



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

## STATE OF THE FARM ECONOMY: HOW GOOD OR HOW BAD?

Abner W. Womack, Ph.D.

Co-Director of The Food and Agricultural Policy Research Institute

Introduction. I have been in the policy analysis and long term projection business for almost 30 years. Most of the time has been devoted to establishing a funding base that permitted the development of large scale models that are global in scope. This modeling effort necessitates combining the economic and policy structures associated with planted land area, livestock production and global population into a uniform system. Long run projections are developed that serve as a base of reference for policy analysis. Currently, seven universities with about 60 researchers are devoted to this effort. At any given time a total of 5-10 Ph.D. students are involved in research projects that complement dissertation requirements. The University of Missouri and Iowa State University anchor the FAPRI Consortium with support from the University of Arkansas, Texas A&M, Arizona State, Kansas State and North Dakota State. My comments are based on the efforts of this very dedicated team of researchers - 'the baseline analysis presented in January, 1999 at our annual Kansas City, Missouri Review. I hope my comments do sufficient justice to their efforts, however, observations expressed in this paper are solely the responsibility of the author.

Some Observations. Anyone that enters the projection game is going to make mistakes. However, the one that stands out most from all others in my mind is underestimating the potential for the expansion of global production and corresponding supply of agricultural commodities. Every time I bought the notion that global demand for agricultural commodities was going to outpace global supply with corresponding sustained increases in commodity prices, I have been wrong. So one of the first things that I do as our analysis nears completion each year, is to examine our expected price projections, contrast them to previous historical averages and evaluate differences from our last baseline. Which case won out this time. Are we entering a period of tighter supplies with higher prices or did the supply side prevail once again with lower prices? Our current baseline reflects one of the lowest price paths in recent memory and is well below levels expected in February of last year. So once again, it appears that the supply side prevails. What made this difference is the subject of our discussion today.

Why The Current Low Prices of Grains and Oilseeds? The FAPRI Team was asked this question by the House Agricultural Committee in July of 1998. Dr. Gary Adams' testimony before the committee on <sup>2</sup>"The Outlook for the U.S. Agricultural Economy" addressed significant contributing factors. His conclusions point in three directions. First, increases in global production fueled by expanded area and exceptionally good crops in 1996, 1997 and 1998 is the leading contender. Approximately 50 million acres of land was added to global planted area in 1996, another testimony to the responsiveness of the supply side. The calendar has to be rolled back to 1985, '86 and '87 to find three years with consecutive weather patterns that compare with the last three years. Second on the priority list was the global economic situation led by the precipitous downturn in the Asian-Pacific rim countries. Third is the FAIR Act. The new Farm Bill released about 15 million acres of land for additional production by eliminating annual land

idling.

In fairness to our modeling team, price estimates in January of 1998 were already on the decline reflecting both the expected increase in acreage and the market nature of the FAIR Act. What was not anticipated was the magnitude of the Asian financial situation and the continuation of the phenomenal weather pattern, both here and in South America. The weather pattern carries the most weight with regard to the estimated price differentials.

Our baseline projections start from a lower base than last year and hold this level for the next two to three years. There is little hope for near term optimism given the current global projections. Global economics are expected to decline over the next two to three years by about 0.5 percentage points from 1998. Taken in conjunction with the fact that baseline projections are conditioned on trend levels of technology growth and average weather, it is unlikely that current stock levels will be significantly reduced. China continues to be a major factor in the equation. There is considerably more optimism this time around with regard to China's yield growth. A reevaluation of the last two years suggests a more aggressive pace than was factored into previous analyses. This results in, for example, a net export position for corn through about 2002/03.

An additional near term caveat is weather. Holding prices at near term levels, as projected over the next two to three years, will require at least average weather in all years. Although stock levels are projected higher, they do not compare with levels carried under previous government programs. Moderate dry weather will quickly reclaim lost ground, moving prices back to longer run averages, for at least one growing season.

Longer Run Price Outlook. For some years our analysis has suggested an interesting balance between global supplies and demand of grains and oilseeds. Examination of conditioning information revealed some interesting characteristics. First, with regard to technology growth, we tended to hold a path that was at or near the rate of global population growth. Second, with expected average weather patterns this tended to suggest very little increases in crop land area. This balance generally prevailed throughout our projections unless weather problems erupted or global income demand began to exceed previous levels of expectation. So, in general, our projections suggested moderate increases in nominal prices and moderate stock reduction over time.

In the mid 1990's things began to change. There was greater excitement over the potential world income growth. Among the many questions debated was "why now?" WEFA and Project LINK financial statistics suggested that real global GDP growth averaged above 2.5 percent for the decades of the '70's, '80's and '90's. Why the sudden interest in income growth if all decades have been at or near the same level? The answer tends to be associated with the sustained (30 year) levels of income growth and the likelihood of the same in the next decade. This simply implies that a substantial number of people around the world have finally reached an income level that places greater demand on meats. As a result our analysis tended to reflect a stronger export path. And our models began to reflect increasing export demand.

Price projections tended to move above long run averages for grains and oilseeds, by the end of

the 10 year horizon. Global stocks became progressively tighter and modelers scrambled to find additional land area that was required to make up the difference.

We never did join the euphoric scene about export expansion, however in both the crops and livestock models were indicating export demand growth. And our price projections were generally on the optimistic side.

Were we wrong or will this occur again? Answer, if income growth returns our models will again reflect this growth. And this is exactly what does occur in this 1999 baseline. *But, this time there is a decided difference and therefore a major turning point from previous analysis.*

This decided difference is associated in large part with a change in our assumption about technology growth. A number of countries reflect more aggressive adoption rates than previously estimated. This may well be another characteristic of the global supply potential. Higher prices in 1996 and 1997 plus concerns of food shortages seems to have fueled the supply side once again.

The resulting pace of technology expansion, particularly in places like China, Brazil and Argentina, tends to outpace the rate of global population growth, which is projected to decline over time. This leaves slack in the system unless demand strengthening can override or weather patterns begin to change for the worse.

Starting from a low price and moderate near term income growth simply shifts the entire global momentum, at least for the next three to five years to a low side price path for grains and oilseeds. Projected growth for U.S. corn yield, for example, is 1.3% per year and global yields weighted for major production regions suggest a growth rate of 1.5% per year.

The corresponding world population growth rates imbedded in the current projections suggest growth rates of 1.3% through 2002 then falling to 1.2% afterwards. Developed countries are well below this average, as is China. However, developing countries that are lower on the income scale are at a faster pace of 1.6% per year led by Africa at 2.5%.

Although prices are projected lower, there will still be regions of the world with large populations that suffer from food shortages. Our models do account for these characteristics on a region or country basis. A blend of population and purchasing power sets the pace for global demand.

**Table. 1**

<b>FAPRI JANUARY 1999 BASELINE PROJECTION RELATIVE TO HISTORICAL AVERAGES</b>			
	80-89	90-99	2000-08
Real World GDP Growth (%)	2.7	2.5	2.9
U.S. Farm Price (\$1bu)			
Corn	2.45	2.38	2.28
Soybean	6.19	5.97	5.52
Wheat	3.35	3.34	3.49
Planted Area U.S. (Acres)			
Corn	75.7	70.2	80.3
Bean	64.1	64.0	70.4
Wheat	76.7	77.5	66.6
Planted Area Brazil & Argentina (Acres)			
Corn	38.4	39.9	37.4
Beans	32.0	43.0	53.1

Expected Prices. Wheat prices tend to be an exception to the price path for grains and oilseeds primarily reflecting lower planted acres and a continued strong concentration of land in the CRP. The decade of the '80's and '90's averaged about \$3.35 per bushel but is expected to increase to around \$3.50 per bushel in the next decade.

Soybean prices are projected to average below \$6.00 per bushel (\$5.52) for the next 10 years starting at a low of about \$5.08 for the 1999/2000 crop and gradually increasing to around \$5.90 by 2008/09. This is well below average of previous decades - almost 70 cents below the decade of the 1980's and about 50 cents below the decade of the 1990's.

The corn projected path is similar. The projected \$2.30 per bushel average for the next decade is about 20 cents below the 90's estimated average and 15 cents below the average of the 80's.

This softness in world market prices of grains and oilseeds also reflects a stronger turn around in world income growth. WEFA and Project LINK projections indicate a return to stronger growth by 2001, implying strength in at least 7 out of the next 10 years.

If our technology growth assumptions used in previous baselines had been maintained it is certain that current price projections would be at higher levels.

Summary and Conclusion. Price variability continues to be a major factor in the equation. Even with the stronger production path, projected stocks-to-use ratios are well below historical levels. <sup>3</sup>Dr. Gary Adams of FAPRI at Missouri presented a paper at the 1998 AAEA meetings that focused on the issue of greater price variability in agriculture. He replayed previous weather patterns with stock levels more consistent with the current farm program. The drought of 1988 was buffered with about 4 billion bushels of corn stocks that resulted in a season average farm price of corn at \$2.54 per bushel. Without these stock levels, the models replayed a season average price of \$3.50 per bushel. If these higher prices should occur and reasonable weather returned, a two year adjustment period was necessary before prices returned to baseline levels.

Given the nature of the FAIR Act with no braking mechanism on the supply side and the fact that government stocks are no longer a part of the equation, this poses an interesting pattern for prices in the future. In the first half of the next decade, prices will tend to the low side, even with poor crop years. Short crops followed by trend level production will replenish stocks fast enough to quickly return prices to the low side. But, if the projections are correct as income growth rebuilds in the latter part of the decade stocks again appear to become tighter. The income growth component tends to catch up and starts once again to overpower the stronger technology component. Stock become continuously tighter. This makes for a different situation. Short years will hold prices higher longer, as indicated in the analysis by Dr. Adams.

But given either scenario, prices on the high side, staying longer and alternatively on the low side - staying longer, it is very likely that prices during the crop year will show spurts of quick rapid movement. Three weeks of dry weather this spring will send prices scurrying upwards. If it rains across the corn belt the next day all price strength will very likely be lost. So, even if good crops tend to prevail, the market will continue to be very nervous in streaks of dry weather.

Stated another way, my conclusion regarding price patterns in front of us is for staying power on the low side in the first half of the decade followed by staying power on the high side in the latter half. In either case we are likely to see a good deal of price movement within the crop year.

Finally, even with the likelihood of higher-highs in the latter part of the decade, this will simply speed up the rate of technology adoption which means the next cycle will move back into a lower price range. As I mentioned in my opening remarks, the supply side has staying power.

## REFERENCES

1. The Food and Agricultural Policy Research Institute, A Summary of the FAPRI Baseline Projection, November 1998 (handout distributed at the 199 Kansas City Review, Kansas City, Missouri, January 14-15, 1999).
2. The Food and Agricultural Policy Research Institute Outlook For the U.S. Agricultural economy, (testimony offered before the House Committee on Agriculture, Washington, D.C., July 30, 1998).
3. Adams, Gary, "The Case for Greater Price Variability in Agriculture," The Food and Agricultural Policy Research Institute-UMC Report # 29-98, 8/98 (Presented at the 1998 AAEEA Annual Meetings, Salt Lake City, UT).