

TILLERING BEHAVIOUR, SPIKELET STERILITY AND YIELD OF HYBRID RICE VARIETIES AS INFLUENCED BY SEEDLING AGE

Dr. Nasima Akhter*

Executive summary

Seedling age is an important factor for uniform stand of rice and regulating its growth and yield. Agronomic management of hybrid rice considerably differs from the conventional one. But research work on tillering behaviour and spikelet sterility of hybrid rice varieties in relation to seedling age is scanty in Bangladesh. So, an experiment was conducted during the Boro season of 2017-2018 to study the effect of seedling age on tillering behaviour, spikelet sterility and yield in hybrid rice varieties. The experiment consists of two factors *viz.* variety (three hybrids- BRR1 hybrid dhan2, Heera2, Tia and one modern inbred- BRR1 dhan45) and seedling age (three- 25 days, 35 days and 45 days). Heera2 and BRR1 hybrid dhan2 had the potentiality of higher tillers production and retention over BRR1 dhan45. Irrespective of varieties, capacity of tillers production decreased gradually with older seedling. BRR1 hybrid dhan2, Heera2 and Tia contained higher amount of chlorophyll in flag leaf up to 23 DAF (days after flowering) than that of BRR1 dhan45. Seedling ages exerted little influence on flag leaf chlorophyll content and chlorophyll a: b ratio. BRR1 hybrid dhan2, Tia and Heera2 exhibited considerable higher shoot dry matter accumulation at heading and at maturity and greater shoot reserve remobilization to the grain compared to the inbred BRR1 dhan45 when transplanted 25 days and 35 days old seedlings. Shoot reserve translocation declined rapidly in all hybrids with older seedling compared to test inbred variety. Ratio of spikelets number to leaf area and yield sink to leaf area (LA) were significantly higher in all studied hybrids (Tia, BRR1 hybrid dhan2 and Heera2) compared to inbred BRR1 dhan45. Hybrids produced lower numbers of panicles m^{-2} and higher number of spikelets $panicle^{-1}$ compared to inbred BRR1 dhan45. Accumulated dry matter and shoot reserve remobilization (%) in the test hybrids showed higher sensitivity to seedling age in Boro season compared to the inbred BRR1 dhan45. Consequently, filled grains (%) and grain yield in the test hybrids declined severely with older seedling compared to the inbred BRR1 dhan45.

* Professor, Dept. of Agricultural Botany, Sher-e-Bangla Agricultural University, Dhaka-1207