

## Quantity, Quality and Water Productivity of Mulberry Leaf Influenced by Different Methods, Levels of Irrigation and Mulching in Eastern Dry Zone of Karnataka, India

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**Abstract :** Mulberry leaf is the major economic component in sericulture and quality of leaf produced per unit area has a direct effect on quality of cocoon. Among all the agronomical inputs, irrigation water has highest impact on mulberry leaf quantity and quality. The water productivity in sericulture in the country is inadequate and inefficient though India has the largest irrigated area. There is a need of proper irrigation methods and conservation practices to ensure efficiency and economy in water use. Hence, this field experiment was conducted at College of Sericulture, Chintamani, Chickaballapur district, Karnataka, India during 2013 and 2014 to know the quantity, quality and water productivity of mulberry influenced by different methods, levels of irrigation and mulching in Eastern Dry Zone (EDZ) of Karnataka, India. The results revealed that the mulberry leaf quantity, quality and water productivity were significantly influenced by different methods, levels of irrigation and mulching. Subsurface drip irrigation at 0.8 CPE (Cumulative Pan Evaporation) recorded higher leaf yield, chlorophyll, relative water, protein content and water productivity (42857 kg ha<sup>-1</sup> yr<sup>-1</sup>, 8.54, 65.80%, 22.27% and 364.41 kg hacm<sup>-1</sup>, respectively) than surface drip at 1.0 CPE (38809 kg ha<sup>-1</sup> yr<sup>-1</sup>, 7.34, 62.76%, 17.75% and 264 10 kg hacm<sup>-1</sup>, respectively) and micro spray jet at 1.0 CPE (39931 kg ha<sup>-1</sup> yr<sup>-1</sup>, 7.96, 63.50%, 19.00%, 35617 kg ha<sup>-1</sup> yr<sup>-1</sup> and 271.83 kg hacm<sup>-1</sup>, respectively). Mulching treatment recorded maximum leaf yield, chlorophyll, relative water, protein content and water productivity (38035 kg ha<sup>-1</sup> yr<sup>-1</sup>, 7.12, 62.11%, 16.14% and 330 kg hacm<sup>-1</sup>, respectively) compared to without mulching. These results clearly indicated that subsurface drip irrigation at lower level of irrigation (0.8 CPE) and mulching increased the quantity, quality and water productivity of mulberry leaf than surface drip and micro spray jet irrigation at higher level of irrigation (1.0 CPE) by saving 20 per cent of water. Therefore, in the coming days subsurface drip irrigation in mulberry cultivation may be more appropriate to realise higher yield, quality and water productivity in EDZ of Karnataka, India.

**Keywords :** subsurface drip irrigation, mulching, water productivity, mulberry

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