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## Studies on standardization of period for softwood grafting in dry land fruit crops

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### Abstract

An experiment was conducted during 2005-2006 at central nursery scheme V.N.M.K.V, Parbhani. Three separate experiment carried out on Jamun, Tamarind and Custard apple. An experiment carried out in Complete Randomized Design with three replications and twelve treatments. Significantly maximum final percent success was recorded in a Jamun grafting was carried out on 1<sup>st</sup> February (99.33 percent). In tamarind on 1<sup>st</sup> march (71.66 percent) and in custard apple 1<sup>st</sup> February (94.99 percent).

**Keywords:** standardization, softwood grafting, fruit crops

### Introduction

India is the endowed with different agro climatic regions. Dry land horticulture has become important aspect of horticulture specialiy in Maharashtra about 70%.of the total land comes under rainfed agriculture This type of farming attains a greater importance. Tamarind, Jamun and Custard apple are important dry land fruit crops of the state. These crops bring in the use of waste land of the farm such as a bunds, riverbanks and places where cultivation of grain crops is rather difficult. In the recent year softwood grafting has become popular because of its added advantages over other mango, sapota, (Amin. 1978) <sup>[1]</sup>. Therefore an investigation was planned studies on standardization of period for softwood grafting in dry land fruit crops.

### Materials and Methods

The experiment was conducted entitled standardization of period for softwood grafting in dry land fruit crops ciz. Jamun, Tamarind and Custard apple was carried out at central nursery. scheme VNMKV, Parbani studies were carried out in were different sets. Three separate experiment were carried out on Jamun, Tamarind and Custard apple 2005-2006. The experiment was conducted in complete Randomized design with three Replication. T<sub>1</sub> – Grafting on 1<sup>st</sup>December 2004, T<sub>2</sub>. Grafting on 1<sup>st</sup> January 2005, T<sub>3</sub>- Grafting 1<sup>st</sup> February 2005, T<sub>4</sub>. Grafting on 1<sup>st</sup> march 2005, T<sub>5</sub>. Grafting on 1<sup>st</sup> April 2005, T<sub>6</sub>-Grafting on 1<sup>st</sup> may 2005 T<sub>7</sub>- Grafting on 1<sup>st</sup> June 2005, T<sub>8</sub> – Grafting 1<sup>st</sup> July 2005, T<sub>9</sub>- Grafting on 1<sup>st</sup>August 2005, T<sub>10</sub>. Grafting on 1<sup>st</sup> September 2005, T<sub>11</sub>- Grafting on 1<sup>st</sup> October 2005 and T<sub>12</sub>- Grafting on 1<sup>st</sup> November 2005. In Jamun budsticks were taken from local selection. In Tamannnd the scion budsticks were taken from pratishthan and Custard apple budshsticks were used from Balanager. The softwood grafting in Jamun, Tamarind and Custard apple was done. Observations were recorded 30 days and 90 days after grafting.

### Result and Discussion

Data presented in Table 1. The data showed that maximum initial success was obtained in case of Grafting was carried out on 1<sup>st</sup> February. Higher success in the month of February in Jamun and minimum percent success was obtained on 1<sup>st</sup> September (46.67percent) in Jamun.

In Tamarind maximum initial percent success was obtained when Grafting was carried out on 1<sup>st</sup> march (86.66 percent) followed by 1<sup>st</sup>April (74.44 percent). In Tamarind maximum success was obtained in the month of February grafting. During the period from march to April the maximum and minimum temp ranged from 31<sup>0</sup> c to 32<sup>0</sup> c these conditions are favourable for rapid growth (Hartman and kestar (1972) <sup>[4]</sup>. In custard apple significantly maximum initial, percent success was obtained 1<sup>st</sup> February and 1<sup>st</sup> march.

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Minimum initial percent success was recorded when grafting was done on 1<sup>st</sup> may and june given zero percent of success.

The data presented in table1 significantly highest final success was obtained when grafting was carried out on 1<sup>st</sup> February (98.33 per cent).Zero percent success was observed when grafting was done on 1<sup>st</sup> march 1<sup>st</sup> April, 1<sup>st</sup> may, 1<sup>st</sup> June in Jamun. The highest percent success (98.33percent) in the month of February may be due to the favourable internal and external conditions like optimum humidity, moderate temperature and biochemical status. After harvesting of fruits, leaf fall is common in Jamun, plants go in dormant condition from November to February. At this period, sufficient food maternal is stored in the scion which help for better sucess and higher grafting. These results are in agreement with the earlier results are reported Gojamguned (1993) [3] and Chauvatia and Singh (1999) [2] in Jamun.

In Tamarind significantly maximum final per cent success was found when grafting was carried out on 1<sup>st</sup> March (71.66 percent). Minimum success was found when grafting was carried out on 1<sup>st</sup> February (20.00 percent). The results

obtained in present study are in accordance with the finding in march shinde (1990). That softwood grafting in march or the first of week of April (after harvesting and before flowering) resulted in highest success. Reddy (2000) [5] reported that in tamarind (100 percent) success was recorded in March. Zero percent final success was recorded when grafting was carried out on 1<sup>st</sup> one 1<sup>st</sup> July, 1<sup>st</sup> August, 1<sup>st</sup> September, 1<sup>st</sup> October and 1<sup>st</sup> November.

In custard apple significantly highest final success (94.99 percent) was obtained in case of grafting carried out on 1<sup>st</sup> February. Lowest success was obtained when grafting was carried out on 1<sup>st</sup> July. Higher success in the month of February may be due to the favourable in internal and external conditions like optimum humidity moderate temperature and bio-chemical status. After harvesting of fruits, leat fall is common in custard apple. Plants go in dormant condition from November to February. At this period sufficient food material is stored in the scion which helps for better success. Pawar *et al.* (2003) reported that heights per cent success was obtained when grafted on 1<sup>st</sup> February. These results are in agreement with results reported by Kulkarni (1990) Gojamgunde (1993) [3].

**Table 1:** Effect of softwood grafting period on initial and final success of grafting in dry fruit crops.

| Treatment                                   | Percent initial success after 30 days after grafting |              |               | Final percent success 90 days after grafting |               |               |
|---|--|--------------|---------------|--|---------------|---------------|
|   | Jamun  | Tamarind     | Custard apple | Jamun  | Tamarind      | Custard apple |
| T <sup>1</sup> - 1 <sup>st</sup> December   | 73.17 (8.58)   | 0.00 (0.70)  | 84.99 (9.22)  | 60.0 (777)                                   | 0.00 (0.70)   | 70.00 (8.39)  |
| T <sup>2</sup> - 1 <sup>st</sup> January    | 82.87 (9.13)   | 0.00 (0.70)  | 86.66 (9.32)  | 80.95 (9.02)                                 | 0.00 (0.70)   | 83.33 (9.13)  |
| T <sup>3</sup> - 1 <sup>st</sup> February   | 98.33 (9.94)   | 20.00 (1.98) | 100 (10.02)   | 98.33 (9.93)                                 | 20.00 (1.98)  | 94.99 (9.97)  |
| T <sup>5</sup> - 1 <sup>st</sup> March      | 0.00 (0.70)  | 86.66 (8.67) | 100 (10.02)   | 0.00 (0.70)                                  | 71.66 (8.49)  | 86.33 (9.31)  |
| T <sup>6</sup> - 1 <sup>st</sup> April      | 0.00 (0.70)  | 74.44 (8.27) | 78.33 (8.96)  | 0.00 (0.70)                                  | 32.10 (559)   | 35.00 (6.39)  |
| T <sup>7</sup> - 1 <sup>st</sup> May        | 0.00 (0.70)  | 0.00 (0.70)  | 0.00 (0.70)   | 0.00 (0.70)                                  | 0.00 (0.70)   | 0.00 (0.70)   |
| T <sup>8</sup> - 1 <sup>st</sup> June       | 0.00 (0.70)  | 0.00 (0.70)  | 7.00 (0.70)   | 0.00 (0.70)                                  | (0.00) (0.70) | 0.00 (0.79)   |
| T <sup>8</sup> - 1 <sup>st</sup> July       | 86.00 (9.31)   | 0.00 (0.70)  | 23.33 (4.85)  | 38.33 (6.19)                                 | (0.00) (0.70) | 21.83 (4.81)  |
| T <sup>9</sup> - 1 <sup>st</sup> August     | 49.66 (7.08)   | 0.00 (0.70)  | 35.00 (5.92)  | 43.17 (6.59)                                 | (0.00) (0.70) | 8.33 (5.33)   |
| T <sup>10</sup> - 1 <sup>st</sup> September | 46.67 (6.86)   | 0.00 (0.70)  | 40.00 (6.36)  | 44.10 (6.69)                                 | (0.00) (0.70) | 36.66 (6.08)  |
| T <sup>11</sup> - 1 <sup>st</sup> October   | 64.95 (8.00)   | 0.00 (0.70)  | 55.09 (7.49)  | 53.33 (7.19)                                 | (0.00) (0.70) | 53.33 (7.33)  |
| T <sup>12</sup> - 1 <sup>st</sup> November  | 69.88 (8.38)   | 0.00 (0.70)  | 56.66 (7.33)  | 53.33 (7.19)                                 | (0.00) (0.70) | 53.33 (7.33)  |
| SET   | 0.50   | 0.41         | 0.30          | 0.54   | 0.43          | 0.33          |
| CD at 5 %                                   | 1.38   | 1.15         | 0.88          | 1.50   | 1.20          | 0.93          |

Note: \*Figures in the parenthesis denote square root transformed value

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