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SUMMARY

The studies were conducted at Central Nursery Scheme, Marathwada Agricultural University, Parbhani during June 1997 to February 1998. Five different varieties namely, Hur, Parbhani Hapus, Ratna, Neelam and Totapuri were tested on single and double rootstock separately. Variety Ratna when grafted on single as well as double rootstock gave maximum grafting success. Grafting success in field and later on in field survival are the serious bottleneck in mango cultivation and practical problems in the establishment of mango orchard. In both the cases, mortality of mango grafts in field and initial grafting success may be due to short supply of food material by single rootstock. The very objective of conducting this experiment was to overcome the problem by providing double rootstock.

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Key words :

Mango, Grafting,
Root stock

The mango occupies a per-eminent place amongst the fruit crop grown in India and is acknowledge as the king of fruits.

The genus mangifera belongs to family Anacardiaceae, is originated in South-East Asia. All most all the edible cultivars of mango belong to species *Mangifera indica* linn. and wild species to *M. sylvatica* and *M. caloneura*.

Mango fruit is utilised during all stage of its development, young and unripe fruit because of their acidic taste are utilised for culinary purpose as well as for preparing pickles, chutney etc. Ripe fruits are utilised in preparing squash, nector, jam and baby powder. The various plants parts are put to several other uses viz, tender leaves as vegetables in java and philippines, dried flowers have curative properties for treating diarrhea and chronic dysentery. Some of the desired horticultural varieties are more vigour when they are grafted on vigorous rootstock e.g Sweet orange grafted on rangpur lime rootstock instead of jamberi and with proper selection of rootstock some fruits can be grown in areas otherwise not suitable for certain fruitcrops. In the present investigation grafting on single rootstock as well as double rootstock was tried to increase the percent grafting success.

MATERIALS AND METHODS

The present investigation was undertaken at Central Nursery Scheme, Marathwada Agricultural University, Parbhani during the year 1997-98.

In this experiment, grafting was carried out by using single and double rootstock seedlings. The rootstocks used for single and double grafts were common and commercial method of stone grafting. This experiment was laid out in RED with 10 treatments and 10 replications. Effect of single and double rootstock on grafting success was tested in five different mango varieties viz., Hur, Parbhani Hapus, Neelum, Totapuri and Ratna. The first grafting was undertaken by using single seedlings as a rootstock as usual in each variety. Similarly, double stock grafting was done where two seedlings were used as rootstock.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following heads:

Effect of single rootstock on grafting success in mango:

The periodic per cent success of mango

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Table 1 : Effect of single rootstock on grafting success in mango

Variety	Dates				
	5 July (15 days)	20 July (30 days)	5 Aug. (45 days)	20 Aug. (60 days)	5 Sept. (75 days)
Neelum	75.12	63.54	56.83	53.72	53.72
Totapuri	75.84	61.11	53.73	51.35	50.76
Ratna	74.67	60.06	50.76	49.60	54.93
Parbhani Hapus	76.22	62.11	52.63	52.53	51.53
Hur	73.58	63.02	55.57	54.94	52.72
S.E.±	0.466	0.400	0.431	0.664	0.406
C.D. (P=0.05)	1.40	1.44	1.29	1.98	1.22

Table 2 : Effect of double rootstock on grafting success in mango

Variety	Dates				
	5 July (15 days)	20 July (30 days)	5 Aug. (45 days)	20 Aug. (60 days)	5 Sept. (75 days)
Neelum	77.11	65.69	60.71	57.41	57.79
Totapuri	80.61	62.22	58.70	56.80	55.55
Ratna	76.10	63.54	62.08	59.34	58.69
Parbhani Hapus	78.55	63.22	54.55	53.72	53.13
Hur	75.61	66.69	57.50	55.00	54.54
S.E.±	0.516	0.403	0.603	0.473	0.641
C.D. (P=0.05)	1.55	1.21	1.81	1.42	1.92

graft propagated by using five different scion varieties on single mango rootstocks on various dates is presented in Table 1.

It is evident from Table 1 that after 15 days from grafting, Parbhani Hapus gave maximum per cent success (76.22%) followed by Totapuri (75.84%) which were statistically similar to each other. The lowest per cent success was recorded by Hur (73.58%).

After 30 days from grafting, Neelum gave maximum per cent success (63.54) followed by Hur (63.02), Parbhani Hapus (62.11). The lowest per cent success was recorded under Ratna (60.06).

After 45 days from grafting, Neelum gave maximum per cent success (56.83%) followed by Hur (55.57%) which were statistically similar to each other. The lowest per cent success was recorded by Ratna (50.76%). Rest of the treatments were intermediate.

After 60 days from grafting, Hur gave maximum per cent success (54.94%) followed by Neelum (53.72%) which were statistically not different from each other. The lowest per cent success was given by variety Ratna (49.60%).

After 75 days from grafting Ratna gave maximum per cent success (54.93%) followed by Neelum (53.72%) which were statistically similar to each other. The lowest per cent success was given by Totapuri (50.76%). Rest of the treatments were intermediate.

Effect of double rootstock on grafting success in mango:

It is evident from Table 2 that after 15 days from grafting Totapuri gave maximum per cent success (80.61) followed by Parbhani Hapus (78.55) and Neelum (77.11), which were statistically similar to each other. The lowest per cent success was recorded under Hur (75.61).

After 30 days from grafting, Hur gave maximum per cent success (66.69) followed by Neelum (65.69). The lowest per cent success was recorded under Totapuri (62.22).

After 45 days from grafting Ratna gave maximum per cent success (62.08%) followed by Neelum (60.71%) which were statistically not different from each other. The lowest success was recorded under Parbhani Hapus (54.55%).

After 60 days from grafting, Ratna gave maximum per cent success (59.34). The lowest success was recorded under Parbhani Hapus (53.72%). After 75 days from grafting, Ratna gave maximum success (58.69%) followed by Neelum (57.79%) which were statistically similar to each other. The lowest success was recorded under Parbhani Hapus (53.13%) Rest of the treatments were intermediate.

The variety Ratna when grafted on double rootstock gave highest grafting success followed by Neelum and Totapuri as compared to single rootstock. The result

obtained due to double rootstock were more conspicuous than use of single rootstock. This may be due to double root system, which have absorbed more plant nutrients causing strong graft union.

Similar results were obtained in bridge grafting, where seedling of the some plant species were planted near the old plant and grafted at proper height (Hayes, 1944) Mechanism of supply of nutrients and causing added nutritional support to the main plant increased grafting success in double rootstock (Singh and Gupta, 1968).

This work on double rootstock on mango is experienced by many cultivators but there is no scientific and statistical reporting on this aspect. The use of double rootstocks in mango grafting is also practiced by Konkan Krishi Vidyapeeth, Dapoli for vigorous growth of scion.

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