

3rd International Conference on Agriculture & Horticulture

October 27-29, 2014 Hyderabad International Convention Centre, India

Evaluation of selected fungicides against rice false smut disease

D Ladhakshmi, G S Laha, D Krishnaveni, V Prakasam and M S Prasad
Directorate of Rice Research, India

False smut disease caused by *Ustilaginoidea virens* (Cooke) (Takahashi) is a grain disease of rice. *U. virens* convert whole grain into powder (smut balls) form. It's believed that the pathogen infects during heading to flowering stage of the crop. Pathogen infection leads to sterile spikelets and reduction in 1000 grain weight. Earlier, the disease had been categorized as a minor disease due to its sporadic occurrence. However in recent years it has been emerged as the most devastating grain disease in majority of the rice growing areas of India due to cultivation of high fertilizer responsive cultivars and hybrids, heavy application of nitrogenous fertilizer and apparent change in climate. In severe cases the number of infected grains reached even more than 100 per panicle. Since the disease causes direct economic loss to the farmers, development of suitable management practices using effective fungicides are imperative. Three chemicals viz., trifloxystrobin 25%+ tebuconazole 50% (Nativo 75WG), kresoxim methyl (Ergon 44.3 SC) and propiconazole 25 EC (Tilt or Result) were evaluated both under *in vitro* and *in vivo*. Under laboratory conditions, all the three fungicides showed variable response in inhibiting the growth of the pathogen. Among the three fungicides, Navito 75 WG (0.02 %, 0.04%, 0.06% concentrations) and Tilt (0.05%, 1.0% and 1.5% concentrations) inhibited the fungal growth up to 100 per cent. Similarly, same fungicides were evaluated under field conditions at different stages of the crop. Application of trifloxystrobin 25% + tebuconazole 50% (0.4g/l) or propiconazole 25 EC (1ml/l) either at 50 % or 100% panicle emergence stage was effective and both the chemicals were on par in their performance in reducing the percentage of infected panicles/m² and infected spikelets/panicles and increasing the yield when compared to control.

ladhasavitha@gmail.com

Rice varieties compatible for conservation Agriculture: Breeding perspectives

Suneetha Kota, Senguttavel P, Vijai Pal Bhadana, G S Varaprasad, D Sanjeeva Rao, U Chaitanya, L. V. Subba Rao, V Ravindra Babu, M B B Prasad Babu, Brajendra and B Gangaiah
Directorate of Rice Research, India

Agricultural progress has been a crucial factor in worldwide socio-economic change. Conventional flooded rice cultivation in Asia provides more than 75% of the world's rice supply for half the earth's main staple food. In Asia, flood-irrigated rice consumes more than 45% of total freshwater available. Rice transplanting is a time consuming, labour intensive and arduous operation which is about 25 per cent of the total labour requirement for the crop production. Many farmers are shifting from transplanting to direct sowing. Therefore, increasing energy prices, limited water and labour availability for transplanting necessitates development of alternate production systems for rice. Genetic improvement is one of the most efficient approaches to develop rice cultivars suited to conservation agriculture based technologies. Almost no varietal selection and breeding efforts have been made for developing rice cultivars amenable to resource conservation technologies suitable for unploughed or reduced/zero-tillage soil conditions with direct seeding. Efforts at this Directorate of Rice Research (DRR) to identify the genotypes with specific traits for CA and to develop genotypes responsive to direct seeding have been initiated. Experiments on reduced tillage dry direct seeding and puddled transplanted condition as well as zero tillage were conducted during Rabi, 2010 to Kharif, 2013 at DRR, Hyderabad. Each year a set of genotypes were screened under direct seeding as well as puddled transplanted conditions. More than 4000 rice genotypes consisting of germplasm, released varieties as well as genetic stocks were screened to identify promising genotypes with specific traits under field condition as well as glass house condition. Through screening the germplasm as well as collating the performance of rice genotypes under direct seeding Sabita was identified to possess weed suppressive ability with early seedling vigor; RP5219-9-6-7-3-2-1-1 and RP 5214- 38-14-9-5-2-1-B with desirable plant type and higher yield, IURON 26 with stay green character, S-166 with thick and dark green leaves, higher number of grains per panicle and sturdy stem, Aathira, Swarna Prabha, Kalinga III, IET 22051 (RP 5125- 2-4) and B 644F-MR-6-0-0 (AYT 2) for their desirable plant type, higher yield and over all phenotypic acceptability, RP 5129-17-8-3-2, RP 5214- 57-26-9-6-3-2-B for root characteristics. Of the 2500 germplasm lines screened, the accessions IC 463585, IC 352760, IC 350189, IC 466351, IC 577070 and IC 576974 found promising as these genotypes recorded more than 90% germination under anaerobic condition. Therefore, these genotypes which are performing better and possessing useful traits were utilized in the development of breeding material suitable for conservation agriculture. With continued breeding, future rice varieties will possess sufficient adaptation to resource conservation conditions such that they will consistently achieve yields comparable to the potential yield of conventional methods.

ponnukota@gmail.com