

Bred For Success

Syngenta breeders are transforming key crops with significant breakthroughs.

Tapping into their company's more than \$1.2 billion annual investment in research and development, Syngenta breeders are helping transform and improve the world's food supply. These are the stories of just a few of the Syngenta field champions who are turning research into reality.

Breaking Yield Barriers in Corn

Brent Delzer, Ph.D., a northern Wisconsin native with 20 years of experience in genetics and breeding, is a Syngenta Science and Technology Fellow and corn-breeding project lead. He oversees the first four years of the seven-year process required to identify superior corn hybrids and evaluates traits, such as yield, resistance to lodging and grain test weight.

Annually, Delzer tests approximately 10,000 different hybrids, but very few make it past the first round. "We only advance about 10 percent of the hybrids we test," he says. "Of those, only about one in 5,000 will be good enough to be a Syngenta commercial hybrid."

Syngenta breeders use cutting-edge technology to make the most of the company's deep portfolio of corn genetics, Delzer notes. Through doubled-haploid breeding, researchers have increased the speed of development, reduced errors by making more heritable decisions about complex traits, and also created better implementation of molecular markers, which are crucial in pinpointing the genetic factors that contribute to higher yields and improved agronomic traits.

"The hybrid I am starting to develop now can't just be as good as or better than the hybrids of today – it's a moving target," Delzer says. "It has to be better than what will be available 10 years from now."

Blazing New Trails in Cucurbits

Another Syngenta Science and Technology Fellow, XingPing Zhang, Ph.D., currently co-leads the global cucurbits research and development team, focusing on breeding watermelons and cucumbers. "As breeders, we have to rely on science and technology, but we also must make decisions based on business strategy," he says.

In 2000, this philosophy resulted in Zhang's development of the variety Petite Perfection, which is sold exclusively to Dulcinea Farms and is marketed to retailers as the Pureheart® mini-seedless watermelon. A true-breeding breakthrough, one of the parents in Petite Perfection is unique enough to have a U.S. patent.

Another trailblazing development from Zhang is Super Pollenzier™, an enhanced pollinizer and method for increasing seedless watermelon yields while simplifying crop management. With this technology, a vine grows over top of seedless varieties and produces pollen without competing for space or nutrients. Launched in 2003, Super Pollenzier has five U.S. patents for related genetics and technologies. Zhang's most recent introduction is the new seedless watermelon variety known as Fascination. "It not only looks, tastes and yields great, it also is resistant to Fusarium wilt and anthracnose, two key watermelon diseases," he says.

Growing Integrated Solutions in Wheat

As a Syngenta wheat breeder in the Pacific Northwest (PNW), John Moffatt, Ph.D., is making a huge difference in the lives of area growers and retailers. With the help of his team of wheat crop specialists, Moffatt has developed a variety that appears to provide much-needed relief against stripe rust, a disease that has devastated the region in recent years and cost growers millions of dollars in yield losses and treatment programs.

Because of its innovative doubled-haploid research technology and Moffatt's deep knowledge of wheat production, Syngenta can now offer PNW growers a stripe-rust-resistant winter wheat variety named SY Ovation. A second doubled-haploid variety – SY 107 – designed for

areas with minimal rainfall is expected to be released in 2013.

Moffatt and his team also are active participants in the Syngenta Integrated Growing Solutions Program, which seeks to uncover the best mix of Syngenta seed and crop protection products for specific field scenarios.

"Mother Nature has a way of finding the weakness in any crop," Moffatt says. "Our goal as breeders is to help overcome those weaknesses by improving what's inside the seed, which, when combined with our chemical packages, can give growers and retailers the solutions they need to maximize productivity." Δ



Dr. Brent Delzer



Dr. John Moffatt



Dr. XingPing Zhang