

Summary of 1990 Estimated Cost of Growing Wheat in Arizona

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Introduction

In the past year, the procedures and publication known as the Arizona Field Crop Budgets (Wade, et al., 1990) have changed somewhat. Most of the changes are in format and definition. The underlying data base has not changed substantially. The information provided here is a summary of the published information. For further details see the publications which are available from the Office of Agricultural Sciences Communication at The University of Arizona.

Wheat, while an important crop in Arizona, continues to decrease in acres planted. Profits from growing wheat vary widely from year to year depending mostly on the prices of Durum or milling wheat. These prices, in turn, are dependent on the quality and size of the crops grown in the Great Plains. The droughts of 1988 provided for profits for those who obtain suitable contracts. These profits were short lived as Great Plains production rebounded. Table 1 gives a brief summary of the recent production history of Arizona wheat. Despite widely varying profit potentials and planted acreage, wheat (and other small grains) remains an important crop for soil conditioning and crop rotation. Pressures created by increasing production costs and water assessments will continue the long term trend of decreased planted acreage.

The cost of producing wheat in Arizona varies widely depending upon water costs and the insect controls required. Table 2 is a summary of the estimated 1990 costs of producing wheat in Arizona. These estimates were made with information that existed before the crop was planted and harvested and do not reflect adjustments for actual conditions like insect infestations or rainfall that may have existed in each area. None-the-less, the costs represent solid estimates of the expected costs for producing wheat in each area. Costs for the 1990-91 crop year are not expected to vary greatly. However, uncertainty about fuel and electricity cost may increase costs in all areas. An initial estimate would suggest that fuel cost for machinery might increase by as much as 10% for 1990-91. Electricity and natural gas cost, while more stable, could also see an increase in fuel adjustment cost. Other petroleum based products like fertilizers and pesticides could also increase, but at a slower rate.

Results

The results shown in Table 2 provide summaries of the estimated costs of producing wheat at one site in each of the nine major cropping counties of Arizona. The results should be evaluated by observing the costs for the two major categories: Cash Operating Cost and Total Ownership Cost.

Cash Operating Cost

Cash operating cost consists of those costs that occur in the production of wheat and that would not occur if one did not grow wheat. This cost includes the costs of Paid Labor (all labor including owner/operator labor is assumed to be paid), Chemicals and Application, Machinery Fuel and Repairs, Irrigation (except any assessment which is an ownership cost), and Other Purchases and Services (including interest costs). Differences in operating cost occur because of different assumptions about custom harvesting, fertilization, insect control and the amount of water

provided with any water assessment by irrigation districts.

Ownership Costs

Ownership costs are those costs associated with owning (or renting) the capital resources like land, equipment and water rights (including taxes) required to produce a crop. In addition these costs include the overhead cost for insuring and housing the capital resources and the costs of management services and management overhead like office cost and farmstead maintenance. Ownership costs for equipment vary if custom harvesting is used. Costs also vary by the type of land and water resources available. For example, in LaPaz county land is assumed to be leased from the Colorado River Indian Reservation while in other counties the land is assumed to be owned and charged property taxes and opportunity interest based on the tax assessed value.

Net Returns

Net Returns over Cash Operating and Total Ownership Costs are estimated for yields and prices assumed for each area. These yields and prices vary by type of wheat and area. Some areas have lower access to markets and receive lower average prices while other areas are actively involved in export contracts. The most profitable areas are those with lower water costs and less insect control. Western Arizona counties of Yuma, LaPaz and Mohave appear to have higher profits (or less loss). Maricopa County also has potential for profits in areas like the Salt River Project with low water costs. High water costs in Southeastern and Central Arizona substantially reduce profits.

Break-even Prices

Estimates of the prices required to cover the Cash Operating Cost, the Ownership Cost and the Total Cost for each location are also provided. The estimates are called break-even prices and estimate the prices required with the assumed yields to obtain a profit. They are an estimate of the cost per unit (Hundred Pounds) of producing the crop.

Information is also provided on the assumed levels of selected inputs like water and fertilizer.

Not surprisingly, the highest cost areas are those with high pump water cost. Most areas do not make a profit at the assumed price and yield. Wheat is not a profitable crop for most Arizona farmers on a continuous long term basis. However, for short run soil conditioning and double cropping wheat does usually cover Cash Operating Costs.

References Cited

- Wade, et al. "1990 Field Crop Budgets, (all Arizona Counties)." Extension Bulletin 9002-9010, Cooperative Extension, The University of Arizona, April 1990.
- U.S. Department of Agriculture. "Arizona Agricultural Statistics." Various Issues, Arizona Agriculture Statistics Service, 1985 and 1989.

Table 1. Wheat Production in Arizona, 1980-1990

Year	Harvested Acreage	Production Tons	Yield Lbs/Acre	Avg. Price \$/CWT	Harvested Acreage	Production Tons	Yield Lbs/Acre	Avg. Price \$/CWT
	Other Wheat				Durum Wheat			
1980	60,000	144,000	4,800	\$6.30	155,000	272,000	4,800	\$6.95
1981	43,000	107,070	4,980	\$6.44	215,000	548,250	5,100	\$7.94
1982	64,000	161,280	5,040	\$6.14	79,000	210,930	5,340	\$5.90
1983	64,000	184,320	5,400	\$6.60	55,000	148,500	5,400	\$6.79
1984	62,000	167,400	5,400	\$6.50	82,000	216,000	5,400	\$7.04
1985	66,000	178,200	5,400	\$5.87	47,000	115,620	5,040	\$5.85
1986	48,000	135,360	5,640	\$5.17	49,000	125,280	5,220	\$6.14
1987	44,000	125,400	5,700	\$4.82	46,000	114,750	5,100	\$5.37
1988	35,000	102,900	5,880	\$6.55	50,000	129,000	5,160	\$6.58
1989 1/	34,000	94,860	5,580	\$7.00	84,000	226,800	5,400	\$6.92
1990 2/	54,000	154,000	5,700		44,000	121,000	5,520	

Source: USDA, 1988 Arizona Agricultural Statistics, Phoenix, July 1989.

1/ Preliminary., 2/ Indicated.

Table 2. 1990 Estimated Cost of Producing Wheat in Arizona

COUNTY	Cochise	Graham	Greenlee	La Paz	Maricopa	Mohave	Pima	Pinal	Yuma
DESCRIPTION									
Area Management Level	Kanasa Settlement Average pump next gas flood CWT	Safford Valley Double Crop pump/surface flood CWT	Duncan Valley Average pump level basin CWT	Parker CRIR Double Crop BIA flood CWT	Salt River Durum SRP flood CWT	Mohave Valley Double Crop pump flood CWT	Marana Double Crop C-M ID flood CWT	Case Grande Durum Double Crop pump flood CWT	Yuma Valley North Double Crop YCWUA flood CWT
Water Source	\$6.00	\$4.75	\$6.00	\$6.00	\$7.00	\$6.00	\$6.00	\$6.00	\$6.00
Irrigation System	55.0	54.0	55.0	60.0	56.0	60.0	45.0	51.0	55.0
Unit/Price									
Yield									
Total Revenue	\$330.00	\$259.50	\$330.00	\$360.00	\$392.00	\$360.00	\$270.00	\$306.00	\$330.00
COST									
Paid Labor	46.40	38.11	28.12	26.92	18.65	18.17	22.95	23.27	26.45
Chemicals & Application	76.06	48.84	55.42	40.42	61.04	87.98	37.53	57.07	34.22
Machinery Fuel & Repairs	41.01	39.07	36.58	25.62	27.01	31.12	26.09	28.89	35.26
Irrigation 1/	151.66	25.72	53.13	0.00	7.91	11.64	75.00	88.13	0.00
Other Purchases & Services	36.48	36.37	89.59	40.07	22.75	126.62	71.82	39.35	33.43
Total Cash Operating Cost	\$351.61	\$180.11	\$260.84	\$133.03	\$197.36	\$276.53	\$233.19	\$236.71	\$129.36
Net Returns Over Variable	(\$21.61)	\$66.39	\$69.16	\$226.97	\$254.64	\$83.47	\$36.81	\$69.29	\$200.64
Cash Overhead	36.12	25.62	25.15	9.88	14.13	24.97	21.01	29.18	14.27
Capital Allocations	87.40	47.47	61.23	15.63	22.90	23.25	18.44	82.71	29.28
Land Ownership	26.15	71.45	42.65	111.00	86.83	48.97	57.02	38.15	104.23
Management Services	28.13	15.21	20.86	10.54	10.88	22.12	18.65	18.93	10.35
Total Ownership Costs	\$180.80	\$158.75	\$149.89	\$147.05	\$134.74	\$119.31	\$115.12	\$169.97	\$156.13
Total Costs	\$532.41	\$348.86	\$410.73	\$280.08	\$272.10	\$395.84	\$348.31	\$405.68	\$287.49
Net Returns Over Total Cost	(\$202.41)	(\$93.36)	(\$80.73)	\$79.92	\$119.90	(\$35.84)	(\$78.31)	(\$99.69)	\$42.51
BREAK-EVEN COST									
to Cover Operating Cost	\$6.39	\$3.52	\$4.74	\$2.22	\$2.45	\$4.61	\$5.16	\$4.64	\$2.35
to Cover Ownership Cost	\$3.29	\$2.96	\$2.73	\$2.45	\$2.41	\$1.99	\$2.56	\$3.31	\$2.88
to Cover Total Cost	\$9.68	\$6.48	\$7.47	\$4.67	\$4.86	\$6.60	\$7.74	\$7.95	\$5.23
RESOURCE USE									
Water Applications (AV/AC)	40.0	44.0	46.0	35.0	34.0	46.0	36.0	30.0	39.0
Labor (Hrs)	7.6	6.0	5.2	3.8	3.2	3.2	3.6	4.1	4.5
Diesel (Gals)	10.4	8.5	10.8	8.0	6.9	10.6	8.3	2.3	10.3
Nonlead (Gals)	4.9	5.5	3.0	3.0	3.0	3.0	2.0	3.0	3.0
Electricity (KWH)	0.0	159.2	0.0	0.0	0.0	167.7	132.0	2,725.9	2,725.9
Natural Gas (Therms)	323.4	0.0	99.3	0.0	0.0	0.0	0.0	0.0	0.0
Nitrogen (lbs)	246.0	149.0	117.0	172.2	164.5	329.5	40.0	178.8	170.6
Phosphorus (lbs)	0.0	60.0	60.0	0.0	50.0	106.0	0.0	120.0	0.0
Potassium (lbs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Wade, et al., 1990.

1/ Water Assessment cost may be included in Land Ownership Cost.