

Influence of different weed management practices on growth of mango seedling

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ABSTRACT

For improving the productivity of quality mango seedlings, an experiment was conducted with eleven weed management treatments including control (unweeded). The experiment was laid out in randomized block design with three replications. The results of the experiment clearly indicated that the pre-emergence treatment of Atrazine 2 kg a.i. ha⁻¹ was found superior to minimize weed population, with minimum dry weight of weeds and higher weed control efficiency in mango seedling nursery. The cent per cent weed control efficiency was noted in weed free treatment with no weeds population. Regarding stone germination, growth parameters (plant height, stem girth and number of leaves) and survival percentage, maximum value of above parameters were recorded with Atrazine 2 kg a.i. ha⁻¹ as pre emergence followed by inter culturing at 30, 60 and 90 days after sowing and cover crop (cowpea crop up to fiber formation).

Key words : Mango seedlings, Weedicides, Cultural methods

Mango (*Mangifera indica* L.) is the oldest as well as National Fruit of India, occupies the largest area. India is a paradise of fruits. One of the problem faced by the farmers or nurserymen is of weed control in mango seedling nursery and are infested with a variety of weeds like monocots and dicots. Now a days large number of herbicides have been used for controlling weeds in fruit orchard and fruit nurseries (Moreira and Donadio, 1996). The weed species grow luxuriously and vigorously and if not controlled, they easily overgrow the nursery seedlings. In India, chemical weed control in fruit nurseries has not received any attention even though pre and post emergence herbicides such as Atrazine and Gramaxone, respectively were found to be useful in young and old vine gards for weed control (Dhuria and Leela, 1973). The present investigation was, therefore, planned and carried out to evaluate the alternative for weed management, to know the effect of weedicide, inter culturing, hand weeding, cover crop and mulching on growth of mango seedling.

MATERIALS AND METHODS

The study on the effect of different weed management practices in mango (*Mangifera indica* L.) seedling nursery was carried out at Agricultural Experimental Station, N.A.U., Paria, Ta. Pardi, Dist-Valsad (Gujarat) during the *Kharif* season 2005-06. The herbicides viz., Butachlor, Atrazine and Pendimethalin @ 1.5, 2.0 and 2.0 kg a.i. ha⁻¹ were applied at pre-emergence stage, respectively. Inter culturing and hand weeding was done at an interval of 30, 60 and 90 days after planting. Weeding was done throughout the year in weed free

treatment. Mulching was done by sugarcane trash and paddy straw each of @ 10 t/ha. Cover crop of sun hemp and cowpea were broadcasted after sowing of mango stone and grown up to fiber formation of crop. The experiment was laid out in randomized block design with three replications. The plot size was 4.5m x 3.0m. and mango seeds (stone) were sown at 45cm x 10cm distance. The observations on germination of stone, height, stem girth and number of leaves per mango seedlings and survival percentage after uprooting were recorded. The weeds were counted per sq.m. and their dry weight and weed control efficiency were calculated after 90 days after planting. Weed control efficiency (WCE) was worked out by using the formula suggested by Kondap and Upadhyay (1975).

$$WCE = \frac{DWC - DWT}{DWC} \times 100$$

where,

DWC = Dry matter production of weeds in unweeded control.

DWT = Dry matter production of weeds in treated plot.

Nutrient uptake by weeds and mango seedling at uprooting was also analysed and calculated.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarised under following heads: