NEWS maker

Biocentury Transgene

Biocentury Transgene is not only going head-to-head against Monsanto in China; it's also poised to conquer markets in developing countries.

Biocentury Transgene

Company staff member explains planting skills to a cotton farmer.

Which company is the largest producer of genetically modified (GM) cotton seeds in China? Not Monsanto or Syngenta, but rather a 12-year old Shenzhen–based agbiotech company. Biocentury Transgene currently dominates China's *Bacillus thuringiensis* toxin (*Bt*) cotton seed market and is riding high on a successful formula—a combination of locally developed GM crop varieties, cut-rate seeds and low patent licensing fees, wrapped up in China's poor intellectual property (IP) protection. In an unparalleled feat, Biocentury has overtaken international players like Monsanto, and is now accelerating efforts to expand into Southeast and South Asia. The question is whether Biocentury can replicate its impressive growth outside China.

The first commercial GM crop available in China—Monsanto's *Bt* cotton—was introduced in 1997. The following year, the St. Louis-based agrochemical company had captured nearly 95% of the emerging Chinese *Bt* cotton seed market.

Around the same time, the Beijing-based Institute of Biotechnology, under the Chinese Academy of Agricultural Sciences (CAAS), received approval from the Chinese authorities for its locally developed strain of *Bt* cotton. In 1998, the CAAS scientists who developed the *Bt* cotton, with the Institute of Biotechnology, co-founded Biocentury in South China's special economic zone. Plant researcher Sandui Guo at the Institute of Biotechnology, China National Centre for Biotechnology Development, launched the new venture, raising 54 million yuan ($8.2 million) with support from the Shenzhen government and investment capital from a local investor, Wu Kaishong (now chairman of Biocentury Transgene).

Key to Biocentury's success is the affordability of its cotton seeds, which are sold, on average, at half the price of Monsanto's. And although agrochemical multinationals continue to argue that farmers can save money by reducing pesticide use, Chinese farmers mainly seek cheaper seeds, according to Biocentury Transgene's CEO Yasheng Yang. In 2009, Biocentury made 120 million yuan ($18.2 million) in cotton seeds sales, accounting for 95% of the company's revenue.

But price is not the only reason driving Biocentury's expansion. In China, grassroots endorsement often wins over glossy advertising campaigns. As a result, technical personnel from Biocentury work with farmers in cotton fields.

Another issue is that multinational agrochemical companies have lacked a product adapted for local conditions. As Dafang Huang, former director of CAAS's Institute of Biotechnology, observes, seeds cultivated in the United States do not fully fit the natural conditions in China. For example, in southern China's Yangtze River regions, locally developed varieties are better suited to the humid climate and soil conditions.

A final issue is that Monsanto and other multinational firms have held back from licensing technologies to local partners for seed development because of concerns about intellectual property (IP) protection. Although an industry insider notes that Biocentury itself has also suffered from lax IP protection because after licensing its technology some companies use it to produce their own seeds.

Biocentury has nontheless gained from linking collaborations with various local seed firms to cultivate *Bt* cotton varieties with high yield, charging very low licensing fees to its partners to boost its seed production. The Chinese government has also helped to broaden Biocentury's influence as it offers financial support to all state-owned seed firms, many of which license Biocentury's technologies.

As a result, Biocentury's growth has been nothing short of meteoric. By 2003, areas planted with cotton derived from Biocentury's *Bt* technologies surpassed those planted with Monsanto's competing crops—reaching 70% of the total Chinese cotton plantations in 2005. Last November, Biocentury claimed that over 90% of China's *Bt* cotton plants are derived from its technologies.

Expansion to international markets began in 2003 when Biocentury set up an Indian office. Its *Bt* cotton was approved in 2007 in India and the seeds promoted through a partnership with Nath Seeds of Aurangabad.

As a result of Biocentury's market entry, Monsanto was forced to drop the price of its seeds from the original 1,900 rupees ($41.20) to fewer than 1,000 rupees ($21.47), according to Yang. However, Monsanto seeds still account for 90% of the total cotton plantations.

In Pakistan, Biocentury has formed a 50:50 joint venture with Guard of Lahore and is seeking other local partners to speed up commercialization on approval of its *Bt* cotton. The company has also penetrated into Vietnam and Bangladesh with newly established branches and local R&D partnerships. According to Yang, Biocentury sees its future as a leading agbiotech player, particularly in developing countries. But at the same time, Monsanto is also stepping up its marketing efforts in developing nations. And, in terms of scientific know-how in seed development and new varieties on offer, the US giant remains ahead.

Biocentury's total sales of $18 million pale by comparison to Monsanto's $10.5 billion in revenue for 2010. Even though licensed products and seeds cover 3 million hectares, Huang says the company obtains only $5.70 from each *Bt* cotton hectare because of China's very diverse and highly competitive seed market, which makes charging higher prices extremely difficult.

For this reason, company management is actively investing in R&D efforts to launch more competitive products. The Chinese company is well placed to carry out transgenic R&D because much of the technology is well established. Indeed, Biocentury has spent $6.6 million in R&D in the past three years, accounting for >10% of its total sales (in comparison corporate R&D spending in China is typically <2% of total sales). Biocentury has also strengthened its research collaborations with academic institutions like CAAS and licensed out technologies from some of the world's leading firms. Last January, it entered into a licensing agreement with Rehovot, Israel–based FuturaGene to develop the latter's salt-tolerance genes in cotton plants in China. FuturaGene and Biocentury will share revenues generated by sales of the newly developed cotton seeds.

Biocentury's supremacy in the *Bt* cotton market in China is uncontested. But repeating this feat outside China's borders looks altogether a different challenge.

Hepeng Jia *Beijing*