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INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH APPLICATIONS

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Biotech Crops Poised for Second Wave of Growth

Political Will Strengthens Globally

NAIROBI, KENYA (Feb. 11, 2009) -- Biotech crops, on the heels of a robust 2008 and bolstered by increased political will to meet food demands, are poised for a second wave of strong adoption that will drive sustained global growth through the end of the second decade of commercialization 2006 to 2015, according the International Service for the Acquisition of Agri-Biotech Applications (ISAAA).

In 2008, three new countries and 1.3 million new farmers were able to experience the benefits associated with biotech crops. Additionally, total planted area grew 10.7 million hectares, according to the ISAAA brief G*lobal Status of Commercialized Biotech/GM Crops 2008.* ISAAA has been tracking global biotech crop adoption trends since 1996.

In its annual study, ISAAA found that 13.3 million farmers in a record 25 countries planted 125 million hectares of biotech crops last year, the sixth largest growth spurt in 13 years of reporting. The 2 billionth cumulative acre of biotech crops also was planted in 2008, just three years after the first billionth acre, a milestone which required a decade to reach.

Most notably, in 2008 biotech farming began in the African nations of Egypt and Burkina Faso. Africa is considered the "final frontier" for biotech crops as it has perhaps the greatest need and most to gain. In 2008, Egypt planted 700 hectares of *Bt* maize and Burkina Faso planted 8,500 hectares of *Bt* cotton. They join South Africa, which since 1998 has benefited from biotech cotton, maize and soybean.

"Future growth prospects are encouraging," said Clive James, chairman and founder of ISAAA and author of the report. "The positive experiences in these new regional footholds in south, north and west Africa will help lead the way for neighboring countries to learn by example. Additionally, political leaders globally are increasingly viewing biotech enhanced crops as a key part of the solution to critical social issues of food security and sustainability."

For example, G-8 leaders in 2008 for the first time recognized the significance of biotech crops and called to "accelerate research and development and increase access to new agricultural technologies to boost agriculture production; we will promote science-based risk analysis, including on the contribution of seed varieties developed through biotechnology."

The European Union also has acknowledged that biotech crops "can play an important role in mitigating the effects of the food crises."

In China, Premier Wen Jiabao has said "to solve the food problem, we have to rely on big science and technology measures, rely on biotechnology, rely on GM." As a result, China has committed an additional US $3.5 billion over 12 years for continued research and development. Biotech rice alone, already developed and field tested in China, has the potential to increase food availability and net income by about $100 per hectare for approximately 440 million people in the country.

"Biotech crops make two important contributions to global food security," James said. "First, they increase yields, which increase food availability and supply. Second, they reduce production costs, which will also ultimately help reduce food prices. With 9.2 billion people to be fed by 2050, biotechnology plays a crucial role in helping satisfy the growing demand."

Further, biotechnology is beginning to identify solutions to the growing challenges with drought being seen in sub-Saharan Africa and Latin America. Drought is the single largest constraint to increased productivity. For example, Argentina currently faces a drought so severe that farmers have made a loss on their wheat crop. Drought-tolerant crops, maize in particular, are an emerging reality with seeds expected to be commercialized in the United States by 2012 or sooner and by 2017 for Africa.

By the end of the second decade of commercialization in 2015, ISAAA predicts that four billion accumulated acres will have been planted. Further, 200 million hectares of biotech crops annually will be planted in a total of 40 countries.

Other indicators suggesting a new wave of adoption emerging include:

- Bolivia, the ninth biotech country in Latin America and the eighth largest global producer of soybeans, planted 600,000 hectares of herbicide-tolerant soy in 2008, allowing its growers to gain the benefits its neighbors in Brazil and Paraguay have experienced for years.
- There was a sharp growth in trait hectares or "virtual hectares" with 10 countries reporting 22 million additional hectares of biotech crops with more than one biotech trait. Stacked traits will be a strong driver of future growth.
- A new biotech crop, herbicide-tolerant sugar beet was planted in the United States and Canada for the first time in 2008. Nearly 258,000 hectares or 59 percent of the U.S. crop was planted to the herbicide-tolerant variety, the highest launch adoption level ever signaling a strong desire among growers for the technology.
- Brazil and Australia planted new biotech crops previously approved in other countries. Brazil, the world's third largest maize producer, planted up to 1.3 million

hectares of *Bt* maize in 2008, while Australia grew herbicide-tolerant canola for the first time.

- While France did not plant biotech crops in 2008, the seven other EU countries increased their planting 21 percent to again total more than 100,000 hectares, a milestone reached for the first time in 2007. The seven EU countries in order of biotech hectarage of *Bt* maize were Spain, Czech Republic, Romania, Portugal, Germany, Poland and Slovakia.
- The number of growers benefiting from the technology may soon jump sharply. Initial reports from China indicate the use of *Bt* cotton to control the bollworm is also suppressing the pest in other crops like maize, wheat and vegetables, allowing a potential 10 million additional growers to benefit from the technology.

For more information or the executive summary, log on to www.isaaa.org.

The report is entirely funded by two European philanthropic organizations: a philanthropic unit within Ibercaja, one of the largest Spanish banks headquartered in the maize growing region of Spain; and the Bussolera-Branca Foundation from Italy, which supports the open-sharing of knowledge on biotech crops to aid decision-making by global society.

The International Service for the Acquisition of Agri-biotech Applications (ISAAA) is a not-for-profit organization with an international network of centers designed to contribute to the alleviation of hunger and poverty by sharing knowledge and crop biotechnology applications. Clive James, chairman and founder of ISAAA, has lived and/or worked for the past 25 years in the developing countries of Asia, Latin America and Africa, devoting his efforts to agricultural research and development issues with a focus on crop biotechnology and global food security.

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Biotechnology's Role in Sustainability

In addition to aiding in issues of food security, biotech crops have an important role to play in lessening the environmental impact and improving the sustainability of food production. Insect-resistant rice, for example, has the potential to benefit about 1 billion people.

- Biotech crops contribute to increased food availability and affordability, increasing production by 141 million metric tons in the 12 years, 1996 to 2007.
- Biotech crops help conserve biodiversity by saving land. Forty-three million additional hectares of land would have been required to create the production gain of 141 million tonnes generated by biotech crops. With 70 percent of the world's poorest dependent on agriculture and with income as low as US $1 a day, biotech crops can also contribute to economic sustainability and alleviation of poverty. In developing nations and transforming economies, agriculture is responsible for a substantial part of the GDP. Increases in agriculture productivity from biotech crops are evident, for example:
    - Research in India, China, South Africa and the Philippines shows biotech crops have already increased incomes $115 to $250 per hectare. Globally over 12 million resource poor farmers benefited from biotech crops in 2008.
    - Approval of insect-resistant rice has the potential to benefit more than 250 million rice households in Asia, or approximately 1 billion people.
    - Further, the global net economic benefit to biotech crop farmers in 2007 alone was $10 billion ($6 billion in developing countries and $4 billion in industrialized nations.) For the period 1996 to 2007 the economic benefit was $44 billion, equally divided between developing and industrial countries
- Biotech crops have already substantially reduced agriculture's environmental footprint by reducing pesticides, saving on fossil fuel use and decreasing carbon dioxide emissions and soil loss through less plowing. In particular, from 1996 to 2007 biotech crops saved 359,000 metric tons of pesticides (active ingredient).
    - The development of drought-tolerant crops also has enormous potential to increase yield where water is limiting. Approximately 70 percent of the world's fresh water is used for agricultural purposes. Importantly drought tolerant maize is expected to be available in the US in 2012, or earlier, and in Sub Sahara Africa by 2017.
- The environmental benefits associated with biotech crops have also helped reduce greenhouse gases. In 2007 alone, carbon dioxide savings were 14.2 billion kg, equivalent to removing 6.3 million cars from the road.