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Category	: International Rice Research Conference
Select Theme	: Genetic improvement
Endorsement email	-
Keyword 1	: Biotic stress tolerance
Keyword 2	: Genotype x Environment Interactions
Keyword 3	: Breeding Strategy
Title of Entry	: Shifts in Virulence Pattern of Asian Rice Gall Midge, <i>Orseolia oryzae</i> (Wood-Mason) in Warangal, Telangana, India
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Asian rice gall midge, <i>Orseolia oryzae</i> (Wood-Mason) is a major pest of rice which causes yield loss of US \$ 80 million annually in India alone. The most effective method of containing this pest has been the development and deployment of resistant rice varieties. Accordingly, many location specific resistant varieties were released. Large scale cultivation of gall midge (GM) resistant varieties in endemic areas has led to the emergence of new virulent

biotypes and breakdown of host plant resistance. The virulence pattern of GM populations in India is monitored through the reaction of a set of 14 host plant differentials categorized into 4-5 groups in Gall midge biotype trial under All India Coordinated Entomology Programme, IIRR. So far, seven distinct biotypes *viz.*, GM Biotype 1 to 6 and GMB4M of Asian rice gall midge have been characterized from different parts of India.

Based on the reaction of differentials from 1988 till 1999-2000, the population at Warangal, an endemic area for GM was characterized as Biotype1. From 2001 onwards, susceptibility in group 1 and 2 differentials was observed with pattern of S-S-R-S and was designated as Biotype-4 instead of earlier R-R-R-S pattern of biotype 1. During 2005, this population was re-designated as Biotype 4M with reaction pattern (S-S-R-R-S) due to its added virulence against CR-MR-1523 differential. However, since 2013-14 onwards, local population is showing virulence against even Group IV differentials *viz.*, Velluthacheera, Aganni, RP-2068-18-3-5, Abhaya, INRC 202, INRC 1997. Continuous monitoring of virulence in both GMBT trial and through single female virulence test in this area, of late, suggested development of low virulence against Aganni (*Gm8*), RP-2068-18-3-5 (*Gm3*), Abhaya (*Gm4*) which were hitherto conferring resistance, which is a cause of concern. This necessitates exploring the germplasm for resistant sources against emerging GM biotypes to breed resistant lines.