

Adoption of Recommended Practices for Control of Oily Spot Disease on Pomegranate in Solapur District

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ABSTRACT

Pomegranate (Punica granatum) is a multipurpose fruit. Recommended practices i.e. plant protection measures is an important tool in effective oily spot disease management of pomegranate. The present study was conducted in twelve villages from Sangola tahsil of Solapur district of Maharashtra 120 farmers were selected on the basis of intensity of disease infestation. It was observed that the large majority of the pomegranate growers had medium level of adoption of recommended practices for control of oily spot disease of pomegranate. Study revealed that with increased levels of education, land holding, area under pomegranate annual income, sources of information and use of spacing, pruning and varieties, level of knowledge and adoption of recommended practices for control of oily spot disease on pomegranate also increased.

Key words: Pomegranate (*Punica granatum*); Multipurpose fruit; Plant protection measures; Spot disease management;

Pomegranate (*Punica granatum*) is one of the most remunerative fruit crops grown in Maharashtra. Its ability to resist drought, wide adaptability to soil and climatic condition profitable is without much care and ability to flower in all three seasons has put it way ahead than other crops.

Pomegranate is originated in Iran and extensively cultivated in Mediterranean countries like Spain, Morocco, Iran, Egypt and Afghanistan. In India 2 lakh hectares area under pomegranate crop, which is mainly grown in states of Maharashtra, Gujarat followed by Rajasthan, Uttar Pradesh, Haryana, Andhra Pradesh and Karnataka.

Maharashtra stands first in the country in respect of area and production of pomegranate. At present 0.78 lakh hectares area under pomegranate crops with 0.48 lakh hectare as production area. The total production is 4.76 lakh million tone (*Anonymous, 2002*).

The cultivation of pomegranate is mainly confined to the districts like Solapur, Sangli and Nashik. Area under pomegranate is increasing very rapidly because of its hardy nature, excellent keeping quality of fruits

and remunerative prices of export market. Attractive red colour of peel, bright red colour and fully developed arils, high T.S.S. with proper sugar acid blend confirm the quality in pomegranate. The recommended varieties viz., Ganesh, G -7, Mrudula, Arakta and Bhagva are popular among the cultivars as well as consumers.

Pomegranate is infested by various pests and diseases, out of them leaf spot, cercospora leaf spot, *Aspergillus* fruit rot and *Penicillium* fruit rot are important diseases of pomegranate. However at present a bacterial disease called as oily spot disease caused by (*Xanthomonas axonopodis PV Punica*). This new disease Oily spot appear on leaves and fruits of pomegranate, it was observed in village Chick Mahud of Sangola tahsil in Solapur district in 2003. The disease was spread very fast at various places in the tahsils of Sangola, Pandharpur, Mohol and Mangalweda of Solapur and Jat, Kavathemahankal and Atpadi tahsils of Sangli district. The extent of adoption of important cultivation practices i.e selection of suitable soil /site , selection of variety, planting method, planting material ,application of manures and fertilizer, intercultural operation, mechanical

control & chemical control. Present study was undertaken to study adoption of recommended practices for control of oily spot disease on pomegranate in Solapur district.

METHODOLOGY

The study was conducted in Sangola tashil of Solapur district. From Sangola tashil 12 villages were selected for the study on the basis of where intensity of infestation of oily spot disease was more. Finally a sample size of 120 respondents was selected based on proportional random sampling. The data were collected using pretested structured schedule by personal interview method.

RESULTS AND DISCUSSION

Practice wise adoption of recommended practices for control oily spot disease of pomegranate by the pomegranate growers : Information regarding to practice wise adoption of recommended practices for control of oily spot disease of pomegranate is presented in Table 1

The result pertaining to the practice wise adoption of recommended practices for control of oily spot disease of pomegranate.

Adoption of cultural practices : It was observed from table that all pomegranate growers (100.00%) had

Table 1. Practice wise adoption of the pomegranate growers about recommended practices

Recommended practices	Complete		Partial		No.	
	No.	%	No.	%	No.	%
<i>Cultural practices</i>						
Propagation of pomegranate through air-layering should be avoided from affected gardens-	120	100	-	-	-	-
Recommended spacing 4.5 × 5m	46	38.33	-	-	74	61.67
Avoid overcrowding of branches, number of stems should be kept 2-3 per hill	76	63.33	44	36.67	-	-
Branches/ suckers must be removed up to the height of minimum 2 feet from the ground level	63	52.50	41	34.17	16	13.33
<i>Use of recommended varieties by university</i>						
Ganesh	98	61.67	-	-	22	18.33
Mrudula	37	30.83	-	-	83	69.17
Arakta	41	34.17	-	-	79	65.83
Bhagva	25	20.83	-	-	95	79.17
Movement of fruits and implements like secater etc. should be avoided from infected areas to disease free zone	29	24.17	-	-	91	75.83
Application of fertilizer dose and organic manures recommended by university	56	46.67	31	25.83	33	27.50
<i>Mechanical control</i>						
Collection and burning of affected fruits, leaves, branches and dead wood should be taken up	91	75.83	29	24.17	-	-
<i>Chemical control</i>						
Pasting of stem and branches with copperoxychloride 5gm + carbaryl 6 gm + DDVP 3 ml + sticker 1 ml per lit of water	38	31.47	43	35.83	40	33.33
Spray of Bordeaux mixture (1%) should be done immediately after pruning	70	58.33	27	22.50	23	19.67
Second spray of streptomycin (250 ppm) or bacteriomycin (250 ppm) or pauschamycin (250 ppm) + copper oxychloride (0.3%) should be given after 10 days	21	17.50	39	32.50	60	50.00
Third spray of Bordeaux mixture (0.5 %) be followed after 10 days	35	29.17	24	20.00	61	50.83
Fourth spray should be given as per second spray	27	22.50	-	-	93	77.50
Further spray may be given if needed	22	18.30	34	28.33	64	53.33
Insect control should be regularly followed	29	24.17	-	-	91	75.83

adopted propagation of pomegranate through air layering from disease free area. About (38.33%) pomegranate growers had adopted recommended spacing. More than 60 per cent of pomegranate growers (63.33%) had adopted to avoid overcrowding of branches. (52.50%) had adopted pruning practices.

More than fifty per cent (61.67%) of the pomegranate growers had adopted Ganesh variety (30.83%), (34.17%) and (20.83%) had adopted Mrudula, Arakta and Bhagva varieties of pomegranate respectively.

From data it revealed that about (75.00%) of pomegranate growers had not avoid a movement of implements from infected areas to disease free zones. About (46.67%) pomegranate growers had adopted recommended fertilizer dose and organic manures recommended by universities.

Adoption of mechanical control : Majority of the pomegranate growers had adopted (75.83%) a mechanical control measure practices for control of oily spot disease pomegranate

Adoption of chemical control : About (31.47 %) and (35.83 %) had adopted complete and partial adoption of pasting of stem & branches with copper oxychloride 5 gm + carbary 16 gm + DDVP 3 ml + sticker 1 ml per litre water, while (58.33 %) of pomegranate growers had adopted Bordeaux mixture after pruning.

About 21 per cent of pomegranate growers had adopted second spray of steroptocyclic (250 ppm) or bacteriomycin (250 ppm) or pauschamycin (250 ppm) + copper oxychloride should be given after 10 days by pomegranate about (21.00%). More than 50 per cent of pomegranate growers had not used second spray of sterptocycline.

Almost nearly fifty per cent (48.33%) had not adopted third spray of Bordeaux mixture, while (70.83%) of the pomegranate growers had not adopted fourth spray and about (53.33%) had not adopted further spray. Almost more than 70 per cent (75.83%) had not adopted regularly insect control measure.

Adoption level of the pomegranate growers about recommended practices for control of oily spot disease on pomegranate : The term adoption was operational zed as continuous use of recommended control measure practices of pomegranate. Technique used for measurement of adoption has been explained

in methodology. The adoption score of individual pomegranate growers worked out and they were classified into three categories. The distribution is given Table 2.

Table 2. Distribution of respondents based on their overall adoption scores on recommended practices for control of oily spot disease of pomegranate (N=120)

Level of adoption	No.	%
Low (Up to 11 score)	18	15.00
Medium (12 to 16 score)	95	79.17
High (17 and above)	7	5.83
Total	120	100.00

It was observed from Table 2 that majority (79.17%) of pomegranate growers had medium level of adoption of recommend control measure practices very few (15.00%) and (5.83%) of them had low and high adoption level respectively.

It is indicated that majority of the pomegranate growers had medium level of adoption might be due to they had medium level of knowledge.

Relationship between adoption and independent variables : The relationship between personal and Socio-economic characteristics of pomegranate growers with level of adoption of recommended control measure practices for control of oily spot of pomegranate was tested b computing the correlation coefficient (r). The data are presented in Table 3.

Table 3. Relationship between adoption and independent variables

Characteristics of pomegranate growers	Coefficient 'r'
Adoption	
Age	-.005 ^{NS}
Education	0.404 ^{**}
Size of land holding	0.448 ^{**}
Area under pomegranate	0.247 ^{**}
Annual gross income	0.345 ^{**}
Source of information	0.229 ^{**}
Spacing	0.094
Pruning	0.546 ^{**}
Variety	0.335 ^{**}

d.f. = 118

** Significant at one per cent level.

* Significant at five per cent level.

N.S.=Non-Significant

Pomegranate growers' education, size of land holding, area under pomegranate, annual gross income

sources of information, pruning and variety had highly significant relationship with adoption of recommended practices for control of oily spot disease by pomegranate growers. However, age ($r=-0.005$) of the pomegranate

failed to show any relationship with their level of adoption about recommend practices. Spacing of the pomegranate show positive relationship with their adoption about recommended practices.

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