

SCHEDULING OF IRRIGATION IN DIFFERENT CULTIVARS OF COTTON UNDER SEMI-ARID CONDITIONS

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Abstract: Field experiments were conducted during *khariif* 2016 and 2017 at the Research Farm of the Department of Soil Science, CCS Haryana Agricultural University, Hisar, to study the seed cotton yield and water productivity (WP) of *Bt* (Bio-6588, RCH-650) and non-*Bt* (H-1098 (I) cotton cultivars under different irrigation schedules. The irrigation schedules were: first irrigation at 40 days after sowing (DAS) and subsequent irrigation based on IW/CPE of 0.60, 0.75 and 0.90. In addition, first irrigation at 50 DAS followed by subsequent irrigation at IW/CPE of 0.60, 0.75 and 0.90. Thus, a total of six irrigation schedules were kept. Irrespective of irrigation schedules, there was no significant difference in seed cotton yield of *Bt* cotton cultivars but their yields were significantly higher than the seed cotton yield of non-*Bt* cotton (H-1098 (I) during both the years. Due to frequent rains during the crop growing season, the proposed irrigation schedules could not be followed precisely, hence, no influence on the seed cotton yield of the both *Bt* and non-*Bt* cotton cultivars during both the years. Hence, irrigation scheduling based on IW/CPE considering both the time and amount of rainfall for cotton or may be for other *khariif* crops during rainy season did not found suitable/applicable for managing irrigation water efficiently.

Keywords: Cotton cultivars, Seed cotton yield, Irrigation, Water productivity

REFERENCES

- Bandyopadhyay, K.K., Prakash, A.H., Sankaranarayanan, K., Dharajothi, B. and Gopalakrishnan, N.** (2009). Effect of irrigation and nitrogen on soil water dynamics, productivity and input use efficiency of *Bt* cotton (*Gossypium hirsutum*) in a Vertic Ustropept. *Indian Journal of Agricultural Sciences* **79** (6): 448–53.
- FAL** (2005). *Fertilizer Statistics*. Fertilizer Association of India, New Delhi.
- III.** (2008). Soil Water Plant Relationships, Lesson 2, module 3 (*in Irrigation Engineering Principles*, pp 1–18. Version 2 CE, Indian Institute of Technology, Kharagpur, http://nptel.iit.ac.in/courses/Webcourse-contents/IIT_Kharagpur/Water_Resource_Engg/pdf/m3l02.pdf).
- Jana, Orphal** (2005). Comparative analysis of the economics of *Bt* and non-*Bt* cotton production. *Pesticide Policy Project Publication Series Special Issue* No. 8, pp 1–72. January 2005. Hannover, Germany.
- Kairon, M.S., Venugopalan, M.V. and Blaise, D.** (2002). Cotton (*in*) Field Crop Production: Principles and Practices, pp 646–74. Prasad R (Ed), ICAR, New Delhi.
- Kashefipour, S.M., Broomand Nasab, S. and Sohrabi, B.** (2006). Optimization of water productivity using production and cost functions for cotton. *Journal of Agronomy* **5**(1): 28–31.
- Pawar, D.B. and Pawar, B.R.** (2008). Profitability of *Bt* cotton.
- Kairon, M.S., Blaise, D. and Venugopalan, M.V.** (2002). Textbook of Field Crops Production. Technical Editor Dr. Rajendra Prasad, ICAR. p. 646.
- Kashefipour, S.M., Nasab, B.S. and Sohrabi, B.** (2006). Optimization of water productivity using production and cost functions for cotton. *Agron J* **5**: 28–31.
- Rajendran, T.P., Venugopalan, M.V. and Praharaj, C.S.** (2005). Cotton research towards sufficiency to Indian textile industry. *Indian Journal of Agricultural Sciences* **75**(11): 699–705.
- Vories, E.D., Pitts, D.J. and Ferguson, J.A.** (1991). Response of cotton to different soil water deficits on clay soils. *Irrigation Science* **12**: 199–203.

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