USE OF TGMS LINES FOR TWO LINE RICE HYBRIDS IN PAKISTAN

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ABSTRACT

Six Thermosensitive Genetic Male Sterile (TGMS) lines were evaluated for their sterility / fertility behavior. Three stable TGMS lines were used for floral, morphological, agronomic and quality traits to find out commercially useable TGMS lines for two line hybrid seed production. IR73834-21-26-15-25-4 had shortest plant height (63 cm) with minimum number of tillers per plant (8.0). Phenotypic acceptability was highest for IR73834-21-26-15-25-4, therefore, has the potential for commercial utilization in hybrid seed production. During sterility phase, highest temperature ranged between 39.45°C in May to 31.62°C in October whereas minimum temperature was observed to be 27.64°C in May to 21.64°C in October. However, critical fertility phase may be observed in last decade of October with maximum and minimum temperatures of 28.5°C and 19.5°C, respectively. Critical fertility phase may be extended upto first decade of November. Four TGMS lines i.e. IR73827-23-26-15-7, IR73834-21-26-15-25-4, IR75589-31-27-8-33 and IR76761-4-3-17-34-1 showed TGMS behaviour at Kala Shah Kaku. IR68301-11-6-4-4-3-6-6 and IR76753-41-6-34-13 did not produce any seed and remained un productive throughout the growth period. TGMS lines, IR73827-23-26-15-7, IR75589-31-27-8-33 and IR73834-21-26-15-25-4 showed no difference for leaf blade pubescence, leaf blade colour, legule colour, collar colour, apiculous colour and stigma colour. Anther colour was yellow in IR73827-23-26-15-7. This TGMS line also showed green basal leaf sheath colour as compared to light green in other TGMS line. IR75589-31-27-8-33 had erect flag leaf while horizontal in others. Maximum anther length (2.14 mm) and stigma length (2.0 mm) was observed in IR73834-21-26-15-25-4. Turnucate legule was present in IR73827-23-26-15-7 as compared to 2-cleft legule in others. Straw colour short awns were found only in IR73834-21-26-15-25-4 with intermediate panicle type. However, other TGMS lines showed compact panicle type.

Key word: Two line rice hybrid, TGMS, characteristics