

HIGH YIELDING AND BLAST RESISTANT RICE CULTIVARS DEVELOPED FOR TROPICAL UPLAND AREA

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Abstract	<p>The role of upland rice ecosystem to maintain sustainability of rice production in the future is expected to be more significant because the extension of irrigated areas would be more difficult. However, blast disease is the major biotic constraint of upland rice cultivation consequently identification high yielding and blast resistant rice cultivars are important to increase rice productivity in the upland. Yield trials of twelve advanced upland rice breeding lines and two check cultivars were conducted in eight sites representing tropical upland area to identify stable and high yielding rice genotypes. In addition, the blast disease resistance of these materials was studied in greenhouse using ten blast races. Average grain yield of upland rice genotypes across eight sites ranged from 4.95 to 6.65 t ha⁻¹. Stable and high yielding genotypes were identified including B12828E-TB-2-11-22 (6.65 t ha⁻¹), G37 UNSOED (6.19 t ha⁻¹), IPB159-F-7-1-1 (6.05 t ha⁻¹), and G8 UNSOED (6.00 t ha⁻¹). Investigation of blast disease resistance on these genotypes against ten blast races indicated that these lines had wide spectrum of blast resistance and different blast resistance mechanism apparently presented in each genotype. The identification of upland cultivars with different blast resistance for farmer's adoption has potential to increase rice productivity in tropical upland areas.</p>
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