

did you know?

Increasing demand for food, fuel and fiber in developing countries combined with other factors require agricultural food production to double by 2050. (International Policy Council, October 2007)

Despite continuous decline in the total number of farmers, agriculture remains the world's largest industry, employing over one billion people. (UN Food & Agriculture Organization)

Many of the world's poor are farmers. About 900 million rural people live on less than US\$1 a day. (World Bank's 2008 World Development Report) Official development assistance from all donors to agriculture has been on a downward trend, from about US\$6.6 billion in the early 1980s, to about US\$3.4 billion in 2004. (Official Development Assistance Statistics)

Average corn land holding: USA 66 hectares, Brazil 4.65 hectares vs. India 0.49 hectares. (ISAAA 2007 Report) Within the next 25 years, farmers in Asia must increase their cereal yields by 50-75 per cent, to meet increasing demands.

(Source: Martina McGloughlin, University of California, Davis)

25 Nobel Prize winners have joined 3,400 other scientists in expressing their support for plant biotechnology as a "powerful and safe" way to improve agriculture and bring environmental benefits.

1 billion acres of biotech crops grown globally since their commercial introduction in 1996. In 2007, the number of countries planting biotech crops increased to 23, and comprised 12 developing countries.

(Top 6 countries - USA, Argentina, Brazil, Canada, India, China)

(ISAAA 2007 Report)

In 2007, the cultivation of biotech crops increased by 12 million hectares to reach a total of 114 million hectares. (ISAAA 2007 Report)

In seven out of the last eight years, the world has consumed more grain than it produced.

One-in-eight people worldwide are chronically hungry, and that's more people who are hungry than 20 years ago. (UN Food & Agriculture Organization)

Nearly 60 per cent of the world's hungry are resource-poor farmers. Another 20 per cent are landless and rely exclusively on agriculture for their livelihood. (UN Food & Agriculture Organization)

About 900 million rural people live on less than US\$1 a day. (World Bank's 2008 World Development Report)

In India, a 1.5 per cent growth rate of population over the last decade and rising per capita income at 12.3 per cent has led to evolving lifestyles and consumption patterns, better standards of living; and is driving industrial growth. As incomes rise, people consume more dairy products, fruits, vegetables, meat and edible oils; demand high quality apparel – resulting in growing needs for agricultural products, and adding pressure on the land, leading to intensive farming which in turn increases the environmental impact of agriculture.

Supply is the challenge.

Unfortunately, natural resources (land, water, energy) are either depleting, stagnant or not growing fast enough to meet these evolving needs. Agricultural land cannot be increased. According to the UN Food & Agriculture Organization (FAO), agriculture uses 70 per cent of the freshwater on a global level. Agriculture also contributes to 13.5 per cent of global greenhouse-gas emissions. As demand rises, growing pressure on agriculture could lead to a negative and sometimes, irreversible impact on the environment and on the limited natural resources.

More than any other sector, agriculture intersects the most difficult challenges facing the planet. Agriculture must adapt quickly in the decades ahead to meet the needs of a growing population, while protecting an already wounded planet. We need to find a solution now!

Innovation in agriculture provides the greatest hope for solutions.

We believe the key solution to meeting these growing global food, feed and fiber needs is to enhance farm productivity on existing agricultural land with the use of high-yielding seeds and advanced farm technologies. As the world's largest investor in agricultural research and development of superior-performing seeds and environmentally-friendly technologies, Monsanto is uniquely positioned to help meet these global challenges by helping increase crop yields whilst preserving our natural resources. Whilst doing this, we must address the needs of farmers around the world, particularly resource-poor farmers who live on less than Rs. 43 (US\$1) a day.

For agriculture to be sustainable, we must,

Produce more, conserve more resources, and help to enrich peoples' lives.

Monsanto is future focused and believes that food security of individual farmers, and nations, can be achieved with a strong focus on increasing farm productivity by Enhancing Yields, and thereby, Empowering Farmers for better lives.

imagine the power of the empowered Indian farmer!

OUR LINEAGE

Monsanto India Limited (MIL), established in India in 1949, has been partnering with Indian farmers for over four decades, and is a subsidiary of the Monsanto Company, USA (also referred to as Monsanto hereafter), a leading agriculture company focused on seeds and traits, and agricultural productivity.

The description below of the Monsanto Company, USA, provides readers a glimpse at the exciting world of Monsanto. MIL leverages some of the knowledge and assets of Monsanto, to participate in the hybrid corn seed and agricultural productivity segments in India.

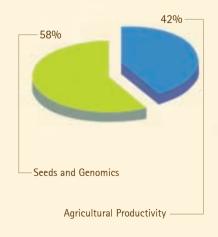
MONSANTO COMPANY, USA

Focused on the farm, Monsanto aims to discover and deliver innovative products that support the farmers who feed, fuel and clothe our growing world. Farmers around the world use Monsanto products to address the challenges they face on the farm and reduce agriculture's impact on the environment.

To support its farmer customers, Monsanto delivers innovative products through two distinct business segments: Seeds and Genomics, and Agricultural Productivity. These segments serve as the foundation for its leading brands of seeds and biotech enhancements (traits) in corn, cotton, oilseeds (soybean and canola), and fruits and vegetables; as well as widely used agricultural herbicide products.

Headquartered in St. Louis, Missouri, Monsanto had a turnover of US\$ 8.5 billion in annual sales for the year ended August 31, 2008. Its 19,000+ employees are present in more than 500 locations across eight regions: Asia-Pacific, Canada, China, Europe/Middle East/Africa, India, Latin America North, Latin America South and USA.

Monsanto 2007 Net Sales



Seeds and Genomics

The seeds and genomics segment consists of the seeds and traits business. Monsanto sells seed products through its leading brands like Dekalb, Asgrow, Deltapine, and Seminis. It also licenses germplasms, and sells trait technologies for weed control and insect protection. The business broadly licenses trait technologies so farmers have access to products in the seed brands they prefer.

Agricultural Productivity

The Agricultural Productivity segment consists primarily of crop protection products and residential lawn-and-garden herbicide products. Roundup agricultural herbicides are the flagship of Monsanto's agrochemicals business. It complements the seed business and plays a vital role in improving productivity for farmers.

Dekalb, Asgrow, Deltapine, Seminis, and Roundup are registered trademarks of Monsanto.

R&D | FADERSHIP

Being focused 100 per cent on agriculture; innovation is at the heart of our growth. Monsanto invests more than US\$2 million a day in breeding and biotechnology to discover and deliver innovative, high-yielding technologies that meet farmers' agronomic needs, making it the world's largest investor in agricultural research in the area of seeds and traits.

Breeding

Monsanto combines its global library of seed germplasm with advanced breeding techniques and technology tools such as genomics, crop analytics, and Marker-Assisted Breeding (MAB) to develop and deliver higher-yielding seeds to farmers. Today, there are more than 250 breeders conducting research at hundreds of locations around the world. This ensures that farmers have a strong foundation to start each growing season.

Traits

Monsanto was one of the first companies to commercialize plant biotechnology in the mid-1990s, and has continued its first-mover advantage. Monsanto's research in plant biotechnology aims to protect or enhance the yield opportunity of each season's harvest.

Through biotechnology, Monsanto incorporates novel traits to support the agronomic needs of farmers:

- insect protection, herbicide tolerance, disease resistance, environmental stress tolerance, and yield enhancement;
- providing value-added benefits such as nutritional improvements in oil and dietary components for consumers (increased oil, improved fatty acid composition, improved amino-acid content) in the food industry as well as greater efficiency and benefits for animal feed processors.

Sustainable Yield Initiative

Monsanto recently announced a three-point commitment to help increase global food production in the face of growing demand, limited natural resources and a changing climate. It pledged to work in new partnerships with other businesses, citizen groups and Governments to meet one of the greatest challenges of the 21st century. Monsanto's three-point commitment to grow yields sustainably includes:

Develop better seeds – Double yield in its three core crops of corn, soybeans and cotton by 2030, compared to a base year of 2000. Monsanto will also establish a US\$10 million grant designed to accelerate breakthrough public sector research in wheat and rice yield.

Conserve resources – Develop seeds to reduce by one-third the amount of key resources (land, water, energy) required to grow crops by the year 2030. Monsanto will also join with others to address habitat loss and water quality in agriculturally important areas.

Help improve farmers' lives – Monsanto will help improve the lives of farmers, including an additional five million people in resource-poor farm families by 2020.

In special circumstances for resource-poor farmers and in keeping with its Pledge, Monsanto committed to share its expertise in a way that gives them access to modern agricultural technology. For example, in March 2008, Monsanto announced a public-private partnership called Water Efficient Maize for Africa (WEMA) – to develop drought-tolerant maize seed for farmers in sub-Saharan Africa, in collaboration with the African Agricultural Technology Foundation (AATF) and the International Maize and Wheat Improvement Center (CIMMYT). Monsanto and CIMMYT are donating unique germplasm and technology expertise, and Monsanto is also contributing breeding tools and the same water-use efficiency genes being developed for commercialization in other global markets. The Bill and Melinda Gates Foundation and the Howard G. Buffett Foundation are funding product testing and development in Africa. WEMA is an example of the potential of breeding and biotechnology traits, and multi-stakeholder partnerships to meet the needs of resource-poor farmers.

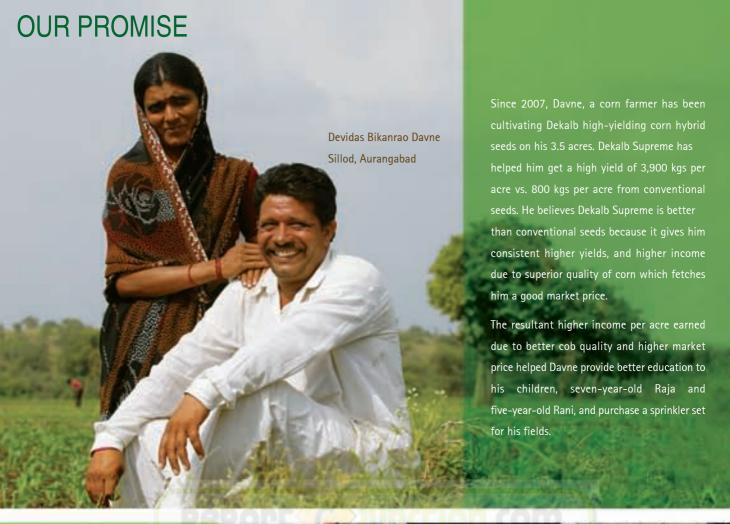
OUR MILESTONES

Monsanto India Limited (MIL) is focused on two businesses: (1) Seeds – Dekalb, India's #1 corn hybrid seeds brand; and, (2) Agrochemicals – Roundup, the world and India's #1 selling glyphosate herbicide. Beyond its partnership with Indian farmers for over four decades, MIL's journey in India has been marked with investments that have made it an innovation leader in Indian agriculture, and a great place to work.

10.10			
1949	Monsanto Chemicals of India Limited incorporated		
1975	unched Machete – India's first rice weed herbicide, helped farmers reduce rice yield loss by ~40 per cent		
1978	• Launched Lasso – soybean weed herbicide, helped farmers reduce soybean yield loss by ~40 per cent		
1979	 Launched Roundup – world's number one weed control herbicide, helped farmers reduce labour cost and crop loss caused by general weeds 		
1989	Listed on the Bombay Stock Exchange (BSE)		
1996	Invested in Agrochemicals plant at Silvassa		
1998	• Launched Leader – wheat weed herbicide, helped farmers reduce wheat grain loss by ~70 per cent, helping secure India's wheat production		
2000	 Acquired corn hybrid and sunflower businesses, post Monsanto's global acquisition of Cargill Inc.'s International Seed Operations in 1998 		
	Monsanto Chemicals of India Limited renamed as Monsanto India Limited		
	Listed on the National Stock Exchange (NSE)		
	Launched Fastmix – India's first rice weed control herbicide for water-scarce areas		
	 Invested in Corn Processing Plant at Elluru, Andhra Pradesh 		
2001	Leader becomes India's number one wheat weed herbicide		
2002	Integrated all corn hybrid seed varieties under 'Dekalb' brand		
2003	Voted among 'India's Best Places to Work' by Great Places to Work Institute		
2004	Dekalb becomes India's number one corn hybrid seed brand		
	 Voted among 'India's Top 25 Best Employers' by Hewitt Associates 		
	Invested in Corn Research Breeding facility at Ghaziabad, Uttar Pradesh		
2006	Divested Leader – wheat weed herbicide to Sumitomo Chemicals		
2007	India identified as an independent region within Monsanto Company		
	Quality Assurance (QA) Lab at Hyderabad commissioned to meet current & future testing needs of India & Asia-Pacific		
	Voted among 'India's Top 25 Best Employers' by Hewitt Associates		
	• Divested hybrid sunflower business to Devgen Seeds and Crop Technology Pvt. Ltd. to increase focus on core businesses		
	Invested in Corn Drier facility at Shamirpeth, Andhra Pradesh		
2008	Voted as 'India's Best Places to Work' by Great Places To Work Institute		
	• Divested Machete, Fastmix & Lasso to Sinochem India Company Private Limited to increase strategic focus on core businesses		

· Today, MIL is sharply focused on its world-class products - Dekalb corn hybrid seeds and Roundup herbicide businesses,

that continue to be the number one choice of Indian farmers



Kondke has been cultivating Dekalb 900M since 2001, as it has yielded 4,850 kgs per acre vs. 800 kgs per acre from conventional seeds. According to Kondke, Dekalb 900M is better than conventional seeds because it gives higher yields vs. other hybrids, has good storage value, and the corn's excellent grain color and quality fetches him a good market price.

With the higher income, he has built a pucca home, purchased a new threshing machine and contributed to his son's venture of mandap decorations.





OUR PRODUCTS: DEKALB

THE GLOBAL SCENARIO

In 2007, corn was cultivated on 158 million hectares, up 53 per cent from 102 million hectares in 1960. Interestingly, production rose 290 per cent to 777 million metric tons from 199 million metric tons; and average yields grew to almost 5 metric tons per hectare today from 1.95 metric tons per hectare during the same period. This production spurt was driven by significant investments by agricultural companies in R&D to introduce high-yielding corn hybrids and technologies which protect crops from biotic and abiotic stresses.

THE INDIAN SCENARIO

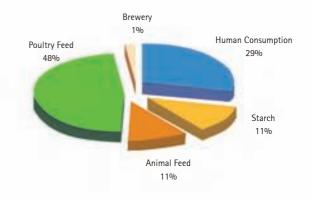
In India, corn (also known as *makka*) is the third most important cereal crop after wheat and rice. During the last 50 years, corn acreages in India have doubled, increasing to 7.2 million hectares from 3.6 million hectares. Production has increased to 0.8 metric tons per acre. Despite this, corn demand far exceeds supply.

Industry estimates indicate that approx. 50 per cent of India's total corn acreages are under hybridization, while the rest are under conventional seeds. There is tremendous potential to enhance India's corn yields and productivity. Firstly, the pace of hybridization is likely to grow due to faster adoption of improved hybrids from the public and private sector. Secondly, farmers are also experiencing higher productivity by upgrading to superior hybrids and adopting good agronomic practices. Thus, as demand increases, increased hybridization and superior genetics can help meet increased needs.

In India, states such as Rajasthan, Madhya Pradesh and Uttar Pradesh have high corn acreages, but have low levels of hybridization; while Andhra Pradesh, Bihar, Maharashtra, Karnataka and Tamil Nadu enjoy high yields due to high hybridization. With approx. 50 per cent of the total corn acreages in India being non-hybridized, there is an opportunity to increase productivity through superior Dekalb corn hybrids. Enhanced yields would mean increased income for farmers, and thus, improved lives.

GROWING DEMAND

Around 5,000 products are made from corn. The demand for corn is increasing both globally and in India owing to its multiple applications in poultry feed, cattle feed and starch industries. Higher incomes, better standards of living and changing consumption patterns are driving demand for poultry and cattle products with egg consumption growing at approx. 8 per cent and meat at 15 per cent. Corn is used in poultry and cattle feed, and for industrial purposes such as starch, oil, syrup, dextrose, plastic etc.



MIL's high-yielding corn hybrid seeds brand – Dekalb, is the market leader and a favorite of Indian farmers with a market share of ~39 per cent in the hybrid segment. Strong R&D investment in corn has enabled Monsanto to deliver a new wave of breakthrough hybrids and technologies for the future. Renowned for its rich and diverse maize germplasm pool, breeding excellence, and high productivity, Dekalb high-yielding corn hybrid seeds have been developed in 13 variants to suit India's diverse agronomic and environmental conditions. For example, Dekalb Pinnacle and DKC9081 hybrid seeds are ideal for high fertile soils with good irrigation facilities and agronomic practices, while Dekalb All-Rounder gives better yields in varied growing conditions.

With access to superior germplasm and cutting-edge breeding tools and technologies, MIL is strongly positioned to meet the growing needs of farmers and the user industry.

DEKALB ADVOCACY PROGRAM (DAP)

Being the world leader in agricultural solutions, Monsanto provides Indian farmers with superior quality inputs like Dekalb high-yielding corn hybrid seeds, and year-round education on best agronomic practices – fertilizer inputs, weed and insect management etc.

During 2007-08, new elite hybrids of Dekalb Pinnacle, Dekalb 9081, and Dekalb 900M Gold were cultivated by DAP members in their own fields and high yields showcased to other farmers in the villages. DAP members are also introduced to key pipeline technologies and their feedback is incorporated into the Research Breeding program.

The DAP is a forum where Dekalb corn experts and progressive farmers share best practices to help fellow farmers enhance yields and earn higher income. DAP members demonstrating better agronomic practices receive Recognition.

In 2007, the company facilitated a visit for progressive farmers to its corn processing and packaging plant at Bellary showcasing its global quality standards that help deliver world-class hybrid seeds. The initiative generated a positive response among farmers, with several requests for further such visits.

DAP membership has increased to 6,100 members, and the company continuously receives requests from farmers across the country.





New Initiatives and Improvements in Seed Technology

MIL's Quality Assurance Program (QAP) upgraded from a manual seed check program to an automated Web-based Seed Check Program. The program helps test and interpret the performance of seeds in various agro-climatic conditions. Further, a Rapid Aging Test which helps predict the storage potential of seeds and helps in inventory management was implemented. The QA Seed Testing Lab also achieved "A" rating in

latest International Seed Testing Association (ISTA) ring test on germination.

The improved After Sale Quality Services and stringent release processes ensured zero complaints in 2007-08. The positive customer feedback on seed quality is testament to the commitment to best-in-class products and technologies, safety, and superior customer service.

MONSANTO COMPANY, USA: GLOBAL CORN PIPELINE

Below is a glimpse into Monsanto's product pipeline of potential technologies in corn. Based on the needs of India's farmers and an environment that supports both innovation and investment, the company could evaluate introducing new innovative technologies in the future.

	PHASE I	PHASE II	PHASE III	PHASE IV
	Proof of Concept	Early Development	Advanced Development	Pre-launch
Avg. Duration of Research	12 to 24 months	12 to 24 months	12 to 24 months	12 to 36 months
Investment	US\$5 – 10 Million	US\$10 – 15 Million	US\$15 – 30 Million	US\$20 - 40 Million
Avg. Probability of Success	25 per cent	50 per cent	75 per cent	90 per cent
Key Activity	*Gene Optimization	*Trait Development	*Trait Integration	*Regulatory
	*Crop Transformation	*Pre-Regulatory Data	*Field Testing	Submission
		*Large-scale Transformation	*Regulatory Data Generation	*Seed Bulk-up
				*Pre-marketing
Crop	*YieldGard rootworm III	*Higher-yielding corn	*SmartStax corn	*YieldGard VT PRO
	*Nitrogen utilization corn	*Second-generation drought	*Drought-tolerant corn	*ExtraxTM corn
	*High-oil corn	-tolerant corn		processing
				system + Mavera
				TM high-value corn
				with lysine
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