Entry No. IRRC-0477

Category	: International Rice Research Conference
Select Theme	: Genetics of Biotic interactions: Stress tolerance, Mitigation and Microbiome
Endorsement email	:
Genetics of Biotic interactions Stress tolerance Mitigation and MicrobiomeKeyword 1	: Diseases
Genetics of Biotic interactions Stress tolerance Mitigation and Microbiome Keyword 2	: fungi
Genetics of Biotic interactions Stress tolerance Mitigation and MicrobiomeKeyword 3	: microbiome
Title of Entry	: Status of rice sheath blight disease in India and its management strategies
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: India is the largest rice grower, consumer and exporter. After the introduction of green revolution, sheath blight caused by Rhizoctonia solani has became as one of the major constraints for rice production and it causes yield loss up to 70-80%. To address this problem studies have been initiated to understand the disease scenario across the India, pathogen population dynamics, identifying the resistant source and selecting effective fungicides to manage the disease. The IIRR-Production Oriented Survey (POS) data of 35 years (1981-2016) was used to generate district wise sheath blight disease maps of India by using ArcMap software. Disease has been increased in terms of both intensity and severity over the past 20 years in all rice ecosystems. At present, it is a major production constraint in Indo-Gangetic plains, East coast, West coast and parts of central plains in India. About 120 Sheath blight pathogen isolates were collected from across India and purified. All these isolates were characterized through phenotyping, pathotyping and genotyping. During the last two decades (2000-2017), about 20,000 breeding lines and germplasms were evaluated under All India Co-ordinated Rice Improvement Project (AICRIP) for sheath blight resistance. However, only few lines with moderate level of resistance were identified. Besides, about 7000 germplasm, wild rice and land races were also screened under artificial condition. Among these four lines viz., Gumdhan, Wazuhophek, Ngonolasha and Phougak were identified with good level of resistance. In

multi-location testing Wazuhophek performed better than tolerant check (Tetep). Crosses were made between Improved Sambha Mahsuri (ISM)/Wazuhophek to develop a RIL population for characterising sheath blight resistance. The RIL population of ISM/Wazuhopehk (F7 stage) was artificially screened. Out of 330 F7 lines, seven lines were identified with good level of resistance. Different new combination fungicides were evaluated for their efficacy against sheath bight in 15 hot spot locations across India. Analysis of last five years data revealed that combination products viz., trifloxystrobin 25% + tebuconazole 50% SC (0.4 g/l), tricyclazole 20% + tebuconazole 16% SC (2.25 ml/l) and tricyclazole 45%+hexaconazole 10% WG (1.0 g/l) were highly effective in reducing the disease below economic threshold level.

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