

Effect of time on softwood grafting success and survival of jamun grafts (*Syzygium cimini* Skeel)

S.B. SHINDE, M.Y. SAIYAD*, R.G. JADAV AND J.C. CHAVDA

Department of Horticulture, B. A. College of Agriculture, Anand Agricultural University,
ANAND (GUJARAT) INDIA

ABSTRACT

An experiment was carried out to study the effect of time on softwood grafting success and survival of jamun grafts (*Syzygium cimini* Skeel) was carried out at Horticultural Research Farm, Department of Horticulture, B.A. College of Agriculture, Anand during summer season in the year 2009. The treatments comprised of ten grafting dates (15th and 30th dates of each of April, May, June, and August months). The experiment was laid out in a Completely Randomized Design with 3 replications. The results revealed that among the ten grafting dates, the date 30-5-2009 recorded significantly the highest increment in length of scion *i.e.* 15.12 and 20.81% at 60 and 90DAG (days after grafting), date 15-5-2009 significantly recorded highest increment in girth of scion at 90DAG *i.e.* 137.40% in case of root stock, significantly the highest increment in length *i.e.* 5.08 and 7.82% 60 and 90 DAG of rootstock was observed on date 30-5-2009, while highest increment in girth *i.e.* 43.30, 54.61, 65.70 % of rootstock was observed on 15-5-2009 at 30, 60 and 90 DAG, respectively. The number of sprouted graft was maximum *i.e.* 22.7 on date 30-7-2009. Significantly the highest number of leaves *i.e.* 5.4 were recorded when the grafting performed on 15-5-2009. The minimum days *i.e.* 20.44 required for emergence of sprouting of graft was observed on 15-5-2009 and survival percentage was *i.e.* 73.36 and 77.76% on date 15-5-2009 at 60 and 90 DAG, respectively.

Shinde, S.B., Saiyad, M.Y., Jadav, R.G. and Chavda, J.C. (2011). Effect of time on softwood grafting success and survival of jamun grafts (*Syzygium cimini* Skeel). *Internat. J. agric. Sci.*, 7(1): 83-85.

Key words : Jamun, Softwood grafting, Survival of grafts, Time

INTRODUCTION

Jamun is a hardy fruit crop. It can tolerate drought conditions if occurs for some time as well as heavy rainfall conditions. The tree is evergreen and partially deciduous under drought condition. The tree bears flower and fruits profusely up to such an extent that many a times the branches/twigs loaded with heavy fruit load cause them to drop. The branches are brittle, *i.e.* they are not flexible. Jamun tree produce a large quantity of seeds, and freshly extracted seeds germinate up to 90%. Generally, seeds are sown in nursery and one year old seedlings are planted in the main field, because of its medicinal values and suitability for planting as windbreak, its demand is increasing day by day that will requires selected plants of superior quality and high yield potential. That is only possible when desirable mother trees are used for the propagation. Therefore, main objectives of the present study were to find out an appropriate time for softwood grafting in jamun and to find out the effective conditions for softwood grafting in jamun.

MATERIALS AND METHODS

The experiment was conducted at Horticulture Research-cum-Demonstration Farm, Anand Agricultural

University, Anand during summer 2009. The design of experiment was Completely Randomized Design with 3 replications. Local seedlings of one year old raised in polythene bags (13 x 10 cm) were used as a rootstock for jamun soft wood grafts. Total 900 healthy jamun seedlings were used for this experiment. The softwood grafting of jamun was done at 15 days interval for 5 months started from 15th April to 30th August. Total treatments combinations were 30. Selected jamun plants were used for grafting and observations were recorded at initial stage of grafting at 30, 60 and 90 days after grafting. The values of data from these prepared grafts were computed and were used for statistical analysis. The data were analyzed in Complete Randomized Design (Factorial) according to procedure described by Panse and Sukhatme (1967) and treatments mean were compared by means of critical differences at 5% probability.

RESULTS AND DISCUSSION

The date 30-7-2009 (D₈) recorded maximum number of sprouted grafts *i.e.* 22.7 at 90 DAG as compared to rest of the dates (Table 1). Date 15-5-2009 (D₃) recorded significantly highest number of fully opened leaves (5.4)

Table 1 : Effect of time on number of sprouted grafts, number of fully opened leaves, and number of days required for emergence of sprouting and survival percentage at 90 days after grafting

Treatments grafting dates (D)	No. of sprouted grafts	No. of fully opened leaves	No. of days required for emergence	Survival percentage
D ₁ : 15-4-2009	9.9	4.9	20.66	70.03
D ₂ : 30-4-2009	7.2	4.9	23.66	75.53
D ₃ : 15-5-2009	9.2	5.4	20.44	77.76
D ₄ : 30-5-2009	10.5	4.2	21.33	74.43
D ₅ : 15-6-2009	16.7	4.0	21.66	74.43
D ₆ : 30-6-2009	7.7	3.9	22.88	72.20
D ₇ : 15-7-2009	7.2	4.7	26.11	69.96
D ₈ : 30-7-2009	22.7	4.4	24.88	73.33
D ₉ : 15-8-2009	18.6	4.9	27.55	73.43
D ₁₀ :30-8-2009	15.3	5.2	28.55	70.00
S.E. ±	0.507	0.230	0.422	0.274
C.D. (P=0.05)	NS	0.652	1.193	0.777
C.V. %	12.13	14.69	5.32	11.27

NS-Non-significant

as compared to rest of the grafting date at 90 DAG. Grafting performed at date 15-5-2009 (D₃) took significantly lowest number of days (20.44) for emergence of sprouting in grafts as compared to rest of the dates, except D₁ (20.66) and D₄ (21.33). Date 15-5-2009 (D₃) recorded significantly the highest survival percentage *i.e.* 77.76 at 90 DAG as compared to rest of the dates of softwood grafting. While minimum survival percentage of softwood grafting were recorded in D₇ *i.e.* 69.96 at 90 DAG.

Maximum sprouting of grafts was obtained on 30-7-2009 (D₈). The highest number of leaves (5.4) on scion was observed in date 15-5-2009 (D₃) which was remained at par with the date 30-8-2009 (D₁₀) at 90 DAG may be due to the favourable weather conditions (higher the maximum and minimum temperature and optimum relative humidity). Grafting performed on date 15-5-2009 (D₃) took lowest number of days (20.44) for the emergence of sprouting of grafts. The congenial weather conditions prevailing during these grafting dates triggered cell activity in scion. The higher cell activity results in early sprouting of scion and more number of leaves on scion. Pampanna and Sulikeri (2000) in sapota, Chovatia and Singh (2000) in jamun as well as Jacob *et al.* (2001) in mango found the similar trend in their investigations. The percentage of survival due to different grafting dates was found to be significant at 90 DAG. The date 15-5-2009 (D₃) recorded significantly the highest survival percentage *i.e.* 77.76 at 90 DAG as compared to rest of the dates in jamun softwood grafting. The more success in softwood grafting of jamun during this date may be attributed to the congenial weather conditions (higher maximum and minimum temperature and optimum relative humidity)

prevailing during this date resulting in increase in cell activities leads to better union of stock and scion. Similar results were also reported by Bhuva *et al.* (1990), Kulwal *et al.* (1985) and Pampanna *et al.* (1994) in sapota as well as Patel and Amin (1981) in mango.

Conclusion:

In jamun, numbers of sprouted grafts were maximum in the month of July at 90 DAG. The number of fully opened leaves, number of days required for emergence of sprouting of grafts and survival percentage showed superior in the month of May. The minimum survival percentages of softwood grafting were recorded in the month of July at 90 DAG.

REFERENCES

- Bhuva, H.P., Katrodia, J.S. and Chundawat, B.S. (1990).** Influence of environment on success of sapota (*Achras sapota* L.) propagation. *Hort. J.*, **3** (1-2): 6-9.
- Chovatia, R. S. and Singh, S. P. (2000).** Effect of time on budding and grafting success in jamun (*Syzygium cumini* Skeel). *Indian J. Hort.*, **57**(3): 255-258.
- Jacob, S., Ray, D. P., Sahu, G. S. and Chandra, A. (2001).** Studies on the success of soft wood grafting in some commercial hybrid mango (*Mangifera indica* L.). *Orissa J. Hort.*, **29**(2): 6-9.
- Kulwal, L.V., Tayde, G.S. and Deshmukh, P. P. (1985).** Studies on soft-wood grafting of sapota. *P.K.V. Res. J.*, **9** (2): 33-36.
- Pampanna, Y. and Sulikeri, G. S. (2000).** Effect of season on the success and growth of softwood grafts to sapota on invigorated rayan root-stock. *Karnataka J. Agric. Sci.*, **13** (3): 779-782.

Pampanna, Y., Sulikeri, G. S. and Hulamani, N.C. (1994). Effect of season on the success of softwood grafting in sapota cv. KALIPATTI. *South Indian J. Hort.*, **42** (5): 303-308.

Panse, V.J. and Sukhatme, P. V. (1967). *Statistical method for agricultural workers*. I. C. A. R. Pub., New Delhi. 2nd Ed.

Patel, B. M. and Amin R. S. (1981). Investigation into the best period for soft wood grafting of mango in situ. *South Indian Hort.*, **29** (2): 90-94; 15 ref.

Received : August, 2010; Accepted : September, 2010