 Corn-Fallow Study
 Arkansas Valley Research Center, Rocky Ford, CO
 Field 3E (Smith) – 4.75 acres (346' X 598')

Date	2008 Continuous Corn Area	Date	2008 Fallow Areas
11/02/07	Mow corn stalks, burn residue		
11/06/07	Deep rip/chisel	11/06/07	Deep rip/chisel
3/10/08	Disk	3/10/08	Disk
3/19/08	Float/level	3/19/08	Float/level
3/24/08	Furrow-30 inch beds	3/24/08	Furrow-30 inch beds
4/24/08	Roller shaper beds		LEFT FALLOW
4/28/08	Plant corn-(Asgrow 752RRYG Plus at ~ 33,000 seeds per acre)		
5/02/08	Irrigate-for germination		
5/30/08	Spray with Glyphosate (1 lb A.I. per acre) plus Dual (0.75 pt per acre)	5-30-08	Spray with Glyphosate (1 lb A.I. per acre) plus Dual (0.75 pt per acre)
6/02/08	Cultivate		
6/03/08	Irrigate		
6/18/08	Inject with Anhydrous at a rate of 240 lbs N per acre - corn after corn areas only.		
6/18/08	Cultivate		
7/01/08	Irrigate		
7/11/08	Irrigate		
7/22/08	Irrigate		
8/14/08	Irrigate	8/05/08	Mow weeds in fallow area
8/28/08	Irrigate		
9/15/08	Irrigate	9/22/08	Disk fallow area
10/28/08	Harvest		
11/08/08	Soil Sample		

Table 9. Nutrient Amounts Before and After Growing Corn
Average of Four Replications
Corn-Fallow Study
Arkansas Valley Research Center, 2008

Area	Date	Nitrogen Lbs/Ac			Phosphorus ppm P			Potassium ppm K			Soluble Salts 1:1 mmho/cm		
		0-8	8-16	16-24	0-8	8-16	16-24	0-8	8-16	16-24	0-8	8-16	16-24
Soil samples taken November 2007													
Corn 07	Before	35	24	13	46	22	20	228	168	141	0.56	0.50	0.45
Corn 08	Total	Top	3 ft=	72	Top	3 ft=	88	Top	3 ft=	537			
Corn 09	Soil samples taken December 2008												
Corn 10	After	74	30	32	21	9	6	171	102	104	0.63	0.56	0.48
	Total	Top	3 ft=	136	Top	3 ft=	36	Top	3 ft=	377			
Soil samples taken November 2007													
Fallow 07	Before	207	100	52	49	34	12	249	235	162	0.69	0.50	0.36
Corn 08	Total	Top	3 ft=	359	Top	3 ft=	95	Top	3 ft=	646			
Corn 09	Soil samples taken December 2008												
Corn 10	After	37	18	15	29	12	7	189	99	110	0.58	0.50	0.44
	Total	Top	3 ft=	70	Top	3 ft=	48	Top	3 ft=	398			
Soil samples taken November 2007													
Fallow 07	Before	231	110	73	56	35	13	250	228	157	0.95	0.67	0.53
Fallow 08	Total	Top	3 ft=	414	Top	3 ft=	104	Top	3 ft=	635			
Corn 09	Soil samples taken December 2008												
Corn 10	After	197	85	59	43	17	8	194	91	108	0.96	0.73	0.55
	Total	Top	3 ft=	341	Top	3 ft=	68	Top	3 ft=	393			
Soil samples taken November 2007													
Fallow 07	Before	195	105	49	44	25	11	250	232	143	0.61	0.73	0.58
Fallow 08	Total	Top	3 ft=	349	Top	3 ft=	80	Top	3 ft=	625			
Fallow 09	Soil samples taken December 2008												
Corn 10	After	167	63	24	31	13	8	182	98	112	0.78	0.65	0.52
	Total	Top	3 ft=	254	Top	3 ft=	52	Top	3 ft=	392			

Table 10. 2008 Yield of Grain Corn
Corn/Fallow Study
Arkansas Valley Research Center

	Yield Bushels per Acre	Moisture %	Weight Lbs/Bu	Date Harvested
Corn 07 Corn 08	232.1	14.8	60	10-28-08
Fallow 07 Corn 08	231.9	14.5	60	10-28-08

DISCUSSION OF RESULTS-2008

The soil test results show that there was adequate carry-over of nutrients, N,P, and K, applied in 2006, on the land that was fallowed in 2007 to produce 231.9 bushels of corn in 2008. This is significant because it shows that the investment in fertilizer was **not** lost after fallowing the land for **one year**.

To maintain the yield of the corn-corn areas, 240 pounds of anhydrous ammonia or 204 pounds per acre of nitrogen was added in 2008 to produce the same yield of 232.2 bushel per acre as the fallow-corn.

It should also be pointed out that there is still sufficient carry-over of nutrients, N,P, and K applied for the 2007 crop to produce an optimum corn crop in 2009 as seen in Table 9. This is significant because it shows that the investment in fertilizer was **not** lost after fallowing the land for **two years**. **Weed control** on these fallowed acres is a **MUST** to prevent the loss of nutrients.

One of the main concerns of farmers about leasing their water rights during short water periods is the effect of fallowing on reclaiming the land for optimum corn production. This study shows that, in most cases, no additional fertilizer is needed after the first or second year of fallowing. This also emphasizes the need to soil test these lands instead of just assuming the need for additional fertilizer.

Irrigated Corn - Otero County Colorado - 2008					
Corn following Corn					
(Operating Expenses Calculated Using Colorado Custom Rates)					
Date	Description	Price or Cost Per Unit	Quantity (Bushels)	Value or Cost	
				Per Acre	Per Bushel
GROSS RECEIPTS					
	Corn	3.82	232.20	887.00	3.82
	Other				
Total Gross Revenues				887.00	3.82
DIRECT COSTS					
10/23	Soil Sampling			5.00	0.0215
11/02	Chop Stalks & Burn Residue			10.00	0.0431
11/06	Chiesel (Rip)			18.00	0.0775
03/10	Disk			9.00	
03/19	Float/Level			9.00	0.0388
03/24	Furrow, 30-inch beds			10.00	0.0431
04/24	Roller-Shaper			10.00	0.0431
04/28	Plant (seed = Asgrow 752RRYG Plus)				
	Planter (30 inch spacing)			10.00	0.0431
	33,000 Population @ \$215/bag (80,000 seeds)			88.69	0.3819
05/02	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
05/30	Herbicide				
	Spray			7.00	0.0301
	Dual @ 0.75 pint + Glyphosate (Roundup) @ 1 lb			11.00	0.0474
06/02	Cultivate			8.00	0.0345
06/03	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
06/18	Apply Fertilizer				
	Application			10.00	0.0431
	NH3 @ 240 lbs @ \$650/ton			78.00	0.3359
06/18	Cultivate			8.00	0.0345
07/01	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
07/11	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
07/22	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
08/05	Mow weeds in fallow area			9.00	0.0388
08/14	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
08/28	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
09/15	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0215
09/22	Disk fallow area (2% of acre)			0.18	0.0008
10/28	Harvest				
	Combine (\$18/ac + \$0.19/bu)			62.12	0.2675
	Haul (\$0.15/bu)			34.83	0.1500
11/08	Soil Sampling			5.00	0.0215
Subtotal				442.82	1.87
Interest	Operating Expenses @ 1/2 @ 7.5%			16.61	0.07
Total Operating Expenses (not including Irrigation System)				459.42	1.94
Return to Irrigation System and Operations, Land, Operator's Labor, Management, and Risk				427.58	1.88
Estimated Costs					
	Irrigation System = Gravity Flow & Gated Pipe			10.00	0.0431
	Irrigation System Energy			-	-
	Irrigation System Repairs			-	-
	General Farm Overhead			10.00	0.0431
	Real Estate Taxes			10.00	0.0431
Subtotal				30.00	0.1292
RETURN TO LAND, OPERATOR'S LABOR, MANAGEMENT, AND RISK				397.58	1.75

Irrigated Corn - Otero County Colorado - 2008					
Corn following Fallow					
(Operating Expenses Calculated Using Colorado Custom Rates)					
Date	Description	Price or Cost	Quantity	Value or Cost	
		Per Unit	(Bushels)	Per Acre	Per Bushel
GROSS RECEIPTS					
	Corn	3.82	231.90	885.86	3.82
	Other				
Total Gross Revenues				885.86	3.82
DIRECT COSTS					
10/23	Soil Sampling			5.00	0.0216
11/02	Chop Stalks & Burn Residue			10.00	0.0431
11/06	Chiesel (Rip)			18.00	0.0776
03/10	Disk			9.00	0.0388
03/19	Float/Level			9.00	0.0388
03/24	Furrow, 30-inch beds			10.00	0.0431
04/24	Roller-Shaper			10.00	0.0431
04/28	Plant (seed = Asgrow 752RRYG Plus)				-
	Planter (30 inch spacing)			10.00	0.0431
	33,000 Population @ \$215/bag (80,000 seeds)			88.69	0.3824
05/02	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
05/30	Herbicide				
	Spray			7.00	0.0302
	Dual @ 0.75 pint + Glyphosate (Roundup) @ 1 lb			11.00	0.0474
06/02	Cultivate			8.00	0.0345
06/03	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
06/18	Cultivate			8.00	0.0345
07/01	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
07/11	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
07/22	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
08/05	Mow weeds in fallow area			9.00	0.0388
08/14	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
08/28	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
09/15	Irrigate (0.5 Hr/Ac @ \$10.00)			5.00	0.0216
09/22	Disk fallow area (2% of acre)			0.18	0.0008
10/28	Harvest				
	Combine (\$18/ac + \$0.19/bu))			62.06	0.2676
	Haul (\$0.15/bu)			34.79	0.1500
11/08	Soil Sampling			5.00	0.0216
Subtotal				354.71	1.53
Interest	Operating Expenses @ 1/2 @ 7.5%			13.30	0.06
Total Operating Expenses (not including Irrigation System)				368.02	1.59
Return to Irrigation System and Operations, Land, Operator's Labor, Management, and Risk				517.84	2.23
Estimated Costs					
	Irrigation System = Gravity Flow & Gated Pipe			10.00	0.0431
	Irrigation System Energy			-	-
	Irrigation System Repairs			-	-
	General Farm Overhead			10.00	0.0431
	Real Estate Taxes			10.00	0.0431
Subtotal				30.00	0.1294
RETURN TO LAND, OPERATOR'S LABOR, MANAGEMENT, AND RISK				487.84	2.10

Fallow of Irrigated Land - Otero County Colorado - 2008

(Operating Expenses Calculated Using Colorado Custom Rates)

Date	Description	Price or Cost		Value or Cost	
		Per Unit	Quantity	Per Acre	Per Bushel
GROSS RECEIPTS					
	Corn	-	-	-	-
	Other				
Total Gross Revenues				-	-
DIRECT COSTS					
11/06	Deep Chisel			10.00	
03/10	Disk			20.00	
03/19	Float/Level			12.00	
03/24	Furrow into 30-inch beds			7.00	
05/30	Herbicide				
	Spray			5.00	
	Dual @ 1 pint + Glyphosate (Roundup) @ 1 lb			8.00	
08/05	Mow Weeds			3.50	
09/22	Disk			10.00	
Subtotal				75.50	
Interest	Operating Expenses @ 1/2 @ 7.5%			2.83	
Total Operating Expenses (not including Irrigation System)				78.33	
Return to Irrigation System and Operations, Operator's Labor, Management, and Land				(78.33)	
Return to Irrigation System and Operations, Land, Operator's Labor, Management, and Risk				(78.33)	
Estimated Costs					
	Irrigation System = Gravity Flow & Gated Pipe			-	
	Irrigation System Energy			-	
	Irrigation System Repairs			-	
	General Farm Overhead			10.00	
	Real Estate Taxes			10.00	
Subtotal				20.00	
RETURN TO LAND, OPERATOR'S LABOR, MANAGEMENT, AND RISK				(98.33)	

Discussion of Economic Results in 2008

The corn-corn areas, under the conditions and practices shown, produced a return to land, operator's labor, management and risk of \$397.58 per acre. The fallow-corn areas produced a return of \$487.82 per acre because additional fertilizer was not needed to produce an equal yield. Cost to maintain the fallow ground in 2008 was \$98.33 per acre. **Controlling weeds in the fallow areas prevented the loss of nutrients and is essential to maintain nutrient levels, costs and returns for the following crops.**

