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**Omics approaches to yield improvement in hybrid rice**

Rice (*Oryza sativa L.*) stands as a vital global food crop and understanding how its genome interacts with the environment is crucial for enhancing and protecting its yield. Ricetec, a pioneering player in hybrid rice breeding, has made significant strides leveraging modern high-throughput technologies towards this end. The wealth of genomic knowledge available in rice combined with both established technologies and nascent innovations allow for the assembly of modern breeding pipelines that accelerate the drivers of selection and maintain sustainably high rates of genetic gain.

Advanced breeding analytics imposed on increasingly voluminous datasets holds tremendous promise for the continued improvement of yield predictions. In the context of the high rates of selection response this is intended to create, the preservation and creation of genetic variance is critical to ensuring long-term capacity for improvement. Advances in multiplex gene editing and AI-assisted target selection complement quantitative genetics approaches to yield improvement by offering opportunities to generate useful genetic variance in elite backgrounds as well as generate novel trait variation that’s unavailable in existing germplasm collections.

These advancements not only deepen our understanding of rice biology but also pave the way for practical applications in rice genetic improvement. Ricetec’s commitment to delivering high yielding and high-quality hybrid rice products is a key pillar to ensuring sustainable and profitable rice cultivation in the coming decades.