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RESEARCH ARTICLE :

Aromatic variety as a trap crop for stem borer management in rice

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SUMMARY : Yellow stem borer (YSB) is a key pest affecting all the growth stages of the rice plant from nursery to harvest. In India, we observe 4-5 generations of this pest in a cropping season. The YSB larvae emerge out from the egg masses laid on the leaf laminae, reach to the base of the tillers with the help of silken threads, enter the stem by making a tiny hole just above the water level and feed on the growing stem primordia. Once the larva gains entry into the tillers, the damage is reflected either as dead heart or white ear head or the grain filling is affected in the panicle, depending on the stage of the crop. Economic yield loss particularly due to white ear damage has been estimated to range from 38 to 80 %. During the search for an eco-friendly alternative to insecticide use, studies were carried out to explore the possibility of using a susceptible variety as a trap crop to wean way the pest from damaging the main crop. Initial efforts made at ICAR-IIRR revealed the utility of aromatic varieties of rice in trapping the larvae of yellow stem borer which were attracted to these varieties more than the non aromatic lines. Of the many varieties tested, Pusa Basmati-1 was found to be the most susceptible aromatic variety which when planted in the main field can help in minimizing the damage to the main crop. The duration of the main crop and the trap crop were considered based on which the date of sowing was adjusted so that the trap crop would come to booting a week earlier than the main crop. However, planting of main crop and trap crop was done at the same time. Planting of one row of Pusa Basmati- 1 as trap crop, preferably in east– west direction, for every 2.5- 3m of main crop, resulted in effectively managing the pest in the main field planted with popular variety. The stem borer damage observed in the main crop was half of the damage that was recorded in the trap crop. By adopting this practice in a stem borer endemic area, impulsive spraying of chemical pesticides against yellow stem borer could be avoided at the vegetative stage. The yield was higher in the main crop where trap crop was grown compared to the fields without the trap crop. Also, though the yield in trap crop was affected due to higher pest damage the resulting yield from the trap crop would still be of added advantage as aromatic rice fetches premium price. The loss in yield was offset by the higher returns for the farmer due to higher price of the produce. The strategy has been tested across various locations under both FLDs in the Telangana districts as well as different locations across different states under All India coordinated Rice Improvement Project (AICRP) with locally recommended and popular main crop varieties such as Prakash (RP4-14), Swarna, BPT 5204, MTU1010, Krishna hamsa, Tellahamsa etc. resulting in a favourable B: C ratio. The eco-friendly tactic has thus, been included as one of the integral components of recommended rice IPM modules, particularly in stem borer endemic areas. It can also be integrated along with alley ways and sex pheromones. Theres a dire need to create awareness among the farmers to adopt such eco-friendly practices of pest management to reap the benefits.