

Investment and Trade in Commodities and Impacts on Biodiversity

A Case Study of Soybeans in the Cerrado, Brazil

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Executive Summary

Soybean (*Glycine max.*) is an important globally-traded agricultural commodity. Soybean meal is the cheapest source of protein for making animals feeds while soybean oil is the most consumed edible oil in the world. Soybean products are consumed throughout the world, but a handful of countries produce more than 90% of the world's soybeans, underlining the global scope of soybean trade. Rising affluence and the subsequent increase in protein consumption in both developed and developing countries is increasing the demand for animal products and fueling the expansion of soybean production.

Brazil is the second largest producer of soybeans in the world. Brazil currently enjoys competitive advantage over the world's largest soybean producer, the United States, mainly due to its lower land prices. However, higher transportation costs in Brazil, due to the relative lack of infrastructure, add significantly to the production costs. The high cost of transportation in Brazil (especially central Brazil) has encouraged investments and infrastructure projects to lower the cost of transportation.

Brazil's AgroEnergy Policy of 2005 mandates that by 2008, all the diesel in Brazil should be B2 (2% biodiesel by volume) and by 2013, the mandate rises to B5. Brazil is already recognized for using ethanol fuel as a substitute for gasoline. Diesel, however, accounts for more than half of the petroleum-based fuel used in Brazil. Adopting biodiesel is a logical step for a country that strives for energy independence and ultimately to become a world energy powerhouse. Biodiesel is also seen as an avenue to rescue the soybean industry from the recent lean years. The number of operational and planned biodiesel facilities in soybean producing states, and the relatively little capital required to upgrade a soybean crushing facility to become a biodiesel processing plant suggests that soybeans are likely to be the major feedstock to meet the lofty goals of the AgroEnergy Policy.

Sixty percent of Brazil's soybeans are produced in the Cerrado, the world's most biodiverse tropical savanna. The Cerrado is composed of a patchwork of different ecosystem types, including savanna, grassland, and dry forest ecosystems. It is also a Conservation International Biodiversity hotspot, with unique plant diversity and endemism. Although the second largest biome in the Brazil, the Cerrado is not perceived by many Brazilians as useful or valuable in its native state. In part to encourage productive uses for what was perceived as a vast, empty expanse of land, extensive research initiatives were used to make the Cerrado into an agricultural powerhouse, producing more that half of Brazil's soybeans, much of its beef, and nearly all of Brazil's cotton. Soybean production is an important land use in the Cerrado, however, the land used for pastures easily dwarfs the land used for any other form of agriculture in Cerrado.

This report assesses the soybean expansion in the Cerrado hotspot by tracking trade and investment flows, analyzing environmental, social and economic impacts of the soybean boom, and exploring best practices, policies and conservation programs (PPPs) to address trade-offs. An analysis of future scenarios and projections is included, with the general

conclusion being that the demand and the production for soybean is going to continue to rise, with Brazil and Argentina becoming even more important as suppliers.

Agribusiness accounts for one-third of Brazil's GDP. Of this, the soybean industry is the single largest component and now comprises 6% of GDP. The industry consists of 243,000 soybean producers in 17 states across Brazil. Soybean brought in $10 billion (12% of total exports) of foreign exchange in 2004, about one-quarter of agricultural exports.

While the soybean industry employs 5.5 million people along the value chain in Brazil, soybean farms are not labor intensive due to highly mechanized harvest techniques. It is estimated that only 1 person is needed for every 100-200 hectares. Because they do not employ many workers, soybean producers have been implicated in the loss of thousands of rural jobs.

The most important impact of soybean production in the Cerrado is the direct loss of habitat through land conversion, which results in a decrease in habitat size and habitat fragmentation. Out of an original 2 million km^2, more than half of Cerrado has already been converted into agricultural use, for pastures, annuals or perennials (Figure 3-4). Only 1.7% of the Cerrado is protected in conservation areas, compared to 4.8% in the Amazon. It is important to note that most of the agricultural land in the Cerrado is currently occupied by planted pastures. Soybeans make up about 5-6% of the total land used for agriculture.

After analyzing the PPPs in the light of the future projections and current trends, recommended interventions can be broadly classified into 4 categories, with some overlap: i) conservation and restoration, ii) sustainable development, iii) responsible investment and iv) perceptions and education. We have provided specific recommendations under each category and explained the potential roles of the three groups of stakeholders – i) Brazil, ii) investing countries/companies and iii) NGOs, specifically, the Conservation International (CI).

Under conservation and restoration, stakeholders could partner to encourage greater compliance with the Forestry Code, the premier environmental legislation of Brazil, and learn lessons on streamlining the compliance process, or figuring out how to make it more attractive for farmers to get into compliance. For sustainable development, ecological taxes and incentives for using abandoned land instead of deforestation are recommended. Disseminating information on sustainable investment opportunities and using an early warning system (GRAINMap) to point out the impacts of the investments, could create an expectation of responsible investing. Furthermore, a certification system could be created to allow consumers to choose (and perhaps pay premium for) sustainable, albeit more expensive alternatives through the market system.

Finally, a change in perceptions and increased awareness might be the backbone for a long-term solution for conservation in the Cerrado. Farmers perceive agribusinesses as their allies while conservation NGOs and conservation are seen as the foes. Through a strategic partnership with agribusinesses, like the Bunge-CI partnership, two important goals can be achieved. First, the agribusinesses might become more environmentally responsible, and

second, the local people will be willing to work with and for conservation due to the credibility granted through the partnership with an agribusiness.

Another perception that needs to be changed is that of Cerrado. Government-run awareness and educational campaigns could be used to get the Brazilian people to care about the Cerrado, not only for its incredible agricultural utility, but also for its unique endemic diversity. Brazilians take pride in the fact that their country is biodiverse; hence educating people about the Cerrado might be a starting point for raising awareness that will lead to conservation.

In developing our recommendations, we attempted to highlight the opportunities that exist for Cerrado conservation currently, as well as the places that CI, the investing companies, and the Brazilian government have, to make a meaningful contribution considering their expertise and resources.

The soybean expansion in the Cerrado hotspot represents a challenging case that might demonstrate the reconciliation of conservation and development.