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Effect of growth regulators and spacing on multiplication of planting units in cardamom (*Elettaria cardamomum* Maton)

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Abstract

Experiments on multiplication of planting units in cardamom (*Elettaria cardamomum*) under uniform shade revealed that growth regulators (Etherel 250 ppm and Cycocel 2000 ppm) did not influence proliferation of planting units whereas closer spacing (0.9 m x 0.3 m) resulted in significantly higher number of planting units.

Key words: cardamom, *Elettaria cardamomum,* growth regulators, multiplication.

Though cardamom (*Elettaria cardamomum* Maton) is propagated through seeds and suckers, the latter are prefered to maintain its purity since the crop is highly corss pollinated. Experiments were carried out of find out a suitable technique for multiplication of planting units in cardamom under uniform shade in view of the increased demand for the same in the hill region of Karnataka (India).

The trial was laid out at Regional Research Station, Mudigere (Karanataka, India) under artificial shade (20 K lux) by using a nylon net in a split plot design comprising of three spacings (1.8 m x 0.9 m; 1.8 m x 0.6 m and 1.8 m x 0.3 m between and within rows) as main plots and two growth regulators (Ethrel 250 ppm and Cycocel 2000 ppm) as sub-plots (8.1 m^2 size) with three replications. As per different spacings, 10 (0.9 m x 0.9 m), 15 (0.9 m x 0.6 m) and 30 (0.9 m x 0.3 m) plants were accomodated in each sub-plot. Two foliar sprays (the first immediately after the onset of the monsoon and the second 3 months after the first spray) of growth regulators were given. A fertilizer dose of 75-75-150 kg NPK/ha was supplied in the form of urea, rock phosphate and muriate of potash. Mudigere-1 (M-1) monoclonal planting material of cardamom was used for planting by adopting the trench method. Protective irriga-

Table 1. Effect of spacing and growth regulators on mulitplication of planting units in cardamom

Treatment	No. of planting units per plot (8.1m²)		Mean	No. of planting units per m²		Mean	No. of planting units per ha (esti mated)
	1993-94	1994-95		1993-94	1994-95		
Spacing							
0.9 m x 0.3 m	62.2	71.6	66.9	7.6	8.8	8.2	83,000
0.9 m x 0.6 m	54.5	60.7	57.6	6.7	7.4	7.0	70,000
0.9 m x 0.9 m	44.2	40.1	42.1	5.4	4.8	5.1	51,000
CD at 5%	9.0	6.0	-	-	-	-	-
Growth regulator							
Ethrel (250 ppm)	52.2	57.3	54.7	6.4	7.0	6.7	67,000
Cycocel (2000 ppm)	56.8	57.4	57.1	7.0	7.0	7.0	70,000
Control	51.8	57.7	54.7	6.3	7.1	6.7	67,000
CD at 5%	NS	NS	-	-	-	-	-

tion was given during summer. The trial was conducted for 2 years (1993-95). The number of planting units (with one big sucker and two small suckers) obtained was recorded after the 10th month.

The results revealed that growth regulators did not influence multiplication of planting units significantly (Table 1). Earlier studes also revealed that sucker production in cardamom was not affected by Ethrel under high light intensity (30-35 K lux) and natural shade (Krishnamurthy *et al.* 1989). Plant multiplication with different spacings was significant during both the years. A spacing of 0.9 m x 0.3 m resulted in higher number of planting units (8.2/m²) (82,000 planting units/ha). As spacing was increased from 0.9 m x 0.3 m to 0.9 m x 0.6 m, there was gradual decline in production of planting units (7/m²). Wider spacing of 0.9 m x 0.9 m resulted in least number of planting units (5.1/m²). Shanthaveerabhadraiah and Chandrappa (1994) also reported that closer spacing resulted in higher number of planting units and has to be preferred to wider spacing for sucker multiplication.

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