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Effect of Pruning on Physiological Disorders in Pomegranate

S K Panwar, UT Desai and S M Choudhari
Mahatma Phule Agricultural University Rahuri – 413 722 India

In case of pomegranate, fruit cracking, sun-scorching and internal break-down are the important physiological disorders. Blackening of arils, in otherwise externally normal fruit, is a new malady observed in pomegranate under Maharshtra conditions, known as internal breakdown. Prabhu Desai (1989) noticed high percentage of affected fruits with higher intensity of affected arils in the fruits located at the southern side of the tree, while it was the least in the fruits under shade, i.e. centre of tree. Ganesh was more susceptible to the disorder. Sun-scorching is also due to high sunlight intensity, which is often more in arid and semi- arid zones where the pomegranates are grown. Pruning alters foliage intensity and the location of fruit in the tree canopy, and the practice can influence intensity of these disorders. However, there are no reports about pomegranate pruning, though it is an important production practice in many fruit crops. Hence, the present experimenation was carried out with eight pruning treatments, replicated four times in simple Randomized Block Design having three plants per experimental unit. The treatments were : T1 = Control, T2 = Round-Top-Pruning, T3 = 20 cm pruning of main stems without thinning, T4 = 20 cm pruning of main stems with thinning, T5 = 40 cm pruning of main stems without thinning, T6 = 40 cm pruning of main stems with thinning, T7 = 60 cm pruning of main stems without thinning, and T8 = 60 cm pruning of main stems with thinning. In round-top pruning, a round shape was given to tree top, with least possible pruning, as is followed by some growers. In thinning treatments, the tertiaries (on main and secondary branches) were removed. Of the two tertiaries at each node, one was removed, alternately. Besides, the secondary branches on main stems with more than 30 cm length were cut back by 30 cm.

Six fruits were tagged on south and south-west side of the tree from an experimental unit. Since, the incidence of the internal breakdown has been reported more on this side (Prabhu Desai 1989). The fruits were harvested when matured and on the basis of severity of the incidence of aril breakdown, scoring to each fruit was given as free (0.00%) or 1/6 (16.67%), 2/6 (33.33%), 3/6 (50%), 4/6 (66.67%), 5/6 (83.33%) and 6/6 (100%) incidence. Average of the six fruits was taken as percentage of fruits affected by internal breakdown.

The fruits showing blakish brown rind colour due to excessive sun-heat were counted as sun-scorched fruits. They were counted and recorded at each harvesting. The total number of sun-scorched fruits harvested per tree during the season was worked out.

Percentage of sun-scorched fruits and percentage of fruits showing internal breakdown were decreased as the pruning intensity was increased (Table 1). The shoots and branches, and obviously the fruits were more extended, outside the tree canopy, in case of control than in case of pruning treatments. In pruning treatments, fruits are located more within the tree canopy and probably

Table 1 *Percentage of fruits showing internal breakdown and sun-scorched fruits as influenced by various treatments*

Pruning treatments	Sun-scorched fruits (%)	Fruits showing internal breakdown (%)
T_1	4.74	58.34
T_2	3.30	20.83
T_3	3.35	37.50
T_4	3.19	25.00
T_5	2.39	29.16
T_6	1.83	25.00
T_7	1.76	16.67
T_8	1.47	12.50
SE±	0.35	7.58
CD at 5%	1.04	22.28

escaped the direct sunlight, avoiding these maladies. Therefore, pruning is beneficial to lower down the incidence of internal break-down and sun-scorching. This will ultimately reduce the losses at consumers level. There was no significant effect on percentage of cracked fruits.

Refernences

Prabhu Desai VG 1989 *Investigation on Internal Breakdown of Pomegranate Fruits (Punica granatum L.)*. Ph.D. thesis, Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra, India

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