

Pioneer's AYT Molecular Breeding Tools Help Increase Yield Potential

Pioneer soybean researchers have developed an exciting tool called Accelerated Yield Technology (AYT™) to further enhance the performance potential of new Pioneer® brand Y Series soybeans. These AYT processes are helping Pioneer research double the rate of genetic yield gain of its elite new varieties compared to varieties developed without these innovative molecular breeding technologies.

AYT molecular breeding tools are helping increase the yield potential of the new varieties at a faster pace than traditional breeding. "We're matching superior parents and using AYT processes to identify progeny with the highest yield potential," says Dr. John Soper, soybean product development director. "One parent may contain yield genes A, B and C, while another contains yield genes D, E and F. Pioneer combines the two, looking for lines that include all six yield genes. Then it conducts trials on these promising lines to find the ones that exhibit additional yield over existing varieties," Soper explains.

Pioneer has led the way in developing proprietary marker-assisted selection processes, most notably to introduce key defensive traits to protect soybean yield from harmful pests such as soybean cyst nematode, Phytophthora root rot, brown stem rot, sudden death syndrome and frogeye leaf spot.

So, in addition to employing markers to incorporate defensive traits to protect yield, AYT marker technologies are now being used to boost the genetic yield potential of Y Series varieties as well.

The AYT process starts with Pioneer re-

searchers mining and analyzing their vast germplasm database to identify native genes associated with high yields.

Using molecular markers and patented molecular breeding techniques, plant scientists are able to track and select native genes associated with increased yields ... and stack these genes in elite Pioneer varietal lines. These breakthroughs, using non-transgenic biotechnologies, allow Pioneer researchers to quickly and efficiently "design" varieties carrying these yield-enhancing genes.

One of the goals of Pioneer soybean product development is to double the rate of genetic gain by 2010. "We are well on our way to achieving this goal," Soper says. "Our new Y class soybeans produced five percent higher yields on average compared to competitor soybean varieties in over 1,800 comparisons from 2007 harvest. And several new Y Series varieties exceeded existing product yields on average by six to 10 percent."

"We're using a collection of tools to improve yield and defensive traits," Soper reports. "We've added two new North American research centers during the past year, started work on several new pests and diseases and are conducting trials in new breeding zones to ensure we have products to fit the needs of Pioneer customers across North America."

Stay in touch with your local Pioneer sales professional about these exciting new Y Series products to help you make the most from your soybean acres. And for information on the latest soybean innovations, visit us at www.pioneer.com/soybeans. Δ