

Effect of pruning mother suckers on daughter sucker production in cardamom (*Elettaria cardamomum* M.) seedlings

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ABSTRACT

The effect of pruning mother suckers on daughter sucker production, growth and development of nursery seedlings of cardamom (*Elettaria cardamomum*) is reported. The number of suckers produced was significantly higher in seedlings pruned at 5 months of age followed by seedlings pruned at 3 months of age. The study indicated that pruning was not helpful in increasing biomass and hence it may not be necessary to remove apical meristem (mother sucker pruning) before transplanting of nursery seedlings.

Key words : apical dominance, cardamom, *Elettaria cardamomum*, pruning.

Cardamom (*Elettaria cardamomum* M.) is mainly propagated through seeds. In the nursery, in general, plant growth is slow and production of suckers is restricted up to first 5-6 months of sowing seeds. The low number of suckers produced in the nursery may possibly be due to apical dominance of mother suckers. Apical dominance can be eliminated by pruning/extensive heading off of young shoots (Barden, Halfacre & Parrish 1987). In cardamom, removal of apical meristem of mother suckers may help to increase sucker production by elimination of apical dominance. Removal of apical meristem has been shown to stimulate lateral buds in many crops. In

yielding cardamom clumps, removing apical meristems of suckers produced more of daughter suckers (Gurumurthy, Nataraj & Umesh 1989). However, no such studies have been undertaken to increase sucker production in the nursery stage. Hence, an experiment was carried out at Regional Research Station, Indian Cardamom Research Institute, Sakaleshpur during 1989-91 to study the effect of pruning mother suckers on daughter sucker production in cardamom seedlings.

Fresh seeds were thoroughly washed and shade dried. The dried seeds were scarified with 25% HNO₃ for 10 min (Kololgi, Pattanshetti & Prasad 1973) and washed

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in water. The seeds were dressed with Bavistin to control damping off of seedlings (Pattanshetti, Deshpande & Shivappa 1974). Polybags of 25 cm x 25 cm size were filled with potting mixture having 4:1:1 ratio of jungle soil, farm yard manure and sand. The treated seeds were sown in polybags at the rate of 3 seeds per bag; one seedling in each polybag was maintained for the study.

The treatments included: 1) control (unpruned) 2) pruning mother sucker at 3 months age 3) pruning mother sucker at 5 months age and 4) pruning mother sucker at 7 months age. A Completely Randomised Block Design was adopted and 10 seedlings per plot were maintained with 10 replications. The pruning operation was done in between 3rd and 4th leaf from the base of the mother sucker to ensure removal of apical mer-

istems in the seedlings. After imposition of treatments, observations on number of suckers, fresh weight and biomass produced at monthly intervals up to transplantable age (10 months) were recorded.

The results indicated that fresh weight of aerial shoots and whole seedlings and dry matter produced by whole seedlings were significantly higher in control compared to other treatments (Table 1). This could be due to non removal of mother suckers which might have resulted in more synthesis of nutrients through a large photosynthetic area available. A similar direct relationship between leaf area and biological yield has been established in several crops (Enyi 1977; Devendra, Udayakumar & Krishnashastry 1980; Gurumurthy 1982).

Table 1. Effect of pruning mother suckers in cardamom seedlings

Treatment	No. of suckers/seedling	Biomass (g)					
		Aerial shoots		Rhizome		Whole seedling	
		Fresh	Dry	Fresh	Dry	Fresh	Dry
Control (unpruned)	9.0	96.9	13.7	43.4	7.3	140.3	20.8
Pruned at 3 months	9.6	32.5	4.5	24.0	3.2	56.5	7.6
Pruned at 5 months	11.9	40.9	4.7	26.8	4.4	67.7	9.2
Pruned at 7 months	7.3	28.9	4.6	33.8	5.5	62.7	10.9
CD at 5%	2.8	16.6	2.8	11.0	2.5	26.3	5.0

The number of suckers was significantly more in seedlings pruned at 5 months of age followed by seedlings pruned at 3 months of age. The higher sucker production in the former may be due to increase in nutrition diversion in rhizomatous tissues experienced during this period. Seedlings pruned at 7th month did not have more number of suckers at transplantable age probably due to less duration available (3 months) to show improvement before transplanting in 10th month. Even though more number of suckers were produced in seedlings pruned at 5 months, it had lesser biomass compared to control. Biomass is one of the important factors for further growth and establishment in the field. The present study indicates that pruning is not helpful in increasing biomass and hence it may not be necessary to remove apical meristem before transplanting of nursery seedlings.

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