OBS

Every blockbuster variety in a seed company's portfolio can be traced back to a single breeding-start cross: The initial decision to mate two parent lines. That early choice establishes the majority of genetic combinations that a breeder can exploit, predetermining yield potential, disease, quality, and other traits that will define commercial success. Because new variety releases drive a disproportionate share of revenue and brand visibility, the financial stakes of each breeding-start decision are enormous; one inspired cross can underwrite entire research budgets, while misfires can leave product pipelines thin for years.

Yet with tens of thousands of possible parent combinations and highly heterogenous breeding data to support each cross, breeding start decisions are often driven by intuition rather than a quantitative projection of future performance. NSIP's Optimized Breeding Starts (OBS) technology addresses this challenge by supporting breeders with a systematic, data-informed approach to crossing decisions. OBS allows the breeder to define key product priorities—such as agronomic performance, trait targets, or genetic distinctness—and then scans the available germplasm for parent combinations most likely to deliver on those goals. The outcome is a focused, evidence-based set of crosses that optimize the use of crossing and trialing resources to keep the product development pipeline flowing with potential winners.

OBS brings together multiple integrated components to support effective crossing decisions. It begins with ingestion of new and historical data, linking field trial, genotype, pedigree, passport, and environmental records to build a comprehensive data framework. Next, training set optimization identifies and prioritizes the most relevant and high-quality data to ensure accurate model calibration. With this foundation, forward prediction simulates the performance of millions of potential progeny across multiple traits, projecting outcomes several generations into the future. Finally, crossing block optimization ranks cross combinations by balancing predicted performance with genetic diversity and program priorities, generating a clear, customizable shortlist of recommended crosses most likely to lead to successful selections and products. Together, these components allow OBS to integrate past data, forward-looking models, and operational constraints into a single decision-support platform.

By focusing on the early stages of breeding—where long-term trajectories are first set—OBS helps organizations strengthen their pipelines, use resources more efficiently, and support the development of high-value products that align with market needs. While no tool replaces the

OBS

judgment of experienced breeders, OBS enhances their ability to make informed, timely decisions that support both short-term performance and long-term program success.

https://genetics.nsiplants.com

#plantbreeding #PlantGenetics #AgTech #NSIPGenetics