As Chinese Trade Tensions Build, Do Ohio Producers Need to Worry?
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The likelihood of a full-blown trade war between the U.S. and China has increased substantially in the past few months, each country either implementing or proposing a range of tariffs against each other’s imports. Tariffs, a protectionist tactic, raise the cost of exports to the importing country and lower the demand of goods from the exporting country as other counties compete for market share. Currently, the tariffs implemented by the U.S. include 25% on international steel and 10% on aluminum and a Chinese tariff of 25% on U.S. pork. However, both countries have a list of proposed tariffs covering a range of products including U.S. soybeans and corn. Such tariffs would result in higher machinery costs, lower corn, soybean and pork prices for U.S. agricultural producers, and a decrease in the net income of Ohio farm families.

In 2017, Ohio exported about $50 billion worth of goods, worldwide, making it the 10th largest exporting state at 3.2% of the U.S. total. The leading export from Ohio was industrial machinery at $8.9 billion, with soybeans sixth at $1.8 billion. Total agricultural trade accounted for $3.9 billion in 2017, representing 7.8% of Ohio exports, down slightly from the 2016 percentage of 8.3.

![Ohio Agricultural Exports by Destination Country](image1.png)

**Figure 1: Ohio Agricultural Exports by Destination**

![Ohio Agricultural Exports to China](image2.png)

**Figure 2: Value of Ohio Agricultural Trade to China**

Considering only agricultural exports from Ohio, Canada remains the largest importer of goods at $1.47 billion in 2017- see Figure 1. However, since 2010, China has emerged as the second largest buyer of Ohio’s agricultural products, eclipsing Canada in 2014. Canada and Mexico, North America Free Trade Agreement
trading partners, together represent 49% of Ohio’s agricultural trade, emphasizing the importance of NAFTA to Ohio’s agricultural producers.

Ohio producers exported $754 million to China in agricultural products in 2017, down from $1.2 billion in 2016, a result of lower soybean prices. Figure 2 illustrates the value of Ohio agricultural exports to China for corn, pork and soybeans. In 2017, Ohio soybean exports to China totaled $691 million down from the high of $1.14 billion in 2016. Strong domestic use of corn for feed and ethanol has limited the amount available for exports. In 2017, Ohio produced a soybean crop worth $2.4 billion dollars. At $691 million, exports to China would account for 29% of the value of the Ohio soybean crop, which is slightly less than the national average.

The U.S. is not the only exporter of agricultural products to China. In terms of oilseed products, Brazil and Argentina are major soybean suppliers. In 2017, the U.S. exported 36.8 million metric tons to China representing 30% of total U.S. production. In contrast, Brazil exported 45.3 million metric tons to China, and Argentina exported 7.1 million metric tons, representing 40% and 12% of their production respectively. Since 2012, the U.S. has been the second largest supplier of soybeans to China behind Brazil- Figure 3. The growth in U.S. soybean exports to China has grown 209% over the past decade, but Brazil’s growth has been 567% over the same period. The presence of a 25% tariff on U.S. soybeans will likely strengthen Brazil’s market share of Chinese imports.

Figure 3: Chinese Soybean Imports

The U.S. is a net exporter of total agricultural commodities with exports of $138 billion and imports of $121 billion in calendar year 2017. However, commodities differ in the amount of domestic consumption and trade that make up their markets. The largest international market for raw U.S. corn is Mexico, while China is the largest market for U.S. soybeans. In 2017, the U.S. produced 4.2 billion bushels of soybeans of which 2.2 billion left the country as whole soybeans. China represents about 62% of U.S. soybean exports. Nearly one third of the total U.S. soybean crop leaves for China in the form of whole soybeans. A recent report from Purdue University projects that a 25% tariff could reduce China’s imports of U.S. soybeans on average by 4.4% and shift soybean acreage to other commodities, including corn. Corn prices would face downward pressure with higher acreage and production, assuming no change in demand.

Using the price declines published from Purdue University and a fictional representative west central Ohio grain farm, the effects for Ohio corn and soybean producers analyzed here shed light on what producers can expect from a Chinese tariff on U.S. soybeans, corn and pork in the short term. Due to uncertainty about the extent to which China will substitute between U.S. and Brazilian soybeans in response to a tariff on U.S. soybean imports, the authors of this report ran two scenarios. Details of the representative farm and the price substitution scenarios are included in the full report. The projected price inputs for the representative farm through 2024 are illustrated in Table 1.
As shown in Table 1, the reduction in commodity prices results in lower net income per year through 2024. The average net income under the baseline is $63,577, but falls to $26,107 under the estimates from a 25% Chinese tariff. The drop in net income per year reduces the farm’s projected net worth in 2024 by 6% and increases the debt to asset ratio to 34.7%, up from 32%. The expectation is that lower commodity prices will put downward pressure on land values, further reducing net worth. Under the scenario, the current ratio and debt coverage ratio fall to levels that would generate concern for the financial health of the operation. Farms with different ratios and financial structure will respond to the effects of tariffs differently, with larger impacts for farms with higher debt levels and smaller negative impacts from farms with lower debt levels. These results are based on a crop rotation that remains 50/50 with corn and soybeans. Stronger returns for corn later in the projection period could encourage producers to alter the current crop rotation with either introduction of other crops such as wheat and barley, or a higher percentage of corn planted. The farm also has a low equipment replacement rate. A U.S. tariff on international steel will raise the price of U.S. steel and equipment. The representative farm accounts for capital depreciation and replacement costs based on an estimated lifespan, but the impact to cash flow and net worth is smaller than the impact to farming operations with higher machinery turnover.

These data should not be seen as a concrete prediction, as an analysis of external factors such as weather and shifts in demand could alter the outcomes. The full report with more detail can be downloaded at: https://tinyurl.com/ycdv7jmb