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STUDIES ON THE STRATEGY OF DRIP IRRIGATION TO BANANA

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ABSTRACT

Experiments on the performance of drip irrigation with differential quantum of water to banana (*Robusta*) indicated that application of 16 l/tree/day was found to be the optimum.

Banana is an important fruit crop of central and pennisular India, especially in Tamil Nadu. Drip irrigation is one of the advanced methods of irrigation in areas of water scarcity and salt problems. Hedge and Srinivas (1990) reported that the water use efficiency was markedly higher in drip irrigation than under basin method. Robinson and Alberts (1987) observed 23 per cent increased yield of banana with drip irrigation than with sprinkler irrigation.

MATERIALS AND METHODS

The experiment was conducted at the Agricultural Research Station, Bhavanisagar, in sandy loam soils. The details of the treatments were as follows:

T1 : 5 cm depth of irrigation by surface method wherever the cumulative pan Evaporation reaches 50mm i.e., IW/CPE=1.0

T2 : Drip irrigation 32 l/day/tree

T3 : Drip irrigation 24 l/day/tree

T4 : Drip irrigation 16 l/day/tree

T5 : Drip irrigation 8 l/day/tree

The experiment was laid out in a randomised block/design with four replications. The drip irrigation system was laid out using drippers of 4 and 8 l capacity per hr as per the treatment details. The drippers were standardised using cans and measuring the volumes of water dripped. Two crops were raised to study the performance of the drip irrigation. Biometric observations, yield and water use efficiency (WUE) were recorded during the crop period.

RESULTS AND DISCUSSION

From the biometric observations (Table 1), it was observed that among all the treatments, the performance was superior in T2 (32 l/day/tree) drip irrigation whereas the performance was very poor in T5 (8 l/day/tree) drip irrigation. Hedge and Srinivas (1990) also indicated that there was improved growth, early flowering and higher dry matter production in plants under drip irrigation than under basin irrigation.

The total amount of water utilised by the plants and the yield particulars are presented in the table 2.

Table 1. Biometric observations on banana var. *Robusta*

Treatment	Mean bunch length (cm)	Mean number of hands	Mean number of fingers	Mean value of fruit (cc)	Plant height (cm)
T1	75.0	7.3	14.9	133.25	177.0
T2	75.8	7.3	15.2	135.00	186.8
T3	60.5	7.3	12.8	103.00	179.3
T4	64.0	7.3	13.6	135.00	169.3
T5	56.8	6.0	11.7	100.25	148.0
SEd	6.21	0.51	1.11	8.14	2.16
CD	13.53	NS	2.42	17.74	4.60

Table 2. Yield of banana and WUE

Treatment	Bunch yield (t/ha)		Irrigation water (m ³ /ha)		WUE (kg/m ³ /ha)	
	I crop	II crop	I crop	II crop	I crop	II crop
T1	50.54	51.85	25497	22500	1.98	1.97
T2	55.09	57.25	30811	31206	1.79	1.63
T3	52.07	48.22	23108	23404	2.25	1.77
T4	49.55	49.38	15405	15603	3.22	2.54
T5	25.11	22.53	8962	7801	2.80	1.93
SEd	1.80	3.24				
CD	390	7.06				

In both the crops, the treatment T2 (32 l/day/tree) drip irrigation recorded increased yield. In the first crop, the treatment T2 and T3 were similar. However, in the second crop, the treatments T1 and T2 were on par. The treatment T5 (8 l/day/tree) drip irrigation recorded the lowest yield in both the crops. The WUE was the highest in the treatment T4 (16 l/day/tree) drip irrigation in both the crops. Cevik *et al.* (1988) also found that drip irrigation system saved 50 per cent in water use over basin irrigation system and the yield of drip irrigation plants was also higher.

As on overall picture, the optimum quantity for drip irrigation may be 16 l/day/tree. Hence, from the water management point of view, banana has to be irrigated by drip irrigation at the rate of 16 l/day/tree.

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STUDIES ON DESERT TEAK SEEDS

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ABSTRACT

Investigations were carried out in the pods and seeds of desert teak, *Tecomella undulata* at the Regional Research Station, Kovilangulam, to study the pod morphological characters and to assess the stage of pod harvest for seed collection. Colour change of pod from yellow to brown can be taken as a reliable index for pod harvest. Fresh seeds are readily germinable and seeds from apical and middle region possess high seedling vigour compared to distal region.

Tecoma undulata G. Don or *Tecomella undulata* (Fam: Bignoniaceae), a native of Indian peninsula is an ornamental flowering tree suited to dry localities. It is common in desert areas of Haryana, Rajasthan and Gujarat. It is good for shrubbery. Extensively planted as an avenue tree on roadside and also in parks in North West regions where it makes a fine display of its orange yellow

flowers in March. Prized for furniture and being drought hardy and fire resistant, it is useful for afforestation and land scaping of dry tracts (Randhawa, 1983). Introduced as an avenue tree in the Regional Research Station, Kovilangulam, it is gaining more importance in the social forestry programme. Since seed is the major propagule,