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**THE U. S. FARM PROGRAM FOR WHEAT: DETAILS  
AND APPLICATION TO AN INDIVIDUAL FARM**

by

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My farm participates in the Acreage Reduction Program for wheat and because of this is eligible for Commodity Credit Corporation (CCC) deficiency payments and price support loans. The farm consists of 315 acres of summer-fallow wheat which is custom farmed with the owner receiving all of the wheat harvested. This paper will only be concerned with the commodity program for wheat.

CCC pays deficiency payments in exchange for no wheat being harvested for grain on a certain percentage of a farms wheat land. This land on which no grain is harvested is called Acreage Reduction Program acres (ARP). The percent of the wheat crop land that participating farmers must place in ARP each year is determined by the Secretary of Agriculture who considers the stocks-to-use ratio of the previous year.

The formula for determining the total deficiency payment is program yield times payment acres times deficiency payment rate. Program yields are specific for each farm and were frozen in 1985. Previous to 1985 this was determined using a proven yield or assigned by the county committee which follows state given constraints. The proven yield method uses moving averages of the last 5 years, throwing out the high and low yield.

The number of payment acres can be determined using the following formula,  $100\% - \text{ARP} (\%) - \text{flex acres} (15\%) - \text{optional flex acres} (10\% \text{ if chosen}) = \text{percentage payment acres}$ . The percentage payment acres is multiplied times the base acres to determine the payment acres. The number of base acres is a moving average of the total acres of wheat the farm has planted the last 5 years plus land "considered planted" to wheat as certified by the USDA. ARP is "considered planted" to wheat, but receives no deficiency payment. 15 percent of the base acres are considered flex acres. No deficiency payments is given for flex acres, however any crop can be planted except fruits and vegetables. Flex acres are "considered planted" to wheat. The farmer has the option of placing and additional 10 percent of the farm's base into flex acres.

To determine the deficiency payment rate, the larger of the 5-month market price or effective loan rate is subtracted from the target price. If the 5-month market price exceeds the target price no deficiency payment is made. The target price for wheat set by legislation is \$4.00 per bushel. This will remain constant until 1995. The 5-month market price is the weighted average price for the months June through October in the crop year. The crop year for wheat is from June 1 to May 31. Market prices are estimated by the National Agricultural Statistical Service which is associated with all State Boards of Agriculture. The effective loan rate (announced loan rate, loan after reduction, or market loan rate) is determined from the basic loan rate (statutory loan rate or formula loan rate). The basic loan rate is an adjusted figure of 85% of the five year moving average of market prices dropping high and low years. After 1993, the 5-month market price will be replaced in the equation by the lesser of the season average market price or the 5-month market price plus \$0.10. The 12-month (seasonal average) market price is the average price for the crop year. For this purpose the 12-month average market price will be estimated on December 1 of the crop year.

Farmers receive payment at two times during the year. The first, received at sign up, equals 40-50 percent of the payment using an estimated 5-month market price. The second payment is made in December after the actual 5-month market price has been determined. Farmers are paid the remaining balance of the deficiency payment or must pay back money if the total payment is less than that received at sign up.

The Findley Payment is made when 5-month national average is less than the basic loan rate. This payment rate is found by subtracting the larger of the 12-month market price or effective loan rate from the basic loan rate. The total Findley Payment is equal to program yield times payment acres times Findley Payment rate. This payment is usually made the July after the crop year.

If the Secretary Of Agriculture determines that acreage should be reduced further the Paid Land Diversion Program may be used. Farmers are

given a specific payment per acre to idle a percentage of their crop acreage base in addition to ARP.

The Inventory Reduction Program is at the discretion of the CCC. The CCC may make payments to producers when they agree to reduce acreage by half the required reduction and forgo loans and deficiency payments.

The 0/92 program allows farmers to devote all or a portion (at least 8 percent) of their payment acres to conserving uses and receive deficiency payments on 92% of the payment acres. Farmers may plant minor oilseeds on 0/92 acres. Payments are guaranteed to be at least the projected deficiency payment rate. 0/92 acres are "considered planted" and can not be ARP acres.

The second benefit of ARP participation is the price support loan program. Farmers can obtain loans using wheat as the collateral. The farmer receives a payment per bushel committed equal to the county loan rate (effective loan rate adjusted for local market conditions such as distance from market). The term of the loan is usually 9 months. The government also pays the storage payments while the commodity is on loan. During this time the farmer can pay back the loan and storage payments with interest and regain control of the wheat or forfeit the loan. The CCC has no recourse but to take the crop itself as satisfaction for the loan, including principal, storage payments, and interest.

The Farmer-Owned Reserve is a similar loan program that is available when the regular price support loans mature if two triggers, price and stocks-to-use ratio, are met. The Secretary of Agriculture may allow entry if only one of the triggers is met. Loans are for 27 months with one 6-month extension at the Secretary's discretion.

Because of failure to secure a GATT agreement the Legislature has mandated the Marketing Loan Program for 1993 for wheat crop. Under the Marketing Loan Program producers may repay price support loans at the posted county price (an average county price) when the world price for the commodity is less than the effective loan rate. Farmers then market there

own wheat. This program removes the price floor, allows payments to be tied to the farmers actual production and keeps the government from owning and storing grain. Loan Deficiency Payments will be paid to producers who are eligible to receive price support loans but who agree to forgo obtaining such a loan or agreement. Wheat harvested and owned by the farmer is eligible for payments. Farmers will be paid a per bushel rate which is equal to the difference between the local loan rate and the posted county price. Producers can receive both Findley Payments and Marketing Loan Program gains or Loan Deficiency Payments.

Payments are subject to limitations. The total of Paid Land Diversion and deficiency payments can not exceed \$50,000 per operator. The total of Findley Deficiency Payments, Marketing Loan Program Payments, and Loan Deficiency Payments can not exceed \$75,000 per operator. Total payments including disaster payments under the 1949 Act and Inventory Reduction Payments can not exceed \$250,000. There is no limit on price support loans.

1992 was the first year my farm participated in the wheat commodities program. When I applied the Greeley County ASCS Office still considered my land to be a part of my Father's farm. This farm had already met the ARP requirements for that year and so I did not have to decrease my harvested acres to receive deficiency payments. Also a conservation plan was filed at the Greeley County ASCS Office.

Because there will be no set aside this year, I plan to participate in the ARP program. The monetary cost to participate is zero while there should be a deficiency payment. In future years the cost of participation can be calculated by multiplying ARP acres times the average farm yield times an estimated price and adding maintenance costs. This should be less than the estimated deficiency payment which can be obtained at sign up. A formula for this is given later and used to develop a formula using price per bushel comparisons. Other returns to consider would be less price risk, grazing or haying value and the ability to participate in loan programs. The haying or grazing value would be small because of a lack of a market and the difficulty of finding someone to

cut the wheat hay in a timely fashion. The value of loan program participation would be greater if prices are forecasted to be low. Another return could be realized when the ARP could be planted back to wheat the following fall assuming the farm did not participate in the next ARP program. Losses include the loss of management flexibility and the difficulty of maintaining forms, registration, and requirements.

Farm program payments could be reduced in three ways, reduce payment acres, reduce target price payment, or reduce program yields. All three are now occurring. Payment acres have been decreased with flex acres. The target price has been reduced and the new formula for 1994 will reduce this \$0.10. Program yields have been frozen.

A formula can be used to determine when to participate in the government program. The formula considers the income of the deficiency payment and the cost of the loss of production and maintenance of ARP. An assumption is made that the program yield is a good estimate of the actual yield.

The formula was developed from the equation used above;

$$\%PA \times DPR \times PY \geq \%ARP \times EP \times PY + \%ARP \times MC.$$

Where:

- $\%PA$  - Percent payment acres (1 - FA -  $\%ARP$ )
- FA - Flex acres
- DPR - Deficiency payment rate
- PY - Program yield
- $\%ARP$  - Percent of ARP
- EP - Estimated market price of wheat
- MC - Maintenance cost per acre for ARP.
- $(\%PA \times DPR \times PY)$  - Deficiency payment per acre
- $(\%ARP \times EP \times PY)$  - Loss of income per acre on ARP acres
- $(\%ARP \times MC)$  - Maintenance cost per acre on ARP.

Dividing both sides of the equation by PY and ARP gives;

$$(\%PA/\%ARP) \times DPR \geq EP + MC/PY.$$

The right side of the equation is the total cost of every bushel lost. The left side of the equation can be used to estimate the return per bushel lost. MC/PY can be subtracted from each side. The new equation is :

$$(\%PA/\%ARP) \times DPR - MC/PY \geq EP.$$

The left side of the equation is the net return per bushel given up by participating in the program. It can be calculated at sign up and if greater than the desired or expected price then it would be profitable to participate in the program. When the equality is nearly equal the other factors should be considered more closely. This equation is speculative because the market price and deficiency payment are forecasts.

If the equation showed that the my farm should not participate in the ARP Program the farming practices would not change except for planting ARP acres. Without government constraints a sorghum-fallow-wheat rotation could be considered because government payments would already be lost. The rotation increases planted acres by 50 percent so is difficult to implement with base acre constraints. This cropping program is recommended by extension but carries more risk because grain filling occurs during hot and dry weather in August.

The Marketing Loan Program has eliminated price supports and ceilings. The government will no longer buy grain for storage when the prices are low which supported prices. When the price rose to the target price this grain was released from storage which put a ceiling on prices. Now the farmer must market the wheat to get the best price. Also farmer must look for the market low for loan repayment. In order to participate in the loan programs farmers must own the grain. This limits the use of forward contracts for marketing because farmers lose possession of the grain after delivery. To remove this constraint grain could be forward contracted for September after seasonal market lows or futures contracts could be used.

I have not participated in loan programs in the past so the Marketing Loan Program will change the way I market my grain. More futures contracts will be used instead of forward contracting. If the prices are low I will enter the price support loan program to take advantage of the Marketing Loan Program.

Cost-return budgets were prepared in order to look at the effects of no government payments on returns. Costs, yields, and prices were kept constant on both budgets. One assumed no government payments and no change in price.

**Total costs over total returns becomes negative without government payments. Also the net return on investment is negative 2.59%. This situation probably would not last long. The price of wheat could increase and the prices of land could decrease.**

**COST-RETURN PROJECTION—SUMMER FALLOW WHEAT (W-F ROTATION) IN WESTERN KANSAS**

	EXAMPLES		YOUR FARM	
	Total	Cash Flow	Total	Cash Flow
<i>Prepared November 1992</i>				
<b>VARIABLE COSTS PER ACRE:</b>				
1. Labor (1.20 hrs. × \$8.00/hr.)	\$ 9.60	\$ .96	0	0
2. Seed (40 lbs. × \$.095/lb.)	3.80	3.80	2.70	2.70
3. Herbicide (\$7.85) and Insecticide	7.85	7.85	11.44	11.44
4. Fertilizer and Lime (30 lbs. N)	3.60	3.60	-	-
5. Fuel and Oil	5.93	5.93	-	-
6. ....				
7. Machinery and Equipment Repairs	11.90	11.90	-	-
8. <i>Management</i>			2.00	
9. Crop Insurance	6.25	6.25	6.25	
10. Drying				
11. Custom Hire			39.48	39.48
12. Crop Consulting				
13. Miscellaneous	4.00	4.00	4.00	4.00
14. Interest on 1/2 Variable Costs @ 12%	3.18	1.59	3.95	
<b>A. TOTAL VARIABLE COSTS</b>	<b>\$ 56.11</b>	<b>\$ 45.88</b>	<b>69.82</b>	<b>57.62</b>
<b>FIXED COSTS PER ACRE:</b>				
15. Real Estate Taxes @ 1%	\$ 9.00	\$ 9.00	5.06	5.06
16. Interest on Land (\$450/A × 2 × 6%) <sup>1</sup>	54.00	31.82	39.90	10.22
17. Rent for Rented Land				
18. Depreciation on Crop Machinery	16.50	XXX		
19. Interest on Crop Machinery <sup>2</sup> @ 12%	9.90	15.26		
20. ....				
21. ....				
22. Insurance on Machinery @ .25%	.41	.41		
<b>B. TOTAL FIXED COSTS</b>	<b>\$ 89.81</b>	<b>\$ 56.49</b>	<b>44.76</b>	<b>15.28</b>
<b>C. TOTAL COSTS (A + B)</b>	<b>\$ 145.92</b>	<b>\$ 102.37</b>	<b>114.78</b>	<b>72.90</b>
<b>D. YIELD PER ACRE</b>		35 bu.	34	
<b>E. PRICE PER BUSHEL</b>		\$ 2.60	2.60	
<b>F. NET GOVERNMENT PAYMENT<sup>3</sup></b>		\$ 41.35	34	
<b>G. RETURNS PER ACRE ((D × E) + F)</b>		\$ 132.35	122.40	
<b>H. RETURNS OVER VARIABLE COSTS (G - A)</b>	\$ 76.24	\$ 86.47	52.58	64.78
<b>I. RETURNS OVER TOTAL COSTS (G - C)</b>	\$ -13.57	\$ 29.98	7.62	49.50
<b>J. VARIABLE COSTS/BUSHEL (A ÷ D)</b>	\$ 1.60	\$ 1.31	2.05	1.69
<b>K. FIXED COSTS/BUSHEL (B ÷ D)</b>	\$ 2.57	\$ 1.61	1.32	.45
<b>L. TOTAL COSTS/BUSHEL (C ÷ D)</b>	\$ 4.17	\$ 2.92	3.37	2.14
<b>M. ASSET TURNOVER (G ÷ INVESTMENT)<sup>4</sup></b>		12.43%	18.1%	
<b>N. NET RETURN ON INVESTMENT ((I + 14 + 16 + 19) ÷ INVESTMENT)<sup>4</sup></b>		5.02%	7.6%	

<sup>1</sup>Total column assumes interest rate shown in Table A. Cash flow column assumes principal and interest to be 33% of a 30-year amortized loan at the interest rate shown in Table A. <sup>2</sup>Total column is one-half the original cost at the interest rate shown in Table A. Cash flow column assumes principal and interest to be 33% of a 5-year amortized loan at the interest rate shown in Table A. <sup>3</sup>Net government payment equals yield per acre (D) times expected deficiency payment minus prorated cost of set-aside acres. Based on 15% flex acres and 5% ARP. <sup>4</sup>Investment equals total of all fixed assets shown in Table A.

**COST-RETURN PROJECTION—SUMMER FALLOW WHEAT (W-F ROTATION) IN WESTERN KANSAS**

	EXAMPLES		YOUR FARM	
	Total	Cash Flow	Total	Cash Flow
<i>Prepared Jan 1993 No Government Payment</i>				
<b>VARIABLE COSTS PER ACRE:</b>				
1. Labor (1.20 hrs. × \$8.00/hr.)	\$ 9.60	\$ .96	0	0
2. Seed (40 lbs. × \$0.095/lb.)	3.80	3.80	2.70	2.70
3. Herbicide (\$7.85) and Insecticide	7.85	7.85	11.44	11.44
4. Fertilizer and Lime (30 lbs. N)	3.60	3.60		
5. Fuel and Oil	5.93	5.93		
6. ....				
7. Machinery and Equipment Repairs	11.90	11.90		
8. <i>Management</i>			2.00	
9. Crop Insurance	6.25	6.25		
10. Drying				
11. Custom Hire			39.48	39.48
12. Crop Consulting				
13. Miscellaneous	4.00	4.00	4.00	4.00
14. Interest on 1/2 Variable Costs @ 12%	3.18	1.59	3.95	
<b>A. TOTAL VARIABLE COSTS</b>	<b>\$ 56.11</b>	<b>\$ 45.88</b>	<b>69.82</b>	<b>57.62</b>
<b>FIXED COSTS PER ACRE:</b>				
15. Real Estate Taxes @ 1%	\$ 9.00	\$ 9.00	5.06	5.06
16. Interest on Land (\$450/A × 2 × 6%) <sup>1</sup>	54.00	31.82	39.90	10.22
17. Rent for Rented Land				
18. Depreciation on Crop Machinery	16.50	XXX		
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<b>B. TOTAL FIXED COSTS</b>	<b>\$ 89.81</b>	<b>\$ 56.49</b>	<b>44.76</b>	<b>15.28</b>
<b>C. TOTAL COSTS (A + B)</b>	<b>\$ 145.92</b>	<b>\$ 102.37</b>	<b>114.78</b>	<b>72.90</b>
D. YIELD PER ACRE	35 bu.		34	
E. PRICE PER BUSHEL	\$ 2.60		2.60	
F. NET GOVERNMENT PAYMENT <sup>3</sup>	\$ 41.35		0	
G. RETURNS PER ACRE ((D × E) + F)	\$ 132.35		88.40	
H. RETURNS OVER VARIABLE COSTS (G - A)	\$ 76.24	\$ 86.47	18.58	30.78
I. RETURNS OVER TOTAL COSTS (G - C)	\$ -13.57	\$ 29.98	-26.18	15.50
J. VARIABLE COSTS/BUSHEL (A ÷ D)	\$ 1.60	\$ 1.31	2.05	1.69
K. FIXED COSTS/BUSHEL (B ÷ D)	\$ 2.57	\$ 1.61	1.32	0.45
L. TOTAL COSTS/BUSHEL (C ÷ D)	\$ 4.17	\$ 2.92	3.37	2.14
M. ASSET TURNOVER (G ÷ INVESTMENT) <sup>4</sup>	12.43%		12.97%	
N. NET RETURN ON INVESTMENT ((I + 14 + 16 + 19) ÷ INVESTMENT) <sup>4</sup>	5.02%		2.59%	

<sup>1</sup>Total column assumes interest rate shown in Table A. Cash flow column assumes principal and interest to be 33% of a 30-year amortized loan at the interest rate shown in Table A. <sup>2</sup>Total column is one-half the original cost at the interest rate shown in Table A. Cash flow column assumes principal and interest to be 33% of a 5-year amortized loan at the interest rate shown in Table A. <sup>3</sup>Net government payment equals yield per acre (D) times expected deficiency payment minus prorated cost of set-aside acres. Based on 15% flex acres and 5% ARP. <sup>4</sup>Investment equals total of all fixed assets shown in Table A.

**Explanation of cost return projection data**

**A. Variable Cost per acre.**

- 1. Labor. The land is custom farmed. No labor costs.
- 2. Seed. In 1992 it cost me \$420 for 155 acres. \$2.70/acre.
- 3. Herbicide. Herbicide will be applied on stubble after harvest.

Quarter	Cost	Acres	
SE 32-18-40	\$919.60	80.6	
NW 5-15-38	\$867.87	75.6	
	-----	-----	Cost/acre
<b>Totals</b>	<b>\$1787.47</b>	<b>156.2</b>	<b>\$11.44</b>

- 4. Fertilizer. I do not plan to fertilize.
- 5. Fuel and oil. No costs because of custom farming.
- 6. Management. \$2.00/acre of cropland.
- 7. Mach. and Equip. repair. No Machinery.
- 9. Crop Insurance. Self Insured
- 11. Custom Hire. Custom hire includes custom farming and cutting. Custom farming costs \$3.80/acre/pass. six passes will cost \$22.80/acre. For custom cutting the average historical prices is below. The total is \$39.48/acre.

**Custom Cutting Historical Costs**

1990	Cost	Acres	
SE 32-18-40	\$1555.32	80.0	
NW 5-15-38	\$1531.41	80.0	
1991 Both	\$2371.10	155.6	
1992 Both	<u>\$2392.00</u>	<u>155.0</u>	Cost/acre
<b>Totals</b>	<b>\$7849.83</b>	<b>470.6</b>	<b>\$16.68</b>

- 13. Miscellaneous. Includes travel, phone, and marketing. The given number is reasonable.
- 14. Interest on Variable Costs. There is no operating loan. On a total cost basis with other variable costs totaling \$65.87 this should be \$3.95.

**B. Fixed cost per acre. Because there is no return to summer fallow land only the crop acres are considered.**

- 15. Real Estate Tax The projected property tax is \$785. This is divided by 155 crop acres.
- 16. Interest To calculate total interest I use my 1992 balance sheet valued of \$332.52/acre. Actual interest expense in 1993 will be \$1584.
- 17. Depreciation. None.

**D. Yield per acre. My ASCS Yield is 34 bu./acre**

**E. Price per bushel. I used the figure given.**

**F. Net government payments. Assuming a \$2.60/bu. Price and \$0.40 basis, average price will be \$3.00. This means a deficiency payment of \$1.00 or \$34/acre.**

**M. Investment The total investment is \$105,657.7 which divided by 155 crop acres.**