The Breakeven Price of Corn for the Hog and Ethanol Industries (11/23/2015)

Both hog and ethanol productions compete for corn as a main input in their industries, but not all corn used for ethanol production is lost to hog production as the ethanol industry produces both ethanol and livestock feed (distiller's dried grains with soluble (DDGS)). Fuel ethanol facilities currently can produce about 2.8 gallons of ethanol per bushel of corn (56 pounds of corn). Also, about 17 pounds of DDGS are produced per bushel of corn. In this case, the trade-off for the hog industry is 56 pounds of corn for 17 pounds of DDGS. Still, since corn is the main component in the hog diet, the production of DDGS do not fully compensate (the hog industry) for the corn used to produce ethanol.

Figure 1 shows the breakeven for the hog and ethanol industries for the period after the Volumetric Ethanol Excise Tax Credit (VEETC) subsidy to the ethanol industry expired. The VEETC ended on December 31, 2011. The estimation of the breakeven for both industries is based on the corresponding marginal value of corn (i.e., the margin after subtracting operation costs, excluding the cost of corn). During the 46 months shown in Figure 1, 63% of the time (29 months out of 46 months) the hog industry has been better positioned to purchase corn compared to the ethanol industry. The period when the hog industry had the largest competitive advantage to purchasing corn relative to the ethanol industry coincide with the period when hog prices were relatively high. This happened in 2014 (see Figure 2) when hog prices increased as production declined due to the spread of the porcine epidemic diarrhea virus (PEDv). Hog prices in 2015 have declined as the hog industry has essentially recovered from PEDv. The average hog price (Iowa/Southern Minnesota) from January to October 2014 was $103.96 ($/cwt) compared to $71.44 ($/cwt) during the same period in 2015. According to the latest (November 2015) USDA/ERS's Livestock, Dairy, and Poultry Outlook report, 2015 pork production is projected at 24,508 million pounds, representing a 7.3% increase year-over-year. Moreover, based on the same report, 2016 pork production is expected to increase 1.7% to 24,925 million pounds relative to 2015. The market price ($/hundredweight) of barrows and gilts (based on the national base cost, 51-52% lean, live equivalent) in 2016 is expected to decline 4.6% compared to the 2015 projection, from an expected average of $50.82/cwt in 2015 to $48.5/cwt in 2016.

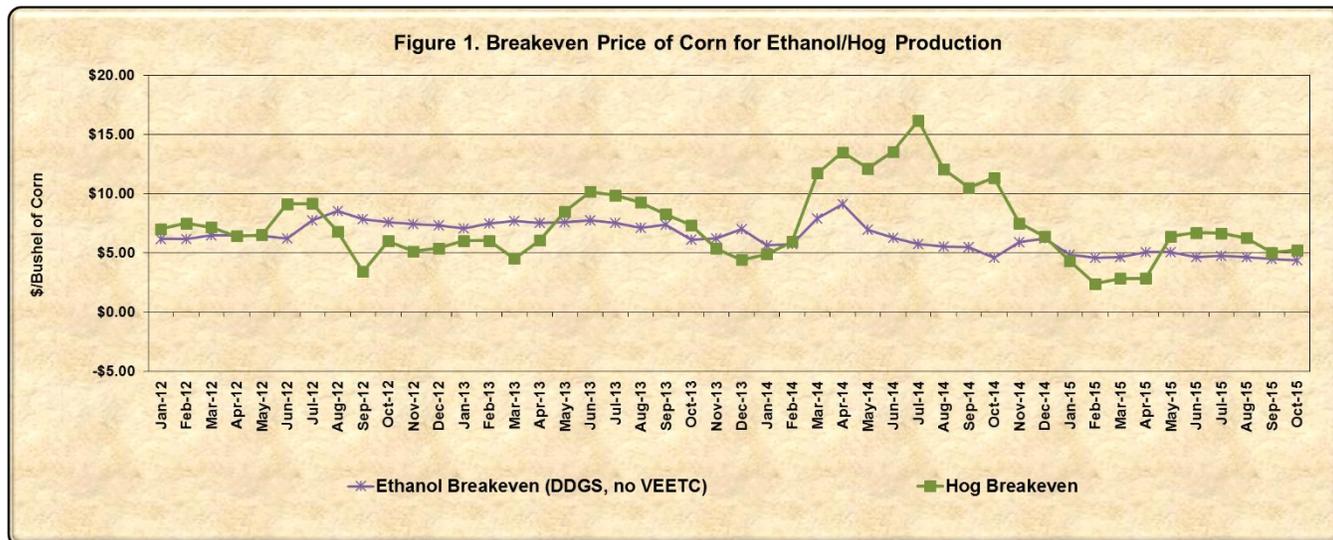Figure 1. Breakeven Price of Corn for Ethanol/Hog Production

Figure 2. Historical (Iowa/Souther Minnesota) Hog Prices, ($/CWT)

Because of a larger projected 2015/16 corn crop and lower expected corn prices, according to the latest (November 10, 2015) USDA's World Agricultural Supply and Demand Estimates (WASDE) report, this month's forecast for feed and residual use in 2015/16 indicate an increase of 25 million bushels to 5.300 billion bushels compared to October's projection. The latest projection is 15 million bushels below last year's estimate (5.315 billion bushels). The November forecast for 2015/16 corn use for ethanol production is down 75 million bushels (1.4%) to 5.175 billion bushels relative to October's forecast. As indicated by USDA, the corn use for ethanol production forecast was cut due to expected increased use of sorghum for ethanol production, triggered in part by sorghum domestic price discounts relative to corn price. According to these projections 44.7% of the 2015/16 total domestic corn use (11.855 billion bushels) will be for feed and residual use and 43.7% for ethanol (and co-products) production. The remainder (11.6% or 1,380 million bushels) of the total domestic corn use will be for food and seed use.

EPA's final action on its proposed regulation about renewable fuel volume requirements and related percentage standards that would apply under the Renewable Fuel Standard (RFS) program through 2016, which will take place on November 30, 2015, could modify ethanol production projections for 2015 and 2016. The proposed volumes would allow volumes of conventional (non-advanced) renewable fuel of up to 13.40 and 14.00 billion gallons to be used to meet the total renewable fuel requirements for 2015 and 2016, respectively. The RFS program was approved under the Energy Policy Act (EPAct) of 2005 and expanded under the Energy Independence and Security Act (EISA) of 2007. The renewable (non-advanced) mandate for both 2015 and 2016 was originally set under EISA at 15 billion gallons.