B-07: Effect of different levels of straw mulch on weed growth and grain yield of Bg 300 under dry seeding "Kekulan" condition

D P P Jayakody
(*Regional Agricultural Research & Development Centre, Makandura, Gonawila*)

Previous field experiments conducted at Regional Agricultural Research Centre, Makandura revealed that straw mulch at the rate of 4 t/ha reduced the weed growth and increased the rice yield under dry seeding conditions. As this quantity (4 t/ha) of straw could not be harvested from the same fields, this application is practically impossible for every field. Hence, different levels of straw including 0, 2, 3 and 4 t/ha were tested with weed free control plot to find out the effect of straw mulch on weed growth and crop yield of Bg 300 under dry seeding.

Randomized complete block design was used with 5 replicates. The dry seeds of Bg 300 were sown at the rate of 150 kg/ha on dry seed beds (5 x 5 m) prepared with first monsoonal rains in Maha 1992/93. Then they were covered with soil and different levels of rice straw were evenly spread in separate plots except in 2 controls: weed free plot where hand weeding was done frequently and unweeded plot. All treatments were not weeded except weed free treatment. A basal dressing of 15 kg/ha P_2O_5 was applied at sowing. The first top dressing of 15 kg/ha N and 10 kg/ha K_2O were given at 3 weeks after sowing (WAS) and second top dressing of 30 kg/ha N was applied at 7 WAS. This experiment was repeated during Yala 1993.

Weed samples were obtained using 30 x 30 cm quadrat at 2,4,6 & 8 weeks after sowing. Then the weed density (no./m^2) was calculated by counting, and weed dry weight (g/m^2) was obtained by oven drying the samples at 70^{0}C for 5 days. Yield and yield components were obtained at harvesting.

Weed density was significantly reduced by the highest straw level (4 t/ha) at 2, 6 and 8 (WAS) while the straw level of 3 t/ha reduced the weed density at 3 & 6 WAS during Maha 1992/93. The straw levels 3 & 4 t/ha showed significantly low weed densities at 2 WAS during Yala 1993. Weed dry weight was significantly reduced by the highest straw level of 4 t/ha

at 8 WAS during 1992/93 Maha, but both straw levels 3 & 4 t showed significantly low weed dry weights at 2 WAS during Yala 1993. Weed free treatment showed significantly highest grain yields of 0.84 & 1.98 t/ha during Maha 1992/93 and Yala 1993 respectively. Among the straw levels tested, the significantly highest grain yields of 0.69 & 0.36 t/ha was obtained from the highest straw level (4 t/ha) during Maha 1992/93 & Yala 1993 respectively.

The straw levels 3, 2 & O t showed the grain yields of 0.43, 0.62 & 0.33 t/ha respectively in Maha 1992/93, In Yala 1993, the grain yields of 0.22, 0.21 & 0.09 t/ha was given by the straw level 3, 2 & O t respectively.

Among the straw levels tested 4 t/ha was superior to other levels in controlling weeds in both Maha 1992/93 and Yala 1993. Yield of Bg 300 increased by 23, 46 and 52% with 2, 3 and 4 t/ha straw levels respectively than O t/ha. In 1993 Yala the yield increase was 59, 57 and 75% with 2, 3 and 4 t straw levels respectively than O /ha.