

## STUDY ON ORGANIC MANIPULATION TO MITIGATE DROUGHT STRESS OF WHEAT

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### Executive Summary

Shortage of irrigation water is a limiting factor for wheat cultivation in Bangladesh as it grows in the drier months of the year. On the other hand, organic material has the capability to retain water for longer time. Taking these in mind, the present pot experiment was undertaken in the net house of the Agronomy Department, Sher-e-Bangla Agricultural University, Dhaka 1207 to observe the effect of different organic materials to mitigate the drought stress of wheat during November, 2017 to March, 2018. This was a three factors experiment where factor A: Variety -3: i)  $V_1$  = BARI Gom28, ii)  $V_2$  = BARI Gom21 (Shatabdi) and  $V_3$  = BARI Gom19 (Sourav); factor B: Organic manure -4: i)  $OM_0$  = RDCF + Control (Without organic manure), ii)  $OM_1$  = RDCF + Cowdung ( $10 \text{ t ha}^{-1}$ ),  $OM_2$  = RDCF + Vermicompost ( $5 \text{ t ha}^{-1}$ ),  $OM_3$  = RDCF + ACI Compost ( $5 \text{ t ha}^{-1}$ ) and factor C: Imposition of drought by avoiding irrigation- 4: i)  $D_0$  = Control (without drought), i)  $D_1$  = Crown root initiation stage (20-29 DAS), ii)  $D_2$  = Booting stage (45-54 DAS), iii)  $D_3$  = Anthesis stage (55-64 DAS). The experiment was laid out following randomized complete block design (Factorial) and replicated thrice. Results revealed that BARI Gom28 gave the highest grain yield ( $3.37 \text{ g plant}^{-1}$ ) and out of 4 organic manure treatments  $OM_1$  (cowdung) produced maximum grain yield ( $3.78 \text{ g plant}^{-1}$ ). In respect of drought imposition treatments, grain yield was found highest in control treatment (without drought imposition plants) and that of second highest was recorded in  $D_2$  (drought imposition at booting stage). Regarding the interaction of variety, organic manure and drought imposition, the interaction of  $V_1OM_1D_0$  (BARI Gom28  $\times$  Cowdung  $\times$  without drought imposition) was highest yielder among the other interactions, but in drought situation, interaction of  $V_1OM_1D_2$  (BARI Gom28  $\times$  Cowdung  $\times$  drought imposition at booting stage) was found superior. Application of organic manure can reduce the impact of drought on wheat irrespective of growth stages but, application of cowdung ( $10 \text{ t ha}^{-1}$ ) was found more effective to combat drought impact at booting stage of wheat compared to other growth stages.

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