EFFECT OF AGRO-CHEMICALS ON THE GROWTH, PHYSIOLOGICAL PARAMETERS AND YIELD OF HYBRID RICE

Md. Tofail Hosain*

Executive summery

Spikelet sterility is the main barrier for exploiting maximum yield potential of the hybrid rice. Most of the rice growing countries have already given their attention on the use of different agrochemicals to reduce spikelet sterility problem in hybrid rice. But research work on improving yield of hybrid rice varieties through solving the spikelet sterility/ poor grain filling problem is scant in Bangladesh. For this season, a field experiment was conducted at the central research farm of Sher-e-Bangla Agricultural University, Dhaka-1207 during Boro season, 2019-2020 to study the effect of different agrochemicals on the growth, physiological parameters and yield of hybrid rice (BRRI hybrid dhan2). The experiment was laid out in a randomized complete block design with 3 replications. The experiment consisting of 10 different agrochemicals treatment along with a control *i.e.*, T_1: 25 % extra nitrogen (N) soil application, T_2: foliar application of NPK (1:1:1) @ 1.0 %, T_3: foliar application of triacontanol (2.0 ml/L), T_4: foliar application of GA_3 (@50 ppm), T_5: foliar application of nitrobenzene (@ 20 ppm), T_6: foliar application of salicylic acid (@ 500 ppm), T_7: foliar application of 6-BAP (@ 20 ppm), T_8: foliar application of borax (0.2 %), T_9: T_3 + T_8 foliar applications and T_{10}: control. All the morphological characters except unproductive tillers were significantly influenced by foliar as well as soil application of different agrochemicals at 75 and 95 days after transplanting, and at maturity. The treatment T_2 (foliar application of NPK- 1:1:1@ 1.0 %) recorded the significantly higher number of productive tillers hill^{-1} (17.40), a greater number of green leaves hill^{-1} (62.84), a smaller number of senescent leaves hill^{-1} (12.57) except plant height and flag leaf length. The significantly higher plant height (126.50 cm, 130.45 cm and 130.35 cm) was recorded by the foliar spray of T_4 (GA_3@ 50 ppm) at 75 DAT, 95DAT and at maturity respectively, as compared to others treatment. Treatment T_4 (GA_3 @ 50 ppm) also produced the highest flag leaf length (43.70 cm). Among the treatments, T_2 (NPK -1:1:1@ 1.0 %), recorded the significantly higher grain yield (8.71 t ha^{-1}).

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