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PROPAGATION OF PINEAPPLE (*Ananas comosas*) THROUGH STUMP BASED SPLIT SUCKERS

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INTRODUCTION

Pineapple cultivation is mainly confined to Gampaha, Kurunegala and Kegalle districts. Although there is a vast potential to expand the cultivation to the dry zone areas (Weerasinghe and Pemachandra, 2000), and under coconut cultivation in the wet zone, inadequacy of planting material has become a constraint in this process. Generally, a healthy pineapple plant produces about four to eight suckers during the life period. Ma (1968) and Heenkenda and Samarathunga (1993) developed rapid multiplication technique for pineapple by decapitation of the developing plants. Sinclair and Swete Kelly (1992) induced more suckers with application of Morphactins at the heart of four months old plants. Weerasinghe and Siriwardana (2006) introduced a fast propagation technique using stump slices. Propagation of pineapple by *in-vitro* technique is another option for generating planting materials (Mathews and Rangan, 1979; Drew, 1980; Fernando, 1986 and Rajapaksha *et al.*, 1993) but this demands special technical skill and infrastructure. The present investigation was carried out with the objective of producing more suckers from stumps which had borne fruits.

MATERIALS AND METHODS

The experiment was conducted in 2005 at the Agriculture Research Centre, Thelijjawila. A sample of 50 stumps (harvested plants) was taken and all the intact leaves were detached. The stumps were split along the longitudinal axis and planted horizontally in a nursery to which 500g/m^2 triple superphosphate was added. Two months after the emergence of suckers a solutions of 1% urea and 2% muriate of potash were sprayed as foliar application. Three months after sucker emergence, suckers were grouped into two batches. The first batch was considered as standard suckers ready for field planting. Suckers in the second batch were split into two halves along the major growing point and established in a separate nursery and maintained up to transplanting maturity. The number of suckers produced/stump, number of leaves/sucker, length of roots (cm) and weight of suckers (g) were measured in 50 randomly selected suckers separately at transplanting maturity. Data were compared with published figures of *in-vitro* propagation technique and decapitation technique.

RESULTS AND DISCUSSION

Each stump section produced suckers 4 weeks after establishment in nursery. Split stump suckers produced another set of suckers after re-establishment in the second nursery after 3 months. The section of split suckers started to develop as complete suckers either by activating the apical bud or by lateral buds. About 60% of the sections had activated the apical buds and 40% had activated the lateral buds resulting in two to four lateral suckers in each. The split sucker also performed equally well as standard suckers (Table 1). Sucker production in this technique is compared in Table 2 with documented figures for tissue culture (Rajapaksha *et al.*, 1993) and decapitation techniques (Heenkenda and Samarathunge, 1993).

Table 1. Performance of suckers at transplanting maturity.

Character	*Standard suckers*	*Split stump suckers.*
No of suckers /half of stump	8.0 (±·1.04)	20.0(± 2.45)
Height of suckers (cm)	17.3 (± 2.69)	16.5 (± 2.18)
No of leaves	22.0 (± 2.70)	20.0(± 3.20)
Weight of sucker (g)	93.7 (± 5.20)	90.7 (±4.90)
Root length (cm)	26.1 (± 2.17)	24.8 (± 3.10)

Values in parentheses are the standard deviations of the estimates. (n= 50).

Table 2. Performance of sucker production in different techniques.

Stage	*Tissue culture**		*Decapitation***		*Introducing technique*	
	Duration (months)	*No. of plantlets*	*Duration (months)*	*Plantlets*	*Duration (months)*	*No. of plantlets*
Establishment	2	Explant culture	3	4-8	4	15-20
Multiplication	8	7500	3	4-8	3	50-70
Acclimatization	5	7500	-	-	-	-
Total production	15	7500	6	8-16	7	50-70

*Rajapaksha *et al.* (1993).

** Heenkenda and Samarathunge (1993).

The comparison clearly shows (Table 2) that in the decapitation technique a single mother plant produces a maximum of 16 suckers within a period of 6 months. The technique tested in the study produces 50-70 suckers in a period of 7 months, while in the tissue culture technique sucker production is very much higher. However, tested technique has many advantages. The harvested mother stumps which are presently not used can be used to produce planting materials with no additional cost. In addition, within one square meter 15-20 stumps can be accommodated and about 300-400 suckers can be easily produced. Therefore, harvested stumps of pineapple can be utilized to produce more suckers but, the subsequent performance of split suckers under field conditions have to be evaluated.

CONCLUSIONS

Pineapple stumps of harvested plants can be effectively utilized to produce planting materials. The resulting suckers can be sectioned by splitting without affecting the crop vigour. This multiplication technique can be easily adopted with least input cost by growers to meet their planting material requirement throughout the year.

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