HB4, a climate-resilient trait for soybean and wheat

Geronimo Watson
BioCeres, Argentina
geronimo.watson@biocerescrops.com

Land use, including deforestation, agriculture, and ruminant livestock, accounts for one quarter of anthropogenic greenhouse gas (GHG) emissions. Climate change will have an impact on crop's yield and nutritional value, hampering agriculture meeting global nutritional demands due to population growth in the next decades. Therefore, agriculture faces a major challenge: to enhance the resilience of global food systems and at the same time reduce its contribution to climate change. The modified sunflower *hahb-4* gene augments the plant's adaptability to the environment thereby enabling a greater grain yield. In 2003 Bioceres, an Argentine biotech company founded by farmers, initiated a research collaboration with a group from the Universidad Nacional del Litoral (UNL) and Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) lead by Raquel Chan. The objective of the collaboration was to characterize the role of HaHB4, a sunflower transcription factor that they had recently discovered. Of particular interest to Bioceres was the role of the gene in the plant's response to drought. After several years of lab and greenhouse characterization in model plants, transgenic events in wheat and soybean where developed. Results of several seasons of filed testing, including more recent data with elite genetic background, indicates that the technology, now named HB4, results in substantial yield increases under challenging growing conditions. In the presentation, I will focus on the HB4 product development progress and discuss the most recent field efficacy results.