

Healthy, High-Yielding Crops



Mini-Documentary: [Sweetness of Victory](#)

Cultivating Solutions through Collaboration and Education

More than half of India's population of 1.2 billion people farm for their livelihoods. Not only does India have more farmers than any other country in the world, 80% of India's farmers are defined as small farmers, cultivating agricultural land of two hectares (five acres) or less. By comparison, the average farm in the United States is well over 400 hectares.

Heroes of Chemistry

DuPont scientists responsible for the development of DuPont™ Rynaxypyr® were inducted into a scientific Hall of Fame by the American Chemical Society, the world's largest scientific society.

Bestowed the prestigious honorific "Heroes of Chemistry" for their development of the breakthrough technology that helps protect the global food supply from damaging insects, while maintaining an excellent environmental profile, the scientists include:

- John H. Freudenberger, Ph.D.,
- Thomas P. Selby, Ph.D.,
- Daniel Cordova,
- George P. Lahm, Ph.D., and
- Thomas M. Stevenson, Ph.D.

Sugar cane is one of the nation's most important crops. India's \$27 billion annual sugar cane industry is second only to Brazil's, and India leads the world in sugar consumption. With over 45 million Indian farmers, their families and agricultural laborers reliant on sugar cane production, protection of the raw material from dangerous disease and pests, such as the borer, is paramount. When pests blighted India's sugar cane crops in the province of Uttar Pradesh, as seen in the mini-documentary, "Sweetness of Victory," many farmers stopped growing the vital commodity, thereby destroying their very livelihoods as well as threatening the nation's food security and economy.



Sweet Facts

Sugar cane is a thick perennial grass that flourishes in tropical and sub-tropical regions.

Approximately 25,000 liters of water are needed to produce 10kg of sugarcane.

It is the sweet sap in the stalks that is the source of sugar.

The reed accumulates sugar to about 15% of its weight.

Sugar cane takes about seven months to mature in a tropical environment and 12-22 months in a subtropical region. During this period the plant converts a good amount of solar energy into sugar and cellulose and is considered to be one of the most energy efficient crops.

Raw sugar of 98%-99% purity is produced from cane and sent to refineries or exported. In this state it is unsuitable for direct human consumption and has to be refined.

The cane crushing season in India is June.



Local Collaborations Provide Local Solutions

Small-hectares farming requires a high crop yield. When the crops of the small-hold farmers in India are damaged by pests, it threatens their family's security and future. If the yield is small, the sugar mill where the sugar cane is processed suffers in turn. To produce high-grade sugar, the mill needs good quality sugar cane from healthy, high yield harvests.

As chronicled in the mini-documentary, DuPont scientists collaborated with local sugar mills and distributors to eradicate borer pest infestation, improve protection and support superior yields of sugar cane crops. Through the collaboration, DuPont™ Coragen® insect control, powered by DuPont™ Rynaxypyr®, was made available to farmers for use in their cultivation of sugar cane.

However, after many years of weak crops and borer infestations, the farmers felt defeated and were reluctant to adopt new methods for eradicating borer pests. Education became the most effective method to turn the skeptics into believers. Local training sessions were held in fields and sugar mills providing hands-on application and growing demonstrations. Local farmers were able to see the healthy longer, thicker stalks of cane treated with DuPont™ Coragen®, and hear first-hand from other farmers about the ease of use, all of which helped to allay their skepticism.

Through the collaboration, farmers were able to protect their sensitive sugar cane crops for the production of high-yield, high-grade sugar to feed the local communities in Uttar Pradesh and around the country. This inclusive innovation helped enhance the livelihoods of local sugar cane farmers to secure a brighter future for themselves and their families and to sustain India's position as the world's second largest producer of sugar.



Global Food Security Requires Maximum Crop Yields

Food security is a global concern, and maximizing harvest yield is critical. Studies show that for six of the last 11 years, we have consumed more than we have produced globally, with crop consumption growing at 23% and harvested arable land growing at a mere nine percent.

In addition to the imbalance of global food consumption versus production, it is estimated that 20-40% of the world's food crops are lost every year to pests.