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Research Paper

Effect of cattle urine sprays on yield and quality of mango (*Mangifera indica* L.) cv. ALPHONSO

V.P. DAMODHAR AND V.V. SHINDE

See end of the article for authors' affiliations

Correspondence to:
V.P. DAMODHAR
Mango Research Sub-Centre, Deogad, SINDHUDURG (M.S.) INDIA

ABSTRACT

The investigation was carried out to study the effect of cattle urine sprays on yield and quality of mango (*Mangifera indica* L.) cv. ALPHONSO under Deogad condition of Konkan. The concentrations of cattle urine used were 25, 35 and 55 per cent with three and six sprays. Six foliar sprays of 55 per cent cattle urine solution resulted highest fruit weight, volume, no. of fruits, fruit yield kg/ plant and yield tons/ ha.

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Key words : Cattle urine, Quality, Mango

Alphonso is the choicest mango variety, which is commercially grown in the Sindhudurg, Ratnagiri and Ahmednagar districts of Maharashtra. Foliar application of cattle urine is considered to be the best way of supplying nutrients as cattle urine contains 0.9 - 1.3% N, a trace level of 0.5 - 1.0% K (Borowski and Liebhardtt, 1983). However, there is no specfic information about the effect of foliar application of cattle urine on "Alphonso ". One of the important variety in Konkan region of Maharashtra. Therefore, investigation was conducted to study the effect of different doses of cattle urine through foliar spray on the fruit weight, volume, specific gravity, T.S.S., no. of fruits per plant.

MATERIALS AND METHODS

The experiment was conducted at the Mango Research Sub-centre, Rameshwar, of the Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli from 2006 to 2009. Thirty five year old uniform trees of mango cv. ALPHONSO were selected and sprayed with 25%, 35% and 55% cattle urine with 3 and 6 sprays at pea stage marble stage and egg stage of fruit development. The control plants were sprayed with water alone. The experiment was laid out in Randomized Block Design with three replications and two plants in each replication formed a unit for recording observations on yield and physico-chemical characters of fruit. The ripe fruits were taken for analysis. Total soluble solids of fruits were determined by hand refractometer.

RESULTS AND DISCUSSION

It is evident from the data in Table 1 that the fruit yield (90.28 kg/plant) recorded in treatment T_6 (55% cattle urine with six sprays) was the maximum and significantly superior over rest of the treatment. The beneficial effect of cattle urine, in increasing fruit yield may be due to an increase in fruit retention per panicle and fruit size (Singh *et al*., 1991 and Jadhav, 2007). Foliar spray of cattle urine, which contains 0.9-1.2 nitrogen, may increase the supply of some hormones to the fruit that tend to reduce abscission, probably auxins (Addicot, 1970).

The cattle urine application increased the weight of the fruit and maximum fruit weight (255.16 g) was obtained at 55% cow urine with (6 Sprays), which was significantly superior over rest of the treatments, followed by 35% cow urine with 6 sprays (245.00 g). The minimum fruit weight was found in control. Jadhav (2007) observed maximum fruit weight, length and volume of mango fruits were found in 30% cattle urine foliar sprays at pea stage + marble stage + egg stage. Volume, specific gravity and T.S.S. of the fruit was not significantly improved with cattle urine application.

The total soluble solids of fruit were recorded highest at 55% cow urine with three sprays followed by 35%

Table 1 : Effect of cattle urine on weight, volume, specific gravity, T.S.S. and yield of Alphonso mango fruits. (Pooled)

Sr. No.	Treatments	Weight (g)	Volume (ml)	Specific gravity	T.S.S. (0 Brix)	No. fruits/ plant	Yield kg/ plant	Yield t/ha
1.	T_1: 25% Cow Urine - 3 sprays	222.79	212.91	1.03	21.28	308.44	68.84	6.88
2.	T_2: 25% Cow Urine - 6 sprays	231.47	226.14	1.02	21.45	300.89	69.57	6.95
3.	T_3: 33% Cow Urine - 3 sprays	237.07	229.15	1.02	21.37	306.16	71.56	7.17
4.	T_4: 33% Cow Urine - 6 sprays	245.00	237.88	1.02	21.43	298.26	72.23	7.22
5.	T_5: 55% Cow Urine - 3 sprays	241.36	234.56	1.01	21.61	344.56	82.83	8.28
6.	T_6: 55% Cow Urine - 6 sprays	255.16	244.16	1.03	21.50	351.68	90.28	9.02
7.	T_7: Control (Regular sprays) - 6 sprays	221.15	215.64	1.03	21.35	291.91	65.09	6.50
	S.E. $\pm$	3.99	0.443	0.003	0.051	2.92	5.86	
	C.D. (P=0.05)	11.95	NS	NS	NS	8.80	17.59	

NS=Non-significant

cow urine with six sprays. Similar results were also reported by Jadhav (2007) in mango, where he noted that highest total soluble solids was observed in foliar sprays of 10% cattle urine at pea stage. It was due to the nitrogen and auxin content of leaves which decreased with the advancement of fruit development. Since vegetative growth during this period was slow, decrease in nitrogen content may be due to its translocation to the developing fruit and hence it was critical period for supplementing nitrogen requirement of the tree (Ghosh and Chattopadhyay, 1999). The foliar sprays cattle urine at this stage helped to increase the nitrogen content of leaves.

Authors' affiliations:
V.V. SHINDE, Mango Research Sub-Centre, Deogad, SINDHUDURG (M.S.) INDIA

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