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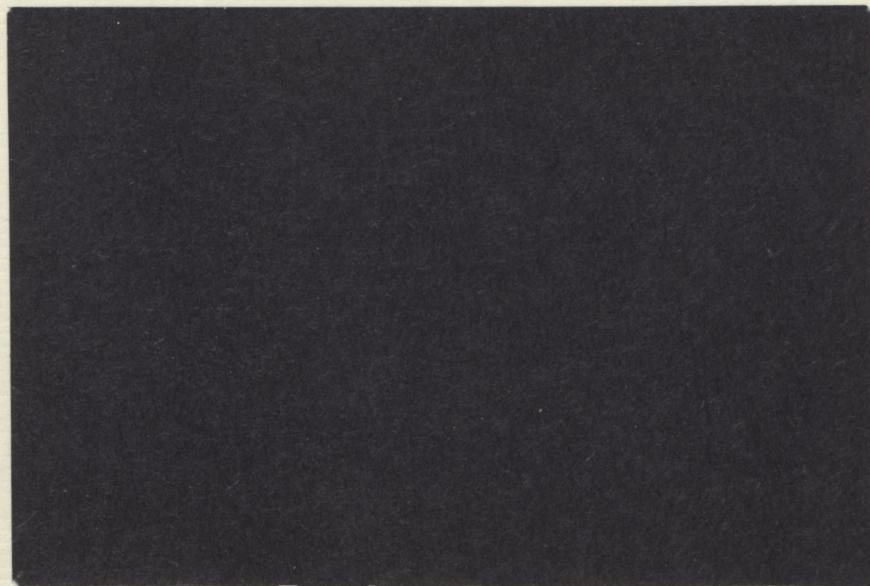
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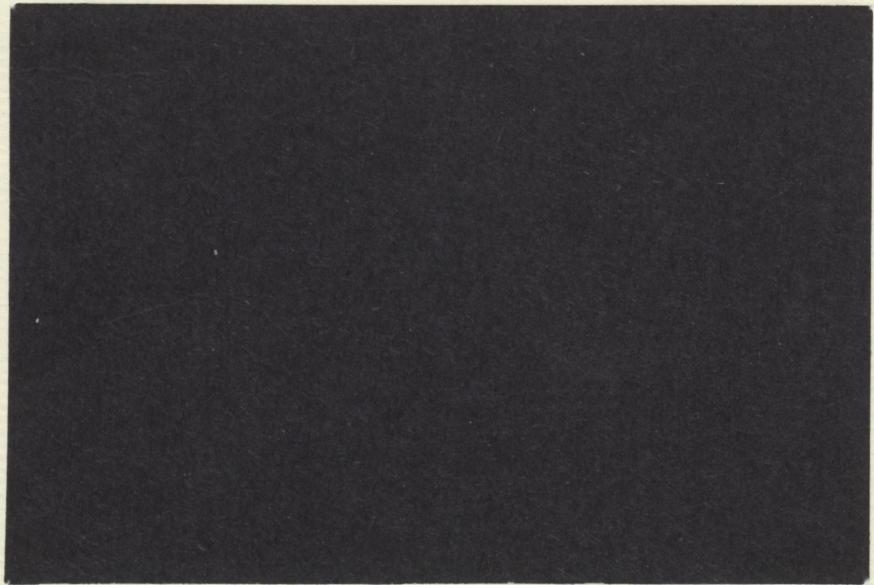


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**The Prices Paid and
Variable Costs Forecasts:**

A Users Guide

by Jackie Todd

CNFAP #5-88

Summer 1988

The Prices Paid and Variable Costs Models

Forecasting production expenses is a two-step process at FAPRI. First, a 'prices paid' forecast is made. The prices paid indices that are being projected in this forecast give the percentage change in the nominal prices of various components of production expenses. Table 1 reproduces the prices paid forecast used in the Winter 1988 10-year forecast. The variable costs forecast breaks the variable production expenses for each major crop into their components. Each of these components is then extrapolated forward using the percentage change predicted by the appropriate prices paid index. The components are then summed for the final costs of production forecast for each crop.

The Prices Paid Forecast

The prices paid spreadsheet is set up as follows. The actual forecast is at the top of the spreadsheet, as depicted in Table 1. Below the forecast table is a table of exogenous macroeconomic variables, as depicted in Table 2. Table 3 gives exogenous agricultural variables. Finally, Table 4 is a table of adjustment factors.

The first step to making a prices paid forecast is to enter the macroeconomic and agricultural variable assumptions. Joe Trujillo obtains the macroeconomic variables electronically from Wharton. The following is a listing of the variables that should

be requested from Joe, along with their variable names as assigned by Wharton:

PPI's (1967=100)	
Refined Petroleum Products	PW057
Chemical and Allied Products	PW060
Natural Gas	PW0531
Metals and Metal Products	PW100
Lumber and Wood Products	PW080
Transportation Equipment	PW140
Durable Manufacturing	PWDMFD
PPI All Commodities	PW
GNP Deflators (1972=100)	
Mining, Non Metals Excluding Fuel	PXVNMG14
Transportation, Railroad	PXVGRGT40
Personal Consumption Deflators (1972=100)	
New Autos	PDCEDAVN
New/Used Trucks and RV's	PDCEDAVR+
Tires, Tubes and Accessories	PDCEDAP
Consumer Price Indices (1967=100)	
All Items, Urban Consumption	PCU
Compensation per Employee per Week, Agricultural, Forestry and Fishery	WRCAG\$
Interest Rates	
Mortgage, New Homes	FRMMTONE
Indirect Business Taxes	
Property Taxes	TXCBSP\$

Unless told otherwise, agricultural assumptions all come from the previous 10-year forecast. It may be ideal to do the prices paid, variable costs and agricultural forecasts simultaneously, but the logistical problems to proceeding in such a fashion are numerous. Thus it is assumed that the changes made in the agricultural variables from one forecast to the next are not enough to significantly change the prices paid forecast or, more importantly, the resulting variable costs forecast. The last two lines of the agricultural variables need further explanation. 'VLAND Index' is the land value index computed on the

net farm income spreadsheet. The values from the previous forecast should be entered here. A different land value index was used in some of the regressions underlying the prices paid forecast. So 'Regression VLAND' is a formula calculating this index given the percentage changes in 'VLAND Index'.

Once all of the assumptions are entered, the spreadsheet needs to be aligned according to the latest prices paid indices that have been published. This is the most difficult part of the forecast. The prices paid indices are usually published in the January and July issues of Agricultural Prices. The latest yearbook should also be referred to in case changes have been made to years other than the latest one. All of the prices paid indices are based on 1910-14=100.

The indices are not typed directly into the spreadsheet; the prices paid table (table 1) runs off of formulas. At the end of each formula is an adjustment factor which refers to the appropriate place in table 4. Thus the indices are aligned by typing the correct adjustment into table 4. There is a trick to doing this efficiently. The formulas for several of the indices include references to other indices so they should be adjusted last. First, make sure the spreadsheet has been recalculated since the new assumptions have been entered. Then, align all of the indices except prices paid for commodities, services, interest, taxes and wage rates (CSITW), prices paid for production items, interest, taxes and wage rates (PITW). Next adjust the index for production items, then the index for PITW, and finally the index for CSITW.

Table 4 shows the adjustments necessary to align the 1987 numbers according to the July 1987 estimates. Once all of the prices paid indices have been adjusted to return the latest numbers, the spreadsheet is ready to make the forecast. The adjustment factor that is used to adjust the latest numbers (here 1987) should be copied across so that the same adjustment factor is used for the entire forecast period. This is referred to as 'constant-level' adjusting. Let the spreadsheet recalculate. Table 1 now shows an initial forecast. This initial forecast should be shown to Abner for his approval. Some equations, taxes and seed in particular, forecast very poorly and may need to have values forced on them by changing the adjustment factors throughout the forecast period. Any changes that have been forced on the model should be pointed out to Abner when he reviews your results.

The Variable Costs Forecast

U.S. variable costs forecasts are made for corn, wheat, soybeans, cotton, rice, sorghum, barley and oats. In addition, regional production costs are forecasted for oats (northern plains and lake states - corn belt regions), corn (lake states - corn belt region), barley (northern plains and northwest regions), and sorghum (southern plains and central plains regions). Hard red winter wheat variable costs are forecasted for the southern plains and central plains regions. U.S. hard red spring wheat variable costs are also forecasted, but can be thought of as a northern plains regional forecast as hard red spring wheat is only grown in the northern plains.

Variable costs are computed using data from Economic Indicators of the Farm Sector: Costs of Production. Following the prices paid tables are copies of all the costs of production forecasts made in the winter of 1988. For each crop, each variable cost component is listed separately. All of these variable costs come directly from the variable cash expenses portion of the tables in the Costs of Production book, with the exception of labor. The labor number on the costs of production spreadsheet is equal to the hired labor number under variable cash expenses plus unpaid labor under allocated returns to owned inputs. These production costs are summed to get total variable costs. Interest expense is calculated as total variable costs times the interest rate times .75. This is the interest expense of acquiring a 9-month production loan. Finally, interest expense is added to total variable cost to get total variable cost and interest expense. This is the final variable cost number that is used in the models and is reported in the forecast.

Forecasting variable production expenses is relatively easy as all of the tables have already been set up on a spreadsheet. The spreadsheet is set up with the prices paid forecast on top, followed by a line containing the interest rate, followed by national variable production cost tables for various crops, followed by the variable costs tables for regional crops. First, the latest copy of Costs of Production should be obtained and all of the variable cost numbers updated. It is okay to type over formulas when entering this historical data, except for the formulas computing interest expense and summing total variable

costs or total variable costs plus interest expense. The interest rate should also be updated on the top of the spreadsheet, and the interest rate assumptions for the forecast period entered. Next, the prices paid forecast should be entered at the very top of the spreadsheet. This can be done electronically (it needn't be typed in). Ask for help if you've never done this before. Take the time to ensure that the spacing of the rows in the prices paid forecast is identical to the spacing of the rows in the prices paid table that is on top of variable costs spreadsheet before attempting the overlay. Once the latest prices paid forecast has successfully been transferred to the top of the variable costs spreadsheet, the spreadsheet needs only to be re-calculated to complete the forecast.

What happens when the spreadsheet is re-calculated is that each component of variable costs is increased by the same percentage as the increase in a corresponding prices paid index. The second column of the variable costs spreadsheet lists the prices paid index that corresponds to each variable costs component.

Table 1 Prices Paid Forecast

Prices Paid Forecast

Indices and Ratios (1910-14=100)	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Prices Paid by Farmers for Commodities, Services Interest												
Taxes and Wage Rates % Year Ago	1097.0	1127.0	1169.5	1219.4	1249.6	1284.3	1326.6	1374.2	1442.6	1513.8	1592.0	1674.5
Production Items % Year Ago	-2.1	2.7	3.8	4.3	2.5	2.8	3.3	3.6	5.0	4.9	5.2	5.2
Feed % Year Ago	839.0	860.7	892.7	931.0	947.5	966.1	994.2	1026.3	1079.2	1129.1	1186.5	1248.9
Feeder Livestock % Year Ago	-4.0	2.6	3.7	4.3	1.8	2.0	2.9	3.2	5.1	4.6	5.1	5.3
Seed % Year Ago	430.0	418.0	433.5	448.1	463.5	466.3	459.5	462.0	472.9	487.1	517.4	543.4
Fertilizer % Year Ago	-6.7	-2.8	3.7	3.3	3.5	0.6	-1.5	0.5	2.4	3.0	6.2	5.0
Agricultural Chemicals % Year Ago	934.0	1109.0	1113.4	1118.2	1080.7	1051.0	1044.5	1015.1	1071.3	1083.7	1091.9	1099.7
Fuels & Energy % Year Ago	-0.7	18.7	0.4	0.4	-3.4	-2.8	-0.6	-2.8	5.5	1.2	0.8	0.7
Farm & Motor Supplies % Year Ago	918.0	928.0	955.7	985.6	1021.2	1051.8	1083.4	1118.7	1163.6	1216.5	1287.1	1362.5
Autos & Trucks % Year Ago	-3.3	1.1	3.0	3.1	3.6	3.0	3.0	3.3	4.0	4.5	5.8	5.9

प्राचीन भारतीय साहित्य

Table 1

Prices Paid Forecast

Indices and Ratios (1910-14=100)		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Machinery		2095.0	2102.0	2200.5	2333.8	2443.9	2559.9	2700.6	2878.1	3052.2	3253.5	3463.9	3723.2
% Year Ago		-2.2	0.3	4.7	6.1	4.7	4.7	5.5	6.6	6.0	6.6	6.5	7.5
Other Machinery		2064.0	2078.0	2107.8	2334.0	2436.4	2544.2	2675.0	2840.0	3001.8	3189.0	3384.6	3633.6
% Year Ago		0.6	0.7	5.3	6.7	4.4	4.4	5.1	6.2	5.7	6.2	6.1	7.4
Building & Fencing		1259.0	1261.0	1328.9	1363.8	1408.7	1429.8	1462.3	1503.4	1551.8	1607.6	1689.4	1750.7
% Year Ago		-0.3	0.2	5.4	2.6	3.3	1.5	2.3	2.8	3.2	3.6	5.1	3.6
Farm Services & Cash													
Rent		1014.0	999.0	1033.4	1088.6	1061.9	1076.9	1102.1	1134.3	1176.0	1223.6	1281.6	1345.0
% Year Ago		0.0	-1.5	3.4	5.3	-2.4	1.4	2.3	2.9	3.7	4.0	4.7	4.9
Interest		3616.0	3538.4	3577.5	3671.2	3664.1	3652.4	3641.8	3709.3	3833.5	4034.1	4260.3	4482.5
% Year Ago		-10.5	-2.1	1.1	2.6	-0.2	-0.3	-0.3	1.9	3.3	5.2	5.6	5.2
Taxes		2165.0	2192.0	2254.1	2324.9	2383.7	2511.4	2645.8	2792.2	2941.0	3115.5	3296.6	3491.6
% Year Ago		1.1	1.2	2.8	3.1	2.5	5.4	5.3	5.5	5.3	5.9	5.8	5.9
Wage Rates		3049.0	3214.9	3374.0	3534.2	3712.4	3905.1	4109.3	4314.8	4539.2	4815.1	5106.6	5436.1
% Year Ago		3.9	5.4	5.0	4.7	5.0	5.2	5.2	5.0	5.4	5.8	6.1	6.5
Production Items, Interest, Taxes, & Wage Rates													
% Year Ago		-4.0	2.2	3.5	4.1	1.8	2.1	2.9	3.3	5.0	4.8	5.2	5.4
Family Living - CPI		1079.0	1117.8	1166.0	1219.8	1267.0	1320.6	1375.1	1431.3	1499.9	1576.3	1654.5	1733.3
% Year Ago		3.7	3.6	4.3	4.5	4.0	4.2	4.1	4.1	4.8	5.1	5.0	4.8

Table 2

Macro-Economic Assumptions

Prices Paid Forecast

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
PPI's (1967=100)												
Refined Petrol Prod.	405.17	431.34	460.53	490.4	482.5	501.79	521.7	538.57	601.55	646.04	702.52	740.83
Chemical & Allied Prod.	299.79	311.52	332.05	349.49	362.72	373.34	387.07	401.76	418.23	436.03	457.43	485.74
Natural Gas	1198.71	1036.88	1108.43	1233.7	1281.21	1488.47	1695.02	1917.1	2138.74	2364.95	2567.34	2740.35
Metals & Metal Prod.	311.21	323.15	344.09	351.37	360	365.5	367.54	374.1	382.96	393.67	412.07	426.44
Lumber & Wood Prod.	305.34	339.4	352.1	365.81	381.18	394.04	410.29	428.32	450.31	471.95	495.44	511.31
Transportation Equipment	275.99	282.15	295.37	311.56	322.9	334.84	349.32	367.6	385.52	406.25	427.91	457.7
Durable Manufacturing	300.81	310.94	323.12	338.82	318.18	322.93	331.05	340.3	351.52	364.18	379.09	396.53
PPI All Commodities	299.81	307.28	317.37	327.83	337.32	345.63	353.96	362.88	372.83	384.12	397.48	412.15
GNP Deflator (1972=100)												
Mining, Nonmetals Exc Fuel	111.15	117	122.45	128.97	136.01	138.45	140.76	143.58	147.36	151.85	156.99	164
Transportation, Railroad	109.6	113.72	118.54	124.32	130.68	132.77	134.3	135.3	137.91	142.02	147.47	154.1
Personal Consumption Deflator (1972=100)												
New Autos	113.7	117.67	122.96	128.33	134.36	138.24	143.92	150.38	157.45	164.95	172.83	181.05
New/used Trucks & RV's	115.41	118.1	123.03	129.28	134.42	138.21	143.5	149.61	156.33	163.61	171.36	179.7
Tires, Tubes & Acces.	94.1	94.92	96.51	98.61	100.83	104.13	107.96	112.2	117.05	122.42	128.15	134.53
CPI's (1967=100)												
All Items, Urban Cons.	328.4	340.32	355.18	371.44	386.29	402.78	419.59	436.9	458.01	481.53	505.64	529.88
Comp Per Emplo Per Week,												
Ag, Forest & Fish	120.46	127.08	133.43	139.82	146.93	154.62	162.73	170.97	180.32	190.93	202.56	215.71
Interest Rate Conventional												
Mortgage All Lenders	10.25	9.28	9.56	10.6	9.81	9.77	9.76	10.24	10.7	11.37	11.83	12.14
Indirect Business Tax												
Property Taxes	114.6	122.53	130.71	138.43	145.8	159.08	172.89	187.15	201.09	216.87	232.67	249.88

Table 3

Agricultural Assumptions

	Prices Paid Forecast											
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Farm Prices \$/bu.												
Wheat	2.4	2.44	2.39	2.45	2.51	2.59	2.69	2.64	2.51	2.56	2.76	2.76
Corn	1.54	1.65	1.73	1.81	1.81	1.75	1.74	1.75	1.74	1.91	2.06	2.06
Soybeans	4.75	4.91	4.99	5.4	5.27	5.18	5.24	5.42	5.52	5.7	5.73	5.73
Spot Prices												
Barrows & gilts, 7-City \$/cwt.	50.56	50.51	39.67	36.41	33.22	37.58	41.84	46.44	51.58	49.41	48.42	47.08
Steers, Feeder Kansas City, \$/cwt.	62.79	74.92	77.25	78.21	75.97	72.92	71.65	68.58	71.88	73.21	74.01	74.85
Soybean Meal 44% Protein, Decatur, \$/ton.	152.5	155.34	159.53	166.41	162.16	148.73	144.59	151.4	164.52	181.93	193	
Acres Planted, MIL.												
Wheat	72	65.1	62.8	63.9	62.7	66.7	70.4	70.8	71	70.9	71	70.5
Corn	76.7	67.6	64	65.5	65.6	69.7	69.7	69.3	69.2	68.6	68.4	68
Soybeans	61.5	57.9	58.2	59.9	62.2	63	63.5	64.2	65.2	66.5	67.6	68
Cotton	9.59	10	10.8	10.87	11.22	11.7	11.6	11.4	11.6	11.9	11.75	
VLAND Index	263	236	233	244	249	250	251	257	268	281	299	314
Regression VLAND	519	466	460	482	491	493	495	507	529	555	590	620

Table 4

Prices Paid Forecast

Adjustments

Cost of Production

CORN												
Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	16.82	17.00	17.51	18.06	18.71	19.27	19.85	20.50	21.32	22.29	23.58	24.95
Fertilizer	45.51	43.15	45.54	48.46	50.68	52.46	54.77	57.23	59.99	62.98	66.57	71.31
Lime and Gypsum	1.55	1.55	1.65	1.76	1.84	1.90	1.99	2.07	2.18	2.28	2.41	2.59
Chemicals	19.21	19.72	19.65	20.43	21.03	21.70	22.32	22.98	23.73	24.53	25.50	26.78
Custom Operations												
Wages	6.70	7.06	7.41	7.77	8.16	8.58	9.03	9.48	10.00	10.58	11.22	11.95
Fuel, Lube, and Electricity	9.52	9.98	10.44	10.99	11.27	11.66	12.25	12.86	13.98	14.91	15.92	16.58
Repairs	11.17	11.78	12.36	12.95	13.60	14.31	15.05	15.81	16.67	17.54	18.71	19.92
Purchased Irrigation Water	0.34	0.36	0.37	0.39	0.40	0.42	0.44	0.46	0.46	0.55	0.57	0.60
Drying	5.10	5.35	5.59	5.89	6.04	6.25	6.56	6.89	7.49	7.99	8.53	8.94
Miscellaneous	0.22	0.22	0.23	0.24	0.25	0.25	0.26	0.27	0.28	0.29	0.31	0.35
Technical Services	0.81	0.83	0.86	0.89	0.91	0.93	0.95	0.99	1.03	1.08	1.14	1.20
Labor	15.31	16.14	16.94	17.75	18.54	19.61	20.63	21.57	22.84	24.18	25.64	27.50
Total Variable Expenses	132.35	132.15	133.55	145.58	151.52	157.34	164.09	171.21	180.01	189.29	200.11	212.54
Interest	6.34	6.74	7.72	9.46	8.57	8.66	8.95	9.57	11.29	12.78	13.93	15.57
Total Variable Expenses												
Including Interest	138.70	138.90	146.28	155.04	160.19	166.00	173.04	180.77	191.30	202.07	214.03	228.21

Cost of Production

WHEAT

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	5.97	6.03	6.22	6.41	6.64	6.84	7.05	7.28	7.57	7.91	8.37	8.96
Fertilizer	14.30	13.56	14.31	15.23	15.93	16.49	17.21	17.98	18.85	19.79	20.92	22.41
fertile	0.53	0.50	0.53	0.56	0.59	0.61	0.64	0.67	0.70	0.73	0.78	0.83
Line and Gypsum												
Chemical	3.25	3.17	3.32	3.46	3.56	3.67	3.78	3.89	4.01	4.15	4.31	4.53
Custos Operations												
Wages	5.38	5.67	5.95	6.24	6.55	6.89	7.25	7.61	8.03	8.50	9.01	9.59
Fuel, Lube, and Electricity												
f&e	6.06	6.35	6.65	7.00	7.17	7.42	7.80	8.19	8.90	9.49	10.14	10.62
Repairs												
Wages	7.25	7.64	8.02	8.40	8.83	9.29	9.77	10.26	10.82	11.45	12.14	12.93
Purchased Irrigation Water												
Miscellaneous												
p.s.i.t.m	0.37	0.38	0.39	0.41	0.41	0.41	0.42	0.44	0.45	0.47	0.50	0.55
p.s.i.t.w	0.12	0.12	0.13	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.18
Technical Services												
Wages	10.10	10.65	11.19	11.71	12.30	12.94	13.61	14.29	15.07	15.95	16.92	18.01
Total Variable Expenses												
	53.65	54.42	57.05	59.91	62.49	65.10	68.08	71.20	75.04	79.13	83.91	89.06
Interest	2.57	2.78	3.18	3.89	3.58	3.58	3.71	3.98	4.71	5.34	5.93	6.57
Total Variable Expenses												
Including Interest	56.22	57.19	60.23	63.80	66.07	68.68	71.79	75.17	79.75	84.47	89.54	95.53

Cost of Production

SOYBEANS												
Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	8.54	8.63	8.99	9.17	9.50	9.78	10.08	10.41	10.82	11.32	11.97	12.57
Fertilizer	6.41	6.08	6.41	6.83	7.14	7.39	7.71	8.06	8.45	8.87	9.38	10.04
fertile	1.07	1.01	1.07	1.14	1.19	1.23	1.29	1.35	1.41	1.48	1.57	1.68
Line and Gypsum												
Chemicals	18.93	18.45	19.36	20.14	20.73	21.38	21.99	22.65	23.38	24.17	25.13	26.37
Custom Operations												
Wages	3.77	3.98	4.17	4.37	4.59	4.83	5.08	5.34	5.62	5.95	6.31	6.72
Fuel, Lube, and Electricity												
fuel	4.80	5.03	5.26	5.54	5.68	5.98	6.18	6.49	7.05	7.52	8.03	8.41
Repairs												
wages	6.52	6.87	7.22	7.56	7.94	8.35	8.79	9.23	9.73	10.30	10.92	11.52
Miscellaneous												
p,s,i,t,w	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.42	0.44	0.46	0.49
p,s,i,t,w	0.15	0.15	0.16	0.17	0.17	0.17	0.18	0.18	0.19	0.20	0.21	0.22
Technical Services												
Labor												
Total Variable Expenses	62.20	62.36	65.82	68.81	71.53	74.36	77.42	80.52	84.51	88.70	93.54	99.08
Interest	2.99	3.21	3.57	4.47	4.09	4.09	4.22	4.50	5.30	5.29	6.51	7.30
Total Variable Expenses												
Including Interest	65.18	65.06	65.49	73.28	75.62	78.45	81.64	85.13	89.81	94.59	100.05	106.33

Cost of Production

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Cost of Production

BARLEY-----

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	4.41	4.46	4.59	4.73	4.91	5.05	5.20	5.37	5.59	5.84	6.18	6.55
Fertilizer	13.43	12.73	13.44	14.30	14.96	15.48	16.16	16.89	17.70	18.58	19.64	21.04
Lime and Grpsew	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05
Chemicals	5.82	5.67	5.95	6.19	6.37	6.57	6.76	6.96	7.19	7.43	7.73	8.11
Custom Operations	3.04	3.21	3.36	3.52	3.70	3.89	4.10	4.30	4.54	4.80	5.09	5.42
Fuel, Lube, and Electricity	5.66	5.93	6.21	6.54	6.70	6.93	7.28	7.65	8.31	8.87	9.47	9.92
Repairs	8.88	9.36	9.83	10.29	10.81	11.37	11.97	12.57	13.25	14.02	14.87	15.83
Purchased Irrigation Water	1.57	1.65	1.72	1.81	1.86	1.92	2.02	2.12	2.31	2.46	2.63	2.75
Miscellaneous	0.67	0.68	0.71	0.74	0.75	0.77	0.79	0.81	0.86	0.90	0.94	0.99
p,s,i,t,w	0.13	0.13	0.14	0.14	0.15	0.15	0.15	0.16	0.17	0.17	0.18	0.19
Technical Services	10.18	10.73	11.27	11.80	12.39	13.04	13.72	14.41	15.19	16.08	17.05	18.15
Labor	53.92	54.59	57.24	50.11	62.63	65.22	68.19	71.28	75.14	79.20	83.83	89.01
Total Variable Expenses												
Interest	2.59	2.78	3.19	3.90	3.59	3.59	3.72	3.98	4.71	5.35	5.83	6.55
Total Variable Expenses												
Including Interest	56.40	57.38	60.43	64.01	66.21	68.91	71.90	75.26	79.85	84.55	89.67	95.57

Cost of Production

		JATG											
Crop	Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:													
Seed		5.88	5.94	6.12	6.31	6.54	6.74	6.94	7.17	7.45	7.79	8.24	8.73
Fertilizer	fertilize	9.56	9.06	9.57	10.19	10.65	11.02	11.50	12.02	12.60	13.23	13.98	14.98
Lime and Gypsum	fertilize	1.42	1.35	1.42	1.51	1.58	1.64	1.71	1.79	1.87	1.97	2.08	2.23
Chemicals	chemical	1.04	1.01	1.06	1.11	1.14	1.17	1.21	1.24	1.28	1.33	1.38	1.45
Custom Operations	wages	2.25	2.37	2.49	2.61	2.74	2.89	3.03	3.18	3.36	3.55	3.77	4.01
Fuel, Lube, and Electricity	fuel	3.85	4.04	4.22	4.45	4.56	4.72	4.95	5.20	5.66	6.03	6.44	6.75
Repairs	wages	5.43	5.73	6.01	6.29	6.61	6.95	7.32	7.58	8.10	8.59	9.09	9.68
Miscellaneous	p.s.i.t.w	0.93	0.95	0.98	1.02	1.04	1.06	1.09	1.13	1.19	1.25	1.31	1.38
Technical Services	p.s.i.t.w	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.09
Labor	wages	11.10	11.70	12.28	12.87	13.52	14.22	14.96	15.71	16.56	17.53	18.59	19.79
Total Variable Expenses		41.52	42.22	44.22	46.42	48.44	50.47	52.73	55.20	58.15	61.33	64.97	69.08
Interest		1.99	2.15	2.46	3.01	2.77	2.73	2.88	3.08	3.65	4.14	4.52	5.09
Total Variable Expenses													
Including Interest		43.51	44.37	46.69	49.43	51.21	53.35	55.66	58.28	61.80	65.47	69.49	74.17

Cost of Production

Cost of Production

CORN-Corn Belt

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	17.08	17.27	17.78	18.34	19.00	19.57	20.16	20.81	21.65	22.63	23.95	25.35
Fertilizer	49.40	46.84	49.43	52.61	55.02	56.95	59.45	62.12	65.12	68.36	72.26	77.41
Lime and Gypsum	1.40	1.33	1.40	1.49	1.56	1.51	1.68	1.76	1.85	1.94	2.05	2.19
Chemicals	19.95	19.44	20.40	21.22	21.84	22.53	23.18	23.87	24.64	25.48	26.48	27.81
Custom Operations	Wages	6.34	6.68	7.02	7.35	7.72	8.12	8.54	8.97	9.46	10.01	10.62
Fuel, Lube, and Electricity	f&e	6.06	6.35	6.65	7.00	7.17	7.42	7.80	8.19	8.60	9.49	10.14
Repairs	Wages	9.94	10.38	10.99	11.41	11.98	12.50	13.26	13.93	14.68	15.54	16.48
Drying	f&e	5.94	6.23	6.52	6.86	7.03	7.28	7.64	8.03	8.73	9.30	9.94
Miscellaneous	p,s,i,t,w	0.16	0.17	0.18	0.18	0.18	0.18	0.19	0.19	0.20	0.21	0.23
Technical Services	p,s,i,t,w	1.02	1.04	1.08	1.12	1.14	1.17	1.20	1.24	1.30	1.37	1.44
Labor	Wages	13.57	14.31	15.02	15.73	16.52	17.33	18.28	19.20	20.25	21.43	22.73
Total Variable Expenses		130.75	130.03	133.35	143.30	149.17	154.92	161.38	168.31	176.78	185.77	196.29
Interest		6.27	6.53	7.60	9.31	8.54	8.52	8.90	9.40	11.08	12.54	13.66
Total Variable Expenses		137.03	136.56	143.95	152.50	157.70	163.34	170.18	177.72	187.88	198.31	209.95
Including Interest												223.76

Total Variable Expenses
Including Interest

Cost of Production

WHEAT-Northern Plains (hard red spring)-----

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses												
Seed	6.18	6.25	6.43	6.63	6.87	7.08	7.29	7.53	7.83	8.19	8.66	9.17
Fertilizer	10.95	10.38	10.96	11.66	12.19	12.62	13.18	13.77	14.43	15.15	16.02	17.16
Lime and Gypsum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemicals	5.71	5.56	5.84	6.07	6.25	6.45	6.63	6.83	7.05	7.29	7.58	7.96
Custom Operations	2.02	2.13	2.24	2.34	2.46	2.59	2.72	2.86	3.01	3.19	3.38	3.60
Fuel, Lube, and Electricity	4.17	4.37	4.57	4.82	4.94	5.11	5.37	5.63	6.13	6.53	6.98	7.31
Repairs	7.06	7.44	7.81	8.18	8.60	9.04	9.51	9.99	10.53	11.15	11.82	12.59
Purchased Irrigation Water	0.22	0.34	0.35	0.37	0.38	0.39	0.41	0.43	0.47	0.50	0.54	0.56
Miscellaneous	0.20	0.21	0.21	0.22	0.23	0.23	0.24	0.25	0.26	0.27	0.28	0.30
Technical Services	0.23	0.24	0.24	0.25	0.26	0.26	0.27	0.28	0.29	0.31	0.32	0.34
Labor	8.99	9.48	9.95	10.42	10.95	11.51	12.11	12.72	13.41	14.20	15.06	16.03
Total Variable Expenses	45.73	46.40	48.51	50.98	53.12	55.29	57.74	60.30	63.43	66.78	70.64	75.02
Interest	2.19	2.37	2.71	3.31	3.04	3.04	3.15	3.37	3.98	4.51	4.92	5.53
Total Variable Expenses												
Including Interest	47.92	48.76	51.32	54.29	56.16	58.34	60.89	63.67	67.41	71.29	75.56	80.55

Cost of Production

WHEAT-Central Plains-----

Cost of Production

WHEAT-Southern Plains-----

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	5.30	5.36	5.52	5.69	5.90	6.07	6.25	6.46	6.72	7.02	7.43	7.87
Fertilizer	11.53	11.03	11.64	12.38	12.95	13.41	14.00	14.63	15.33	16.09	17.01	18.22
fertile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lime and Gypsum												
Chemicals	1.95	1.90	1.99	2.07	2.14	2.20	2.27	2.33	2.41	2.49	2.59	2.72
Custea Operations												
Wages	6.15	6.48	6.81	7.13	7.49	7.88	8.29	8.70	9.18	9.71	10.30	10.97
Fuel, Lube, and Electricity												
the	8.53	8.98	9.39	9.88	10.13	10.49	11.01	11.57	12.57	13.41	14.32	15.00
Repairs												
Wages	6.97	7.35	7.71	8.08	8.49	8.93	9.39	9.86	10.40	11.01	11.67	12.43
Purchased Irrigation Water												
the	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous												
p,s,i,t,w	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
p,s,i,t,w	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wages	9.51	10.13	10.53	11.14	11.70	12.31	12.95	13.60	14.34	15.18	16.10	17.13
Total Variable Expenses												
	50.18	51.24	53.70	56.39	58.80	61.29	64.17	67.16	70.96	74.92	79.43	81.35
Interest												
	2.40	2.61	2.99	3.66	3.36	3.37	3.50	3.75	4.45	5.06	5.53	6.22
Total Variable Expenses												
Including Interest												
	52.58	53.85	56.69	60.05	62.17	64.67	67.67	70.91	75.41	79.98	84.96	90.57

Cost of Production

SUBGENUS - Southern Plains-----

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	4.31	4.36	4.49	4.63	4.79	4.94	5.09	5.25	5.46	5.71	6.04	6.40
Fertilizer	17.98	17.05	17.99	19.15	20.02	20.73	21.64	22.61	23.70	24.88	26.30	28.17
Line and Gypsum	0.21	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.28	0.29	0.31	0.33
Chemicals	7.76	7.55	7.94	8.25	8.50	8.77	9.02	9.28	9.58	9.91	10.30	10.92
Custom Operations	4.85	5.11	5.37	5.62	5.91	6.21	6.54	6.86	7.24	7.66	8.12	8.65
Fuel, Lube, and Electricity	12.78	13.40	14.02	14.76	15.13	15.56	16.44	17.27	18.77	20.02	21.38	22.39
Repairs	10.08	10.63	11.15	11.63	12.27	12.91	13.58	14.27	15.04	15.92	16.88	17.97
Purchased Irrigation Water	0.49	0.51	0.54	0.57	0.58	0.60	0.63	0.66	0.72	0.77	0.82	0.85
Drying	0.14	0.15	0.15	0.16	0.17	0.17	0.18	0.19	0.21	0.22	0.23	0.25
Miscellaneous	0.511.0	0.41	0.42	0.43	0.45	0.46	0.47	0.48	0.50	0.52	0.55	0.61
Technical Services	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.11	0.12
Labor	15.41	16.25	17.05	17.93	18.76	19.74	20.76	21.91	22.99	24.34	25.91	27.48
Total Variable Expenses	74.50	75.72	77.43	83.45	96.91	99.52	94.70	99.06	104.52	110.37	116.89	124.04
Interest	3.57	3.86	4.43	5.42	4.97	4.98	5.16	5.54	6.56	7.45	8.14	9.14

Cost of Production

SORGHILL-Central Plains-----

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	3.62	3.66	3.77	3.89	4.03	4.15	4.27	4.41	4.59	4.80	5.08	5.37
fertilize	17.77	16.85	17.78	18.92	19.79	20.49	21.38	22.35	23.42	24.59	25.99	27.85
Fertilizer												
Line and Gypsum	1.07	1.01	1.07	1.14	1.19	1.23	1.29	1.35	1.41	1.48	1.57	1.68
Chemicals	10.29	10.03	10.52	10.95	11.27	11.52	11.96	12.31	12.71	13.14	13.66	14.34
Custom Operations												
Wages	2.48	2.61	2.74	2.97	3.02	3.18	3.34	3.51	3.70	3.92	4.15	4.42
fuel, Lube, and Electricity												
f&e	9.25	9.70	10.15	10.68	10.95	11.33	11.90	12.50	13.59	14.49	15.47	16.21
Wages	10.05	10.60	11.12	11.55	12.24	12.87	13.54	14.22	14.99	15.87	16.83	17.92
Repairs												
Purchased Irrigation Water												
f&e	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.14	0.15	0.16
Driving												
p,s,i,t,w	0.13	0.13	0.14	0.14	0.15	0.15	0.15	0.16	0.17	0.17	0.18	0.19
p,s,i,t,w	0.22	0.22	0.23	0.24	0.25	0.25	0.25	0.26	0.27	0.28	0.29	0.31
Wages	12.55	13.23	13.99	14.55	15.28	16.07	16.91	17.75	18.75	19.92	21.02	22.38
Total Variable Expenses	68.33	68.99	72.40	76.07	79.22	82.45	86.16	90.05	94.91	99.98	105.77	112.26
Interest												
Total Variable Expenses	3.27	3.52	4.03	4.94	4.53	4.54	4.70	5.03	5.95	6.75	7.36	8.29
Including Interest	71.60	72.51	76.44	81.01	83.75	86.99	90.86	95.08	100.86	106.73	113.13	120.54

Cost of Production

BARLEY-North West

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	5.97	6.03	6.22	6.41	6.64	6.94	7.05	7.28	7.57	7.91	8.37	8.86
Fertilizer	16.03	15.20	16.04	17.07	17.85	18.48	19.29	20.16	21.13	22.18	23.45	25.12
Lime and Gypsum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemicals	7.51	7.32	7.58	7.99	8.22	8.48	8.73	9.07	9.28	9.59	9.97	10.47
Custom Operations	3.55	3.72	3.91	4.09	4.30	4.52	4.76	5.00	5.27	5.57	5.91	6.29
Fuel, Lube, and Electricity	8.66	9.08	9.50	10.00	10.25	10.61	11.14	11.70	12.72	13.56	14.49	15.17
Repairs	12.70	13.39	14.05	14.72	15.46	16.27	17.11	17.97	18.95	20.06	21.27	22.54
Purchased Irrigation Water	2.86	3.00	3.14	3.30	3.39	3.50	3.68	3.86	4.20	4.48	4.78	5.01
Miscellaneous	0.61	0.62	0.65	0.67	0.68	0.70	0.72	0.74	0.78	0.82	0.86	0.91
Technical Services	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.10
Labor	12.52	13.31	13.97	14.63	15.37	16.16	17.00	17.86	18.83	19.83	21.14	22.50
Total Variable Expenses	70.55	71.74	75.22	78.95	82.24	85.64	89.56	93.64	98.31	104.20	110.33	117.08
Interest	3.38	3.66	4.19	5.13	4.71	4.71	4.88	5.23	6.20	7.03	7.68	8.53
Total Variable Expenses												
Including Interest	73.94	75.40	79.41	84.09	86.95	90.36	94.44	98.87	105.01	111.23	118.01	125.71

Cost of Production

BARLEY-Northern Plains-----

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	3.66	3.70	3.81	3.93	4.07	4.19	4.32	4.46	4.64	4.85	5.13	5.43
fertilize	12.27	11.63	12.28	13.07	13.66	14.14	14.77	15.43	16.17	16.98	17.95	19.23
lime and gypsum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
chemicals	5.37	5.23	5.49	5.71	5.88	6.07	6.24	6.42	6.63	6.86	7.13	7.49
Custom Operations	1.51	1.70	1.78	1.87	1.96	2.06	2.17	2.29	2.40	2.54	2.70	2.97
Fuel, Lube, and Electricity	3.74	3.92	4.10	4.32	4.43	4.58	4.81	5.05	5.49	5.86	6.26	6.55
Repairs	7.55	7.96	8.35	8.75	9.19	9.67	10.17	10.68	11.26	11.92	12.55	13.46
Purchased Irrigation Water	0.30	0.31	0.33	0.35	0.36	0.37	0.39	0.41	0.44	0.47	0.50	0.53
Miscellaneous	0.20	0.20	0.21	0.22	0.22	0.23	0.24	0.24	0.26	0.27	0.28	0.30
Technical Services	0.13	0.13	0.14	0.14	0.15	0.15	0.15	0.16	0.17	0.17	0.18	0.19
Labor	8.87	9.35	9.32	10.23	10.30	11.36	11.95	12.55	13.25	14.01	14.86	15.31
Total Variable Expenses	43.70	44.15	46.31	48.34	50.72	52.92	55.20	57.59	60.70	63.93	67.53	71.86
Interest	2.09	2.25	2.58	3.16	2.90	2.91	3.01	3.22	3.61	4.32	4.71	5.30
Total Variable Expenses	45.79	46.40	48.89	51.50	53.72	55.77	59.81	64.31	68.01	74.51	77.37	77.16

Cost of Production

DAT'S- Corn Belt

Crop Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cash Expenses:												
Seed	6.57	6.64	6.84	7.05	7.31	7.53	7.75	8.01	8.33	8.71	9.21	9.75
Fertilizer	10.17	9.64	10.18	10.83	11.33	11.72	12.24	12.79	13.41	14.07	14.88	15.94
Lime and Gypsum	1.56	1.48	1.56	1.66	1.74	1.80	1.88	1.96	2.06	2.16	2.28	2.44
Chemicals	0.96	0.94	0.98	1.02	1.05	1.08	1.12	1.15	1.19	1.23	1.27	1.34
Custom Operations	2.49	2.63	2.76	2.89	3.03	3.19	3.36	3.52	3.72	3.93	4.17	4.44
Fuel, Lube, and Electricity	4.15	4.35	4.55	4.79	4.91	5.08	5.34	5.61	6.10	6.50	6.94	7.27
Repairs	5.11	5.39	5.55	5.92	6.22	6.54	6.89	7.23	7.62	8.07	8.56	9.11
Miscellaneous	1.30	1.33	1.39	1.43	1.46	1.49	1.53	1.58	1.66	1.74	1.83	1.93
Technical Services	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.10
Labor	11.93	12.58	13.20	13.83	14.53	15.28	16.08	16.88	17.80	18.84	19.98	21.27
Total Variable Expenses	44.31	45.04	47.17	49.51	51.65	53.80	56.25	58.82	61.96	65.34	69.22	73.50
Interest	2.12	2.30	2.63	3.22	2.96	3.07	3.29	3.38	4.41	4.82	5.43	

**Total Variable Expenses
Including Interest**

46.43 47.34 49.50 52.72 54.61 56.76 59.32 62.10 65.85 69.75 74.04 79.02

Cost of Production

BOTS- Northern Plains-----

