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“Development on the margin”

Assessing the Impact of New Rice for Africa (NERICA) in the Management of African Rice Gall Midge (*Orseolia oryzivora*, Harris and Gagné) in Nigeria

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Abstract

Rice is one of the staple food crops in Nigeria and is grown in almost all of the Nigerian ecologies. One major cause of low rice yield in Nigeria is depredation by insect pests. African rice gall midge (AfRGM) is the most serious insect pest of lowland/irrigated rice in the recent years. Host plant resistance has been used effectively in the management of related gall midge in Asia. However, screening has shown that most of the *Oryza sativa* cultivars planted in Africa, that are resistant to Asian rice gall midge are susceptible to African rice gall midge, and that *Oryza glaberrima* of African origin that are resistant to African rice gall midge are of low quality. Therefore, hybridisation in order to combine the useful traits of both rice species to resist most biotic stresses has given rise to New Rice for Africa (NERICA). The objective of this study was to evaluate the impact of NERICA in the management of AfRGM in Nigeria.

Field evaluation was conducted at two AfRGM endemic areas in Nigeria (Ogidiga Southeast Nigeria and Edozhigi Northcentral Nigeria) during two successive seasons 2009 and 2010 under rain fed conditions. Thirty rice varieties were used for the experiments: 10 *O. sativa*, 10 *O. glaberrima* and 10 NERICA lines. The fields were laid out as factorial experiments in a RCBD with three replications. Samples for AfRGM infestation were conducted at 42 and 63 days after tillering (DAT) at both locations. For each field sampling, 50 plants were randomly selected to assess the rate of damage by AfRGM (% tiller infestation). All screen house evaluations were conducted at Africa Rice Center, IITA Ibadan.

The results indicated that NERICA lines have significant impact on the management of AfRGM. This was evident for the percentage of tiller infestation reduction recorded among the NERICA lines compared to the *O. sativa* lines. The NERICA has additional advantage of higher grain yield than both *O. sativa* and *O. glaberrima*. On the bases of improved resistance to AfRGM infestation and higher grain yield, it is concluded that NERICA could enhance food security and improve livelihoods in Africa.

Keywords: African rice gall midge management, NERICA, rice yield