



Executive Summary: The Impact of Delays in Chinese Approvals of Biotech Crops

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I. EXECUTIVE SUMMARY

A. Introduction

In recent years, China has taken considerably longer to approve new biotech crop “events” than have other countries. CropLife International (CLI) commissioned Informa’s Agribusiness Consulting Group (Informa) to conduct an analysis of the agricultural and broader economic impacts of these delays in Chinese approvals.

Informa’s analysis was conducted in two phases. The first phase focuses on biotech events approved by China over the last six years, while the second phase addresses conditions over the next 3-5 years.¹ This report addresses each phase separately.

B. Key Findings

■ United States

○ Corn Market

- Historical Impact: The value of US corn production would have been \$100-175 million higher annually in the 2010/11 and 2011/12 crop-marketing years (September-August) if the timing of Chinese approvals of biotech corn events had been consistent with a functional regulatory system. From 2013/14 to 2015/16, the impact on the value of the US corn crop is estimated to have been well over \$1 billion annually.
 - Corn production would have increased by 35-40 million bushels (bu) annually, equivalent to 890,000-1,000,000 metric tons (MT). Most of this additional volume would have found its way into export markets.
- Future Impact: The value of US corn production would be \$360 million to \$1 billion higher annually from 2017/18 to 2021/22 if Chinese approvals of biotech events were granted in a timely manner, as opposed to delays consistent with those experienced over the last six years.

○ Soybean Market

- Historical Impact: More-timely approvals of biotech events by China would have had a relatively small effect on the US soybean sector over the last six years. It is estimated that yields and production would have been slightly higher for 2015/16 and 2016/17, resulting in a higher value for the soybean crop on the order of \$10 million each year.

¹ The agricultural market analysis was completed in January 2018.

The Impact of Delays in Chinese Approvals of Biotech Crops

- ❑ Future Impact: The impact on the US soybean sector would be significantly higher going forward. The value of US soybean production would be \$175-\$415 million higher annually in the 2017/18 through 2021/22 period absent Chinese delays.
 - An additional 30-65 million bu (760,000-1.7 million MT) of soybeans would be produced annually. This would mostly be exported, with a portion being crushed domestically and a marginal amount being added to inventories.
- Specialty Varieties of Corn and Soybeans
 - ❑ A handful of biotech events submitted for Chinese approval involved specialty traits that have added value past the farm gate, such as greater processing efficiencies or more healthful oils. The value to US producers of such specialty varieties that was foregone as a result of Chinese delays was \$5 million in 2012/13 and has centered around \$25 million annually over the last three crop years.
- Broader Economic Impacts
 - ❑ Historical Impact: Cumulatively over the last five years, Chinese delays resulted in a direct impact to the US of over \$5 billion in output and nearly \$1.8 billion in gross domestic product (GDP). Including the “ripple effects” throughout the US economy, the total impact was over \$14.8 billion in output and nearly \$7 billion in GDP.
 - ❑ Future Impact: If delays in Chinese approvals were to continue over the next five years, the impacts would be similar to those experienced over the last six years. The direct impact would be nearly \$5 billion in output and over \$2.3 billion in GDP. Throughout the US economy, the total impact would be over \$14.5 billion in output and nearly \$7.4 billion in GDP.
- Brazil
 - Corn Market
 - ❑ Historical Impact: The trajectory of impacts to the corn sector in Brazil and Argentina mirrors the experience of the US. In Brazil, corn production would have been 100,000-300,000 MT higher annually over the last six years. The value of the Brazilian corn crop would have been roughly \$400 million higher annually in 2013/14 and 2014/15, while in other years the value of the crop would have been increased by \$50 million or less.
 - ❑ Future Impact: The value of the Brazilian corn crop would be roughly \$60-\$70 million higher annually in 2017/18 and 2018/19 under a more efficient timeline for Chinese

approvals. From 2019/20 to 2021/22, the value of the crop would be approximately \$115-\$130 million higher annually.

- Production of corn would be 1-2.3 million metric tons (MMT) higher, absent delays in Chinese approvals of biotech corn events. A majority of this would be used domestically as feed, with a still-significant portion being directed to export markets.

○ Soybean Market

- Historical Impact: The impact to Brazil – and South America overall – from delays in Chinese approvals of soybean events is significant. This is largely attributable to Intacta soybeans, which have been rapidly adopted in the region.
 - Brazil's soybean output would have been 400,000-700,000 MT higher annually over the last six years if not for delays in Chinese approvals. At the port price, the value of production would have increased by \$150-350 million per year.
- Future Impact: Over the next five years, Brazil's soybean output would be \$155-660 million higher annually if Chinese approvals were more timely. Approximately two-thirds of the increased production volumes would be exported, with a majority of the remainder crushed domestically.

○ Broader Economic Impact

- Historical Impact: Cumulatively over the last five years, the impact to Brazil's economy has been nearly \$4.9 billion in output and over \$2.6 billion in GDP.
- Future Impact: Cumulatively over the next five years, the impact on Brazil's economy would be nearly \$5.8 billion in economic output and over \$3 billion in GDP.

■ Argentina

○ Corn Market

- Historical Impact: The value of the Argentine corn crop is estimated to have been reduced by roughly 100,000 MT or \$150 million annually in 2013/14 and 2014/15 as a result of Chinese delays. In other years, the value of the crop was reduced by \$15 million or less.
- Future Impact: The value of the Argentine corn crop would be increased by roughly \$25-\$70 million annually over the next five years under a more efficient timeline for Chinese approvals. Some of this additional corn production would be feed domestically, but approximately 70% would be exported to other countries.

○ Soybean Market

- Historical Impact: Valued at the port price, Argentina's soybean output would have been \$38-186 million higher annually over the last six years if not for Chinese delays. Due to Argentina's preferential export tax system, additional soybean production would largely have been crushed domestically and then exported in the form of soybean meal and oil.
- Future Impact: Argentina's soybean production would be approximately 600,000 MT - 1.1 MMT higher over the next five years, valued at \$155-\$290 million at the port price.

○ Broader Economic Impact

- Historical Impact: Cumulatively over the last five years, the impact to Argentina's economy was nearly \$2.1 billion in economic output and over \$1.1 billion in GDP. Taxes on exports of corn, soybeans, and soybean meal and oil would have generated an additional \$133 million in revenue to the government.
- Future Impact: Cumulatively over the next five years, the impact on Argentina's economy would be nearly \$3 billion in output and over \$1.6 billion in GDP. Taxes on exports of soybeans, soybean meal and oil would generate an additional \$266 million in revenue to the government in the absence of Chinese delays.

■ China

○ Corn Market

- Historical Impact: The main impact on the corn market from more timely biotech approvals would have been an increase in imports. In 2014/15, the year of peak impact, additional imports would have been 770,000 MT.
 - Almost all of the additional imports would have been used in feed, supporting a modest expansion of the domestic livestock and poultry industry.
 - Until very recently, the Chinese government encouraged domestic corn production by making purchases for the state temporary reserve at high prices. As a result, changes in imports in past years would have had a minor influence on Chinese farmers' planting decisions.
- Future Impact: Over the next five years, more timely biotech import approvals would result in an increase in Chinese imports of corn. In 2020/21, the year of peak impact, imports would be 120,000 MT higher.

○ Soybean Market

- Historical Impact: China is a relatively small-scale producer of soybeans and is highly reliant on imports to meet domestic needs. It is by far the largest soybean importer in the world. It is unlikely that Chinese soybean area and production would have been significantly different if approval for the importation of soybeans containing new biotech events had been more timely.
 - The main impact would likely have been higher soybean imports by China over the last six years, on the order of 175,000-280,000 MT annually between 2013/14 and 2016/17. China's soybean crush would have increased by an amount equivalent to roughly three-fourths of the additional imports.
- Future Impact: Over the next five years, soybean imports would increase by roughly 1-2 MMT annually if not for delays in approvals of biotech events. The vast majority would be crushed, providing more soybean meal for the livestock industry and more oil for consumers.

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