

# From Start to Finish

By Robynne M. Anderson

EVERYONE HAS BEEN TALKING about value chains for the past decade, but not everyone is succeeding in building them. Working from start to finish to provide value is about much more than breeding a product that works well for processors. It requires a new set of skills for seed companies – DEMAND CREATION.



Using the extraordinary skills of plant breeders is certainly a vital part of success. Yet the companies that are really driving value (that means a market and a premium) are those that are getting into the board rooms of the likes of KFC and Papa John's; Home Depot and Mohawk.

To be successful in this market, a seed business must assemble a VALUE PROPOSITION for end-users. This has to explain, in concrete terms, the benefits of leading-edge products, increased efficiency and enhanced reputation. A great example is the success of the Pioneer and Monsanto programs for grain varieties that gain ethanol plants an extra 5-7% efficiency. Those programs now exceed 200 varieties and are helping farmers and the biofuels business.

It is also about fostering demand. Dow AgroSciences has products geared to the feed sector and has nutritionists visiting dairies explaining the benefits of specific silage products. The only way to create a market for a niche product is to create that niche through RIGOROUS, CONSISTENT MARKETING to a target audience. In many cases, that is not to the farmer but the end-user.

Even for those in retail, engaging with grain handlers and major purchasers in the region will create extra opportunities for your product and your customers. In fact, the retail chain of many seed companies may be of use to processors needing to source a limited, controlled supply of a specific product.

A seed company can also create an advantage for processors by offering MARKETING AND BRAND-EQUITY SYNERGIES. Integrating the value of low-linolenic soybeans

The companies that are really driving value are those that are getting into board rooms.



KFC is converting all of its 5,500 restaurants in the U.S. to trans fat-free cooking oil derived from Monsanto's Vistive low-linolenic soybeans.

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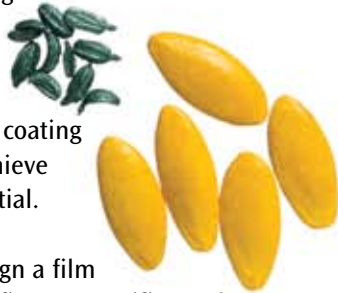
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into the Kentucky Fried Chicken product got KFC fan mail. The power of being trans-fat free is meaningful to the food chain, and both the seed companies and the restaurants are doing their utmost to talk about the positive messages. Overseas, cereal and dairy companies promote the production systems and specific varieties used in their products as part of their brand value. Seed companies must be ready to assist these efforts.

Of course, if the market doesn't exist, it is also possible to make it. Witness the successes of Seeds of Change which started as a seed company but has grown into a food company that drives its brand position on grocery store shelves through innovation in its seed division.

This is the stuff that will increase the value of products. If a seed business today doesn't have access to end-users, it is unlikely to be the seed business of tomorrow. It is more than a database of farmers; it is about a rolodex of contacts in the handling and processing sectors. Every one of those contacts needs to receive 20 more times the effort than any single farmer gets, because success in those board rooms will drive success for the farmer customer.

The seed industry today is not an inputs business. It is an ingredients business – and even a processing business – driving value from start to finish.

*Robynne*

## Items You Need to Offer VALUE From Start to Finish

- 1) What is your value proposition for end-users? Can you quantify your benefit to them?
- 2) How have you presented the business case for investing in your seed?
- 3) Have you sold the value of purity and risk management from using certified seed for processing and food customers?
- 4) Have you offered them added value by leveraging your ties to production; e.g. contract production, field checking, crop status reports?
- 5) Have you leveraged your marketing dollars to help them tell their story?



PHOTO COURTESY SEEDS OF CHANGE

If a seed business today doesn't have access to end-users, it is unlikely to be the seed business of tomorrow.

# From **Seeds** to **Sauces**

## Building a food company from the ground up.

Starting with a focus on taste, Seeds of Change has evolved from a seed business into a fully integrated food company.

By Angela Dansby

**S**EEDS OF CHANGE began as an organic seed company focused on increasing biodiversity and sustainable agriculture; its owners collected thousands of heirloom produce varieties around the world. Today, Seeds of Change has turned itself into a vertically integrated organic seed and food company. It offers an array of organic products, including salad dressings, rice, grains, pasta, snack bars, frozen entrees, ready-made soup pouches, pasta sauces and chocolate bars.

“Seeds of Change controls its value chain,” says Seed Director Marc Cool. “It is leading the way in what we believe is a fundamental and almost revolutionary shift towards a different way of thinking about food production and looking at the health, taste and enjoyment of food.”

The company has a food division, which contracts directly with domestic organic growers who receive a premium for their crops. Seeds of Change tries to develop seeds that are relatively easy to grow to keep farmers’ input costs down and their profits up. Yet at the same time, the fruits of these farmers’ labors must be able to ship well and stand up to processing.

“It’s tough to create varieties that are easy to process as well as taste good,” Cool says. “Heirloom tomato varieties taste better, for example, but with their soft texture they are tough to store, transport and process. Seeds of Change is working on fresh market food varieties that processors can handle but that also offer the flavor, beauty and nutrition that consumers want.”

Seeds of Change is one of a few 100% certified organic seed companies in the nation. It looks to plant science to create value in its products for farmers, processors and consumers. With its integrated seed breeding and production as well as food processing and marketing activities, it is uniquely staged to pull this value all the way through to the end-user, who ultimately consumes this food.

“Everyone in the food chain has their own needs and sometimes they are contradictory,” Cool says. “We try to balance the needs of all the stakeholders in the chain.” For example, pasta sauce vegetables have been bred for many years with one characteristic in

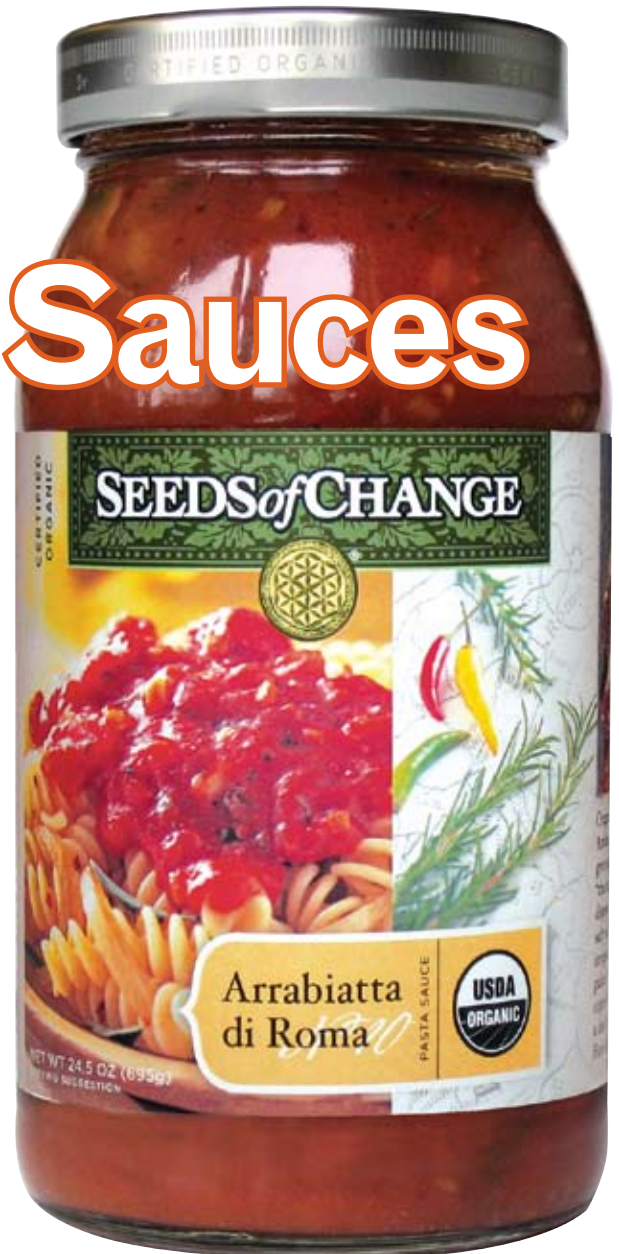


PHOTO COURTESY SEEDS OF CHANGE

mind – ease of processing. The flavors of the vegetables, such as tomatoes, get sacrificed as a result. This is what Seeds of Change calls the “dilution effect.”

“Tomato breeders and growers have been historically trained to only benefit processors because flavor via salt and seasonings can be added later,” Cool explains. “Seeds of Change is trying to develop pasta sauce that tastes better and is better for consumers by using more flavorful tomatoes, herbs and other vegetables, without adding sodium and fat.”

In addition to trying to meld flavor and functionality, Seeds of Change is looking to enhance the health value of vegetables through conventional breeding. High antioxidant broccoli and carrots restored to their natural colors of purple, yellow and white are on the company’s radar screen.

Meanwhile, the company is trying to change the way farmers, processors and consumers think. Ultimately, having developed into a food company has given this seed business commercial power at a consumer level. It is striving to show that organic seeds can have good yields and few hassles and that heirloom vegetables can be used in food production without falling apart. It is demonstrating to consumers that high quality vegetables can deliver not only healthfulness, but also great taste. **SW**

# What does this woman have to do with seed?

She's wearing **corn!**

PHOTO COURTESY DUPONT

From fabric to detergent, this new corn product is meeting industrial needs for bio-based products.

By Angela Dansby

**S**ORONA IS A POLYMER that is on its way to becoming 40% bio-based (by weight), thanks to corn, and appearing in everything from textiles to detergents. The ingredient, called Bio-PDO, will be incorporated into Sorona in early 2007, displacing petroleum-based propanediol and offering both performance and reduced environmental impact.

On November 27, DuPont Tate & Lyle Bio Products, LLC, a joint venture of DuPont and Tate & Lyle, announced the first commercial shipments of Bio-PDO (1,3 propanediol) from its \$100 million U.S. facility. It uses corn sugar instead of petroleum-based feedstocks to create Bio-PDO, allowing for a more energy efficient manufacturing process and less greenhouse gases, according to Peter Hemken, Vice-President and General Manager of DuPont Bio-based Materials. Production of Bio-PDO versus petrochemical-based PDO consumes 40% less energy and reduces emissions by 20%.

Glucose, derived from commodity corn kernels, comes from Tate & Lyle's wet mill, which is sent to the Bio-PDO processing plant. A proprietary fermenting process turns the sugar into a monomer, which is then shipped to a polymer plant to create Sorona polymer strands. The latter are cut into pellets for textile plants to spin them into fibers, which are ultimately used for carpet and apparel.

Mohawk Industries is DuPont's exclusive partner in residential carpets. Its SmartStrand brand is made with Sorona and sold via thousands of retailers, including Home Depot, according to Jenny Cross, Brand Manager for Mohawk Residential. SmartStrand offers durability, permanent stain resistance, softness, resiliency and easy care. It will perform as well, if not better, with Bio-PDO, says Hemken. The renewable aspect will be promoted when it is incorporated into SmartStrand in the fall of 2007.

Fabric gets the same benefits from Sorona along with UV and chlorine resistance. Consumers enjoy a "comfort stretch"

in apparel made from the fabric due to a kink in the polymer, says Hemken. Fabric made with Sorona is not branded at the consumer level, but DuPont is launching it to appeal to environmentally-conscious consumers.

Bio-PDO can also be used in auto interiors (upholstery and carpets), cosmetic products like shampoos and hand creams, liquid detergents, antifreeze and thermoplastic resins for molded parts in automobiles as well as packaging materials. Bio-PDO is easier for manufacturers to work with than PDO in some of these products, Hemken notes.

"PDO historically was not widely available because it's expensive to manufacture from petroleum," he says. "Bio-PDO, however, is more economical to make, which has opened up opportunities in other industries. The value of some grades is \$1 to \$2 a pound in some areas like cosmetics and personal care."

Two new brand names for Bio-PDO were recently announced: Zemea for personal care products and liquid detergent, offering purity and low irritation, and Susterra for de-icing fluids, antifreeze and heat transfer fluids with low toxicity and biodegradability.

Hytrel, a flexible polymer used in engineering resins and molded parts, is next on DuPont's list for becoming partially renewably resourced, Hemken says. With a renewable ingredient, it will be 30 to 70% renewable and available at the end of 2007. Sorona and Hytrel, however, are the "tip of iceberg with renewable resources."

"We're shifting the growth direction of our company to more opportunities that combine biology and chemistry," he notes. "We're using the power of integrated science to capture growth opportunities in many areas."

By 2015, DuPont plans to grow its annual revenues by at least \$2 billion from products that create energy efficiency and/or significant greenhouse gas emissions reductions and nearly double its revenues from non-depletable resources to at least \$8 billion. **SW**

# Premium to Pizza

How to make **wheat** pay!

Farmers get a 20 to 40 cent per bushel premium and work with such food giants as ConAgra and Papa John's.

By Angela Dansby

**T**HE VALUE CHAIN SUCCESS STORY in wheat is all about the dough, as exemplified by Papa John's which uses a proprietary flour to give its pizza crust a "consistently hearty flavor and texture in each bite."

The secret of the flour? It is low in polyphenol oxidase (PPO) and high in protein, two desirable qualities that impact the taste, color and consistency of dough. The flour is milled from Platte, a specialty wheat variety.

"PPO acts like an aging banana," says Paul Morano, National Marketing Manager of AgriPro Coker, the North American cereal operation for Syngenta. "The more PPO, the shorter the shelf life and more bitter the taste of the flour. Low PPO flour has a sweeter taste and requires fewer additives to improve its taste and consistency. It keeps the ingredient list down."

Papa John's, the third largest pizza company in the world, buys Platte from ConAgra, which contracts with farmers to grow the wheat. AgriPro Coker supplies farmers with the seed and ConAgra has exclusive rights to mill 100% of what is produced. Currently, 40,000 to 75,000 acres of the wheat are grown each year.

ConAgra charges more for flour made from Platte, but it also got into this specialty crop business to offer a differentiated product, says ConAgra grain merchandiser John Bartels. "The baking and flavor profile of Platte is unmatched and it performs well agronomically," he says.

Farmers benefit from a premium of 20 to 40 cents a bushel for growing Platte as well as from high yields, Morano notes. PPO content is exclusively dependent on genetics, but protein content can be augmented through good management



practices, such as fertilizing at the right time. For every fifth of a percent of increased protein, a grower gets more money (a dime for every increased percent protein from 12 to 15%). The higher the protein, the better the strength and consistency of dough.

"In our area, Platte is the highest yielding (up to 145 bushels an acre) and best standing wheat variety of all," says Bill Andrews, a grower in Yuma, Colorado. "Most growers find that the benefits of growing it outweigh the risks of sprouting."

"We hit a home run with Platte," Morano adds. "We haven't been able to match it since."

Platte was developed in the 1980s through wheat variety testing and Platte 2 with disease resistance genes was introduced last year. The former works better on irrigated land and the latter on dry land. The varieties contain less PPO and higher protein (13-15.5%) than traditional wheat varieties which contain between 11 and 13% – qualities that are attractive to millers and bakers.

"Millers and bakers look for consistency in a flour," Morano said. "Anytime you have a controlled environment (identity-preserved), then end-users get more of what they want. This makes it easier for them as they don't have to do anything else to the flour. Consistency builds loyalty among customers. What non-consistency costs a company is staggering."

Currently, less than 1% of all U.S. wheat is grown under contract, but this percentage is expected to increase as more specialty wheat varieties emerge, including perhaps an even lower PPO variety.

"The milling industry is moving towards non-commoditized products, which are based on quality versus price," says Bartels. "We're trying to make the BMW equivalent of flour with Platte." **SW**

Platte, a specialty wheat variety, is grown under contract for use in Papa John's pizza crust.





PHOTO COURTESY KFC

# Finger Lickin' Good

And **trans fat-free!**

Low-linolenic varieties are going to be in hot demand thanks to a new deal with the Colonel.

By Angela Dansby

**T**HE COLONEL CAN BE PROUD of his chicken, especially now that it's going trans fat-free. On October 30, 2006, KFC Corporation announced that it would replace all of its partially-hydrogenated soybean oil in the United States with its non-hydrogenated, low-linolenic cousin.

This news was a treat for consumers the day before Halloween. They responded with more than 300 thank-you notes to KFC in one week alone, according to KFC spokesperson Laurie Schalow. As of April 2007, all 5,500 KFC restaurants nationwide will be converted to low-lin soybean oil, resulting in trans-free fried chicken products and potato wedges.

Several oils were tested with U.S. consumers for over two years and the only one that kept the same taste as the original recipe was low-linolenic soybean oil, says Schalow. Even the KFC franchise board of directors couldn't tell the difference. That's when they knew the Colonel was ready for an oil change.

"Taste, texture and palatability are not compromised by the low-linolenic oil," says Kurt Wickstrom, Soybean Trait Marketing Manager at Monsanto Company, which provided the oil to KFC for its consumer testing.

What makes the oil so finger lickin' good? It contains less than 3% alpha-linolenic acid compared to 8% in traditional soybean oil, which makes the low-lin oil more stable and functional in food service and manufacturing, Wickstrom notes. This added stability omits the need for partial hydrogenation, the process that creates artificial trans fat (it exists naturally to a small extent in dairy and meat products). Consumption of trans fat increases the risk of heart disease.

KFC's supplies of low-linolenic soybean oil are secured by UFPC (United Food Purchasing Co-operative), says Schalow. It purchases the oil from numerous processors, such as ADM and Cargill, which capture the value from identity-preserved low-lin beans in their oil price. Farmers contract directly with

the processors or elevators affiliated with them.

"Processors are interested in low-linolenic soybeans because they can keep out palm oil," says Wickstrom. "They want to keep the domestic industry going."

Monsanto is providing the majority of low-linolenic soybean seed (Vistive brand) for KFC while Pioneer Hi-Bred International, Inc. is providing the rest (Pioneer brand for Treus oil). Wickstrom says 1.5 million acres of Vistive soybeans will be planted in 2007. According to Jerry Harrington, Pioneer's Sales & Marketing Public Relations manager, Pioneer will double its low-lin bean acres to 400,000.

Farmer premiums for low-linolenic beans range from 30 to 45 cents per bushel, depending on the processor. In addition, growers who plant Pioneer low-lin beans can collect a 10-cent per bushel early signing bonus, Harrington notes.

The price of low-lin soybean seeds are about the same as regular bean seeds, and different production practices are not required to grow the beans, all of which are Roundup Ready, say Wickstrom and Harrington. Moreover, Monsanto is trying to give U.S. soybean growers an edge in the world oilseed market by pledging not to export any low-lin seed. (The oil, however, can be exported.)

"This competitive advantage is being offered because U.S. land costs make it tough for domestic farmers to compete internationally," Wickstrom says. "In addition, it's a way for Monsanto to support U.S. farmers who have adopted our technology and respected intellectual property rights."

It is projected that 8 to 15 million acres of Vistive beans are needed long term to replace a significant chunk of the 20 to 22 million acres of soybeans used in partially-hydrogenated oils now, he adds. This is no surprise as low-lin soybeans are among the first biotech seeds to directly benefit consumers along with farmers, processors and food providers. Going from the kernel to the Colonel, the value chain is clear. **SW**