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Abstract : Performance of Nine Upland Rice (*Oryza Sativa* L.) Genotypes in Three Environments of Kenya. W. A. O Kore¹, T. Okiyo¹, P. Sikuku², O. Nyongesa³, M. Oyunga¹, G. Onyango¹, J. N. Okech¹, C. Okoth¹ and G. Omuga¹ 1KALRO-Kibos, Box 1490, Kisumu, Kenya 2 Maseno University, P.O. Box, 333, Maseno-Kenya 3 IRRI Kenya, P.O. Box 1490, Kisumu, Kenya Corresponding author: Email: winniekore@gmail.com

ABSTRACT Rice is increasingly becoming one of the most important cereals in Kenya. Its demand which is higher than the production volume has been increasing at 12% per annum. Currently, almost two-thirds of the rice being consumed in the country is imported. This is due to a number of constraints including low yielding varieties, limited area under cultivation, biotic and abiotic stresses as well as socio-economic constraints. The present experiment was, therefore, undertaken to identify superior, well adapted and acceptable rice varieties for the upland ecologies of Kenya. The performance of nine promising rice genotypes was field evaluated in three locations using randomized complete block design (RCBD) replicated four times. Agronomic recommendations were applied and data collected on yield and yield components. Results indicated that despite the erratic rainfall at KALRO Kibos, NERICA 14 significantly ($p < 0.05$) out yielded (2.13 t/ha) Dourado precoce (0.63 t/ha). This indicates moisture stress tolerance on the part of NERICA 14. In Lichota and Muhoroni where the rainfall pattern was favourable, FOFIFA 3729 and FOFIFA 3782 gave yields of 2.05 t/ha and 1.38 t/ha respectively and out-performed all the genotypes. These results suggest that NERICA 14 can be grown in areas with erratic rainfall while FOFIFA 3729 and FOFIFA 3782 are recommended for areas with adequate moisture. Key Words: Yield Potential and Drought tolerance

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