

## Survey on early blight of tomato caused by *Alternaria solani*

S.B. KAMBLE\*, S.B. SANKESHWARI AND J.S. AREKAR

Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, PATNAGIRI (M.S.) INDIA

### ABSTRACT

Tomato is the most important vegetable crop of India. In Konkan region of Maharashtra State, it is mostly grown in the Thane and Raigad districts. Early blight incited by *Alternaria solani* was found to be major disease of tomato under agroclimatic conditions of Konkan. Roving survey conducted in *rabi* season, 2004-2005 revealed that, early blight disease intensity in Raigad district ranged between 20.78 to 42.30 per cent and 35.12 to 55.75 per cent in Thane district.

**Key words :** Survey, Early blight, Tomato, *Alternaria solani*.

### INTRODUCTION

Tomato (*Lycopersicon esculentum* Mill.) is the world's largest vegetable crop and known as protective food because of its special nutritive value and its wide spread production. It is a rich source of minerals, vitamins, organic acids and dietary fibers and also regarded as an anticancer food.

Fungal, bacterial and viral diseases are serious among the important constrains in tomato crop production. Of these, the early blight caused by *Alternaria solani* is the most destructive disease. The yield loss inflicted by this disease was estimated as high as 50-80 per cent during the epiphytotics (Mathur and Shekhawat, 1986). Agrochemicals, which are important in green revolution, are now reported to pollute the environment. Therefore, environmentally safe and eco-friendly methods of disease management were studied.

### MATERIALS AND METHODS

A roving survey was conducted in tomato growing areas during the *rabi* season 2004 2005 in Raigad and Thane districts of Maharashtra State. Tomato growing pockets were identified from the records available at the office of Sub-Divisional, Agriculture Officer, Distt.-Thane and Raigad. From these records Goregaon, Mangaon, Pen, Panvel, Vasai, Murbad, Shahapur, Wada and Palghar were found to be major tomato growing areas. Five villages in each of the above mentioned tahsils were chosen. Five fields under tomato cultivation from each village were visited for recording leaf blight incidence. Per cent disease incidence, was noted based on total plant population in the field.

### RESULTS AND DISCUSSION

Roving survey for tomato early blight disease was carried out during *rabi* 2004-05. The data collected from

selected tomato growers from Goregaon, Mangaon, Pen and Panvel Tahsils of Raigad district and Vasai, Shahapur, Murbad, Wada and Palghar Tahsils of Thane district are presented in Table 1 and 2.

Figures representing the area and per cent disease intensity are the means of five tomato growers in each village.

The data revealed that, selected farmers had cultivated tomato on an area of 5.714 hectares in Raigad district whereas, 7.974 hectares in Thane district of Maharashtra State. Generally, all the growers in both districts were using Vaishali and Abhiruchi-202 varieties of the tomato.

In Raigad district, incidence of early blight disease was relatively higher in Satave (42.30 per cent) village of Mangaon Tahsil and in Panvel (41.50 per cent), while comparatively less incidence was observed in Nagaon (20.78 per cent) and Chinchawali (25.20 per cent) villages of Goregaon Tahsil. In Raigad district, overall early blight incidence was ranged between 20.78 and 42.30 per cent.

In Thane district the early blight disease incidence was relatively higher in Posheri (55.75 per cent) and Sapne (54.20 per cent) villages of Wada Tahsil, while comparatively less incidence was observed in Wagholi (35.12 per cent) and Agashi (37.75 per cent) villages of Vasai tahsil. In Thane district, overall early blight incidence was ranged between 35.12 and 55.75 per cent.

This indicated that early blight disease incidence was severe in Thane district as compared to Raigad district.

Disease survey has been reported by many workers. Karla and Sohi (1985) conducted regular surveys of markets during 1980-84 and reported that *Alternaria* spp. and *Fusarium* spp. were the most destructive fungal pathogens. Kulkarni (1985) reported 14.31 per cent losses in tomato due to *Alternaria alternata* in various markets of Konkan region. Shelake (1990) conducted survey around Dapoli and reported that the average PDI of early blight disease ranged between 13.05 and 35.0 per cent.

Table 1 : Survey of Raigad district					
Sr. No.	Tahsil	Name of village	Variety	Area (ha)	Per cent disease incidence
1.	Goregaon	i) Chinchawali	a) Abhiruchi- 202 and	0.812	25.20
		ii)Murgaon		0.265	27.58
		iii) Nagaon	b) Vaishali	0.410	20.78
		iv) Nirgud		0.110	33.41
		v) Chaphodi		0.450	35.95
2.	Mangaon	i) Bhintad	a) Abhiruchi-202 and	0.375	36.33
		ii)Bambaloli		0.208	32.51
		iii) Dewali	b) Vaishali	0.300	37.98
		iv) Unegaon		0.125	39.02
		v) Satave		0.172	42.30
3.	Pen	i) Khar- sapoli	Vaishali	0.408	35.98
		ii) Ghotwal		0.320	30.11
		iii) Kashmire		0.197	33.41
		iv) Ratwada		0.555	37.52
		v) Potaner		0.382	31.25
4.	Panvel		Abhiruchi-202	0.625	41.50
		Total		5.714	540.83
		Mean			33.80%

Table 2 : Survey of Thane district					
Sr. No.	Tahsil	Name of village	Variety	Area (ha)	Per cent disease incidence
1.	Vasai	i) Agashi	a) Vaishali and	0.305	37.75
		ii)Wagholi	b) Abhiruchi-202	0.175	35.12
		iii) Umrle		0.285	47.20
		iv) Rangaon		0.197	45.75
		v) Buigaon		0.325	43.48
2.	Shahapur	i) Shendrun	A Abhiruchi-202 and	0.402	49.71
		ii) Nadgaon		0.122	51.22
		iii) Sathgaon	b) Vaishali	0.215	48.98
		iv) Cheroli,		0.245	45.17
		v) Umawane		0.180	51.20
3.	Murbad	i) Narayangaon	Vaishali	0.182	47.98
		ii) Musai		0.110	46.33
		iii) Mugaon		0.197	47.89
		iv) Manivali		0.425	41.82
		v) Potgaon		0.320	45.84
4.	Wada	i) Sapne	a)Sonali	0.802	54.20
		ii) Posheri	b) Vaishali	0.615	55.75
		iii) Karalgaon	c) Abhiruchi-202	0.475	53.02
		iv) Waghodi		0.228	50.28
		v) Savaroli		0.340	47.87
5.	Pal ghar	i) Mahim	a) FI - 2535	0.478	48.89
		ii) Waghulsar	b) Abhiruchi-202	0.665	49.97
		iii) Dhansar		0.448	48.25
		iv) Maswan		0.238	52.49
		Total		7.974	1146.16
		Mean			47.75%

Tumwine *et al.* (2002) conducted survey in Uganda and observed that fungal blight and bacterial blight were the major diseases in Uganda.

### REFERENCES

- Karla, J.S. and Sohi, H.S. (1985).** Fungal diseases of vegetables encountered in different markets of Chandigarh. *Res. Bult. Punjab Univ.*, **36**(1/2): 95-99.
- Kulkarni, N.V. (1985).** Studies on fruit rot of tomato (*Lycopersicon esculentum* Mill.) caused by *Alternaria alternata* (Fr.) Keissler and *Myrothecium indicum* Pavgi. M. Sc. (Ag.). Thesis, Dr. B.S. Konkan Krishi Vidhyapeeth, Dapoli, Dist. Ratnagiri (Maharashtra). pp. 24.
- Mathur, K. and Shekawat, K.S. (1986).** Chemical control of early blight in *kharif* sown tomato. *Indian J. Mycol and Pl. Path.*, **16**: 235-238.
- Shelake, S.B. (1990).** Studies on early blight of tomato M. Sc. (Ag.). Thesis, Dr. B.S. Konkan Krishi Vidhyapeeth, Dapoli, Dist. Ratnagiri (Maharashtra).
- Tumwine, J., Frinking, H.D. and Jeger, M.J. (2002).** Tomato late blight caused by *Phytophthora infestans* in Uganda. *Internet. J. Pest. Mang.*, **48**(1): 59-64.

---

Received : June, 2008; Accepted : November, 2008