**Engenia™ Herbicide for Cotton**

Cindy Zimmerman, September 8, 2015

BASF Crop Protection anticipates regulatory approval for Engenia™ herbicide yet later this year, which will provide growers with the most technologically advanced dicamba formulation for control of broadleaf weeds in dicamba-tolerant crops for both soybeans and cotton.

“Like all the other dicambas BASF has made in our 50 year history, (Engenia) is a highly effective post-emergent broadleaf weed control tool,” said Chad Brommer, BASF technical market manager for Engenia, during a recent media event in Tennessee. “The other great thing about Engenia is that is was designed with the BAPMA salt to be the most stable form of dicamba that we’ve ever produced.”

Brommer says they believe Engenia will be especially important in the south where pressure from resistant palmer amaranth is especially heavy. “In cotton, we’re often going to have to come back maybe three times to control weeds – pre-emergent, first post, and oftentimes and second post or layby application,” said Brommer.

You have been hired by your regional cotton growers association to determine the impact of this technological advance. Earlier this year, you estimated your regional demand for cotton to be, \( Q_D = 400 - 4P \). To produce irrigated cotton, farmers need seed, water, chemicals, and harvesting equipment. Producer buy the seed from a local co-op, who sets the price of seed at, \( P_{Seed}^S = 50 + 2Q \). Farmers will also purchase water rights from the state at the price, \( P_{Water}^W = 50 + 1.5Q \). Chemical costs and application are linearly related to the quantities applied, which is described by the function, \( P_{Chem}^S = 10 + 0.5Q \). Lastly, average harvesting equipment is able to provide harvesting services at the rate, \( Q_{Equip}^S = 2200 + 5P \).

Given these market conditions, determine the equilibrium price (in cents per pound) that you expected farmers in your region to receive prior to Engenia herbicide. Then, assume that the price of chemicals/application goes up by 25%, but that as a result of using the improved weed management technology, producers are able to improve your output from the harvesting equipment by 25%. Illustrate the changes using a supply and demand diagram and then determine the percentage change in your region’s cotton market quantities and prices resulting from the likely adoption of the new chemical. Are consumers of cotton better off as a result of the change? Are producers of cotton better off as a result of the change?

Before change: \( P = $0.70/lb., \ Q=119 \) million pounds
After change: \( P_{Chem}^{New} = 1.25 \times P_{Chem}^{Old} = 12.5 + 0.625Q \)
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Q_{Equip}^{New} = 1.25 \times Q_{Equip}^{Old} = 2750 + 6.25P
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\( P = $0.71, \ Q = 116 \)
\% Change in P = 2.0%; \ % Change in Q = -2.5
Sugar [prices] rallied [upward] on Wednesday, supported by the slow pace of the Brazilian harvest, while grain markets braced for a key US government data release due on Friday. Data from Unica, the Brazilian cane industry association, showed that cane mills in Brazil's centre-south region, which produces most of the country's cane, produced 2.84 million tonnes of sugar in the second half of August. This falls short of the 2.86m tonnes produced in the first half of last month, and comes at the lower end of expectations.

The cane crush in Brazil has been slowed by heavy rains in the region, which have lasted into September. Rains not only prevent the cane from being harvested, they also dilute the sugar present in the cane, leaving a lower yield per tonne of cane. "It has been too wet for good harvesting, and the weather helped support prices last week," said Jack Scoville of Price Futures on Wednesday. And sugar production has also been hit as crushers use cane for ethanol production instead. 56.8% of cane harvested was used for ethanol, with only 43.2% used for sugar production.

Discuss the intuition underlying the price increase and illustrate this using a demand and supply diagram. Then, assume that you want to examine the same effects on the Florida sugar cane market. After going to the Florida Department of Agricultural website, you determine that consumers are willing to pay $P_D = 50 - Q$ for Florida sugar cane. Sugar cane is planted is done by replanting a part of the plant that contains roots. Then, harvesting equipment is used to cut the grown plants. For simplicity, let’s assume that these are the only inputs to sugarcane production, and they follow the supply functions, $P_S^{Plant} = -500 + 20Q$ and $Q_S^{Harvest} = 8 + 0.04P$. Calculate the equilibrium quantities (in 1,000 tons) and prices (in dollars per ton) in the Florida sugar cane market.

P=$33.70/ton
Q=16.30 (1,000 tons)
Record French wheat crop even larger than thought
Agrimoney.com, September 8, 2015

France's wheat harvest, the European Union's largest, turned out even bigger than had been thought, government data showed. The French farm ministry raised its estimates for this year's soft wheat crop, as well as lifting corn and rapeseed estimates. The size of the French soft wheat harvest, which is now complete, was seen at 40.8m tonnes, above even the 40.2m tonnes forecast by French government crop agency FranceAgriMer last month.

"Soft wheat benefited from a mild winter and a warm and sunny spring," the ministry said, noting that summer drought and "scorching" temperatures occurred when "development was virtually complete". An estimate from the International Grain Council last week put French wheat production, excluding durum, at 41m tonnes. The previous record for French wheat production is 38.2m tonnes, set in 1998. The size of the French wheat crop has been bolstered by a very large planted area, as well as above average yields per acre. The size of the French wheat is proving a problem for French grain silos, which are struggling to store the harvest.

Discuss the intuition of the market changes and then illustrate these changes using a demand and supply diagram. In addition to FranceAgriMer’s supply update, the crop agency also posted demand for French wheat to be, $Q = 187.25 - 0.25P$. The production of French wheat requires seed, fertilizer, harvesting (combining, trucking, labor, etc.), marketing (finding the highest price, transporting the wheat from the farm to the elevators), and a set of fixed costs, which captures changes in weather conditions (worse weather, higher costs).

Last year, FranceAgriMer published estimates of the supply functions for seed, fertilizer, harvesting, marketing, and fixed costs. Seed followed the function, $P_{Seed}^S = 300 + 0.5Q$, fertilizer was $Q_{Fert}^S = -400 + 4P$, harvesting was $Q_{Harv}^S = 50 + 0.1P$, marketing costs were $P_{Market}^S = 200 + 0.15Q$, and fixed costs were 50. After this production year, the agency re-estimate the fixed costs and determined them to be 38. Calculate the effect of the better weather in France on the quantity and price changes in the country’s wheat market. (Note: quantities are in tonnes, prices are in Euros per tonne).

Before change: $P = 588$ EUR/tonne, $Q = 40.2$ million tonnes
After change: $P = 584$ EUR/tonne, $Q = 41$ million tonnes