



E-ISSN: 2278-4136

P-ISSN: 2349-8234

JPP 2018; 7(6): 1645-1646

Received: 16-09-2018

Accepted: 18-10-2018

**Shashi Ghritlahare**Department of Fruit Science and  
Horticulture Technology,  
OUAT, Bhubaneswar, Odisha,  
India**Ashutosh Anant**Department of Horticulture, Dr.  
PDKV, Akola, Maharashtra,  
India

## Short Communication

# Effect of season and scion procuring on softwood grafting in sapota (*Manilkara achras*, Mill.)

**Shashi Ghritlahare and Ashutosh Anant**

### Abstract

The experiment was conducted at Horticulture Research Station, Orissa University of Agriculture & Technology, College of Agriculture, Bhubaneswar during 2016 - 2017. The treatment comprises of four grafting seasons (20<sup>th</sup> June, 20<sup>th</sup> July, 20<sup>th</sup> August and 20<sup>th</sup> September) and three scion procuring periods (0 days, 5 days and 10 days) have been tried in a Factorial Randomized Block Design with three replications. The results revealed that among the four grafting seasons, 20<sup>th</sup> July recorded the maximum growth of scion (2.64 cm and 4.69 cm at 60 and 120 DAG, respectively). In respect to different scion procuring periods, maximum growth of scion (2.61 cm and 4.69 cm) at 60 and 120 DAG, respectively, were observed in 10 days procured scions. The combined effect of the above two factors had also significant influence on this parameters studied.

**Keywords:** Sapota, procuring, softwood grafting

### Introduction

Sapota (*Manilkara achras* Mill.) is one of the important fruit crops of tropical regions of the country. It prefers a warm and moist weather and grows both in dry and humid areas. It can tolerate salinity and water stress to a great extent. In sapota, various methods of propagation have been practiced with considerable success. Budding, air layering, approach grafting and softwood grafting are the methods of propagation followed in sapota. Softwood grafting on one year old rootstock seedling is simple, economical and can give considerable percentage of success (Amin, 1978) [1]. The different rootstocks used in propagation of sapota are Khirni or rayan, Adam's apple, mahua, mee tree and star apple. Of all the rootstocks rayan or Khirni, a tropical tree, is the most suitable for Sapota. The ideal season of grafting in sapota is rainy season (July – September). Weather conditions play a prominent role on the success of grafting, influencing graft success and growth of grafted plant (Iqbal *et al.*, 2004) [2]. Success, survivability and growth of grafts depend upon many other factors including variety, grafting method, time of grafting, age and procuring of scion, age of rootstock, leaf and node retention on rootstock and environmental conditions (Hartman *et al.* 1997) [4]. Procuring also plays an important role in the success of softwood grafting in sapota (Pampanna and Sulikeri, 2000) [5]. The present study was undertaken to see the effects of grafting season and scion defoliation period on the success of softwood grafting and survivability of grafts in sapota.

### Materials and Methods

Khirnee seedlings of one year age raised in polybag were used as a rootstock for sapota softwood grafts. Healthy scion shoots free from pests and diseases were selected. Scion sticks were collected from the terminal shoot portions of sapota branches. The leaves were removed leaving the petioles attached to the shoots. The scions were procured (allowed to remain on the plant) for varying periods of 0, 5 and 10 days, i.e. for P<sub>1</sub>, P<sub>2</sub> and P<sub>3</sub>, respectively. Procured scions of size 6-7 cm long were chosen. Softwood grafting was performed in four different grafting season (20<sup>th</sup> June, 20<sup>th</sup> July, 20<sup>th</sup> August and 20<sup>th</sup> September). The prepared grafts were shifted to the open condition and were maintained in good condition by removing off-shoots, polythene caps and polythene strip and controlling disease and pest. The data were collected on the length of new scion growth.

### Result and Discussion

Result presented in (Table 1) revealed that among different seasons grafting during the month of July shows maximum values in characters like length of scion growth both at 60

### Correspondence

**Shashi Ghritlahare**Department of Fruit Science and  
Horticulture Technology,  
OUAT, Bhubaneswar, Odisha,  
India

DAG (2.64 cm) and 120 DAG (4.69 cm). This may be due to the fact that in addition to photosynthates contribution towards the growth of the scion, it may be more helpful in month of July because of optimum temperature prevalence during the respective period resulting in good growth of scion as have been emphasized by Hartmann and Kester, 1972 [3]. Among the procuring period duration of scion wood studied, leaves defoliated ten days before softwood grafting recorded maximum values in characters like length of new scion growth at 60 and 120 DAG (2.61 cm and 4.67 cm,

respectively). This might be due to the initiation of good cambial activity which might have resulted from defoliation (Hartman *et al.*, 1997) [4]. The interaction between grafting season and scion procuring revealed that grafting on 20<sup>th</sup> July along with 10 days procured scion sticks recorded maximum values in characters like length of new scion growth at 60 and 120 DAG (2.72 cm and 4.84 cm, respectively which were significantly superior as compared to other treatment combinations.

**Table 1:** Effect of season and scion procuring on length of scion growth at 60 DAG

Treatment	Length of new scion growth (60 & 120 DAG) (cm)						
	Scion procuring (P)						
Season of grafting (S)	0 day of Precuring (P <sub>1</sub> )		5 days of Precuring (P <sub>2</sub> )		10 days of Precuring (P <sub>3</sub> )		Mean
20 <sup>th</sup> June (S <sub>1</sub> )	2.33	4.44	2.43	4.50	2.64	4.62	2.47 4.52
20 <sup>th</sup> July (S <sub>2</sub> )	2.56	4.65	2.63	4.68	2.72	4.73	2.64 4.69
20 <sup>th</sup> August (S <sub>3</sub> )	2.38	4.46	2.56	4.52	2.69	4.66	2.54 4.55
20 <sup>th</sup> September (S <sub>4</sub> )	1.79	4.21	1.86	4.33	2.40	4.57	2.02 4.37
Mean	2.27	4.44	2.37	4.51	2.61	4.65	2.42 4.53
	Season		Precuring		Interaction		
CD (P = 0.05)	0.09	0.51	0.08	0.53	0.16		0.53

### Reference

1. Amin RS. Softwood grafting A new technique for hardwood plants, Current Science. 1978; 47(13):468-469.
2. Iqbal U, Almad MF, Khan AA. Effect of timing and environments on budding success in walnut, Progressive Horticulture. 2004; 36(1):1-4.
3. Hartmann HT, Kester DE. Plant Propagation, Principles and Practices. Prentice Hall of India Pvt Ltd, New Delhi, 1972, 407.
4. Hartmann HT, Kester DE, Davis FT, Geneve RL. Plant Propagation, Principles and Practices. Sixth edition, Prentice Hall of India Ltd. 1997, 410-411.
5. Pampanna Y, Sulikeri GS, Hulamani NC. Effect of season on the success of softwood grafting in sapota (cv. Kalipatti), South Indian Horticulture. 2000; 42:303-308.