The Latest in Biotechnology and Herbicide Tolerance

Bill Curan, Pioneer Hi-Bred International Inc., Evans, CO
Bill.curran@pioneer.com

Herbicide resistance technology has changed production agriculture. Various biotechnology methodologies have been used to identify and create potential herbicide resistance genes. A new method call gene shuffling uses multiple rounds of shuffling to amplify gene function. Each protein variant is tested to determine whether the desired function is improved. A new herbicide resistance gene called GAT (Glyphosate ALS Tolerance) has been created using gene shuffling. The GAT enzyme functions to detoxify and change glyphosate so it cannot bind with the EPSPS target for improved crop safety. This technology has allowed for herbicide design strategies that bring new weed control options to the market place. These include short and long-term residual plus burn-down combinations. GAT herbicide technology offers advanced options for weed management. U.S. approvals are expected in 2009 with commercial introduction in 2010 for corn. For soybean, U.S. approvals have been received.