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EVALUATION OF FORECASTS FROM THE ANNUAL AAEA OUTLOOK SURVEY[1]

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Since 1978, the AAEA has sponsored a survey of its membership concerning their judgment about the outlook for key economic variables for the coming year. The surveys were mailed out in late June or early July with deadlines set for about the third week in July. The forecasts have applied to the balance of the current and subsequent calendar years on livestock and the upcoming season on crops. Farm income and macro-economic variables have also been forecast for the current and subsequent calendar years.

We now have a record of forecasts on livestock, farm income, and macro-economic variables covering six years and crop forecasts covering seven years. This would appear to be enough information to begin to evaluate the accuracy of the forecasts, although not enough years are available to thoroughly test this technique.

The respondents to the survey have numbered around 50-65 each year and have included representatives of industry, government, and universities. Most respondents have major or moderate outlook responsibilities.

This evaluation focused on the forecasts for the coming crop or calendar year and did not include forecasts for the balance of the calendar year of the survey. Tables 1-3 present the year-by-year forecasts and the actual values. Livestock production forecasts are in terms of percent changes from the previous year. This has also been the case for the selected economic variables in

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Table 3, although since 1982, the forecasts of cash receipts and farm income have been the absolute values themselves. The forecasts for 1982 to date were converted to percent changes in Table 3.

Using the data in Tables 1-3, calculations were made of the mean absolute error, mean error, root mean squared error, and root mean squared percentage error as presented in Table 4. Since livestock production and the selected economic variables were in terms of percents of the previous year, the root mean squared percentage error was not calculated on those items.

The mean absolute error is simply the mean of the difference between the forecast and the actual value without regard to sign. The mean error is the average with regard to sign, indicating any bias in the forecasts. The root mean squared error (RMSE) is commonly used to evaluate predictive accuracy. Calculating RMSE as a percent of the average value of the variable being predicted provides a base for comparison of predictions from one item to another.

The root mean squared percentage error (RMSPE) has been the lowest on wheat variables. This is understandable since the crop size and harvest prices are well known at the time the survey is taken. The RMSPE on livestock prices ranged from about 7 to 15 percent and averaged around 15 percent on corn, cotton, and soybean prices. The RMSPE was relatively low at 5 percent on wheat with the highest error at 20.5 percent on soybean oil.

The RMSPE was relatively high on ending stocks, partially because of the fact that stock levels were low in some of the forecast years. A given percent error in predicting the size of the crop translates into a much larger percentage error in ending stocks.

Some bias is noted in the forecasts, particularly in overestimating cattle prices, net farm income, and food prices. Otherwise, the level of bias was relatively low.

Root Mean Square Percentage Errors

To provide a more comprehensive evaluation of the forecasts, RMSPE comparisons were made with other sources--the USDA, major econometric models, futures markets, and a naive model which assumes no change from the year before. Available forecasts are presented in Table 5. Until all the econometric models have submitted their data, no mean of their RMSPE values will be published. Footnote "c" in Table 5 explains how forecasts of cash prices were derived from futures prices.

In Tables 1, 3, and 4, forecasts of livestock production and selected economic variables were in terms of the percent changes from the year before. In Table 5, the absolute values of the variables were derived from the percent changes by the following procedure. The USDA estimates and partial forecasts of these variables for the current year, available in July (when the survey was taken) were used as a base. These estimates were multiplied by the forecasts of the absolute values for the coming year. The reason for this processing of the forecasts from the survey was to make them comparable to forecasts from other sources.

Note in Table 5 that when the livestock forecasts were put into absolute values, the RMSPE figures were near the root mean squared errors of the percentage changes as given in Table 4. The RMSPE errors ranged from a low of 2.5 on egg production to a high of 6.6 on pork production.

While those forecasting egg production seemed to be doing the most effective job among the livestock analysts, their task was somewhat less challenging as measured by the RMSPE on the naive forecasts. The RMSPEs of the livestock production forecasts from the survey were below the RMSPEs from the naive model except on eggs.

The naive error term provides a standard for measuring how difficult a task the forecaster faces. If the variable being forecast fluctuates widely

from year-to-year, the RMSPE of the naive model will be relatively high; if the volatility is low, the RMSPE of the naive model will be low.

The outlook survey respondents performed very well on hog prices, but not on cattle and broilers. They generated much more accurate forecasts on crop production than the naive model--not surprising considering that information is available on crop conditions at the time of the survey. Overall, the forecast accuracy on crop supply and exports was closely aligned with that of the USDA.

The RMSPE values of the AAEA survey forecasts were lowest on corn prices compared to the USDA, futures and the naive model and second to the USDA on wheat prices. On soybeans, the survey forecast error was very close to that of the USDA and futures and clearly below the naive model. The survey, USDA and futures all had RMSPE errors over 20 percent on soybean oil compared to the naive model's 17.6. On meal prices, the USDA's error was lowest, followed by futures, the survey and the naive model.

Among the other economic variables, the error on net farm income seemed abnormally high. This may be due, in part, to revisions made to the estimates by the USDA.

The use of the combination of futures prices adjusted for lagged basis values in forecasting ~~high~~ cash prices performed more effectively than might have been expected. The RMSPE from futures was lower than on the survey forecasts in half of the commodities analyzed. Just and Rausser also found that forecasts from futures compared favorably with those from major econometric models.[2] Their analysis applied to quarterly forecasts over the relatively short period of 1976-78.

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[2]Just, Richard E. and Gordon Rausser, "Commodity Price Forecasting with Large-Scale Econometric Models and the Futures Market," AJAE, May 1981.

Turning Point Errors

An important criterion for evaluating forecasts is the frequency of turning point errors. The key question for many decisions is the prospective direction of change rather than how much the change will be. Since the naive model forecasts no change it is useless as a model for indicating direction except when change from the previous year is used as the forecast for the coming year. On land values, real GNP, CPI, and CPI on Food, the evaluation of the naive model was based on next year's change being the same as last year's change. On variables such as these, with strong underlying trends, the naive model does well in indicating direction.

The number of turning point errors from the seven years of forecasts from the AAEA survey is shown in Table 6. If a forecast of no change is evaluated as a .5 turning point error, the survey forecasts must have 3 turning point errors or less out of 7 to out-score the naive model (except on land values, real GNP, CPI and CPI on food).

The survey performance in predicting the direction of change on livestock production was excellent except on eggs. Only 1 turning point error out of seven years was observed for beef, pork and broiler production. Curiously enough, the survey predicted the direction of egg prices in every year even though there were 5 turning point errors on egg production. The problem in forecasting beef demand is evident in cattle prices. Increases were predicted in every year for Choice steer prices, yet prices fell in 4 of those years.

On crops, the major challenge seemed to be forecasting the direction of change in corn and soybean exports. The performance was very good in predicting the direction of change in crop production except on corn where 3 turning point errors were made. Except on cotton, the few errors were made in calling the direction of change in ending stocks.

On crop prices, only on soybean oil did the survey score lower than the naive model. Soybean prices also were something of a challenge with 3 turning point errors.

The survey was just under the 50 percent mark on cash receipts from livestock and net farm income. Both the survey and the naive model correctly predicted the direction of change in the CPI and the CPI on food, not a major accomplishment in that these indices increased each year. On land values, the survey had 2 TPEs versus 1 TPE for the naive model. On real GNP, the survey registered 2 TPEs versus the naive model's 4 TPEs.

The total turning point errors for the survey are presented in Table 6. Out of 34 items predicted over the seven year period, 27 involved turning point errors of 3 or less. If the 4 items for which the naive model forecast direction of change were excluded, the survey out-scored the naive model on 23 items out of 30--more than a 3 to 1 edge.

Compared with the USDA's crop forecasts made in mid July, the survey performance was somewhat better. Out of 17 items forecast by both the survey and the USDA, the survey had fewer turning point errors on 9, more on 3 and the same on 5.

Evaluating turning point errors on futures relative to the survey was somewhat difficult and arbitrary since the futures market, in several instances, predicted little change. If the direction, including the prediction for basis, was strictly applied, the performance of futures was very close to that of the survey. Of the 8 prices forecast by both sources, the survey had the fewer turning point errors on 3 prices, more on 2 and the same on 3.

Conclusions

The accuracy of forecasts generated by the AAEA outlook survey over the 1978-84 period was generally higher than the naive model and on par with USDA

forecasts of crop supply, exports and prices and futures markets forecasts of both crop and livestock prices. The degree of error in the forecasts implies that agriculture, agribusiness, and the food industry, in general, need to give close attention to risk management. Outlook analysts have a difficult time bringing the root mean squared percentage error down much below 15 percent on crop price forecasts and 7-10 percent on livestock price forecasts for the year ahead.

This analysis of the survey results can provide a standard for measuring performance of existing and future forecasting efforts. While prediction errors will remain, it appears that there is room for improvement.

Table 1. Comparison Between AAEA Outlook Survey Forecasts (F) on Livestock and Actual Values (A)

		Unit	Year 1979	1980	1981	1982	1983	1984	1985
Livestock Production			Percent Change From Previous Year						
Beef	F	%	- 4.1	- 3.0	+ 1.2	+ 2.3	+ 1.8	+ .6	- 1.4
	A	%	-11.5	+ .9	+ 3.4	+ .6	+ 3.1	+ 1.5	
Pork	F	%	+ 5.8	+ 2.7	- 8.1	- 3.2	+ .5	+ 4.0	- .3
	A	%	+15.4	+ 7.5	- 4.5	-10.4	+ 6.8	- 2.5	
Broilers	F	%	+ 6.4	+ 4.2	- .2	+ 3.1	+ 2.5	+ 2.0	+ 3.1
	A	%	+10.5	+ 1.5	+ 5.6	+ 1.5	+ 1.9	+ 4.9	
Eggs	F	%	- .1	+ .3	- 2.0	+ .1	+ .2	- .7	+ 2.1
	A	%	+ 3.0	+ .5	+ .2	- .2	- 2.5	+ .8	
Livestock Prices									
Steers, Cho., Omaha	F	$/cwt	59.02	72.98	73.32	70.93	67.50	65.79	69.64
	A	$/cwt	67.75	66.96	63.84	64.22	62.37	65.34	
Feeder Steers, Choice, KC	F	$/cwt	-	83.69	83.82	73.89	69.15	68.30	70.92
	A	$/cwt	-	75.23	66.24	64.82	63.70	65.28	
Barrows and gilts, 7 markets	F	$/cwt	44.65	42.01	44.64	52.21	52.36	44.87	53.03
	A	$/cwt	42.48	40.04	44.45	55.44	47.71	48.86	
Broilers, 12 city ave.[a]	F	¢/lb	44.6	44.5	46.7	52.4	48.0	46.4	54.1
	A	¢/lb	44.4	46.8	46.3	44.0	49.4	55.6	
Eggs, NY Grade A Large	F	¢/doz	62.4	66.4	66.9	73.2	75.5	73.5	73.1
	A	¢/doz	68.8	66.9	73.2	70.1	75.2	80.9	

[a] 9 city average prior to 1984.

Table 2. Comparison Between AAEA Outlook Survey Forecasts (F) on Crops and Actual Values (A)

		Unit	Crop Year 1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Wheat									
Production	F	mil bu	1808	2009	2249	2671	2704	2352	2503
	A	mil bu	1776	2134	2381	2785	2765	2420	2595
Exports	F	mil bu	1096	1262	1289	1545	1707	1446	1398
	A	mil bu	1194	1375	1514	1771	1509	1429	1424
Stocks	F	mil bu	1082	838	1051	1180	1256	1509	1439
	A	mil bu	924	902	989	1159	1515	1399	1424
Corn									
Production	F	mil bu	6114	6648	7288	7368	7645	6170	7811
	A	mil bu	7268	7928	6395	8119	8235	4175	7656
Exports	F	mil bu	1655	2197	2419	2411	2276	2029	1994
	A	mil bu	2133	2423	2355	1967	1870	1865	1950[p]
Stocks	F	mil bu	1108	1024	1497	901	2123	2119	1185
	A	mil bu	1304	1617	1034	2171	3120	723	1232[p]
Cotton									
Production	F	mil bls	11.83	13.28	13.83	13.83	11.24	8.80	11.70
	A	mil bls	10.86	14.63	11.12	15.65	11.96	7.78	12.96
Exports	F	mil bls	4.61	6.03	7.53	6.96	7.15	5.60	5.70
	A	mil bls	6.18	9.23	5.93	6.57	5.21	6.79	6.48[p]
Stocks	F	mil bls	6.40	5.32	3.45	3.26	5.20	5.40	3.20
	A	mil bls	3.96	3.00	2.67	6.63	7.94	2.78	4.00[p]
Soybeans									
Production	F	mil bu	1786	1995	2038	2020	2129	2026	2057
	A	mil bu	1869	2261	1798	1989	2190	1636	1861
Exports	F	mil bu	691	827	857	821	919	928	831
	A	mil bu	739	875	724	929	905	740	645[p]
Stocks	F	mil bu	204	194	350	306	330	312	214
	A	mil bu	176	358	313	254	345	176	285[p]
Wheat Price[a]	F	$/bu	2.93	3.88	4.16	4.19	4.03	3.60	3.46
	A	$/bu	2.97	4.25	4.45	4.27	3.94	3.53	3.38
Corn Price[a]	F	$/bu	2.24	2.74	2.83	3.41	2.82	2.85	2.77
	A	$/bu	2.25	2.81	3.36	2.62	2.98	3.25	2.65[p]
Cotton Price[b]	F	$/lb	53.6	56.6	71.6	76.3	75.8	67.6	68.2
	A	$/lb	58.1	71.5	83.0	60.5	63.1	73.1	60.4[p]

			Crop Year						
		Unit	1978 -79	1979 -80	1980 -81	1981 -82	1982 -83	1983 -84	1984 -85
Soybean Price[a]	F	$/bu	5.90	7.19	6.71	7.53	6.41	6.28	6.66$_p$
	A	$/bu	6.66	6.46	7.59	6.24	6.11	7.81	5.85^p
Soybean Oil Price, Decatur Illinois	F	¢/lb	24.3	26.8	24.5	24.5	20.8	20.2	25.7$_p$
	A	¢/lb	27.4	24.3	22.8	19.0	20.6	30.6	31.0^p
Soybean Meal Price, Decatur Illinois	F	$/T	171	197	184	219	188	193	181$_p$
	A	$/T	190	182	218	183	187	188	122^p

p = preliminary.

[a]Predictions for 1978-79, 1983-84 and 1984-85 were for the average price received by farmers. In the crop years from 1979-80 to 1982-83, the prices forecast were No. 1 hard red winter wheat at KC, No. 2 yellow corn at Chicago and No. 1 yellow soybeans at Chicago.

[b]Predictions were for farm prices in 1978-79 and U.S., SLM, $1\frac{1}{16}$ inch, in designated U.S. markets for the years since.

Table 3 . Comparison Between AAEA Outlook Survey Forecasts (F) on Selected Economic Variables and the Actual Values (A)

		Unit	Year						
			1979	1980	1981	1982	1983	1984	1985
Cash Receipts From Marketings			Percent Change from Previous Year						
Crops	F	%	+ 4.6	+ 6.3	+ 7.3	+ 6.2	+ 3.3	+ 4.6	+ 2.2
	A	%	+17.7	+15.0	+ .8	+ 1.8	- 6.8	- .7	
Livestock	F	%	+ 8.9	+ 6.9	+ 9.8	+ 8.3	+ 2.9	+ 2.3	+ 1.8
	A	%	+15.9	- 1.2	+ 2.1	+ 1.3	- 1.3	+ 5.5	
Net Farm Income, Realized	F	%	+ 3.3	+ 1.7	+13.3	+13.5	+14.4	+ 3.9	-13.3
	A	%	+ 1.9	- 2.6	-13.5	+ 7.8	+11.6	- 4.7	
Land Values, Apr. 1	F	%	+ 8.3	+11.7	+ 7.9	+ 8.1	- .9	+ 3.2	- .9
	A	%	+18.3	+15.4	+ 9.7	- .8	- .1	- .8	-12.0
Real GNP, 1972 $	F	%	+ 2.9	+ 1.4	+ 1.9	+ 3.4	+ 3.4	+ 3.9	+ 3.6
	A	%	+ 5.0	+ 2.8	- .3	+ 2.5	- 2.1	+ 3.7	+ 6.8
CPI, All Items	F	%	+ 7.1	+ 8.2	+10.0	+ 8.7	+ 6.4	+ 5.3	+ 6.0
	A	%	+11.3	+13.5	+10.4	+ 6.1	+ 3.2	+ 4.3	
CPI, Food	F	%	+ 7.7	+ 7.8	+10.5	+ 9.0	+ 6.6	+ 4.9	+ 4.9
	A	%	+10.8	+ 8.6	+ 7.9	+ 4.0	+ 2.1	+ 3.8	

Table 4. Statistical Evaluation of the AAEA Outlook Survey Forecasts, 6 Calendar Years of 1979-84 on Livestock and 7 Crop Years of 1978-79 to 1984-85 on Crops

	Unit	Mean Absolute Error	Mean Error[a]	Root Mean Squared Error	Root Mean Squared Percentage Error
Livestock Production	% Prev. Yr.				
Beef	% Prev. Yr.	2.9	-.1	3.7	-
Pork	% Prev. Yr.	6.4	-1.8	6.6	-
Broilers	% Prev. Yr.	2.9	1.3	3.4	-
Eggs	% Prev. Yr.	1.7	.7	2.0	-
Livestock Prices					
Steers, Choice Omaha	$/cwt.	6.09	-3.18	6.76	10.4
Feeder Steers, KC	$/cwt.	8.72	-8.72	10.02	14.9
Barrows and Gilts, 7 Markets	$/cwt.	2.70	- .29	3.07	6.6
Broilers	¢/lb.	3.6	.7	5.2	10.9
Eggs	¢/doz.	4.0	2.9	4.9	6.8
Crop Supply and Exports					
Wheat					
Production	mil. bu.	89	80	96	4.0
Exports	mil. bu.	129	68	153	10.5
Ending Stocks	mil. bu.	98	-6	127	10.7
Corn					
Production	mil. bu.	974	105	1114	15.7
Exports	mil. bu.	261	-60	310	14.9
Ending Stocks	mil. bu.	709	178	859	53.7
Cotton					
Production	mil. bls.	1.41	.06	1.54	12.7
Exports	mil. bls.	1.52	.40	1.74	26.2
Ending Stocks	mil. bls.	2.15	-.18	2.34	52.9
Soybeans					
Production	mil. bu.	181	-64	217	11.2
Exports	mil. bu.	104	-45	122	15.3
Ending Stocks	mil. bu.	72	*	89	32.7
Crop Prices					
Wheat	$/bu.	.15	.08	.19	4.9
Corn	$/bu.	.30	.04	.40	14.0
Cotton	¢/lb.	10.4	*	11.2	16.7
Soybeans	$/bu.	.90	*	.97	14.6
Soybean oil, Decatur	¢/lb.	4.1	1.3	5.1	20.5
Soybean meal, Decatur	$/T	24.1	-9.0	30.6	16.9
Other Economic Variables					
Cash Receipts from Marketings					
Crops	% Prev. Yr.	8.0	-.8	8.6	-
Livestock	% Prev. Yr.	6.1	-2.7	6.3	-
Net Farm Income	% Prev. Yr.	8.2	-8.2	11.9	-
Price of Farm Land	% Prev. Yr.	4.8	.6	5.9	-
Real GNP (1972 $)	% Prev. Yr.	1.9	-.5	2.7	-
Consumer Price Index	% Prev. Yr.	2.8	.5	3.3	-
Consumer Price Index on Food	% Prev. Yr.	2.9	-2.3	3.3	-

[a]Actual value minus predicted value. * = negligible.

Table 5. Comparison Between the AAEA Outlook Survey Forecasts and Selected Other Sources of Agricultural Forecasts, 1978-84, as Measured by Root Mean Squared Percentage Errors (RMSPE)

	Unit	AAEA Outlook Survey		USDA[a]		Major Econometric Models[b]		Futures[c]		Naive Model[d]	
		N	RMSPE	N	RMSPE	N	RMSPE	N	RMSPE	N	RMSPE
Livestock Production											
Beef	mil. lbs.	6	3.9							6	5.5
Pork	mil. lbs.	6	6.6							6	8.4
Broilers	mil. lbs.	6	4.4							6	4.8
Eggs	mil. lbs.	6	2.5							6	1.6
Livestock Prices											
Steers, Choice Omaha	$/cwt.	6	10.4					6	9.8	6	10.1
Feeder Steers, KC	$/cwt.	5	14.9					5	8.8	5	8.1
Barrows and Gilts, 7 Markets	$/cwt.	6	6.6					6	7.1	6	13.7
Broilers	¢/lb.	6	10.9							6	7.6
Eggs	¢/doz.	6	6.8							6	7.0
Crop Supply and Exports											
Wheat											
Production	mil. bu.	7	4.0	7	1.9					7	11.9
Exports	mil. bu.	7	10.5	7	8.2					7	11.5
Ending Stocks	mil. bu.	7	10.5	7	12.7					7	15.7
Corn											
Production	mil. bu.	7	15.7	7	16.0					7	31.4
Exports	mil. bu.	7	14.9	7	15.8					7	9.8
Ending Stocks	mil. bu.	7	53.7	7	57.8					7	69.5
Cotton											
Production	mil. bls.	7	12.7	7	13.3					7	33.8
Exports	mil. bls.	7	26.2	7	24.2					7	28.8
Ending Stocks	mil. bls.	7	52.9	7	50.2					7	59.5
Soybeans											
Production	mil. bu.	7	11.2	7	9.4					7	17.5
Exports	mil. bu.	7	15.3	7	15.1					7	16.6
Ending Stocks	mil. bu.	7	32.7	7	24.9					7	41.1
Crop Prices											
Wheat	$/bu.	7	4.9	7	3.5			7	6.3	7	11.6
Corn	$/bu.	7	14.0	7	14.7			7	16.4	7	17.4-16.1[e]
Cotton	¢/lb.	7	16.7	-	-			-	-	7	14.6-18.4[e]
Soybeans	$/bu.	7	14.6	7	14.2			7	14.1	7	21.0-18.1[e]
Soybean oil, Decatur	¢/lb.	7	20.5	7	20.5			7	21.1	7	17.6
Soybean meal, Decatur	$/T	7	16.9	7	15.1			7	16.2	7	18.2
Other Economic Variables											
Cash Receipts from Marketings											
Crops	bil. $	6	4.0							6	8.4
Livestock	bil. $	6	12.1							6	6.1
Net Farm Income	bil. $	6	17.3[f]							6	8.1[f]
Price of Farm Land	% change	6	4.8[f]							6	5.6[f]
Real GNP (1972 $)	% change	6	1.9[f]							6	3.8[f]
Consumer Price Index	% change	6	2.8[f]							6	3.0[f]
Consumer Price Index on Food	% change	6	3.3[f]							6	2.2[f]

N = number of observations. RMSPE = root mean squared percentage errors.

[a]USDA forecasts as published in the August Agricutural Outlook. Forecasts represent information available from the July Crop Production Report.

[b]Results will be averaged for 4 models when all the data is received.

[c]Closing futures prices on the Chicago Board of Trade and the Chicago Mercantile Exchange were averaged for the first 3 Wednesdays in July. On crops, all the new crop months were included. On livestock, all the contracts available for the following calendar year were averaged. The average "basis" (futures less cash) in the contract months for the previous year was used as a proxy for expected basis. This basis was subtracted from futures prices to derive a forecast of cash prices.

[d]Values for the succeeding year were assumed to be the same as the current year.

[e]The first number relates to farm prices and the second to terminal prices.

[f]Root mean squared error.

Table 6. Number of Turning Point Errors (TPE) in Seven Years of Forecasts From the Annual AAEA Outlook Survey [a]

LIVESTOCK		CROPS		SELECTED ECONOMIC VARIABLES	
Livestock Production	TPE	Wheat	TPE	Cash Receipts	TPE
Beef	1	Prod.	0	Crops	2
Pork	1	Exports	1	Livestock	3
Broilers	1	Stocks	0	Net Farm Income, Realized	3
Eggs	5	Corn		Land values[c]	2
Livestock Prices		Prod.	3	Real GNP[c]	2
Steers, Ch.	4	Exports	4	CPI, all[c]	0
Feeder steers	5	Stocks	1	CPI, food[c]	0
Barrows and gilts	2	Cotton			
Broilers	2	Prod.	0		
Eggs	0	Exports	3		
		Stocks	4		
		Soybeans			
		Prod.	0		
		Exports	4		
		Stocks	1		
		Prices			
		Wheat	.5[b]		
		Corn	1		
		Cotton	2		
		Soybeans	3		
		Soybean Oil	4.5[b]		
		Soybean Meal	1		

TOTALS

TPE	Number
0	7
.5[b]	1
1	8
2	6
3	5
4	4
4.5[b]	1
5	2
6	0
7	0
Total	34

[a] Calendar year values for 1985 are partly forecast.

[b] No change forecast=TPE of .5.

[c] If naive model assumes an increase each year, there were 2 TPEs on land values, real GNP and CPI, all, and 1 on CPI food.