

**ESTIMATING 1990 PRODUCTION
COSTS IN ARKANSAS**

EXTENSION TECHNICAL BULLETIN NO. 71

OATS

LOAMY SOILS



BY

**JERRY DON CLARK, JR.
BILLY HERRINGTON, JR.
CLYDE A. STUART
TONY E. WINDHAM
ROBERT E. COATS, JR.**

EXTENSION ECONOMISTS - MANAGEMENT

**UNIVERSITY OF ARKANSAS
COOPERATIVE EXTENSION SERVICE
AGRICULTURAL ECONOMICS SECTION**

ESTIMATING PRODUCTION COSTS IN ARKANSAS

INTRODUCTION

Estimating Production Costs is an Extension Technical Bulletin prepared by the Agricultural Economics Section within the University of Arkansas Cooperative Extension Service. The authors are Economists specializing in management and finance of the farm business.

The primary purpose of this analysis is to provide a systematic procedure for estimating specified costs associated with producing a defined enterprise. Costs are first developed for each field operation and then aggregated by input item. This publication has seven major parts: A written discussion, page 1; a summary of specified operating and ownership costs, page 2; a sensitivity analysis, page 3; returns above total specified costs at various yield, price, and cost combinations, page 4; a sequential listing of field operations, pages 5 and 6.

SPECIFIED OPERATING AND OWNERSHIP COSTS

Specified operating and ownership costs for this particular enterprise, location, soil type, and irrigation method are located on page 2. The specified operating costs are derived from the sequential listing of operations presented on pages 5 and 6. Breakeven prices for total specified operating costs are given for a base yield and at deviations of 25 and 35 percent.

Total specified ownership costs and breakeven prices for total specified costs are also given on page 2. The depreciation and interest cost components represent an average cost allocated over the entire useful life of the machinery. Various financing arrangements and tax depreciation methods can produce costs that vary significantly from these estimates in a given year. The ability to estimate the actual cost is a complex economic procedure whereby cash accounting and economic costs may vary greatly.

SENSITIVITY ANALYSIS

A sensitivity analysis is presented to provide a broader perspective from which an individual may analyze the specific situation budgeted. Since input prices and quantity may vary, costs are increased and decreased by 20 percent as shown on page 3. A per unit breakeven price is provided for a base yield and at yields of 25 and 35 percent above and below the base yield. These breakeven prices account for changes in costs due to yield differences, such as hauling and drying.

RETURNS ABOVE TOTAL SPECIFIED COSTS

Presented on page 4 are estimated enterprise returns above total specified costs at various yield, price, and cost combinations. *Not included in these returns are charges for land, risk, overhead labor, other overhead, crop insurance, real estate taxes, and management.*

SEQUENCE OF OPERATIONS

A sequential listing of each operation performed for this enterprise is given on pages 5 and 6. These operations provide the foundation on which the economic analysis is based. Note the specified costs associated with each field operation.

ACKNOWLEDGEMENTS EXTENSION FEED GRAIN COMMITTEE

Donald Adams, Chairman	Ford L. Baldwin
Raymond C. Benz	Claude M. Bonner
Stanley L. Chapman	Dennis R. Gardisser
Donald R. Johnson	Timothy Tripp
Terry L. Kirkpatrick	H. J. Mascagni
Michael L. May	John H. Muir
Robert A. Pierce	Roy N. Sharp
J. Ples Spradley	Phil L. Tacker

THE MENTION OF ANY COMMERCIAL PRODUCT IN THIS ANALYSIS DOES NOT IMPLY ITS ENDORSEMENT BY THE UNITED STATES DEPARTMENT OF AGRICULTURE OR THE UNIVERSITY OF ARKANSAS COOPERATIVE EXTENSION SERVICE OVER OTHER PRODUCTS NOT NAMED, NOR DOES THE OMISSION IMPLY THAT THEY ARE NOT SATISFACTORY.

SPECIFIED OPERATING COSTS

RESOURCE OR INPUT	PER ACRE COST	YOUR ESTIMATED COST
SEED	\$7.50	
FERTILIZER	\$22.75	
LIME + APPLICATION	\$0.00	
HERBICIDE	\$0.00	
FUNGICIDE	\$0.00	
INSECTICIDE	\$0.00	
DEFOLIANT	\$0.00	
AERIAL APPLICATION	\$4.00	
MACHINERY:		
FUEL, OIL, LUBRICANTS	\$5.04	
REPAIRS	\$11.87	
LABOR	\$4.45	
IRRIGATION:		
FUEL, OIL, LUBRICANTS	\$0.00	
REPAIRS	\$0.00	
IRRIGATION LABOR	\$0.00	
CUSTOM SPREAD	\$0.00	
CUSTOM HAUL	\$13.50	
CUSTOM DRY OR GINNING	\$0.00	
MISCELLANEOUS	\$0.00	
CROP INSURANCE PREMIUM		
OTHER		
INTEREST ON OP. CAP.	\$3.80	

TOTAL SPECIFIED OPERATING COSTS \$72.91

PER UNIT BREAK-EVEN PRICE, TOTAL SPECIFIED OPERATING COST YIELD IN BUSHELS				
58.50	67.50	90.00	112.50	121.50
\$1.16	\$1.03	\$0.81	\$0.68	\$0.64

SPECIFIED OWNERSHIP COSTS

RESOURCE OR INPUT	PER ACRE COST	YOUR ESTIMATE
TRACTORS:		
DEPRECIATION	\$3.58	
INTEREST	\$2.95	
EQUIPMENT:		
DEPRECIATION	\$4.20	
INTEREST	\$2.59	
SPECIAL EQUIPMENT:		
DEPRECIATION	\$9.22	
INTEREST	\$3.38	
MISCELLANEOUS:		
DEPRECIATION	\$0.00	
INTEREST	\$0.00	
IRRIGATION:		
DEPRECIATION	\$0.00	
INTEREST	\$0.00	
TAXES & INSURANCE	\$2.03	
INTEREST	\$0.22	
OVERHEAD LABOR		
OTHER OVERHEAD		
LAND & PROPERTY TAX		
MANAGEMENT		

TOTAL SPECIFIED OWNERSHIP COSTS \$28.19

TOTAL SPECIFIED OPERATING AND OWNERSHIP COSTS \$101.11

PER UNIT BREAK-EVEN PRICE, TOTAL SPECIFIED OWNERSHIP & OPERATING COST YIELD IN BUSHELS				
58.50	67.50	90.00	112.50	121.50
\$1.64	\$1.45	\$1.12	\$0.93	\$0.87

NOT INCLUDED IN THIS REPORT ARE CHARGES FOR LAND, RISK, OVERHEAD LABOR, OTHER OVERHEAD, CROP INSURANCE, REAL ESTATE TAXES, AND MGT.

SENSITIVITY ANALYSIS:

EFFECTS OF A 20% VARIATION IN SPECIFIED INPUT COSTS ON
PER UNIT BREAKEVEN PRICES.

ENTERPRISE: OATS, FOLLOWING SOYBEANS OR FALLOW
 ENTERPRISE FILE NO.: OATS9001, 1989-90
 LOCATION: ARKANSAS
 SOILS TYPE: SILT LOAM
 IRRIGATION METHOD: NONE

RESOURCE OR INPUT	-20% DEVIATION	BASE COST PAGE 2	+20% DEVIATION
(A)	(B)	(D)	(F)
FERTILIZER	\$18.20	\$22.75	\$27.30
DEPRECIATION	\$13.61	\$17.01	\$20.41
HAUL (CUSTOM HIRE)	\$10.80	\$13.50	\$16.20
REPAIRS	\$9.49	\$11.87	\$14.24
OWNERSHIP INTEREST	\$7.32	\$9.15	\$10.98
SEED	\$6.00	\$7.50	\$9.00
MACHINERY FUEL & OIL	\$4.04	\$5.04	\$6.05
HIRED LABOR	\$3.56	\$4.45	\$5.34
AERIAL APPLI. (CUSTOM HIRE)	\$3.20	\$4.00	\$4.80
INTEREST ON OP. CAP.	\$3.04	\$3.80	\$4.56
FARM TAXES	\$1.30	\$1.62	\$1.95
FARM INSURANCE	\$0.32	\$0.41	\$0.49
CROP INSURANCE PREM.			
CROP MKT. & COM. STORAGE			
DEFOLIANT			
DRY OR GINNING (COMMERCIAL)			
DRYING FUEL			
FINANCIAL SERVICES			
FUNGICIDE			
HERBICIDE			
INSECTICIDE			
IRRIGATION FUEL & OIL			
LAND CHARGE			
LEASE PAYMENTS			
LIME + APPLICATION			
MACHINE HIRE			
MANAGEMENT			
MISCELLANEOUS			
OVERHEAD			
SPREAD (CUSTOM HIRE)			
UTILITIES			

TOTAL SPECIFIED COST/ACRE \$80.88 \$101.11 \$121.33

PER UNIT BREAKEVEN PRICE--TOTAL SPECIFIED COSTS

	YIELD	BREAKEVEN PRICE		
-35% OF BASE YIELD	58.50	\$1.31	\$1.64	\$1.97
-25% OF BASE YIELD	67.50	\$1.16	\$1.45	\$1.73
BASE YIELD	90.00	\$0.90	\$1.12	\$1.35
+25% OF BASE YIELD	112.50	\$0.74	\$0.93	\$1.12
+35% OF BASE YIELD	121.50	\$0.70	\$0.87	\$1.05

ESTIMATED ENTERPRISE RETURNS ABOVE TOTAL SPECIFIED COSTS

ENTERPRISE: OATS, FOLLOWING SOYBEANS OR FALLOW
 ENTERPRISE FILE NO.: OATS9001, 1989-90
 LOCATION: ARKANSAS
 SOILS TYPE: SILT LOAM
 IRRIGATION METHOD: NONE

- 20% DEVIATION FROM BASE COSTS: \$80.88 PER ACRE

PRODUCER PRICE ESTIMATES	YIELD IN BUSHELS					
	58.50	67.50	90.00	112.50	121.50	
-----	-35%	-25%	BASE YIELD	+25%	+35%	
	- - - - - RETURNS PER ACRE - - - - -					
	\$0.98	(\$19.57)	(\$11.89)	\$7.32	\$26.52	\$34.20
	\$1.24	(\$4.36)	\$5.66	\$30.72	\$55.77	\$65.79
BASE PRICE =	\$1.50	\$10.85	\$23.21	\$54.12	\$85.02	\$97.38
	\$1.99	\$39.52	\$56.29	\$98.22	\$140.14	\$156.91
	\$2.48	\$68.18	\$89.36	\$142.32	\$195.27	\$216.45

BASE COSTS: \$101.11 PER ACRE

PRODUCER PRICE ESTIMATES	YIELD IN BUSHELS					
	58.50	67.50	90.00	112.50	121.50	
-----	-35%	-25%	BASE YIELD	+25%	+35%	
	- - - - - RETURNS PER ACRE - - - - -					
	\$0.98	(\$38.79)	(\$31.39)	(\$12.91)	\$5.58	\$12.98
	\$1.24	(\$23.58)	(\$13.84)	\$10.49	\$34.83	\$44.57
BASE PRICE =	\$1.50	(\$8.37)	\$3.71	\$33.89	\$64.08	\$76.16
	\$1.99	\$20.29	\$36.78	\$77.99	\$119.21	\$135.70
	\$2.48	\$48.96	\$69.86	\$122.09	\$174.33	\$195.23

+ 20% DEVIATION FROM BASE COSTS: \$121.33 PER ACRE

PRODUCER PRICE ESTIMATES	YIELD IN BUSHELS					
	58.50	67.50	90.00	112.50	121.50	
-----	-35%	-25%	BASE YIELD	+25%	+35%	
	- - - - - RETURNS PER ACRE - - - - -					
	\$0.98	(\$58.01)	(\$50.90)	(\$33.13)	(\$15.35)	(\$8.24)
	\$1.24	(\$42.80)	(\$33.35)	(\$9.73)	\$13.90	\$23.35
BASE PRICE =	\$1.50	(\$27.59)	(\$15.80)	\$13.67	\$43.15	\$54.94
	\$1.99	\$1.07	\$17.27	\$57.77	\$98.28	\$114.48
	\$2.48	\$29.74	\$50.35	\$101.87	\$153.40	\$174.01

**INFORMATION PRESENTED IN THIS DOCUMENT IS PREPARED SOLELY AS A GENERAL GUIDE AND IS NOT INTENDED TO
RECOGNIZE OR PREDICT THE COSTS AND RETURNS FROM ANY ONE PARTICULAR FARM OR RANCH OPERATION**

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Dr. Ted L. Jones, Director of Extension Service, University of Arkansas. The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, sex, age, or handicap, and is an Equal Opportunity Employer.

TB71-2500-8-89