

RESEARCH PAPER

Using line x tester analysis to develop new source of cytoplasmic male sterile line in hybrid rice

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ABSTRACT

Five cytoplasmic male sterile lines with their maintainer of different sources of cytoplasmic male sterile were used to make possible combination by using line x tester model to develop new source of cytoplasmic male sterile, this experiment was conducted at experimental farm of Rice Research Section, Sakha, Kafrelsheikh during and 2014 and 2015 season in RCB design with three replication. The data were recorded on some anther, pollen grains, morphological and yield characters, the results showed that, most of the studied characters exhibited differences and highly significant especially for anther shape and color of pollen grains as well as, panicle exertion per cent seed set per cent and grain yield per plant⁻¹ there were ranged (86.33-100), (86.04-100), (71.57-87.04), (10.23-18.07) and (12.03-16.03) for up normal anther and color of pollen grains as well as, panicle exertion per cent seed set per cent and grain yield per plant⁻¹, whereas, testers were recorded 0.01 for anther shape and Wight colour of pollen grains and (97.00-99.67), (92.05-95.13) and (38.10-45.33) for panicle exertion per cent, seed set per cent and grain yield per plant⁻¹ whereas the hybrid combinations were ranged (71.43-100), (73.30-100), (57.37-90.87), (7.03-18.07) and (11.03-18.12) for these characters. SCA was higher than GCA for all the studied characters indicating the dominance gene action played importance role in the genetic control for these characters in develop new source of cytoplasmic male sterile lines in hybrid rice breeding programme.

Key Words : Using line x tester, Develop new source, Cytoplasmic male sterile line, Hybrid rice

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