

Of Maize and Markets: China's New Corn Policy

by Qianrong Wu and Wendong Zhang

qianrong@iastate.edu; wdzhang@iastate.edu

IN EARLY 2013, farmers in Iowa and across the Midwest braced for a difficult corn market, with prices declining from \$7/bushel in late 2012 to \$4/bushel in early 2015, and finally settling at \$3/bushel. Shielded from the world market, corn producers in China enjoyed a steady elevated corn price of almost \$10/bushel from 2011 until 2015—largely a result of China's obscure price floor corn policy. While China's corn production is mainly used for domestic consumption, policy changes in China's corn markets have trade implications for the global corn, beef, and pork sectors. For example, last month, the United States filed a complaint with the World Trade Organization over China's excessive subsidies to corn, rice, and wheat farmers (OUSTR 2016). In this article, we examine why China has ended its nine-year-old corn price support policy, and implemented new corn policies.

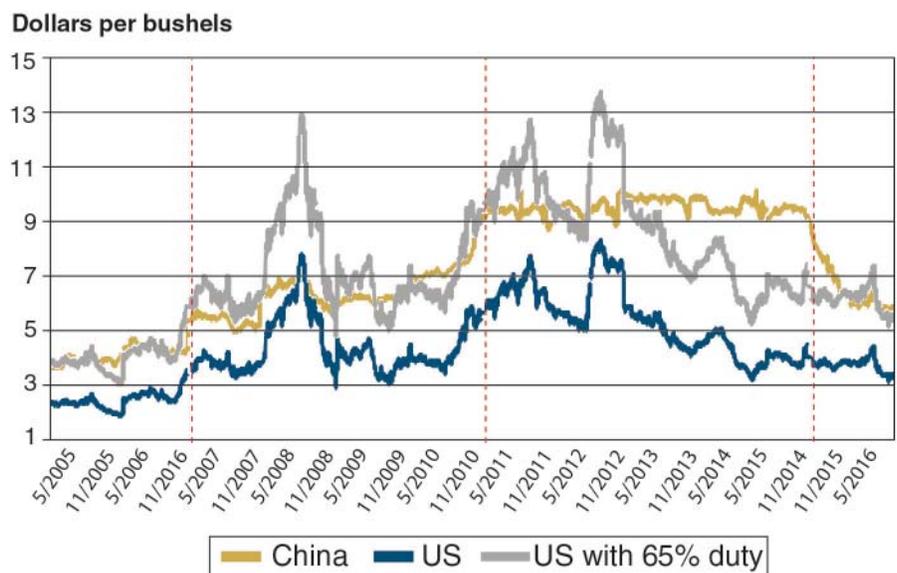
China's Costly Corn Support Price Program 2007–2016

Corn, wheat, rice, and soybeans are major crops in China, and Chinese farmers have been paying agricultural taxes to grow these crops for almost two thousand years. In 2004, China switched from taxing corn farmers to providing subsidies for seed and machine purchases. To further boost rural income and ensure national food security, China started a nationwide corn stockpiling program in 2007. A key feature of this policy is that the government collects corn from farmers at minimum support prices, which are typically substantially higher than market prices. This significantly distorts the market—artificially elevated support prices have enticed farmers to

grow corn and sell to the state storage facilities, while rising labor cost due to the increased rural income from this support policy have kept corn prices high. Figure 1 shows historical corn future prices in China and the United States—clearly revealing that from 2007 to 2016 China's policy drove corn prices up to two or three times that of US corn prices. Interestingly, it seems that China's support price program has gone through two phases: (a) from 2007 to 2010, the target support price for corn tracked closely to the corn import price plus a 65 percent out-of-quota duty; and (b) in 2011, China unveiled a fixed and extremely costly support price policy that kept futures prices between \$9–\$10/bushel for almost five years.

High corn prices created incentive for Chinese farmers to produce more corn (see Figure 2). Farmers planted corn in grasslands, deserts, on mountainsides, and in marshes under the high corn price, increasing total acres to 95 million—a 26

percent increase from 2006 to 2015 (Li 2016). In 2012, corn exceeded rice in production to become China's largest grain crop (SCD 2015). The corn support policy also led to a drop in domestic corn consumption as well as a substantial increase in the import of corn substitutes. This is due to the high domestic corn price and a spatial mismatch between where corn is grown and where it is used. As Figure 3 shows, major corn production occurs in northern China, while the corn demand, proxied by leading pork production regions, is mainly located in the south. Corn in China is mainly used for feed, and transportation costs from the production to consumption areas makes imported feed a cheaper alternative (Iowa Farm Bureau 2014). Corn end-users in China (e.g., feed processing plants, livestock producers, bio-refineries) need to tradeoff between domestic corn and imported corn. On the one hand, corn produced in northeastern China has a steep



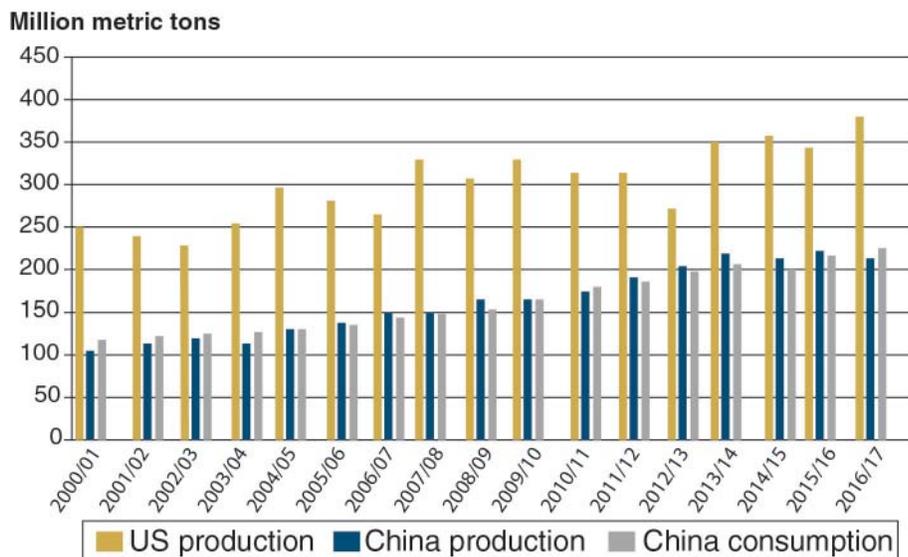
Source: <http://www.quandl.com/>

Figure 1. China and US corn future prices 2005–2016

support price plus a roughly 15 percent transportation cost; on the other hand, imported corn has a 65 percent out-of-quota duty for imports beyond the quota, plus barging costs and a \$20/ton ocean transport fee. The gray line in Figure 1 presents the 65 percent out-of-quota duty upon imported US No. 2 corn prices, revealing that Chinese corn was still too expensive from 2013 to 2015. As a result, massive amounts of corn and corn substitutes (sorghum, barley, DDGS, cassava chips, and cassava starch) were imported by China. In particular, Figure 4 reveals China's imports of corn, sorghum, and barley have more than quadrupled from 2011 to 2015 compared to low steady levels from 2005 to 2006. This is likely driven by the dramatic policy shift to a steep support price of \$9–\$10/bushel in 2011 (as shown in Figure 1).

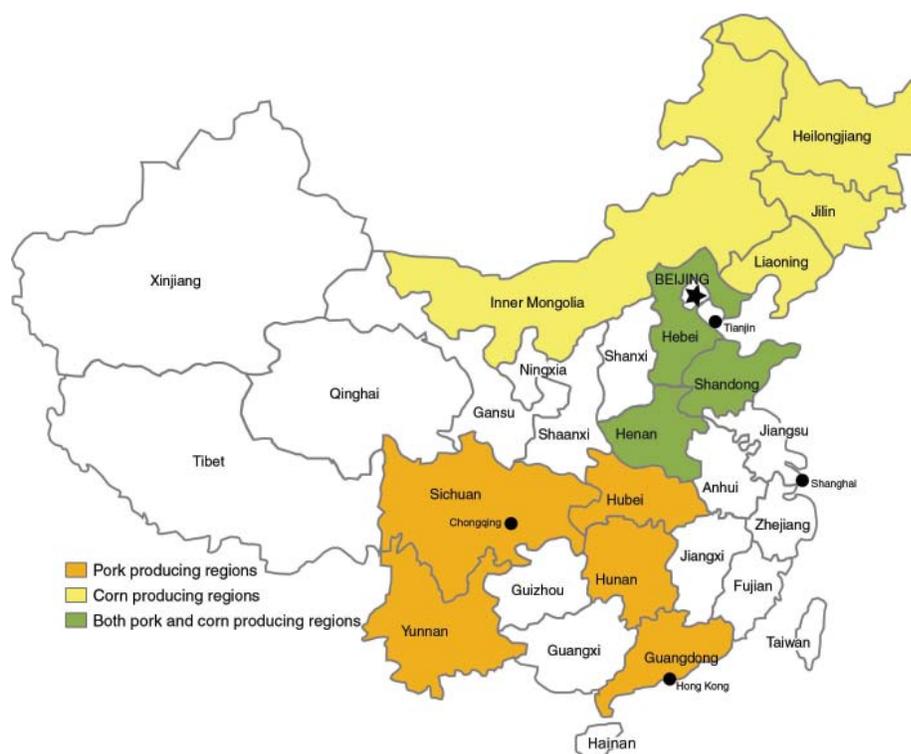
As Figure 5 shows, China's escalating corn storage is a noticeable outcome of the price support policy—China and the United States had roughly the same ending stocks in 2006/07, but in 2015/16, China's were almost double the US supply. Increased storage was the intention of the Chinese government, but is more a result of excessive production, import demand triggered by the support price policy, and a lack of domestic demand. In fact, warehouses in northeastern China currently have no room to store grain. More interestingly, corn storage accumulated faster after China unveiled the \$9–\$10/bushel fixed support prices in early 2011. By the end of 2015, China had stored enough corn for at least six months of domestic consumption. In contrast, the global average storage-to-consumption ratio is roughly 20 percent.

The stockpiling and support price policy has a steep price tag for China—the government faces significant financial burden due to high procurement prices. USDA estimated this policy has cost China more than \$10 billion (Ballard 2016). The



Source: USDA FAS Grain: world markets and trade

Figure 2. Corn production and consumption in China and the US 2000–2016

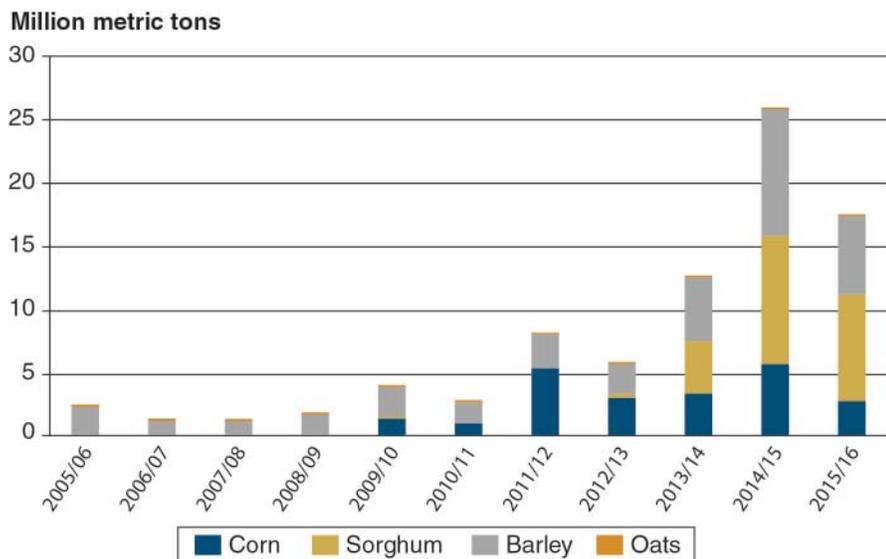


Sources: <https://www.statista.com/statistics/242632/corn-production-in-china-by-region/>
<http://chinaag.org/services/production/>

Figure 3. Major corn and pork production provinces in China

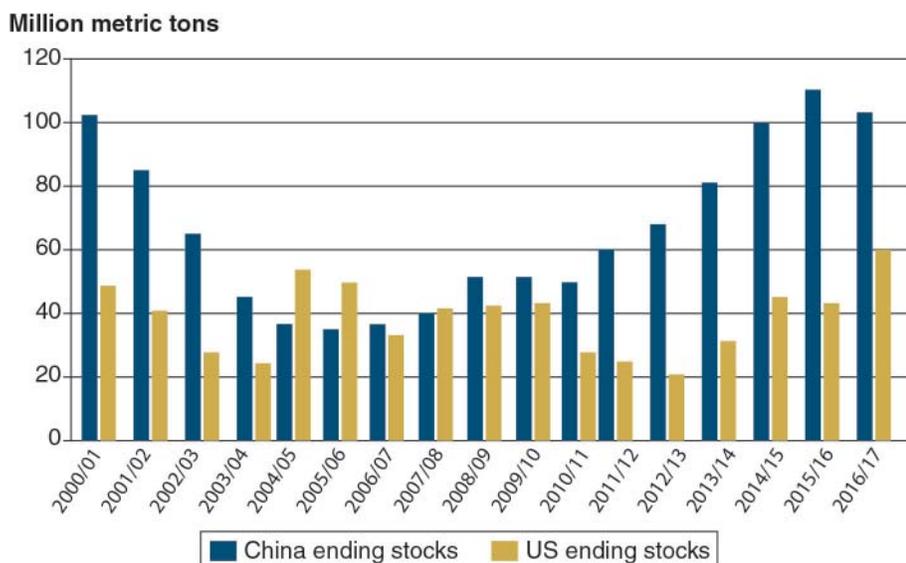
price support policy also took a toll on China's aging storage facilities. In addition to corn degradation caused by structural deficiencies of warehouses, problems like mismanagement were commonplace; in fact, Chinese state television reported officials profited from selling inferior grains at new grain prices, dubbing them

“rats in warehouses” (Hornby 2015). Some industry analysts estimate that over 20 MMT of corn reserves are so moldy or deteriorated that they are no longer suitable for human consumption or feed use (Gale, Jewison, and Hansen 2014). Due to the huge financial and storage burden, this stockpiling program was



Source: USDA FAS Grain: world markets and trade

Figure 4. China corn, sorghum, barley, and oat imports 2005–2016



Source: USDA FAS Grain: world markets and trade

Figure 5. China and US corn ending stocks 2000–2016

discontinued by the Chinese government in March 2016.

China's New Corn Subsidy Program

To replace the state stockpiling program and support price policy, China adopted a direct payment corn subsidy policy tied to planting acres in spring 2016—a policy familiar to US farmers. China's Ministry of Finance will allocate a 30-billion-yuan corn subsidy (\$4.51 billion) to farmers in four provinces

in northeastern China, which boasts more than 60 percent of China's corn production (Patton and Hogue 2016), in the 2016/17 crop year. The payment in each county will vary depending on the ratio of funds to area planted in corn, ranging from US \$109–\$163 per acre with an average of 150 yuan per mu (\$137 per acre) (Dim Sums 2016b,c).

China is now also employing multiple measures to cut corn production and storage. First, the

Chinese government just permitted state-owned companies to export about 2 million metric tons of corn to neighboring countries including Central Asia (Dim Sums 2016a). Second, China's Ministry of Agriculture is forecasting a 5-million-acre reduction in corn in 2016 due to the dramatically lower corn price, especially in fringe production areas out of the four northeast provinces (MAPRC 2015). Corn acreage is projected to drop from 93 million acres to around 86 million acres in 2018–2020 (Dim Sums 2015), and converted corn acreage is projected to soybean, other coarse grains, and fodder crops. Third, companies and interest groups have been lobbying the Chinese government to subsidize the use of stored corn for biofuel production.

Implications for US Agriculture

China is the largest and third-largest importer of US soybean and pork, respectively; therefore, it is critically important to assess China's corn policy and its impacts on US agriculture. In the short run, it seems China will embrace a direct payment corn subsidy program, similar to what the United States adopted about two decades ago. As a measure to decrease stored corn, China is offering corn exports at lower prices than the United States and Brazil, which could potentially put a downward pressure on the global corn market. However, the poor quality of stored corn might hinder China's role in the global corn export market. In the meantime, China's imports of corn substitutes might decrease in order to encourage domestic consumption.

In the medium and long run, China is downplaying the strategic role of corn, and only regarding wheat and rice as its two main food crops, which may suggest the possibility

continued on page 14

of a transition from a target of self-sufficiency towards greater involvement in the global marketplace. As the Chinese people demand more pork and beef with rising per capita income, China will likely need more corn and corn substitutes in the future. This need will be amplified with limited arable land, degrading soil quality, and an exodus of rural youth to cities. USDA projects that China will need to import significant amounts of corn—up to 22 MMT—by 2023/24 (Hansen and Gale 2014). The United States, along with Ukraine and Brazil, would likely be a major player if that were to happen. ■

Acknowledgement

The authors gratefully thank Chad Hart, Dermot Hayes, and Kelvin Leibold for their comments and suggestions on an earlier draft.

References

Ballard, E. 2016. "U.S. Sees Big Losses for China From Corn Stocks Write-Down." Wall Street

- Journal, April 15, 2016. <http://www.wsj.com/articles/u-s-sees-big-losses-for-china-from-corn-stocks-write-down-1460656943>.
- Dim Sums. 2015. "China Plans to Cut Corn Production by 2020." Dim Sums, April 14, 2015. <http://dimsums.blogspot.com/2015/11/china-plans-to-cut-corn-production-by.html>.
- Dim Sums. 2016a. "China Exports Corn to Tajikistan." Dim Sums, March 20, 2016. <http://dimsums.blogspot.com/2016/03/china-exports-corn-to-tajikistan.html>.
- Dim Sums. 2016b. "Corn-Soybean Rotation Subsidy in Heilongjiang Province." Dim Sums, September 5, 2016. <http://dimsums.blogspot.com/2016/09/corn-soybean-rotation-subsidy-in.html>.
- Dim Sums. 2016c. "Liaoning Corn Subsidy 120-180 yuan per mu." Dim Sums, September 17, 2016. <http://dimsums.blogspot.com/2016/09/liaoning-corn-subsidy-120-180-yuan-per.html>.
- Gale, F., M. Jewison, M., and J. Hansen. 2014. "Prospects for China's Corn Yield Growth and Imports." Department of Agriculture Economic Research Service, Washington, D.C.
- Hansen, J., and F. Gale. 2014. "China in the Next Decade: Rising Meat Demand and Growing Imports of Feed." Amber Waves. <http://search.proquest.com/docview/1536059629?pq-origsite=gscholar>.
- Hornby, L. 2015. "China's Rotten Grains Highlight Troubled Policy." Financial Times, April 19, 2015. <https://www.ft.com/content/6e8581ae-e669-11e4-afb7-00144feab7de#comments>.
- Iowa Farm Bureau. 2014. "Transportation costs keep China's corn prices high." <https://www.iowafarmbureau.com/Article/Transportation-costs-keep-Chinas-corn-prices-high>.
- Li, G. 2016. "玉米价格还将迎来三波冲击？！ - 粮油中心李喜贵演讲纪要全文." Retrieved from 华尔街见闻: <http://wap.wallstreetcn.com/node/262741>.
- Ministry of Agriculture of the People's Republic of China (MAPRC). 2015. "农业部关于“镰刀弯”地区玉米结构调整的指导意见." http://www.moa.gov.cn/govpublic/ZYGLS/201511/t20151102_4885037.htm.
- Office of the United States Trade Representative (Oustr). 2016. "United States Challenges Excessive Chinese Support for Rice, Wheat, and Corn." Office of the United States Trade Representative, Washington D.C. <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/september/united-states-challenges>.
- Patton, D., and T. Hogue. 2016. "China's \$4.5 Bln in Corn Subsidies to Support Output-Think-Tank." Reuters, August 8, 2016. <http://www.agriculture.com/markets/newswire/chinas-45-bln-in-corn-subsidies-to-support-output-think-tank>.
- Science in China Daily (SCD). 2015. "玉米临时收储政策走到十字路口." Retrieved from Chinese Academy of Agricultural Sciences: <http://www.caas.cn/nykjxx/nycj/259735.shtml>.