

## **Standardization of soft wood grafting season on success of custard apple (*Annona squamosa* L.)**

R.R. KUDMULWAR, R.M. KULKARNI, S.G. BODAMWAD, P.B. KATKAR AND S.B. DUGMOD

Accepted : August, 2008

See end of the article for authors' affiliations

Correspondence to:

**R.R. KUDMULWAR**  
Department of  
Horticulture, Marathwada  
Agricultural University,  
PARBHANI (M.S.) INDIA

### **ABSTRACT**

The present investigation was carried out at Fruit Research Station, Himayabag, Aurangabad. It was found that grafting done on 15<sup>th</sup> February recorded highest percentage success (88.87) maximum length of scion (2.38 cm). Highest number of leaves (21.93) and maximum diameter of scion (0.26 cm). Minimum number of days to sprouting was recorded in plants grafted in February (1<sup>st</sup> and 15<sup>th</sup>).

**Key words :** Custard apple, Soft wood grafting

Custard apple is an important dryland fruit of India. It is popular by virtue of its spontaneous spread in forests, wastelands, rocky slopes and other uncultivated places, it is generally classed as a semiwild fruit. Custard apple is hardy and known to thrive under diverse conditions of soil and climate. Annonaceous fruits are mainly propagated through seed and therefore, there exists a great variation in respect of growth, yield and fruit quality amongst the trees grown in the orchard. The reports on the development of superior and known variables are meagre, as very little efforts in this directs on have been done. However, it is a common experience to come across individual free exhibiting superior fruit quality and profile yield. If such promising trees are further perpetuated vegetatively the desirable types can be multiplied and orchards with uniform fruit quality can be established. Pawar *et al.* (2003) reported that soft wood grafting was effective in terms of percentage success, per cent of survival, shoot length and the number of functional leaves. However, the studies in respect of standardization of date for soft wood grafting under Marathwada conditions have yet not been carried out. Keeping this in view the present trial was carried out to find out suitable time for obtaining maximum success for softwood grafting in custard apple.

### **MATERIALS AND METHODS**

Softwood grafting was done on local root stock of custard apple. One year old fifty seedlings of uniform growth (Pericil thickness) were used. The softwood grafting by using custard apple cultivar Balanagar as scion was done at fortnight interval. The scion bud of last season growth before sprouting from a single mother plant was

taken for soft wood grafting. The trial was laid out in randomized block design with three replications. Fifty plants in each treatment formed a unit. The trial was initiated on 1<sup>st</sup> January, 2005 and continued upto 15<sup>th</sup> May, 2005.

### **RESULTS AND DISCUSSION**

The data presented in Table 1 clearly indicates that, the effect of different dates on the percentage success were significant. The highest percentage of success was (88.87) noticed on 15<sup>th</sup> February (T<sub>4</sub>). It was at par with ggrafting done on 1<sup>st</sup> February (T<sub>3</sub>), 1<sup>st</sup> March (T<sub>5</sub>) and 15<sup>th</sup> March (T<sub>6</sub>), The minimum percentage success was noticed on 15<sup>th</sup> May (T<sub>10</sub>). In case of custard apple, scion budsticks for grafting are available only after December onwards. Being deciduous nature of the crop it shades its leaves in the month of December and January. Plant remain dormant from January onwards and sprouts April onwards, when one or two unusual rains received in the month of April or May. During dormant conditions budsticks stores sufficient amount of food material which results in more success of grafting in February and March month only. These results are in agreement with Gholap *et al.* (2000) who reported that soft wood grafting in *Annona reficulata* gave highest percentage of success in February and March only.

The results obtained regarding the number of days required for sprouting indicates that there was significant variation in the period during different dates. The lowest number of days to sprouting was recorded in plant grafted in February followed by March. Similar results were recorded by Joshi *et al.* (2000) who reported that the lowest number of days to sprouting was recorded for

**Table 1 : Effect of different seed treatments on germination and growth of custard apple seedling**

Tr. No.	Treatments	Per cent Success	Days for sprouting of graft	Length of Scion (cm)	No. of leaves	Diameter of Scion (cm)	Length of internode (cm)
T <sub>1</sub>	Grafting on 1 <sup>st</sup> January	50.64	31.64	0.71	15.46	0.12	1.93
T <sub>2</sub>	Grafting on 15 <sup>th</sup> January	65.75	29.90	0.98	17.00	0.15	1.92
T <sub>3</sub>	Grafting on 1 <sup>st</sup> February	83.93	15.23	1.35	20.26	0.19	1.93
T <sub>4</sub>	Grafting on 15 <sup>th</sup> February	88.87	15.43	2.38	21.93	0.26	1.48
T <sub>5</sub>	Grafting on 1 <sup>st</sup> March	75.91	16.26	1.88	18.26	0.23	1.23
T <sub>6</sub>	Grafting on 15 <sup>th</sup> March	80.12	17.50	1.76	19.56	0.21	1.34
T <sub>7</sub>	Grafting on 1 <sup>st</sup> April	65.78	20.16	1.21	16.63	0.17	1.55
T <sub>8</sub>	Grafting on 15 <sup>th</sup> April	63.42	20.73	1.26	17.46	0.16	1.58
T <sub>9</sub>	Grafting on 1 <sup>st</sup> May	59.37	22.76	0.66	16.46	0.13	1.86
T <sub>10</sub>	Grafting on 15 <sup>th</sup> May	43.38	35.96	0.42	14.10	0.10	1.85
S.E. ±		5.87	1.74	0.23	0.93	0.02	0.20
C.D. (P=0.05)		17.42	5.18	0.78	2.76	0.06	NS

custard apple in the month of March.

Grafting carried out on 15<sup>th</sup> February (T<sub>4</sub>) recorded maximum length of scion (2.38 cm), which was at par with 1<sup>st</sup> March (T<sub>5</sub>), but significantly superior over delayed grafting dates. As grafting was delayed from 15<sup>th</sup> February (T<sub>4</sub>) onwards there was gradual decrease in length of scion.

The highest number of leaves (21.93) were recorded when grafting was practiced on 15<sup>th</sup> February (T<sub>4</sub>), followed by 1<sup>st</sup> February (T<sub>3</sub>). As the grafting was delayed from 15<sup>th</sup> February (T<sub>4</sub>) onwards, there was gradual decrease in the production of number of leaves.

Maximum diameter scion (0.26 cm) was noticed on 15<sup>th</sup> February (T<sub>4</sub>) which was at par with 15<sup>th</sup> March (T<sub>6</sub>) and 1<sup>st</sup> March (T<sub>5</sub>). The minimum diameter (0.10 cm) was noticed on 15<sup>th</sup> May (T<sub>10</sub>).

There was a significant influence of the dates of soft wood grafting on the growth of the grafts. However, the results did not showed definite trend for various dates. In general, the grafts prepared during February to March though had high success in survival and were moderate in growth. They had moderate length of scion and number of leaves but more diameter of stem. In other dates, though vigorous grafts were produced, the success was low and therefore, those dates cannot be adopted. These results are in agreement with Pawar *et al.* (2003) also reported that softwood grafting was better in terms of root length and number of functional leaves when grafting was carried out during February on one year old root stocks. The data recorded in case of length of internode was non significant.

### Conclusion :

It may be concluded that the optimum period for soft wood grafting of custard apple is between 1<sup>st</sup> February to 15<sup>th</sup> March only. Grafting after this period results in less success per cent because the scion bud sticks sprouts on the mother tree it self. Such bud sticks fails to sprout when grafted. Grafting earlier to February resulted in low success of because budsticks could not store sufficient food material in them being just exhausted by the presence of fruits on them which also act as sink.

Authors' affiliations:

**R.M. KULKARNI, S.G. BODAMWAD, P.B. KATKAR AND S.B. DUGMOD**, Department of Horticulture, Marathwada Agricultural University, PARBHANI (M.S.) INDIA

### REFERENCES

- Gholap, S.V.**, Dod, V.N., Barod, S.G. and Wankar, A.M. (2000). *Crop Res. Hisar*, **20** : 158-159.
- Joshi, P.S.**, Bhalerao, P.S., Mohorkar, V.K. and Jadhav, B.J. (2000). Studies on vegetative propagation in custard apple. *PKV Res. J.*, **24** (2) : 103-105.
- Pawar, D.M.**, Ingle, V.G. and Panchbhai, D.M. (2003). Effect of age of rootstock and time of grafting on success softwood grafts of custard apple under local conditions. *Ann. Plant Physiol.*, **17** (1) : 53-55.

\*\*\*\*\*