

Studies on behaviour of sweet orange (*Citrus sinensis* Osbeck) variety nucellar in relation to bud-take, height and spread on different rootstocks

B. N. SHINDE, V. K. PATIL, B. M. KALALBANDI, B.R. PAWAR AND S.J. SHINDE

See end of article for authors' affiliations

Correspondence to :
B.N. Shinde
Department of Horticulture,
M.A.U., PARBHANI
(M.S.) INDIA

Accepted : March, 2007

ABSTRACT

The experiment to study the behaviour of sweet orange variety Necellar in relation to 'bud-take' height and spread was carried out at Department of Horticulture, Marathwada Agricultural University, Parbhani. The results showed that the 'bud-take' was highest on *Citrus macrophylla*, Rough lemon Chettali and Calamondin rootstocks. while it was lowest on woodapple and carrizo citrange rootstock. The vigorous rootstocks, thus tended to give better 'bud-take' over dwarfing rootstocks. The sweet orange was observed tallest on Jambheri local and shortest on Carrizo citrange. The spread was largest on Jambheri local and Sohmyndong rootstocks, while the minimum spread was observed on Carrizo citrange.

Key words : Sweet orange, Rootstocks, Nucellar.

In classifying citrus trees according to size it has been suggested that dwarf trees are those being approx. 2.7 meter or less in height, when mature (Bitters, 1973; Boswell *et al.*, 1978; Castle and Phillips, 1978). Trees of this size have several advantages as compared to taller or spreading ones. They can be spaced closer together without suffering from excessive crowding or the need for frequent, severe pruning. Moreover, they generally produce fruit in a more efficient manner. Smaller trees have more favourable ratio of fruit bearing foliage to non-producing woody framework than larger trees (Mendel, 1968; Mandel, 1969; Phillips, 1979). Smaller trees facilitate both hand and mechanical harvesting. Tree size is also controlled to improve equipment access and smaller trees may allow the use of smaller equipment. Therefore, extensive work is also underway to develop naturally smaller trees. There has been increasing interest in the concept of higher density planting in recent past. Efforts were, therefore, made to probe into the behaviour of sweet orange (*Citrus sinensis* Osbeck) variety Nucellar in relation to 'bud-take' height and spread on different rootstocks, so as to gather requisite knowledge related to dwarfism in citrus.

MATERIALS AND METHODS

The present investigations were carried out during 1977-80 at Department of Horticulture, Marathwada Agricultural University, Parbhani. Twelve rootstocks seeds as enlisted in Table 1 were sown on raised beds on www.hindagrihorticulturalsociety.com

15th November, 1977 at 5 x 5 m² spacing. The seedlings were uniformly grown in beds for one year. Twenty five uniform and healthy buddable seedlings of one year old were selected.

Scion for budding :

The commercial scion mosambi sweet orange (nucellar) *Citrus sinensis* Osbeck were used for budding. Budwood was collected from 11 year old healthy and normal scion trees budded on Jambheri (*Citrus jambhiri*).

Time and technique for budding :

Selected twenty five seedlings were budded with sweet orange. The budding was done uniformly at 15-20 cm height from ground level on 15th November, 1978 by a single mali in morning. Two months after budding nine successful budgrafts on mosambi were separately transplanted in field at 1 x 1 m² spacing in three replications. The cultural operations like irrigation weeding and plant protection measures were given as and when required.

Bud-take :

Observations were recorded on the number of buds sprouted twenty days after budding. Another count was taken after two weeks. The final count of 'bud-take' was recorded on December, 20, 1978. The percentage of 'bud-take' was worked out for various treatments.

Height of budding :

The length of the sprouted scion shoot was measured monthly in cm with the help of a meter scale and the