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Short-duration rice breeding for tropical Asia

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Short-duration rice breeding trial at the IRRI, Los Banos, the Philippines. Photo courtesy of Dr. Phyo L.P. Won

After interviewing smallholder farmers throughout South and Southeast Asia, one of the top needs they mentioned is development of shorter-duration rice varieties with only 100 days from sowing to harvest. Some farmers want to have more time to prepare for next season's crop while others are concerned about irrigation water running out during the dry season. Another benefit of shorter-duration varieties in countries such as the Philippines is reducing the risk of adverse weather (e.g., typhoons) affecting the crop.

In a new article in *Crop Science*, researchers from the International Rice Research Institute (IRRI) comprising agronomists, physiologists, and breeders report on the advanced high-yielding, earlier-maturing lines for tropical Asia, developed from the IRRI's irrigated rice-breeding pipeline. Key agronomic traits for high yield in short-duration rice (SDR) were identified that will assist future breeding efforts. The team found that low source-to-sink ratio was the major yield constraint of SDR and suggested that breeding should aim to enhance source capacity during grain filling. Importantly, some new SDR breeding lines yielded 11–38% higher than the most popular short-duration variety. Taken together, these findings indicate enormous potential for developing improved short-duration rice varieties in the future.

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Won, P.L.P., Liu, H., Banayo, N.P.M., Nie, L., Peng, S., Islam, M.R., … & Kato, Y. (2020). Identification and characterization of high-yielding, short-duration rice genotypes for tropical Asia. *Crop Science*, *60*. **https://doi.org/10.1002/csc2.20183**

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