The Importance of NAFTA for the Agricultural Sector

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THE IMPLEMENTATION of the North American Free Trade Agreement (NAFTA) in 1994 opened borders to trade between the United States, Canada, and Mexico. The agreement originated from the free trade agreement the United States and Canada signed in 1988. NAFTA eliminates almost all barriers to trade and investment between the three North American countries and includes provisions for the protection of intellectual property rights. Certain trade barriers for agricultural products remain under NAFTA—notably, products under supply management in Canada (dairy, eggs, and poultry).

President Trump pushed for the re-negotiation of NAFTA soon after his election. Canada and Mexico agreed and negotiations are currently ongoing. NAFTA has been effective for more than 20 years and the economies of the three North American countries have significantly changed since its inception. In agriculture, notable changes include the disappearance of the Canadian Wheat Board, the growth in the production of ethanol from corn, increased competition from the rest of the world, the signature of other trade agreements and the increased integration of the economies of the three countries.

NAFTA has facilitated the integration of the agricultural sectors of the three countries with the gradual elimination of almost all tariffs and improved cooperation for the application and enforcement of sanitary and phytosanitary measures. NAFTA is so central to trade in North America that it is easy to forget how important this trade agreement is to the US economy and to the US agricultural sector. We briefly review in this article some statistics about agricultural trade between the United States, Canada, and Mexico and discuss key issues regarding agricultural trade.

Agricultural Trade Between Canada, Mexico and the United States

Trade flows of agricultural commodities between the United States, Canada, and Mexico are very large. In 2016, US agricultural imports from Canada totaled $24.9 billion while US exports amounted to $25.3 billion. In the same year, US imports of agricultural products from Mexico reached $24.66 billion and US exports to Mexico were $17.68 billion.

Figure 1 shows agricultural trade volumes with Canada and Mexico for individual states. As expected, larger states and states that share a border with Canada or Mexico tend to trade more. Canada trade flows are large for most states. Annually, all states except Wyoming and Kentucky exchange at least $10 million worth of goods with Canada through imports and exports. Mexico-US trade flows are larger for Southern states, in particular Texas and California. However, exports by Midwestern States—Iowa, Nebraska, Missouri and Kansas—to Mexico exceed $1 billion, but these states' import flows from Mexico are small. Mexico imports large quantities of corn from Midwestern States.

Trade for Major Agricultural Product Categories

Figure 2 shows trade values for selected major agricultural product categories between the United States and Canada. Canada is a large importer of beverages,

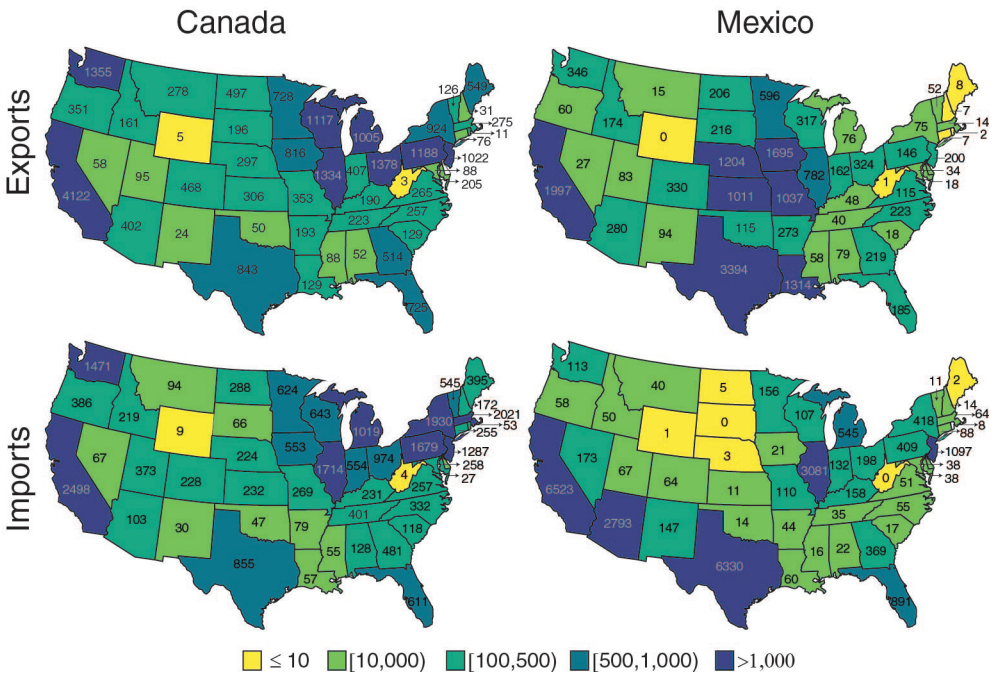

Figure 1. Value of states' trade of agricultural products with Canada and Mexico in 2016 (in millions of dollars)

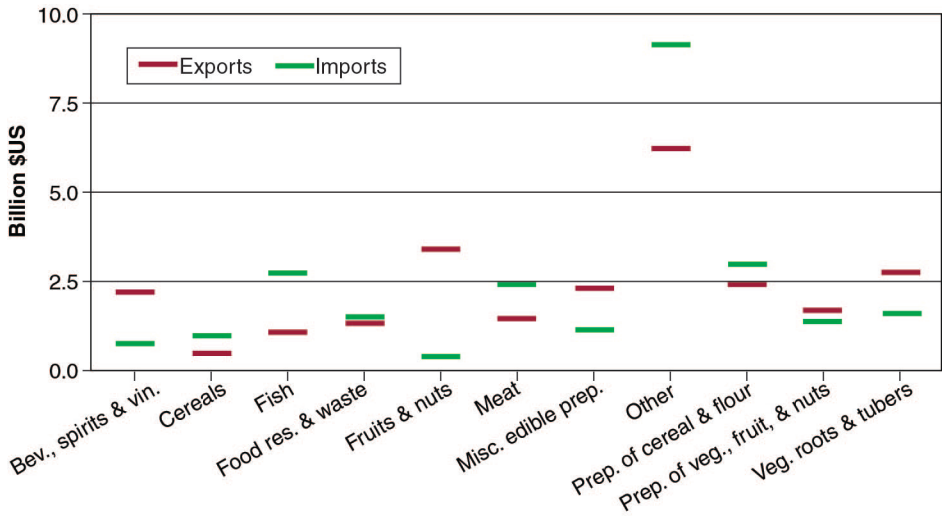

Figure 2. US trade of agricultural products with Canada in 2016

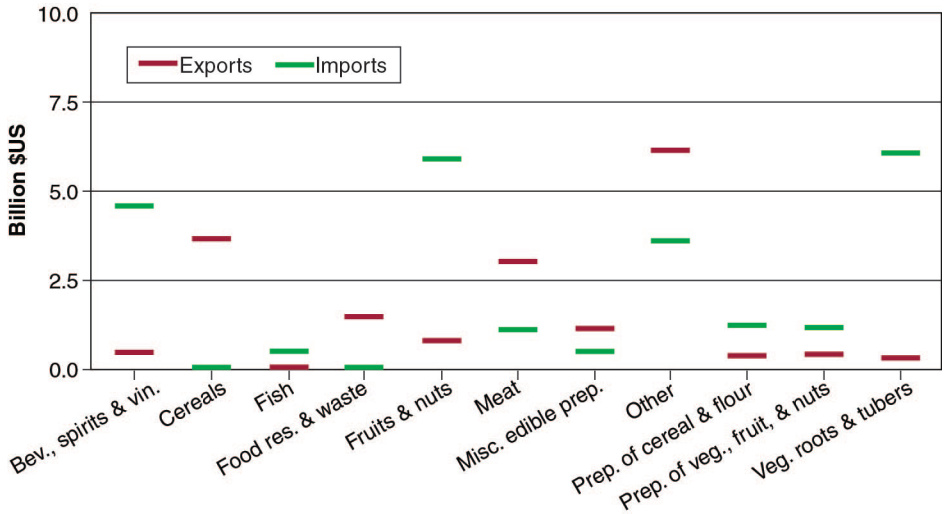

Figure 3. US trade of agricultural products with Mexico in 2016

spirits and wine, fruits and nuts, miscellaneous edible preparations, and vegetables. The United States' main imports of agricultural products from Canada are fish, meat, and preparations of cereals and flour. The trade values are large for the "Other" category because trade values between Canada and the United States are spread across several agricultural product categories, including live cattle and hogs.

Figure 3 shows trade values for selected major agricultural product categories between the United States and Mexico. The United States' main exports to Mexico are cereals and meat. The United States' main imports from Mexico are beverages, spirits and wine, fruits and nuts, and vegetables, roots, and tubers. The "Other" is not as important for trade between the United States and Mexico as it is for trade between the United States and Canada. Trade between the United States and Mexico is concentrated over a smaller group of products.

Going Forward with NAFTA

Generally, NAFTA has been operating very well except for a few irritants. Trade talks are notoriously slow and agriculture is typically a major point of contention. However, agriculture may not be a major obstacle in the current NAFTA negotiations. Nonetheless, there are certain agricultural trade issues that are likely to be sensitive.

In Canada, products under supply management —dairy, chicken and eggs—are likely to remain protected if the outcome of recent trade negotiations are any indication. In 2016, Canada signed CETA, a free trade agreement with the European Union. Although the European Union attempted early in the negotiations to convince Canada to terminate its supply management programs, it only obtained small concessions on cheese imports. Likewise, in the Trans-Pacific Partnership (TPP), an agreement that will not include the United States, Canada agreed to minimal concessions regarding its supply management programs with import increases representing between 1.5 percent and 3.25 percent of domestic production.

Mexico and the United States were recently involved in a dispute over sugar. The dispute was resolved in June with Mexico agreeing to limit its exports of refined sugar to the United States. It is likely that Mexico is considering this as a temporary solution and will seek a permanent solution with NAFTA. Mexico is the largest importer of US corn and has been using its corn imports from the United States as a bargaining chip. Indeed, Mexico has threatened to buy corn from South America to replace its corn imports from the United States. Closing of the Mexican market to US corn would cause a significant decline in corn prices in the United States, which would be particularly painful for corn-belt states.

Many US farm organizations have voiced their support for NAFTA and this should facilitate negotiations

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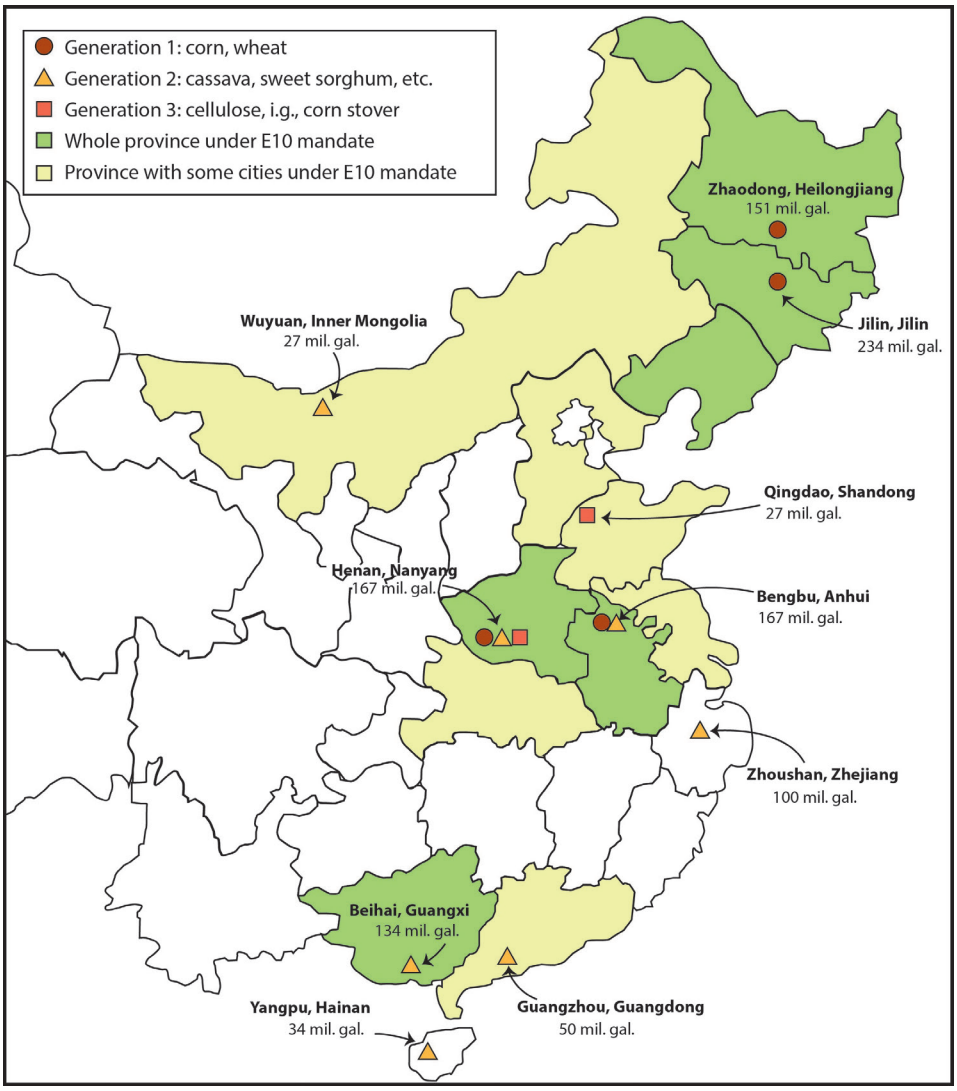

Figure 3. China's regional E10 mandate trial areas and ethanol refineries (annual production capacity is under location name)

after the United States, Brazil, and the European Union. From 2004 to 2016, the average annual production growth rate was 16.8 percent.

Corn is China's main feedstock (called generation 1, see Figure 1) for ethanol production, currently accounting for 64 percent of total output.[1] The four state-owned corn ethanol producers, located in corn producing regions in northern China (see Figure 3), were established after the regional trial started in 2002, following a historical peak in corn stockpile. As the stockpile decreased and refineries started to use newly harvested corn for feedstock, the government stopped approving additional generation 1 ethanol refineries in 2007 (CDRC 2007). By calling for "appropriate development of grain-based ethanol," the current national E10 mandate relaxes the government's previous stance against corn-based ethanol.

After China halted the development of generation 1 ethanol in 2006, it shifted support to "generation 1.5" feedstock, such as cassava and sweet sorghum. Cassava, a tuberous starchy root commonly grown in tropical and sub-tropical areas, became the second-largest source of feedstock, currently accounting for 23 percent of total output. However, it is challenging to grow enough generation 1.5 feedstock domestically, and cassava refineries in China still heavily rely on imports (IEA Bioenergy 2016). Cassava refineries are located in southern China, close to domestic and foreign cassava production regions (Figure 3). Recently, China has been encouraging ethanol production using cellulosic feedstock (called generation 2). However, cellulosic ethanol production is not expected to reach large scale production until 2025 (NEA 2017).

The production and distribution of ethanol in China is integral to the regional E10 trial program. Trial areas, selected based on proximity to production, expanded from several cities in 2002 to six provinces and more than 30 cities today. State-approved ethanol refineries are exclusive suppliers in the nearby trial areas. They sell ethanol to designated state-owned fuel companies at 91.11 percent of market gasoline wholesale price. The fuel companies then blend ethanol with gasoline, and distribute the resulting E10 fuel in the trial areas where only E10 fuel is allowed to be sold.

Since the ethanol price is proportional to the gasoline price, ethanol producers in China have suffered due to low oil prices. Before 2015, corn based ethanol producers also experienced high input price caused by the corn price support program. Moreover, China has gradually

[1]In 2016, Generation 1 and Generation 1.5 made up 92 percent of total output, while Generation 2 made up 8 percent (USDA 2017a, table 5). In the previous year, corn and cassava made up 70 percent and 25 percent of Gen 1 + Gen 1.5 output, respectively.

removed subsidies for ethanol refineries, especially those using first generation feed stocks. Although the policy details are not clear yet, the new national mandate is likely to good news for the embattled ethanol industry.

China has been importing substantial quantities of ethanol in the past two years. Before 2015, even though the imported ethanol was much cheaper than domestic ethanol, very little ethanol was imported. This is due to government forbidding distributors to handle imported ethanol in order to protect the domestic ethanol industry. Starting in 2015, imports rapidly increased and reached almost a quarter of total supply in 2016 (225 million gallons), with 95 percent from the United States (in that year, China was the third-largest export destination of US ethanol, encompassing 17 percent of total US ethanol exports). However, at the end of 2016, China increased the import tariff from 5 percent to the WTO bound rate of 30 percent, causing the 2017 import forecast to drop to only 35 percent of 2016 levels (USDA 2017a).

Potential implications of China's National E10 Mandate

Currently, China consumes 40 billion gallons of gasoline and one billion gallons of ethanol. Projections show that by 2020 gasoline consumption will reach 46 billion gallons (USDA 2017). Meeting the national E10 mandate would require an extra 3.6 billion gallons of ethanol, putting China ahead of the European Union to become the world's third-largest ethanol consumer.

Since details of the mandate have not been disclosed, it is not yet clear how China will generate more than four-fold output growth within three years (assuming domestic production is to keep up with consumption). Currently, production capacity utilization rate is about 85 percent (USDA 2017), therefore a short-term production spur can be achieved with existing facilities. Beyond that, a dramatic increase in capacity is needed. Since it takes one to two years to build a large scale generation 1 or 1.5 refinery in China, it is possible that China will be able to construct the physical facilities in time.

However, if the current trends in consumption and production continue, China's corn stock will fall quickly, opening up potential opportunities for more imports. If we assume that consumption growth follows the same trend it has shown 2010, and that production decreases at its recent pace for one more year (to 2017/2018), and then stabilizes (Figure 4), the ending stock will be used by the end of the 2020/2021 crop year, even in the absence of the ethanol mandate.

The ethanol mandate will further speed up the stockpile reduction. It will require between roughly 0.65 billion and 1.35 billion bushels of corn per

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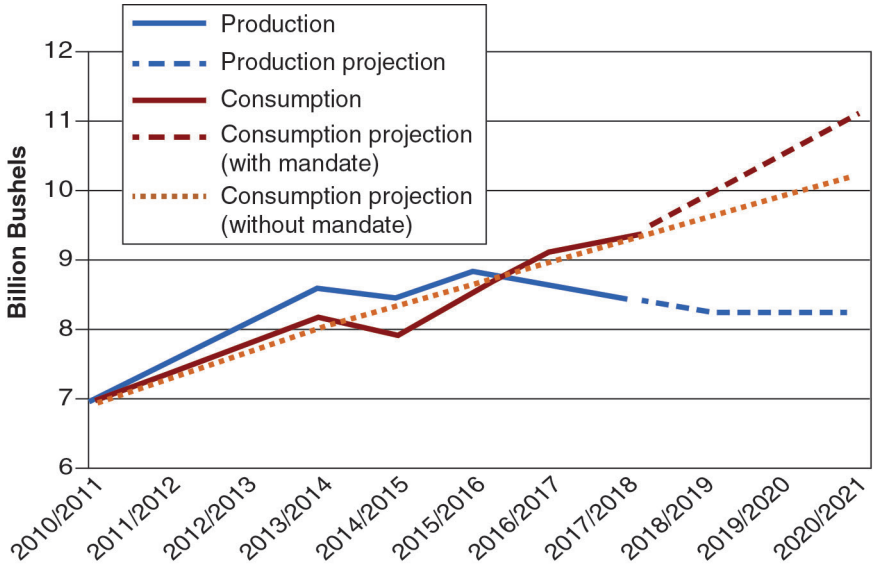

Figure 4. China's corn production and consumption, history and projections

Source: USDA FAS data

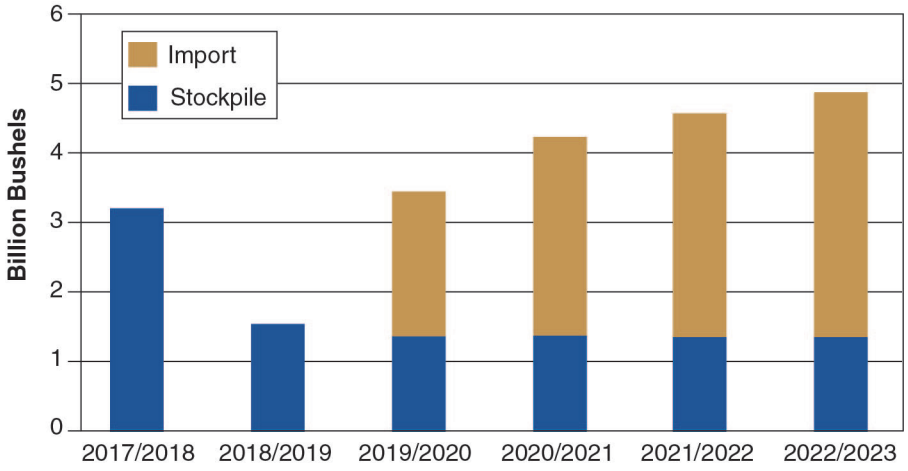

Figure 5. Projected corn stockpile with ethanol mandate and import needed to maintain a minimum stockpile of 1.39 billion bushels