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Farmers' and academia's views"

Introduction of ratoon rice cropping systems using perennial rice to Africa

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Abstract

Africa Rice Center (AfricaRice) has attempted to exploit intensification and diversification options for rice-based systems in Africa to improve the productivity and sustainability of rice cultivation, incomes of farm households and nutrition status of local people. As part of this effort, the centre evaluated ratoon rice cropping systems using new perennial rice (PR) varieties developed from the interspecific crosses between *Oryza sativa* and O. longistaminata by Yunnan University, China in AfricaRice's experimental fields in Côte d'Ivoire (Humid zone) and Senegal (Sahel zone) in 2020 and 2021. Ratoon cropping is an excellent labor-saving technology for intensification and enhancing opportunities of diversification if sufficient yield is obtained. Using five PR varieties—PR101, PR107, PR23, PR24 and PR25—and one check variety (WITA9 in Côte d'Ivoire and Sahel108 in Senegal), which is a popular high yielding variety in each country, the following cropping systems were evaluated: (1) Transplanting + Ratoon + Ratoon and this cycle was repeated; (2) Transplanting + Ratoon + Ratoon and ratoon cropping was continued; (3) Transplanting cropping was repeated twice a year. For the two years, six, seven and four crops could be harvested in systems (1), (2) and (3), respectively. In the Humid zone, PR23 and PR25 showed highest cumulative yield for the two years in the systems including ratoon cropping, i.e. systems (1) and (2). In system (1) and (2), PR25 depicted the total yield over 26 t ha^{-1} and 21 t ha^{-1} in the 2 years, respectively. For the ratoon cropping in system (2), plant reestablishment rates of the PR varieties were always higher than those of WITA9. Superior yield performances of the PR to the check could not be seen in the Sahel zone. Ratoon cropping systems using PR23 and PR25 could be promising for the Humid zone in Africa. Milling and physicochemical characteristics were determined in both milled rice and parboiled milled rice in all PR varieties and WITA9. The grain quality characteristics of all PR varieties, except milled rice head rice recovery of PR101, were rivaling those of WITA9. In the palatability test conducted in Côte d'Ivoire, all PR varieties, except parboiled PR24, were acceptable.

Keywords: Africa, *Oryza longistaminata*, perennial rice, ratoon cropping

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