Maximizing Profits Under Limited Water

High Plains Irrigation Conference and Trade Show

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Presented By:

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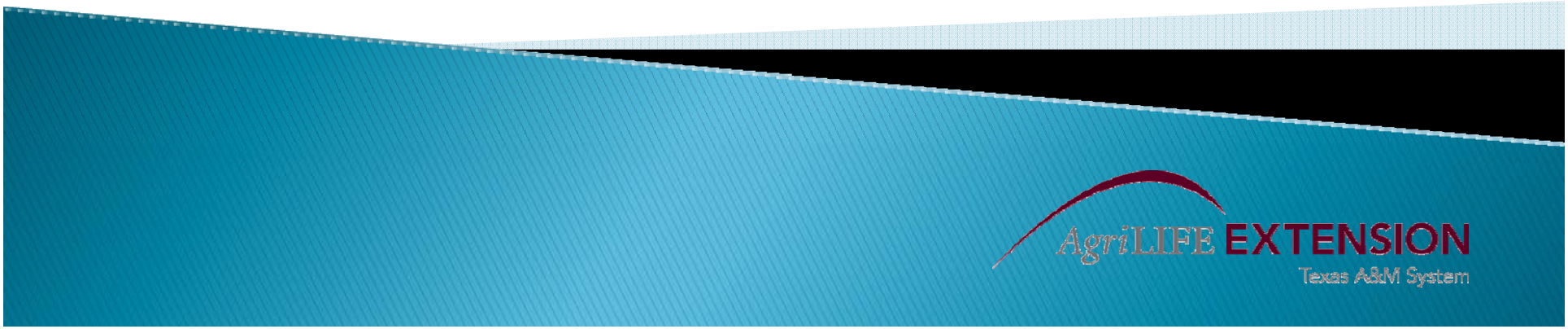


Allocating Water

- Partial vs Full Irrigation
  - Limited Water
  - Production Function
  - MC vs MR
- Between Crops
  - Net ROVC/AC-IN

Full vs Partial Irrigation

Perryton Sorghum Demonstration

- Full Irrigation
  - Ac-in: 13.63
  - Seeding rate: 120,000
  - Fertilizer: 113# N
- Partial Irrigation
  - Ac-in: 7.71
  - Seeding rate: 60,000
  - Fertilizer: 58# N

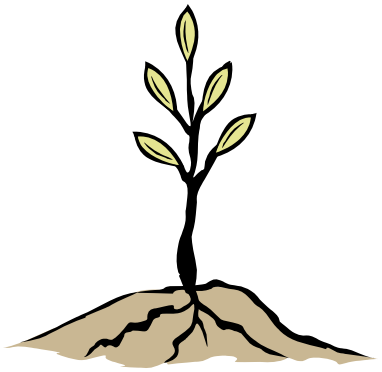
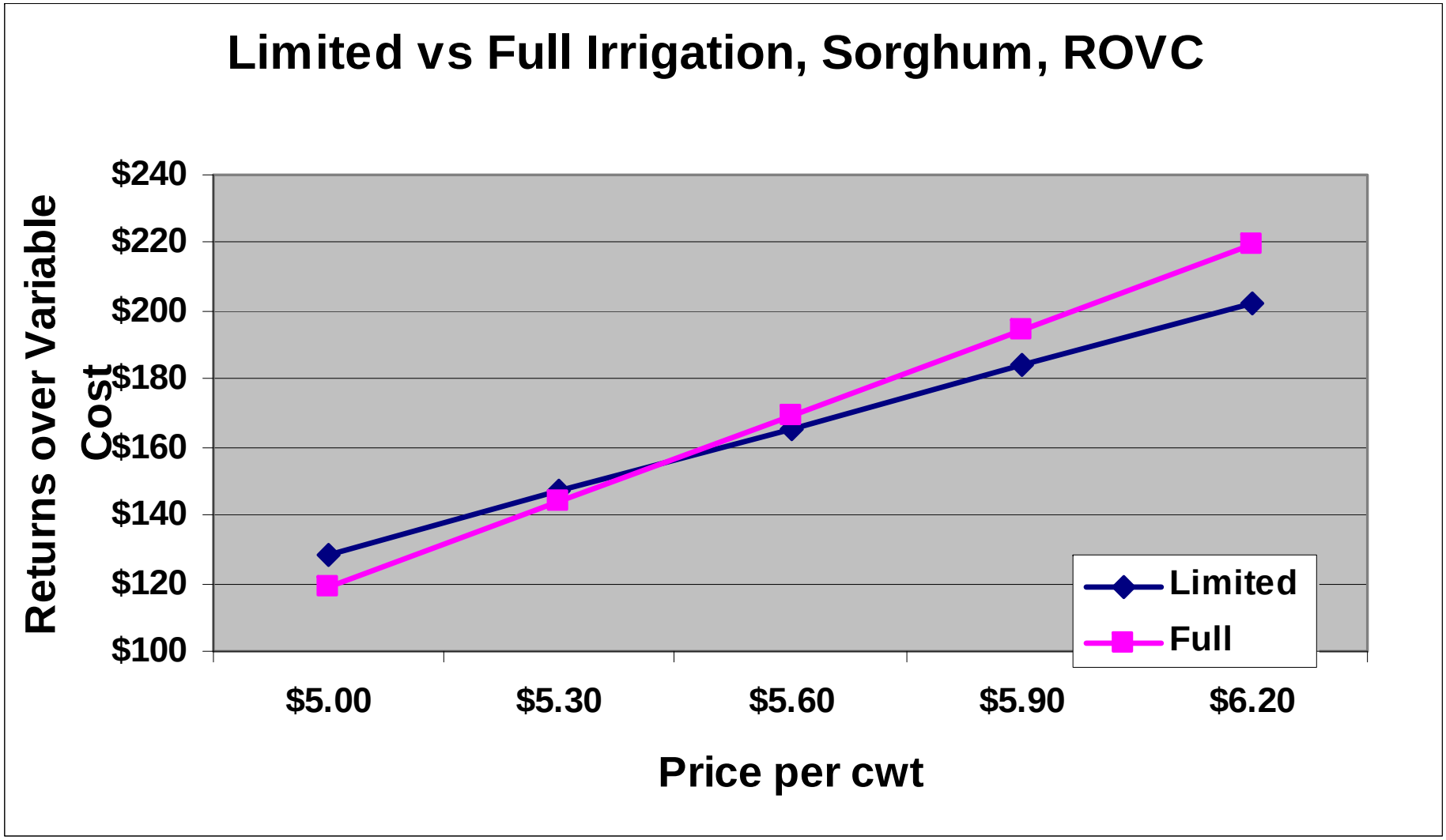


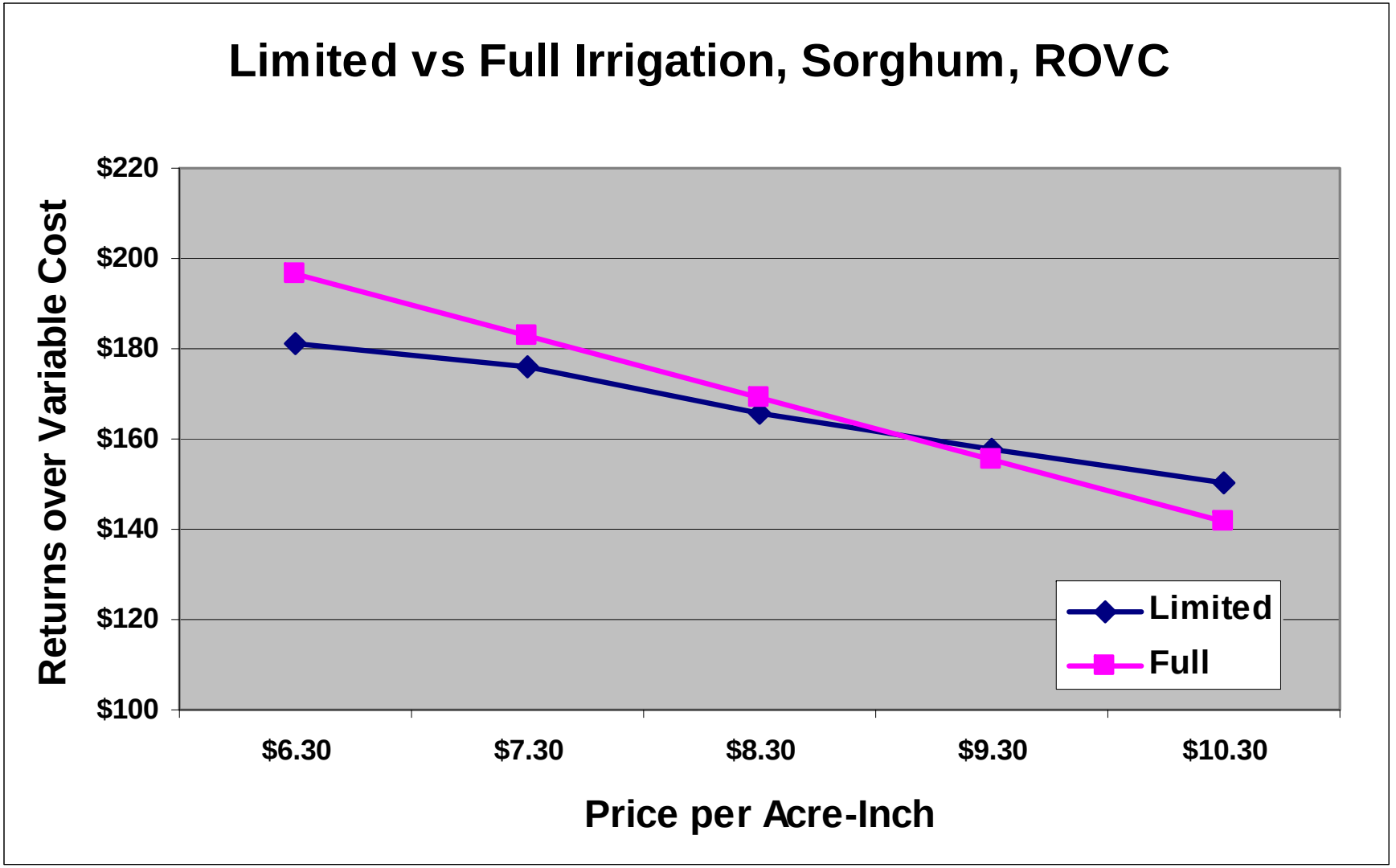
Table 28.A Estimated costs and returns per Acre
Grain Sorghum-Full Irrigated-Hybrid Trial Following Wheat
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
INCOME					
sorghum	cwt	5.60	84.0000	470.40	
TOTAL INCOME				470.40	
DIRECT EXPENSES					
SEED					
seed - sorghum	lb.	1.25	8.0000	10.00	
HERBICIDE					
herbicide-hyb trial	acre	28.26	1.0000	28.26	
FERTILIZER					
fert(N) - liquid	lb.	0.35	113.0000	39.55	
CUSTOM					
harvest & haul - sor	cwt.	0.53	84.0000	44.52	
OPERATOR LABOR					
Implements	hour	9.10	0.4010	3.64	
Tractors	hour	9.10	0.4869	4.43	
HAND LABOR					
Implements	hour	9.10	0.1527	1.38	
IRRIGATION LABOR					
Center Pivot	hour	9.10	0.8723	7.93	
DIESEL FUEL					
Tractors	gal	2.00	2.8492	5.69	
GASOLINE					
Self-Propelled Eq.	gal	2.25	2.0100	4.52	
NATURAL GAS					
Center Pivot	ac-in	8.30	13.6300	113.12	
REPAIR & MAINTENANCE					
Implements	Acre	6.51	1.0000	6.51	
Tractors	Acre	5.50	1.0000	5.50	
Self-Propelled Eq.	Acre	0.16	1.0000	0.16	
Center Pivot	ac-in	2.03	13.6300	27.66	
INTEREST ON OP. CAP.	Acre	10.29	1.0000	10.29	
TOTAL DIRECT EXPENSES				313.23	
RETURNS ABOVE DIRECT EXPENSES				157.16	

Table 29.A Estimated costs and returns per Acre
Grain Sorghum-Limited Irrigation-Hybrid Trial Following Wheat
2007 Projected Costs and Returns per Acre

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
INCOME					
sorghum	cwt	5.60	61.6000	344.96	
TOTAL INCOME				344.96	
DIRECT EXPENSES					
SEED					
seed - sorghum	lb.	1.25	4.0000	5.00	
FERTILIZER					
fert(N) - liquid	lb.	0.35	58.0000	20.30	
CUSTOM					
harvest & haul - sor	cwt.	0.53	61.6000	32.64	
OPERATOR LABOR					
Implements	hour	9.10	0.4010	3.64	
Tractors	hour	9.10	0.4869	4.43	
HAND LABOR					
Implements	hour	9.10	0.1527	1.38	
IRRIGATION LABOR					
Center Pivot	hour	9.10	0.4934	4.49	
DIESEL FUEL					
Tractors	gal	2.00	2.8492	5.69	
GASOLINE					
Self-Propelled Eq.	gal	2.25	2.0100	4.52	
NATURAL GAS					
Center Pivot	ac-in	8.30	7.7100	63.99	
REPAIR & MAINTENANCE					
Implements	Acre	6.51	1.0000	6.51	
Tractors	Acre	5.50	1.0000	5.50	
Self-Propelled Eq.	Acre	0.16	1.0000	0.16	
Center Pivot	ac-in	2.03	7.7100	15.65	
INTEREST ON OP. CAP.	Acre	5.45	1.0000	5.45	
TOTAL DIRECT EXPENSES				179.40	
RETURNS ABOVE DIRECT EXPENSES				165.55	

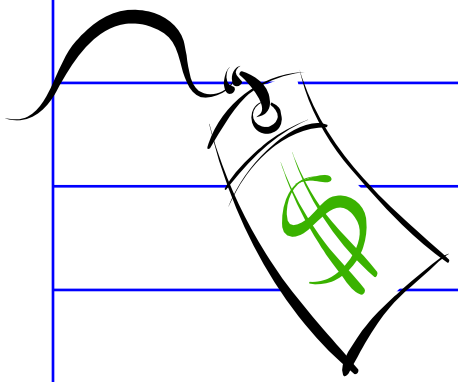

Limited vs Full Irrigation, Sorghum, ROVC
Returns over Variable Cost
$240
$220
$200
$180
$160
$140
$120
$100
$5.00
$5.30
$5.60
$5.90
$6.20
Price per cwt
Limited
Full


Limited vs Full Irrigation, Sorghum, ROVC
Returns over Variable Cost
$220
$200
$180
$160
$140
$120
$100
$6.30
$7.30
$8.30
$9.30
$10.30
Price per Acre-Inch
Limited
Full

Production per Ac-In Perryton

Full Irrigation	6.76 bu
Limited	7.97 bu
Dryland	5.32 bu

Prices for Corn, Sorghum, & Wheat



	Corn	Sorghum	Wheat
2004	2.20	1.93	3.31
2005	2.19	1.92	3.13
2006	3.33	2.91	4.71
2007	3.68	3.13	4.54
2008	4.11	3.50	6.33
5-year average	3.10	2.69	4.40
Projected 2009	4.75	4.04	5.78

Value of Ac-In Pumped

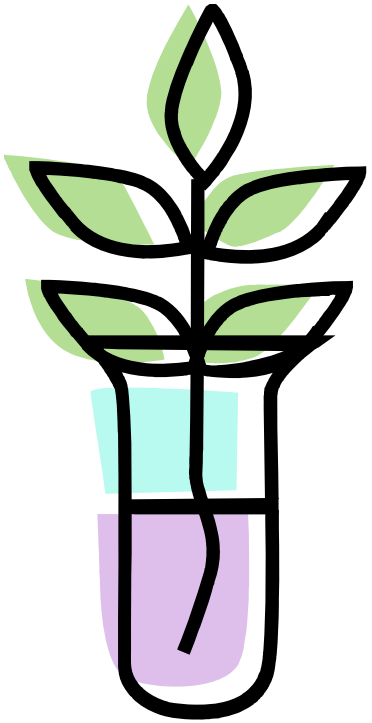
MVP – 2009

	Quantity	Price	MVP
Corn	6.32 bu	4.75	$30.02
Cotton	49.00 lbs	0.56	$27.44
Sorghum	5.55 bu	4.04	$22.42
Wheat	2.76 bu	5.78	$15.95

Price Net of H + H Costs

Marginal Cost of an Ac-In 2009

Fuel	$7.75
LL MR	$2.70
Misc	$1.00
	$11.45



Value of Water

Irrigated Return over Variable Costs (ROVC)
–Dryland Alternative ROVC
=Net ROVC Due to Irrigation

ROVC/AC-IN = NET ROVC/AC-IN Applied

Estimated Costs and Returns for 2009 Primary Irrigated Crops in Texas High Plains

	Corn	Cotton	Sorghum	Soybeans	Wheat
Production/Ac	210 bu	1100lbs	75cwt	60 bu	65 bu
Price	$4.75	$0.56/ 235	$7.21	$7.57	$5.78
Grazing Income	-	-	-	-	$68.00
Gross Returns	$997.50	$811.05	$540.74	$454.20	$443.70
Ac-In Applied*	22	12	14	14	15
Variable Costs	$751.56	$652.01	$467.30	$397.74	$412.22
Returns Above VC	$245.94	$159.04	$73.44	$56.46	$31.48

*Ac-In Priced at $8.30/mcf assuming 1 mcf = 1 ac-in

Estimated Costs and Returns for 2009 Primary Dryland Crops in Texas High Plains

	Sunflowers	Cotton	Sorghum	Sorghum Sudan	Wheat
Production/Ac	10 cwt	400 lbs	20 cwt	336 lbs of gain	20 bu
Price	$17.50$0.56	/ 235	$8.10	$0.50 / lb of gain	$5.78
Grazing Income	-	-	-	-	$34.00
Gross Returns	$175.00	$294.50	$162.00	$168.00	$149.60
Variable Costs	$158.49	$280.09	$127.89	$85.03	$117.47
Returns Above VC	$16.51	$14.41	$34.11	$82.97	$32.13

2009 Value of Irrigation - $/AC IN

IRR CROP	IRR ROVC	DRYLAND ALT	DRYLAND ROVC	NET ROVC	AC IN APPLIED	$/AC IN
CORN	245.94	Sorghum	34.11	211.83	22	$9.63
COTTON	159.04	Sorghum	34.11	124.93	12	$10.41
SORGHUM	73.44	Sorghum	34.11	39.33	14	$2.81
WHEAT	31.48	Wheat	32.13	-.65	15	- - -

Summary & Conclusions
Limited vs Full Irrigation

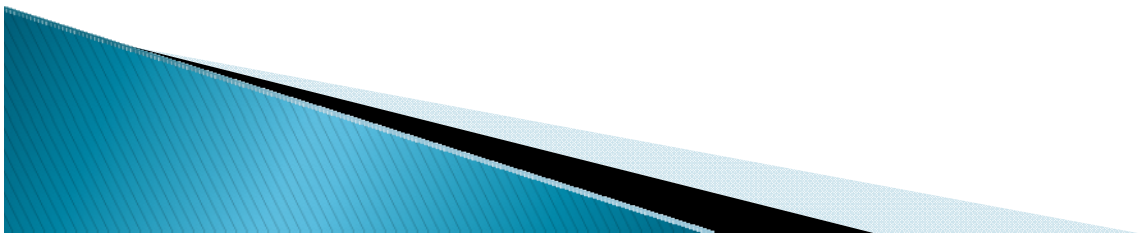
- Flexible crops sorghum/wheat/cotton
  - Diminishing returns
  - Limited water spread over acres
  - Depends on production function

Summary & Conclusions
Allocating Between Crops

- **Highest ROVC/AC-IN**
- Ability to concentrate water – – *Consider the GPM requirements for each crop*
- What you do best –
- For 2009 – – –
  - Corn
  - Cotton
  - Sorghum
  - Wheat???

Summary & Conclusions ---Final Comments---

- In today's environment the "answer" can change daily
- Evaluate how much water you will have available *throughout* the season
- Spend time to realistically develop your enterprise budgets and evaluating the ROVC/AC-IN of each alternative crop
- Good management takes time!!!



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