

**STATEMENT BEFORE THE UNITED STATES SENATE
COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY**

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Thank you Mr. Chairman for the opportunity to testify today about the how the economics of agriculture has recently changed.

From 1950 to until just recently, demand growth in agricultural commodities did not keep up with the ability of farmers to produce. The result was a long-term decline in inflation-adjusted food and commodity prices. Together with growing incomes around the world, this decline in real prices meant that most of the world's poor were able to afford adequate calories while simultaneously beginning the move away from staple foods into a more varied diet. This increasing ability to feed a rapidly expanding population is one of the major success stories for the world in the second half of the 20th century.

The steady fall in real food prices combined with rising incomes has meant a steady increase in the demand for grains and oilseeds. This inexorable demand growth combined with a slowdown in investment in agricultural productivity probably foretold a future in which supply would have more trouble keeping up with demand and a possible reversal of the long-term decline in real food prices. We will never know because the sharp increase in fossil fuel prices combined with changes in public biofuels policy has made that possible future a reality today.

Up until the last two years, energy prices affected agriculture primarily by influencing production costs: particularly fertilizer and diesel prices. But now that we have linked energy and commodity markets, both production costs and crop demand are influenced by energy prices. Ethanol plants' ability to pay for corn and biodiesel plants' ability to pay for vegetable oil are directly influenced by the price of gasoline and diesel fuel. Thus to understand where commodity prices are headed in the next five years we need to understand how the biofuels policy and the expansion of capacity to produce biofuels will affect the demand for corn and soybean oil.

Corn and soybean farmers are in an enviable position. The dramatic expansion that we expect to see completed in the next three years in biofuels plant capacity combined with the Renewable Fuels Standard has created a "can't lose" demand situation. Let me explain.

For corn farmers, increasing ethanol mandates means that they have a new built-in demand of between 25% and 30% of their crop. To induce farmers to plant adequate corn acreage will require prices high enough to cover the additional costs involved in increasing corn plantings from 80 to 90 or 95 million acres. I estimate that prices below

\$3.50 to \$4.00 per bushel will result in inadequate acreage. Hence I do not expect prices to fall below this level in the next five years. This level of prices should be adequate to cover all non-land production costs, even accounting for the recent run-up in fertilizer, chemical and diesel costs.

If we continue to have crude oil prices in excess of \$100 per barrel and a string of good weather years that drive price down below \$4.00 per bushel, then the economics of corn ethanol production would look so good that we should see a new round of investment take place taking capacity of the corn ethanol industry beyond mandated levels. This next round of expansion in corn ethanol would be particularly facilitated by continuation of the blenders tax credit.

The bright outlook for corn prices over the next five years also means a bright outlook for soybeans because of competition for land between the two crops. The only potential downside in demand for U.S. soybeans is if South American unexpectedly ramps up production so rapidly that world supplies overwhelm demand. But policy decisions in Argentina and Brazilian plans to devote increasing amounts of land to sugar cane production suggest that soybean expansion in South American will not be overly rapid.

Existing excess capacity in the U.S. biodiesel industry guarantees that soybean oil prices will not fall too rapidly even if South American production does ramp up significantly. Excess capacity means that weak soybean oil prices would quickly trigger biodiesel production in idled plants, thereby shoring up prices. The level of the price support for soybean oil depends on the price of diesel and whether the biodiesel tax credit is extended. Table 1 shows that with a wholesale diesel price of \$3.50 per gallon, soybean oil prices below \$0.54 per pound would trigger increased biodiesel production which would tend to keep soybean oil prices from dropping too much below this break-even level. The implications of this soybean oil price support on soybeans price depends on the price of soybean meal. At current meal prices, \$3.50 diesel translates into a soybean price of more than \$12 per bushel with continuation of the blenders credit and more than \$10 per bushel without the credit.

Table 1. Break-Even Soybean Oil Price*

Wholesale Diesel Price \$/gal	With Blenders	Without Blenders
	Tax Credit	Tax Credit
	\$/pound	
2.00	0.34	0.21
2.50	0.40	0.27
3.00	0.47	0.34
3.50	0.54	0.40
4.00	0.60	0.47
4.50	0.67	0.54
5.00	0.73	0.60

*These soybean oil prices are the prices that result in a biodiesel plant which operates on 100% soybean oil just covering their variable costs of production.

Table 2 presents break-even corn prices for corn ethanol plants. If a change in the RFS creates excess corn ethanol capacity, then the corn prices presented in Table 2 are what would induce idle corn ethanol plants to begin processing corn. Thus even without the RFS, if we have \$2.50 wholesale gasoline and excess ethanol production capacity, then we should not expect to see corn prices drop below \$5.41 per bushel with the blenders tax credit and \$4.17 per bushel without the credit.

Wholesale Gasoline Price \$/gal	With Blenders	Without Blenders
	Credit	Credit
		\$/bu
1.50	3.55	2.31
2.00	4.48	3.24
2.50	5.41	4.17
3.00	6.35	5.10
3.50	7.28	6.04
4.00	8.21	6.97

*These corn prices are the prices that result in a dry mill corn ethanol plant just being able to cover their variable costs of production.

I would like to now turn to the economics of livestock production. The impact of continued high feed costs on the U.S. livestock industry is fairly straightforward: livestock prices will eventually increase enough over the next year or two to cover producers' increased feed costs. There are two ways that this price increase will happen: either U.S. producers will reduce production or producers in other countries—who face the same feed cost pressures—will reduce production. It will likely be a combination of both though there are reasons to believe that high feed costs combined with high transportation costs has increased the comparative advantage of U.S. livestock producers relative to other countries' producers who raise livestock with feed grains.

When feed is inexpensive and shipping costs are low, pork producers in, say Chile, are not too disadvantaged in importing U.S. grain and exporting pork because their costs are not too much greater than U.S. pork producers. But high feed grains and shipping costs means that feed makes up a much higher proportion of production costs which increases the advantage of U.S. pork producers because they only have to ship pork, not both feed and pork. Furthermore, many U.S. producers have an advantage in that their animals' manure can be readily used in crop production.

U.S. producers and other producers who rely on feed grains are disadvantaged with high feed costs relative to producers who raise livestock primarily on grass. New Zealand dairy producers and South American beef cattle producers will be selling at a higher market price with unchanged feed costs. As long as we choose to use feed for biofuels

production, we should expect to see more favorable economics for grass-fed livestock production.

As increased feed costs work themselves through the system, we will see dairy, meat and egg prices higher than they otherwise would be. If we somehow cap the amount of animal feed that goes into biofuels production, then we will eventually see corn and soybean productivity gains show up again in lower food prices.

To summarize, our decision to encourage expansion of biofuels production has changed the economics of agriculture by linking energy and feed markets. There seems little doubt that we will see biofuels production from corn and vegetable oil meet mandated levels. If future plant capacity does not exceed these levels then future productivity gains will only need to keep up with increased food demand rather than increased food and fuel demands. This lower threshold of performance should increase the odds that a high quality diet will be affordable for a large proportion of the world's populations.