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## Issues with an Ethanol Blend Rate Increase

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## Summary

Current U.S. biofuels policies and regulations contain inherent contradictions, and have also resulted in significant economic damage outside of the energy economy. In particular, the large increases in the Renewable Fuel Standard (RFS) volumes contained in the Energy Independence and Security Act of 2007 (EISA) did not account for blending limitations imposed by the potential inability of current engine technology to use ethanol blends in excess of 10%. The expanded RFS has also increased the cost of both food and fuel production.

The expanded RFS of 2009 and beyond has encountered difficulties due to the fact that the maximum gasoline blend rate for non-flex fuel engines is 10% (the "E10 Blend Wall"). In an attempt to accommodate current and future RFS increases EPA is evaluating an increase that maximum blend rate to some level beyond 10%. If the blend rate is increased it may solve part of the contradiction between the blend rate and the RFS. However, an increase in the blend rate will exacerbate the economic damages to the food and fuel sectors resulting from the increasing RFS, and may also result in major fuel compatibility issues with the nation's current gasoline powered engines stock.

This paper will focus on food and fuel cost increases, not engine compatibility issues.

## Blend Rate and RFS Economic Effects

While the RFS offers a degree of government guaranteed demand for fuel ethanol, it has not resulted in a prosperous or sustainable ethanol sector. As of March 25, 2009 there are 36 U.S. ethanol plants, representing 17.3% of industry capacity, that are not operating<sup>1</sup>. The basic reason is that there is no market demand for 2009 ethanol production beyond the 2009 RFS, and the 36 plants closed are not needed to make the 2009 RFS.

As was pointed out in a 2008 Iowa State study<sup>2</sup>, if the RFS is higher than the market demand for ethanol it will result in higher-than-market prices for both ethanol and corn. As evidenced by 36 closed ethanol plants, this is the current situation. Increasing the blend rate to accommodate the higher 2009/2010 RFS schedule will not fundamentally help the ethanol industry, and will cause further economic harm to the food production system.

The current FarmEcon LLC forecast of corn supply and demand assumes that the RFS, not the energy market, will determine the 2009/2010 demand for corn for ethanol. The forecast shows that for 2009/2010 increased corn demand for ethanol production will cause further significantly increased corn prices, and thus increased costs of both ethanol and food production. Cost increases will further erode the economic viability of both the ethanol and food sectors.

The fundamental economic issue behind the forecast is simple. While the RFS and blend rates may determine ethanol production, they do not mandate corn plantings, production or prices. Since the 2005 corn crop corn prices have doubled, largely as a result of increased demand for ethanol production. As a result the cost of the 2008 crop corn was increased by \$2.00 per bushel over the 2005 crop. Based on about 12 billion bushels of total use, that represents a \$24 billion annual cost increase born by corn's food, ethanol and export users. As a result of those

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<sup>1</sup> Ethanol Producer Magazine. 3/25/09. found at <http://www.ethanolproducer.com/index.jsp>

<sup>2</sup> Babcock, Bruce. "When Will the Bubble Burst?" *Iowa Ag Review*. Winter, 2008.

higher costs our largest ethanol producer (Verasun) and our largest broiler producer (Pilgrim's) are both in bankruptcy. The failure of both firms can be largely traced to U.S. biofuels policies.

## 2009-2010 Corn Forecast with Expanded RFS and Higher Blend Limits

Corn supply and demand forecasts that assume that the current RFS schedule is implemented and the "blend wall" is removed by higher blend limits are contained in the table below<sup>3</sup>.

Item	2005/2006	2006/2007	2007/2008	2008/2009 fcst.	2009/2010 fcst.
Area Planted (Mill. Ac.)	81.8	78.3	93.5	86.0	84.0
Area Harvested (Mill. Ac.)	75.1	70.6	86.5	78.6	76.5
Yield (Bu/Ac)	148.0	149.1	150.7	153.9	152.0
Beginning Stocks (Mill. Bu.)	2,114	1,967	1,304	1,624	1,790
Production (Mill. Bu.)	11,114	10,535	13,038	12,101	11,628
Imports (Mill. Bu.)	9	12	20	15	15
Total Supply (Mill. Bu.)	13,237	12,514	14,362	13,740	13,433
Feed Consumption (Mill. Bu.)	6,155	5,598	5,938	5,300	4,900
Food, Seed & Industry Consumption (Mill. Bu.)	2,981	3,488	4,363	4,900	5,510
Fuel Ethanol Consumption (Mill. Bu.)	1,603	2,117	3,026	3,600	4,200
Other FSI Consumption (Mill. Bu.)	1,378	1,371	1,337	1,300	1,310
Exports (Mill. Bu.)	2,134	2,125	2,436	1,750	1,900
Total Consumption (Mill. Bu.)	11,270	11,210	12,737	11,950	12,310
Ending Stocks (Mill. Bu.)	1,967	1,304	1,624	1,790	1,123
U.S. Average Farm Price, \$/Bu.	\$2.00	\$3.04	\$4.20	\$4.00	\$5.00

As a result of the combined effects of the higher blend limits and the RFS increase the 2010 cost of corn to the U.S. economy is forecast to increase by another \$1.00 per bushel, or \$12.3 billion in total. For the ethanol sector alone costs will increase by \$4.2 billion. Based on an ethanol RFS of about 11.5 billion gallons that translates to a cost increase of about \$0.37 per gallon.

Based on total feed plus direct food use of 6.2 billion bushel the food sector will see an added corn cost of approximately \$6.2 billion in 2010. In addition, costs of other feed and food ingredients will increase as corn prices rise, implying that the total food sector cost increase will be well in excess of this estimate.

## Conclusion

Increasing the maximum blend of ethanol in gasoline, combined with higher 2010 RFS requirements, will increase cost pressures on both ethanol and food producers. Those cost pressures will further erode the viability of ethanol and food producers. U.S. biofuels policies need to be revised to accommodate the inherent conflict between the RFS and our ability to produce both food and fuel. The 2007 EISA increases in the RFS have resulted in an ethanol sector that is not economically sustainable, even with large tax credit subsidies, the demand guarantees of the RFS, and a generous tariff on imported ethanol.

Increasing the blending ceiling will do nothing to address this fundamental fact, and will likely make the economic situation worse for all corn users, including ethanol producers.

<sup>3</sup> 2005-2008 are from USDA, World Outlook Board, as of 3/25/09. 2009/2010 is forecast by FarmEcon LLC