



Gene Stehly
MITCHELL, SOUTH DAKOTA

Redefining the Value Opportunity of Soybeans

Farmers such as Gene Stehly of Mitchell, South Dakota, are looking forward to the introduction of Monsanto's second-generation herbicide-tolerant soybean technology, *Roundup RReady2Yield*. The product will offer farmers a 7 percent to 11 percent yield advantage and weed control flexibility.

Since the yield increase presents a real step-change in performance for soybean growers, it represents an expanded profit opportunity for their farms and our business. This product will serve as the foundation on which we plan to stack our next round of traits including insect protection in Latin America as well as our consumer-oriented traits, like our *Vistive* family of improved oil products.

Craig and Gene Stehly use Monsanto's *Asgrow* brand of *Roundup RReady* soybeans to manage weeds and protect yield on their family farm in South Dakota.

The Stehly brothers look forward to the introduction of *Roundup RReady2Yield* soybeans and the higher yield opportunity on each acre.





Each year, farmers are asked to do more with less, so maximizing the yield from each seed — and protecting that yield against outside stress — is critical.

Monsanto works to improve the yield of seeds through advanced breeding techniques and to protect those gains with the trait combinations produced by our industry-leading biotechnology capabilities. We support this superior performance with a unique customer-oriented market strategy that effectively brings this increased yield to the farm.

The bottom line: better-performing seeds offer improved profitability for farmers and narrow the gap between worldwide supply and demand. Monsanto's current and near-term seed and trait offerings have the company poised for expanded growth between now and 2012.

Breeding Better Seeds

Monsanto is uniquely positioned to take yield to new levels through our vast library of crop genetics and our world-class research and development capabilities.

Over the past 10 years, we have developed the world's largest library of genetics for our core focus crops: corn, oilseeds, cotton, and vegetables. Our global germplasm library is leveraged by more than 250 breeders at hundreds of locations around the world, and it allows our business to combine genes from distant locations to create powerful new seed products.

Our corn germplasm library, for example, has been assembled from 36 breeding programs located in 12 different countries. The breadth and depth of this genetics library has enabled our breeders to successfully create higher-yielding seeds, which are fueling tremendous growth across our global corn seed business.

Recent acquisitions further broaden our genetic capabilities and position us for expanded growth. Seminis, which we acquired in 2005, brings us the world's broadest and deepest gene pool for fruits and vegetables. Our Delta and Pine Land acquisition, completed in 2007, provides a robust germplasm base for cotton. These diverse gene pools enable our breeders to identify genes which have specific

characteristics to increase yield, to protect against diseases, and to enhance product quality.

Through our world-class research and development capabilities, we are constantly evaluating and testing these genes in various environments. We are also using tools, like molecular markers, to more efficiently and effectively mine our genetic library. Our molecular marker capabilities allow us to "tag" each gene and "remember" its location so that we can quickly find and combine the right genes to increase yield and fight crop stress. This approach allows us to accelerate our yield improvements and supports expanded opportunities for growth across our business.

Protecting Yield with Advanced Traits

While our advances in breeding allow us to enhance yield, our trait technology preserves that yield by protecting it from outside pests and stress. Uncovering and enhancing key traits for each of our crops — and stacking them in our higher-yielding seeds — gives us competitive differentiation in the marketplace and opportunities for strong financial growth well into the next decade.

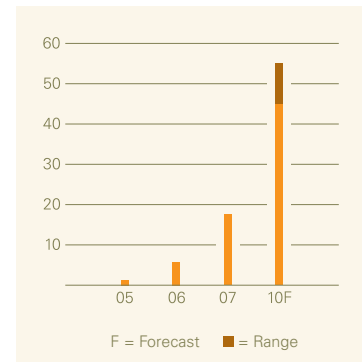
SMARTSTAX TO RAISE THE VALUE BAR ON TRIPLE-TRAIT OFFERINGS

The trait package of choice for corn farmers today is our triple-trait product. This product was planted on nearly 20 percent of U.S. corn acres in 2007. We estimate that it could be planted on 45 million to 55 million U.S. corn acres by 2010 (see adoption chart at right). At that time, we expect to launch a new all-in-one seed option called *SmartStax*. *SmartStax* will combine eight modes-of-action in multiple traits and provide season-long yield protection in three areas: above- and below-ground insect protection as well as the most comprehensive weed control package ever. Once launched, *SmartStax* is expected to deliver new value to farmers and our business.



Growth of Triple-Trait Corn

(U.S. corn trait acres in millions)



Reaching Out to Farmers

Farmers want superior yield. They also want to continue to do business with familiar companies. That's why Monsanto offers its products through both leading seed brands and a broad licensing business:

Leading Brands. Our support of farmers and the crops they plant begins with our leading national brands: *DEKALB*, *Asgrow*, *Deltapine*, and *Seminis*. These brands hold leading positions in key agriculture-producing regions in North America, Latin America, Asia, and Europe. In the United States, our largest market, we also serve farmers through American Seeds Inc. (ASI), a holding company for approximately 20 regional corn and soybean brands. A similar model, International Seeds Group (ISG), was established in our fruits and vegetables business this year. This regional approach allows us to serve farmers through the brands — and the people — they know and trust. It also gives our ASI and ISG companies access to Monsanto's leading breeding and R&D engine.

Licensing. We supplement our branded approach by licensing both seed genetics and our trait technologies to hundreds of seed companies throughout the world. This approach ensures that farmers — in key markets like the United States, Latin America, Europe, and India — will have access to our products in the seed

brands they prefer. Our Corn States business licenses our seed germplasm and biotechnology traits to more than 200 independent corn and soybean seed companies in the United States. A similar model, Cotton States, augments our U.S. cotton business.

Our customer-oriented market strategy is both a critical and a sustainable competitive advantage. It takes substantial time and investment to build the national brands, to assemble the regional brands, and to reach the licensing agreements that support the strategy. That advantage is sustained by relationships with the best companies in the agriculture industry.

Creating Outstanding Growth Opportunities

Worldwide demand for increased yield and superior quality, combined with the power of our core seeds and traits strategy, positions Monsanto to seize expanded growth opportunities across our crops portfolio between now and the end of 2012.

A Growing Opportunity: U.S. Corn

U.S. corn is our most obvious growth engine. With the growing demand for higher-yielding seeds and traits, farmers are increasingly turning to the superior

performance of our products. This demand positions us for expanded growth in this growing market.

Our advanced breeding capabilities have helped our national corn brands, like *DEKALB*, deliver improved yield performance each year. In the process, we have gained more than 12 share points since 2001. Our ability to continually breed a better seed is expected to grow this brand by a cumulative target of up to 10 additional share points by 2012. This is real value as one share point of *DEKALB* adds \$16 million to \$18 million in gross profit for the seed alone — in advance of our higher-margin trait offerings.

Farmers' demand for maximum yield has made our triple-stack corn — which combines *Roundup Ready 2* weed control technology with *YieldGard* Corn Borer and Rootworm insect control — the market leader in the United States. U.S. corn farmers planted more than 17 million acres of triple-stack corn in 2007. We estimate that this product could be planted on 45 million to 55 million acres by 2010.

This triple-stack product offers higher margin potential on each acre and more value for farmers per seed.

We are seeing growing penetration of our higher-value stacked trait offerings in all three of our market channels. In 2007, triple-trait penetration exceeded



Harald Nitschke, German corn farmer.

Nitschke is one of several thousand farmers throughout Europe who use Monsanto's *YieldGard* Corn Borer technology to protect and to increase yield on their land. A recent study across seven countries in Europe highlighted that farmers were experiencing a 10 percent yield boost with Monsanto's insect-protected corn technology.

40 percent for *DEKALB*, 34 percent for ASI, and 24 percent for our Corn States business. In 2008, we anticipate our higher-margin triple-trait product will reach 50 percent penetration in our *DEKALB* and ASI businesses and 35 percent in Corn States.

While our triple-stack corn is expected to be the product of choice leading up to 2010, we remain focused on developing enhanced trait offerings for farmers.

This year, we signed a cross-licensing agreement with Dow AgroSciences aimed at launching *SmartStax*, the industry's first stack of eight genes (see box on page 8). This product, which combines eight different herbicide-tolerance and insect-protection genes in one seed, offers a more robust trait package in advance of competitive triple-trait offerings.

We anticipate that we will be able to launch *SmartStax* by 2010, once all necessary approvals have been granted. Once launched, we believe this product has the potential to be used on 60 million to 65 million acres in the United States.

To enhance our market leadership and competitive advantage, we are working on enhanced trait offerings across our corn portfolio. Products in development include traits for drought-tolerance, better nitrogen utilization, and enhanced insect protection. Once approved, we expect to

stack these products with *SmartStax* so that farmers can realize more benefits out of every seed.

***A Growing Opportunity:
International Corn***

Europe is one of the largest corn markets in the world, with 27 million acres planted each year. Our superior yields are driving consistent annual share increases of one to two points in key corn-growing countries. In France, Europe's largest corn-growing region, our *DEKALB* brand is now the market leader.

Looking ahead, our strong genetic performance in Europe positions us to take advantage of the growing acceptance of the first biotechnology trait used in the region, *YieldGard* Corn Borer. In 2007, farmers in France, Spain, Poland, Germany, Portugal, Slovakia, and the Czech Republic planted more than 200,000 acres of our *YieldGard* Corn Borer product (see story above). We believe that nearly 30 percent of corn grown in Europe is infested with the yield-robbing insect, so our corn borer trait offers an expanded growth opportunity through 2012 and beyond.

We're seeing similar opportunities for our business in Brazil and in Argentina.

In Brazil, the world's third-largest corn-growing region, our *DEKALB* and *Agrocere*s brands, with 30 percent share, represent a powerful platform for our

seed and trait offerings. This year, our acquisition of Agroeste Sementes, a leading Brazilian corn seed company, deepened our germplasm library for tropical corn-growing regions. And with Agroeste's products currently used on approximately 10 percent of Brazilian corn acres, we acquired a strong platform for future trait introductions.

One of those traits is our *YieldGard* Corn Borer product. This year, the trait was approved by the Brazilian Biosafety Technical Committee. While a number of regulatory hurdles remain, the approval moves us closer to a market opportunity we estimate could be between 15 million and 20 million acres.

In Argentina, corn farmers used our *DEKALB* corn seed products on approximately 40 percent of corn acres planted in the country in 2007. This platform positions us for continued growth in this expanding market. Argentina currently plants 8 million acres of corn each year, but by 2012 that number could grow to 10 million as the country produces more corn to meet the import needs of the markets it serves.

Argentina is also a key platform for our trait offerings — a platform that became more valuable with the final regulatory approval this year of our *YieldGard* Corn Borer with *Roundup Ready* Corn 2 technology, the first stacked trait offering in Argentina.

João Riceto Baggio, Brazilian soy farmer.

Increasingly, Brazilian farmers like Baggio are using Monsanto's *Roundup Ready* soybean technology to reduce their on-farm costs. This strong adoption of our product establishes a footprint for Monsanto's second-generation soybean technology, *Roundup RReady2Yield* with insect-protection. This product is expected to be available after the turn of the decade, once all necessary approvals have been granted.



Julio Cesar Pereira Jr., Brazilian corn farmer.

Pereira uses Monsanto's *DEKALB* brand of corn seed to increase yield on his farm. In the coming seasons, once all necessary approvals have been granted, Pereira is expected to have access to Monsanto's *YieldGard* Corn Borer technology — presenting him with another tool to support and to protect his crop's yield potential.



GLOBAL TRAITS BUSINESS POISED TO DELIVER NEW VALUE IN UNTAPPED MARKETS

Each year, hundreds of thousands of farmers use our traits as an essential tool to protect and enhance yield. In 2007, Monsanto's trait technologies were planted on 246 million acres throughout the world.



While the growth to date has been tremendous, we believe there are still untapped growth opportunities throughout the world (see chart below). By 2010, we believe the opportunity for traits in six key regions outside the United States will be nearly three times the penetration in 2007. These regions include Brazil, Argentina, India, Europe (EU27), South Africa, and Australia.

Expanding Global Market Opportunity

Market opportunity for biotechnology traits through 2010 ⁽¹⁾

Crop	Trait	Total Key Markets (in millions of acres)	Untapped Opportunity
Soybeans	<i>Roundup Ready</i>	160-170	22%
Cotton	<i>Roundup Ready</i> and <i>Roundup Ready Flex</i>	28-39	77% ⁽²⁾
	<i>Bollgard</i> and <i>Bollgard II</i>	23-31	23% ⁽³⁾
Corn	<i>Roundup Ready 2</i>	140-145	58%
	<i>YieldGard</i> Corn Borer	100-115	56%
	<i>YieldGard</i> Rootworm	60-70	70%

(1) Market opportunity reflects total acres where our trait technologies have an applicable fit, not necessarily acres projected for penetration by 2010. This opportunity also assumes that necessary regulatory approvals have been granted in these markets and assumes the introduction of competitive trait offerings.

(2) U.S. penetration is split between *Roundup Ready* and *Roundup Ready Flex* in 2007.

(3) Primarily *Bollgard* penetration; opportunity to expand to second-generation technology.

A Growing Opportunity: U.S. and International Soybeans

Despite a reduction in total soybean acres planted in the United States, we are seeing growth in both our *Asgrow* national brand and our ASI companies. Collectively, Monsanto's soybean brands were used on approximately 27 percent of U.S. soybean acres in 2007.

Farmers planting these brands already use our first-generation soybean technology, *Roundup Ready*, for weed control. Backed by our work in both breeding and biotechnology, we have just begun to unlock the potential of our trait technology for this important crop. *Roundup RReady2Yield*, which gained U.S. and Canadian regulatory approvals this year, is scheduled to be launched by 2010. We believe this product, which offers a yield improvement of 7 percent to 11 percent per acre compared with *Roundup Ready* soybeans, has the potential to be used on 40 million to 50 million acres of U.S. soybeans after 2010.

Our product development strategies recognize the emerging split of the soybean market into commodity and value-added segments.

We are differentiating ourselves in the commodity segment by offering superior yield and yield protection. *Roundup RReady2Yield* will provide substantially

Rusty Stubbs, U.S. cotton farmer. Stubbs is excited about Monsanto's recent acquisition of D&PL and the ability of the companies to deliver new innovation to cotton. Stubbs was among a select group of farmers who planted *Deltapine's* stacked, second-generation product *Bollgard II* with *Roundup Ready Flex*. He enjoys the product's greater weed-control flexibility and expanded insect-protection capabilities.



increased yield while creating a strong foundation for the growth of double- and triple-stacked products. In fact, we expect soybeans to follow the pattern of corn. It is reasonable to expect that we will be stacking three or more traits by the middle of the next decade. Adding traits for insect control, higher yield, and dicamba tolerance — all in our R&D pipeline — will transform the landscape of soybean production and create new value for our business well into the next decade.

On the value-added side, our first-generation *Vistive* soybeans, which have been bred to offer the dietary advantages of low levels of linolenic acid, have enjoyed strong growth. We are in the process of developing *Vistive III* soybeans, which offer health and flavor characteristics similar to olive oil. Monsanto's scientists are also creating soybeans with higher oil yields, which can boost oil output for food production with potential use for biodiesel.

In Brazil, farmers used our *Roundup Ready* soybean technology on 26 million acres of the 50 million acres planted in 2007, representing nearly a 35 percent increase in trait acres compared with the prior year. This growth is a strong step toward the 90 percent penetration level that we estimate could happen around the end of this decade.

The penetration in Brazil also establishes a platform for the introduction of our *Roundup RReady2Yield* and insect-protected soybean product after the turn of the decade, once regulatory approvals have been granted.

A Growing Opportunity: Cotton

Cotton farmers are increasingly looking to seed companies to deliver greater productivity to the farm. We believe our recent acquisition of Delta and Pine Land (D&PL), our second-generation technologies, and our full R&D pipeline will serve that need, creating new value for the cotton industry and new opportunities for our business well into the future.

D&PL brings us a strong germplasm library, a well-recognized brand name, and strong customer relationships in key cotton-growing regions throughout the world.

We believe the *Deltapine* brand can benefit from breeding advances similar to those in corn. Our breeders now have access to the world's largest private collection of cotton germplasm, and we believe we can develop innovative combinations of genes to maximize the potential of that library, both in terms of yield and lint quality.

While we won't see the commercial results of these initiatives until after 2010, there is a tremendous opportunity in upgrading D&PL's product portfolio to second-generation technologies. D&PL had only 17 percent penetration of second-generation traits in its portfolio in 2007, significantly less than that of other leading cotton seed brands. We're taking steps to fully convert this portfolio to these enhanced second-generation traits.

In 2006, we launched *Bollgard II* with *Roundup Ready Flex* in the United States, a stack of two second-generation traits for weed and insect control. This improved product, which commands a price premium over Monsanto's original *Bollgard* cotton trait, was planted on nearly 3 million acres of U.S. cotton in 2007.

Farmers are welcoming these new second-generation, double-stacked traits for their improved yield and profitability (see story above). Monsanto is working hard to deliver future traits for drought-tolerance as well as enhanced insect and weed control.

Internationally, our cotton business has an established presence in biotechnology and this sets the stage for additional growth opportunities. A key example is India.



Vishwanath Gore, Indian cotton farmer. Gore uses Monsanto's first-generation *Bollgard* insect-protected technology to protect the yield potential of his cotton crop. Gore, who farms four acres in the Aurangabad region of India, enjoys the in-the-seed benefits of *Bollgard* including its ability to protect his crop from damaging insects. The strong adoption of our first-generation product in India establishes a footprint for Monsanto's second-generation cotton technology, *Bollgard II*, which offers expanded insect protection.

Today, we approach the Indian cotton market through our own brands and through a licensing agreement with Mahyco. This business sub-licenses the technology to more than 20 local companies.

With a hybrid cotton seed market of 15 million to 20 million acres, Indian farmers planted more than 13 million acres of *Bollgard* in 2007 — an increase of approximately 60 percent compared with 2006 — meeting our end-of-decade sales target this year. Farmers are just now seeing the benefits of our second-generation *Bollgard II* technology, which was introduced in 2007 and used on more than one million acres in its first year. This second-generation technology sets a new standard as local companies offer competitive first-generation seeds. It also offers a higher margin opportunity. We now estimate that the technology could be used on between 15 million and 20 million acres by 2012.

A Growing Opportunity: Seminis

Our 2005 acquisition of Seminis made us a leading player in the \$3 billion annual market for fruit and vegetable seeds. We believe our rich germplasm library, combined with our breeding expertise, provides a platform for accelerated growth in vegetables similar to the

competitive advantages that have driven our core crop businesses over the past few years.

We estimate approximately 100 million acres are currently planted in the vegetable crops Seminis sells, and that acreage is projected to remain relatively flat. With demand expected to increase 5 percent to 10 percent annually, yield is key. That is particularly true in Asia, where growing populations and rising incomes are driving demand for vegetables and sharpening the need for efficient land use.

We have taken steps to position Seminis for these expanding growth opportunities. We began by refocusing the company operationally, changing the business to be gross-profit driven rather than revenue-oriented and narrowing Seminis' crop offerings to the 25 most profitable crops, including tomatoes and peppers.

Worldwide, those two crops are among the largest and most profitable in the vegetable seed industry. Sales of tomatoes reach approximately \$500 million annually and pepper sales exceed \$300 million. We already hold the number-one or two position globally in these high-value crops.

We are also targeting the most promising growth opportunities for this business by allocating more R&D dollars to priority targets in key crops — like tomatoes and peppers. And, we're assembling the genetic maps and applying our marker technologies to unlock the value of these core vegetable families (see page 13).

By providing superior seeds to growing markets, we believe that we'll be able to pursue pricing strategies that reflect the value we're delivering. Seminis breeders are using Monsanto's breeding expertise and the breadth and depth of our industry-best germplasm library to improve yield, flavor, appearance, shelf life, and other characteristics. We believe the higher-value products delivered through our breeding pipeline will support price increases in our product portfolio.

One key area of focus is protected-culture environments like greenhouses. Protected environments deliver dramatic yield gains — from three-fold up to 15-fold compared with traditional open-field agriculture — with seed prices reflecting the value delivered. Breeding seeds for these applications are expected to be a major contributor to growth across the markets we serve.

Dave Sheppard, U.S. tomato grower. Sheppard plants more than 60 acres of tomatoes each year and sells his harvest to local grocery stores and at roadside stands. He looks to Seminis to deliver new innovation to his farm, including enhancements such as disease resistance.

Seminis Tomato Specialists, United States and Europe. Jaap Hoogstraten and Elaine Graham examine the characteristics of tomatoes at Seminis' research facility in California. Graham's research in genetic markers helps breeders like Hoogstraten better identify improvements. This approach allows Hoogstraten to add value to the products that he develops for farmers in the Middle East and Southern Europe.



BREEDING TOOLS SET TO DELIVER NEW VALUE TO SEMINIS

Our work to apply advanced breeding techniques to Seminis' top 10 vegetable crops positions us to deliver new value to customers and our business leading up to 2012.

Today, Seminis scientists are using Monsanto's technology and screening processes to make quick advances in marker development. By tapping into Monsanto's breeding technologies and automation, we've been able to reduce our costs per marker to one-third of what it would have been in 2005. By 2009, we will have developed more than 10,000 markers for our top 10 crops. This step will allow us to breed higher-yielding, higher-performing crops — unlocking enormous potential for growth in market share and pricing. We're making tremendous progress already. This year, we've increased our tomato marker set to 1,600 markers, well ahead of our original schedule.

Our work is already helping tomato researchers like Teresa Bunn (right) breed for and stack valuable characteristics that can be applied across our tomato portfolio. These traits include disease resistance and nematode resistance, as well as desirable consumer traits such as taste and appearance.

