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Effects of Paclobutrazol on Growth and Yield Attributes of Groundnut (*Arachis hypogaea* L.)

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Abstract: A field experiment was carried out to investigate the effect of paclobutrazol (PBZ) as a growth retardant on excessive vegetative growth and yield of groundnut (*Arachis hypogaea* L.) at District Seed Farm, under Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal during *kharif* season in 2013 and 2014. The experiment was in split-plot with 6 main-plot treatments (PBZ @ 0, 50, 100, 150, 200 and 250ppm) and 3 sub-plot treatments (single spraying at 30 and 50 days after emergence (DAE) and double spraying at 30 and 50 DAE). During reproductive stage significantly shorter plants (upto 28% less plant height) were observed due to PBZ application as compared to control. At harvest significantly higher dry matter production was recorded from PBZ @ 250ppm (232.1 g m^{-2}) and from double spraying at 30 and 50 DAE (231.1 g m^{-2}). The number of pod $plant^{-1}$ and sound mature kernel (%) had showed positive impacts and finally increased the dry pod and haulm yield. The maximum dry pod yield was 1745 kg ha^{-1} and 1610 kg ha^{-1} with PBZ @ 250ppm and double spraying at 30 and 50 DAE, respectively. The highest benefit: cost ratio was also from PBZ @ 250ppm and double spraying at 30 and 50 DAE. A highly positive correlation among different attributes were recorded except plant height which was negatively correlated with other attributes i.e. dry matter production, number of pods $plant^{-1}$ and yield was recorded. Therefore, PBZ @ 250ppm with double spraying had considerable positive influences on number of pod $plant^{-1}$, total dry pod yield (Kg ha^{-1}) of groundnut as well as on the benefit: cost ratio.

Keywords: Groundnut, Paclobutrazol, Plant height, Dry matter distribution, Yield, Correlation matrix