IOWA STATE UNIVERSITY
Extension and Outreach

Iowa Farm Outlook

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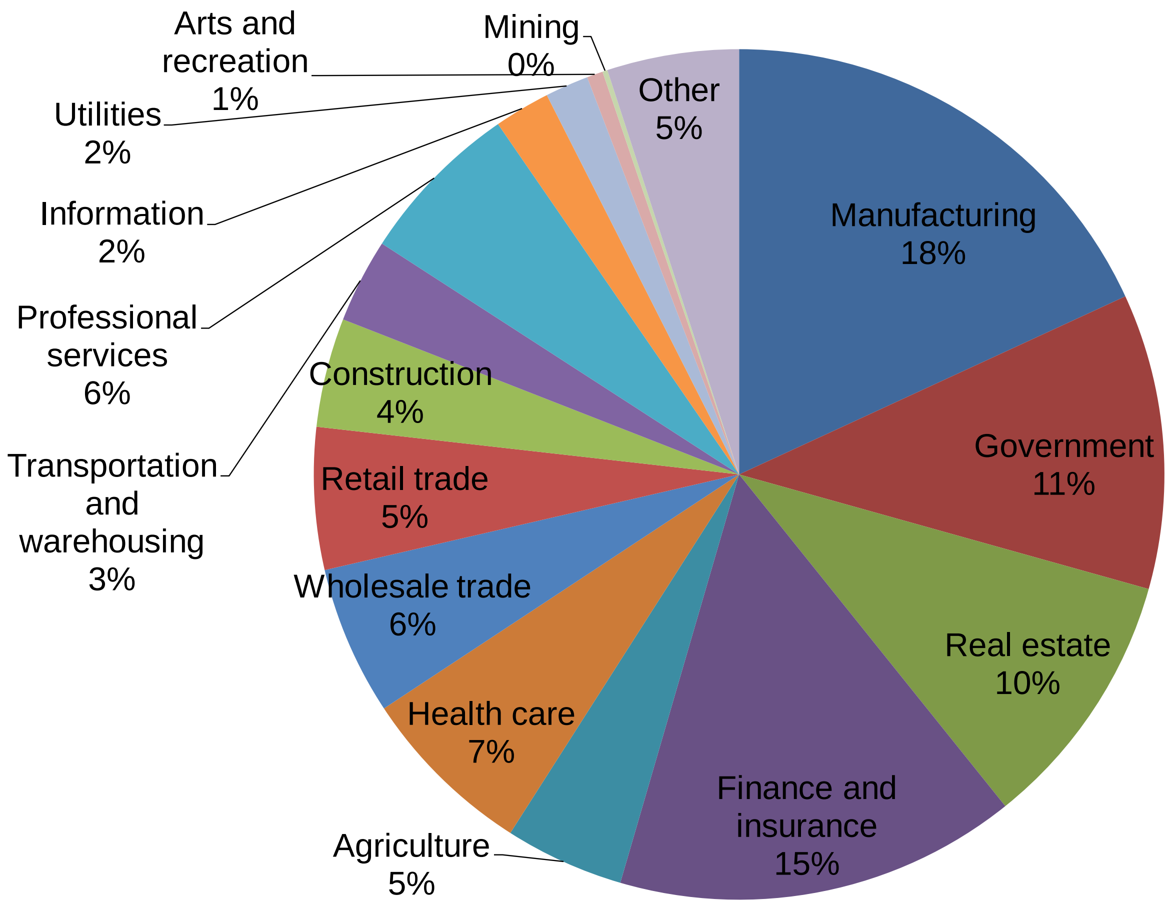
Trade and the Iowa Economy

Over the past two years, U.S. trade policy has shifted dramatically, with several trade disputes now underway. From the uncertainty of the ongoing NAFTA renegotiations to the multiple rounds of tariffs between the U.S. and China, U.S. producers and consumers are adjusting to shifting export/import patterns and higher costs of international trade. International trade is very important to the Iowa economy. A quick summary of the 2017 Iowa economy showed Iowa's gross domestic product was $190 billion. The manufacturing and financial industries were the top contributors, combining for roughly one-third of Iowa's output. Several other sectors, including health, real estate, and government, exceed production agriculture's direct contribution of five percent. However, these numbers mask the indirect impact of agriculture across the Iowa economy. One of the largest segments in Iowa manufacturing is agricultural machinery. The Iowa Department of Agriculture is among the largest departments in the state government. Farm leasing is a major component for Iowa's real estate sector. Crop insurance is one of the leading segments in Iowa's financial industry.

Figure 1. Iowa's economy in 2017 (Source: BEA)



The Census Bureau estimated Iowa's overall export value for 2017 at $13.4 billion, roughly 7% of Iowa's GDP. Corn is the top export product listed at $1.18 billion. Tractors are second at $747 million. Fresh and chilled pork is third at $442 million. Herbicides and frozen pork round out the top five. The Census Bureau also tracks the destination of Iowa exports. Based on their data, Canada is the top export destination for Iowa, receiving $4.08 billion in Iowa products. Mexico is next with $2.26 billion. Japan is third at $1 billion, with China and

Germany completing the top five. Only two of Iowa's top ten export products can be classified as non-agricultural, civilian aircraft parts at $282 million and aluminum alloy plates at $207 million. So agriculture dominates Iowa's trade scene. But these numbers actually understate Iowa's trade picture as the Census Bureau data is based on origin of movement. That means that products produced in Iowa, but warehoused or stored in another state before export, would be counted as exports for the warehousing state.

To better estimate agricultural export values, USDA's Economic Research Service (ERS) has examined farm cash receipt data to reallocate agricultural exports at the state level. Their estimates reveal over $10 billion of agricultural production is exported from Iowa, second in value only to California. The latest estimates for the 2016 calendar year show Iowa is the leader in pork ($2 billion), hides ($237 million), corn ($1.8 billion), feeds ($1.36 billion), and soybeans ($3.24 billion).

Table 1. Iowa's Ag Export Rankings and Values for 2016 (Source: USDA-ERS)

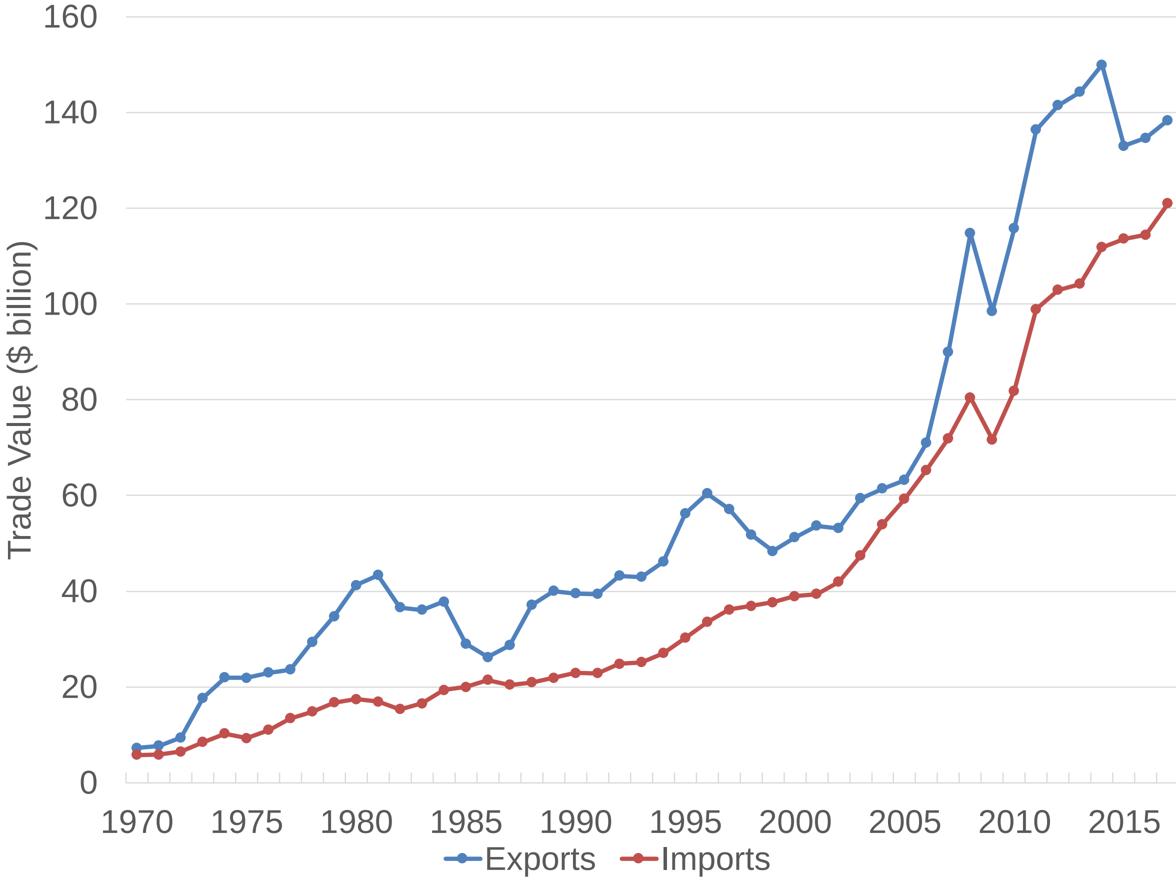
Category	State Ranking	Value ($ million)
Total Ag Exports	2	10,890
Total Animal Exports	1	2,910
Beef	4	384
Pork	1	2,000
Hides	1	237
Dairy	12	113
Other Poultry	4	132
Total Plant Exports	2	7,990
Corn	1	1,800
Feeds	1	1,360
Processed Grain	1	485
Soybean	1	3,240
Soybean Meal	1	581
Vegetable Oils	1	410

While country specific export data is not published at a state level by USDA, Iowa exports would likely follow the national patterns, given Iowa's high rankings for many agricultural products. Across all agricultural products, Canada and China rotate in the top spot, with roughly $20 billion of agricultural trade each year. Mexico is the 3rd largest agricultural market for the U.S. at $18 billion. The European Union and Japan round out the top five, with trade values in the $11 billion range each.

Burrowing into the commodity-specific numbers for the 2016 calendar year, Canada and Mexico each purchased over $700 million of beef from the U.S. In the pork market, all three countries (Canada, China, and Mexico) are major trade partners and combined they represented over half of all U.S. pork exports. Mexico is the largest international market for corn and soybean meal, capturing roughly 25% of U.S. corn exports and 20% of U.S. soybean meal exports. Meanwhile, China has dominated U.S. soybean exports, taking roughly 60% of all exports. $14 billion of China's $20 billion agricultural trade with the U.S. is in soybeans alone.

Agriculture is an area where the U.S. has maintained a trade surplus for a very long time. As Figure 2 shows, since 1970, the U.S. has enjoyed an agricultural trade surplus. The figure also shows the tremendous growth in agricultural trade over the past few decades. Both agricultural exports and imports have risen significantly over time. U.S. agricultural imports have steadily risen, with the only major downturn related to the Great Recession. U.S. agricultural exports, on the other hand, have been much more variable, shifting sizably with trade policies and commodity prices. The downturn in the 1980's is linked to the Russian Grain Embargo and the farm financial crisis that followed. The boost in the late 2000's is tied to the dramatic expansion of soybean trade with China and the general rise in commodity prices, 2006-2013.

Figure 2. U.S. Agricultural Trade (Source: USDA)

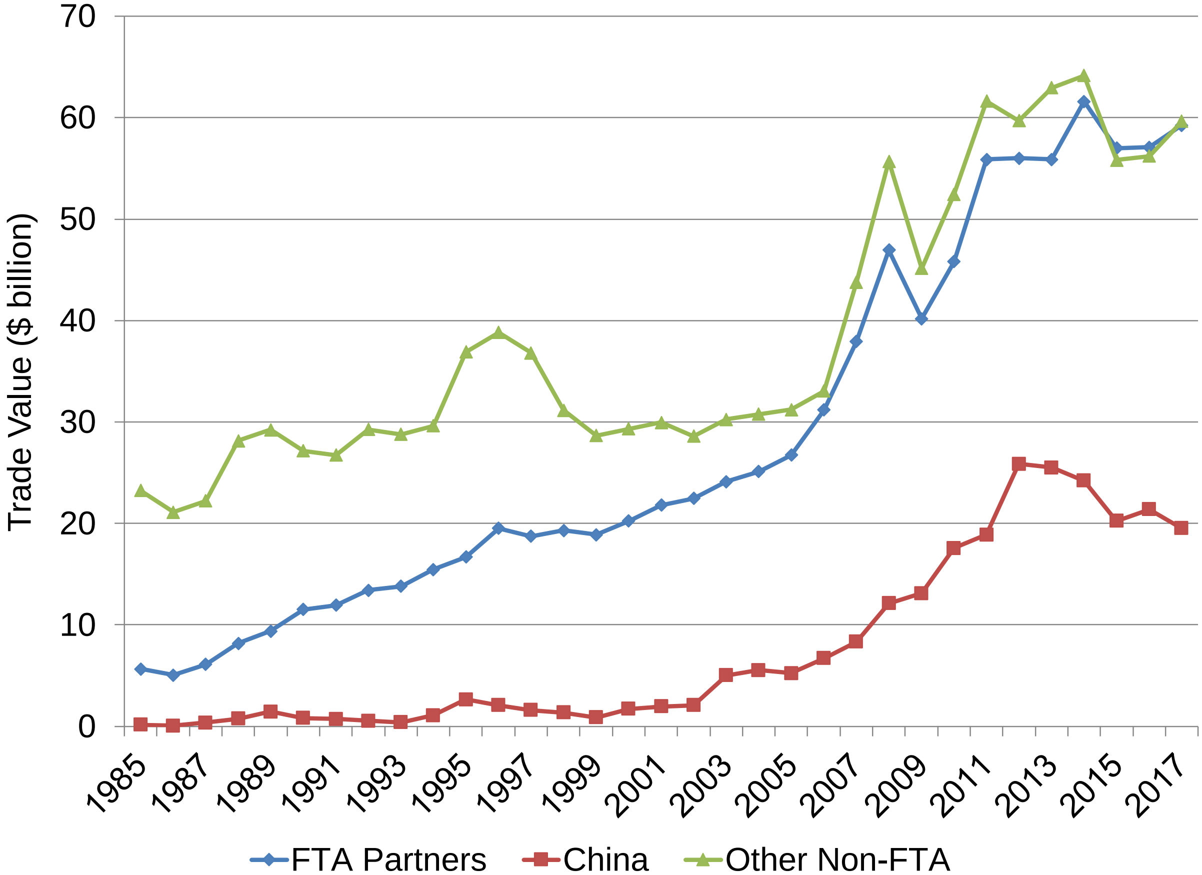


The expansion of agricultural trade has been global, but the largest effects are concentrated. Figure 3 separates U.S. agricultural export values among three groups; countries with which we have free trade agreements, China, and the rest of the world (labeled Other Non-FTA). During the past few decades, U.S. agricultural exports have increased for each of the three groups. However, the growth has been more significant with our free trade partners. Over the course of the last four decades, the U.S. has entered 14 free trade agreements, with 20 countries. Most of these agreements are bilateral, but there are two multilateral agreements, NAFTA with Canada and Mexico and CAFTA-DR with a number of countries throughout the Caribbean and Central America. As our trading relationships with these countries matured, our agricultural exports soared, rising from 19% of total ag exports in 1985 to 43% in 2017. The bulk of that growth came with NAFTA. China had been a relatively small ag trade partner until the early 2000's. However, the need for feed for the Chinese hog industry created the impetus for seismic shift in soybean trade. The growth in export values to China from 2003 to 2012 reflects the combination of greater numbers of bushels of U.S. soybeans headed to China and higher soybean prices throughout the period. And while soybean export quantities have continued to grow since then, with the exception of 2017, soybean prices have fallen significantly, lowering export values.

This figure shows that more open and free trade has benefitted U.S. and Iowa agriculture. While it is not the only driver in export growth, as the growth in the U.S.-China trade exhibits, it is a very significant factor. Economic theory in trade outlines the idea of comparative advantage, the ability for an entity to produce a good or service at a lower cost than other entities competing with it. Different countries will have different products where they have a comparative advantage. Given the dispersion of comparative advantage across countries and products, trade can be mutually beneficial to all countries involved. Tariffs, border taxes, and other trade-restricting policies distort cost structures and thus, distort comparative advantages and trade flows.

In the case of agriculture, the United States has a comparative advantage. We are the world's largest producer of many agricultural products and have developed significant resources to transport our agricultural products throughout the country and around the world. Compared to other countries in the world, the United States is a high production, low cost source of agricultural products. As the figures show, the removal of trade barriers, such as tariffs, via free trade agreements provides an economic boost to U.S. agriculture.

Figure 3. U.S. Agricultural Exports (Source: USDA)



Many of our agricultural products now rely on international demand as a major component of total demand. For the major Iowa crops, exports for the 2016/17 crops consumed 15 percent of U.S. corn and 48 percent of U.S. soybeans. However, other crops are just as, if not more, reliant on exports. Forty-five percent of the U.S. wheat crop is exported, along with 47 percent of U.S. sorghum, 51 percent of U.S. rice, and 84 percent of U.S. cotton. International trade is also important to the livestock and dairy industries. Twenty-one percent of all U.S. pork is shipped to other countries, along with 10 percent of U.S. beef, 17 percent of U.S. broilers, 9 percent of U.S. turkeys, and 22 percent of U.S. dairy. U.S. agricultural production has expanded to match the demand we see from the rest of the globe.

This year has been a lightning rod for trade disruptions, but trade rebalancing was a major issue for the Trump administration since taking office. The KORUS agreement was modified. NAFTA is undergoing renegotiation. Trade issues have erupted between the United States and China on a variety of fronts and the battle over tariffs has escalated quickly. At the beginning of 2018, the United States imposed tariffs on imported solar panels and washing machines, and China responded by initiating an anti-dumping investigation into U.S. sorghum. In early March, President Trump announced steel and aluminum tariffs with China being one of the primary targets. Within two weeks, China responded by announcing a list of 128 U.S. products that are the targets of retaliatory tariffs. The list included pork products and ethanol. Other countries and regions impacted by the steel and aluminum tariffs, such as Canada, Mexico, and the European Union, also responded with tariffs, often hitting agricultural targets. As those tariffs went into effect, the U.S. Trade Representative announced 25% tariffs on $50 billion worth of Chinese imports, along with investment restrictions, and the submission of a case to the World Trade Organization over China’s trade practices. The Chinese government responded immediately with its own tariff package, targeting roughly $50 billion of U.S. imports, including the largest agricultural import, soybeans. The volleying may continue as President Trump has mentioned the possibility of another round of proposed tariffs for Chinese imports. While agriculture has not been the root cause for any of these disputes, it has played a prominent role in the international responses to U.S. tariffs.

Previous trade battles, such as the Russian Grain Embargo and the 2009 Chinese dispute (Tires vs. Chickens), have outlined that once trade market share is lost, it's hard to get back. Trade flows adjust to avoid tariffs, embargoes, and other trade-distorting policies. Countries outside the disputes gain market share, as their products displace others that face trade barriers. The European Union gained much of the trade the U.S. lost from the Russian Grain Embargo. Brazil and the European Union replaced the U.S. for much of the Chinese chicken trade. The loss of market share and the resulting loss of farm income is a major concern for U.S. agriculture given the current trade disruptions.

To offset the loss in farm income, USDA announced the details for the short-term tariff relief package. The trio of programs making up the relief package is authorized to utilize up to $12 billion to reduce the impacts of trade disputes on U.S. agricultural producers. The three programs are the Market Facilitation Program, the Food Purchase and Distribution Program, and the Agricultural Trade Promotion Program. The Market Facilitation Program will provide direct financial support to corn, cotton, dairy, hog, sorghum, soybean, and wheat producers. The Food Purchase and Distribution Program will purchase commodities targeted in the trade disputes. The Agricultural Trade Promotion Program will provide additional resources to access and develop new international markets for U.S. products.

In the initial phase of this relief package, an estimated $6.31 billion of the $12 billion will be spent, with $4.69 billion for the Market Facilitation Program, $1.41 billion for the Food Purchase and Distribution Program, and $200 million for the Agricultural Trade Promotion Program. The remaining funds could be utilized for a second round of support later this winter, likely in December. Sign-up for the various programs began on September 4th.

For the Market Facilitation Program (MFP), the crop payments will be based on current 2018 production, so farmers must apply after harvest. Hog payments will be based on the number of owned live hogs, as of August 1st. Dairy payments will be based on the historical production record for the Margin Protection Program for Dairy, established with the operation's highest annual milk production during 2011-2013. Dairy farms must have been operating on June 1st to receive a payment. In all cases, applicants must have an ownership interest, be actively engaged in farming, have an average adjusted gross income (AGI) of less than $900,000 for the 2014-2016 tax years, and have complied with regulations on highly erodible land and wetland conservation. The payment rates were determined by USDA, based on their estimates of trade disruptions for the individual commodities. For all commodities covered, the payments will be made on 50% of eligible production, with the potential for another round of payments for the remaining 50% later this winter. USDA will determine in December if additional payments are needed. The table below shows the payment rates and the estimated total payments by commodity this round.

Table 2. Market Facilitation Program Payment Details

Commodity	Payment Rate	Estimated Total Payments
Corn	$0.01 per bushel	$96 million
Cotton	$0.06 per pound	$276.9 million
Dairy	$0.12 per hundredweight	$127.4 million
Pork	$8.00 per head	$290.3 million
Sorghum	$0.86 per bushel	$156.8 million
Soybeans	$1.65 per bushel	$3.63 billion
Wheat	$0.14 per bushel	$119.2 million

Given USDA's recent production estimates, Iowa producers stand to gain over $550 million from MFP, with the lion's share going to pork and soybean producers. The MFP payments do have a $125,000 cap per person or legal entity, but the cap works differently between crops and livestock. The cap for the crops is a combined one, summing producers' MFP payments from all five of the crops. The cap for the livestock products is separate from the crops, so diversified producers with both crop and livestock production can receive more than $125,000 from the program. A second MFP payment is not guaranteed this winter. If the USDA determines that the trade disputes are still damaging U.S. commodity markets this winter, they will compute another MFP payment rate, based on the damage estimates at that time, and apply that payment rate to the remaining 50% of production not covered by the initial payments.

The Food Purchase and Distribution Program will purchase a variety of products, from beef and pork to peanut butter and orange juice, which face trade disruptions. While USDA has outlined targeted values for individual commodities, the purchases will be adjusted to match estimates of economic damage from tariffs and will be spread out to match the purchases with needs in nutrition assistance programs. The purchased commodities will be used in the school lunch program, along with other food assistance and child nutrition programs. Targeted purchases include $93 million of applies, $15 million of beef, $85 million of dairy products, $559 million of pork, and $2.4 million of sweet corn.

The $200 million addition to the Agricultural Trade Promotion Program will be used for cost-share assistance on agricultural market development. Eligible U.S. organizations that create and promote agricultural trade relationships can tap into these funds for consumer advertising, demonstrations, exhibits, market research, public relations and outreach, and technical assistance. Applications for these funds will be open until November 2nd or until funding is exhausted, which happens first.

For more details on these programs, along with information on how to apply, see USDA's Trade Retaliation Mitigation website, https://www.farmers.gov/manage/trm.

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