

Research Article

DOI : 10.15740/HAS/AJSS/13.1/63-69

Dry matter production and yield of Bt cotton as influenced by available phosphorus in vertisols

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Received : 07.04.2018; Revised : 09.05.2018; Accepted : 23.05.2018

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Summary

A field survey was conducted in Bt cotton growing Vertisols of Dharwad district and totally ten villages (Bandiwad, Byahatti, Dattur, Hebsur, Ingalalli, Kiresur, Kusugal, Rottigwada, Siraguppi and Sulla) were selected. From each selected village, five Bt cotton growing farmers were identified and georeferenced soil samples were collected from 0-30 cm depth and analysed for available phosphorus and other parameters using standard procedures. Also quantity of phosphatic fertilizers addition by the farmers to the crop were collected. Dry matter production at both flowering, harvesting and yield obtained were recorded from each selected farmer field by crop cutting experiment. The results of the study indicated that available phosphorus content varied from 15.5 to 39.50 kg ha⁻¹ with an average value of 29.1 kg ha⁻¹. The dry matter yield varied from 142.3 to 186.7 and 302.1 to 347.7 g plant⁻¹ at flowering and at harvest, respectively. The highest dry matter production was in soils of Bandiwad and the lowest in soils of Siraguppi. The average yields of Bt cotton in farmer's fields in different villages of Dharwad district varied from 976 to 1092 kg ha⁻¹. The highest and lowest yields were recorded in soils of Bandiwad and Siraguppi, respectively. However, the dry matter production and average yields of Bt cotton in different villages followed the order: Bandiwad > Rottigwad > Kusugal > Hebsur > Dattur > Byahatti > Sulla > Kiresur > Ingalalli > Siraguppi. The soils of Bandiwad village had low P (< 33.50 kg/ha) status thus, they responded well to applied phosphatic fertilizers compared to other villages and resulted in higher dry matter and yield of Bt cotton. Lower dry matter production at both flowering and harvesting and also yield in Siraguppi village may be due to its high available phosphorus status (> 33.50 kg/ha).

Key words : Available phosphorus, Bt cotton, Dry matter, Yield

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How to cite this article : Ramya, S.H. and Hebsur, N.S. (2018). Dry matter production and yield of Bt cotton as influenced by available phosphorus in vertisols. *Asian J. Soil Sci.*, **13** (1) : 63-69 : DOI : **10.15740/HAS/AJSS/13.1/63-69**. Copyright@ 2018: Hind Agri-Horticultural Society.