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BREEDING CROP PLANTS FOR RESISTANCE TO PESTS AND DISEASES

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Techniques to evaluate levels of resistance in rice to brown planthopper *Nilaparvata lugens* (Stal.)

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Rice accessions ASD 11, IET 5741, IET 6315, T 7 and V P. Samba were identified as resistant to brown planthopper (BPH) by seedling screening technique and resistance was confirmed by two different screening techniques viz., alternate row test and seedling screening in pots Through modified seedling bulk test, IET 6315 was found to be highly resistant, ASD 11 and V. P. Samba were identified as resistant while IET 5741 and T 7 were moderately resistant based on damage rating and seedling mortality. Microplot technique was used to study the levels of resistance to BPH and results indicated that the levels of resistance varied significantly among different resistant accessions at different growth stages of plant. ASD 11 and V. P. Samba were found highly resistant while IET 5741, IET 6315 and T 7 were identified as moderately resistant.

Screening methodology and breeding sorghum for resistance to Striga asiatica (L.) Kuntze at ICRISAT center

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Breeding for resistance to *Striga* in sorghum at ICRISAT Center, aims to identify sources of resistance to *Striga* and to transfer them to agronomically *elite* backgrounds. Screening of germplasm for low stimulant production resulted in the identification of a set of 640 germplasm low stimulant lines. Multilocation testing of the low stimulant and other source lines have indicated that N 13, 555, IS 4202, IS 7471 and IS 9985 are resistant to *Striga* in the field, N 13 being the most stable among them. Efforts are continuing to transfer the resistance in the source lines to improved agronomic backgrounds. A series of SAR (*Striga asiatica* Resistant) lines have been identified which are derivatives of *Striga* resistant X adapted line crosses with improvements in yield and grain quality traits. A 'three-stage' screening methodology has been developed to screen breeding lines to *Striga*. A 'checker board' layout which is deployed at the advanced screening stage has been adapted by the All India Coordinated Sorghum Improvement Project (AICSIP) in their coordinated Striga trial.