



SURVEY FOR THE INCIDENCE OF RHIZOME ROT/TIP OVER DISEASE OF BANANA

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Abstract

Roving survey was conducted in major banana growing areas of Belgaum, Bagalkot and Bijapur districts of Northern Karnataka during 2012 and it revealed that the incidence of the disease ranged from zero to thirty per cent. The highest incidence of the disease was recorded in Salahalli (30.00%) followed by Dastikoppa (24.39%) on Grand Naine cultivar, Siddapur (26.66%) on Grand Naine cultivar, Lokapur (24.28%) on Rajapuri cultivar and Mudnal (22.00%) on Rajapuri cultivar. The disease was not noticed in Munavalli on Ney Poovan cultivar.

Key words: Survey, rhizome rot/tip over disease.

Introduction

Banana is a good source of energy, minerals and vitamins and is one of the biggest single trade items in international fruit trade (Snehalatharani and Khan, 2009). Fruits are a good source of vitamin C, B₆ and A. It is also rich in potassium. Bananas are considered to be good for the treatment of gastric ulcer and diarrhoea as they contain vitamin A, bananas and plantains act as an aid to digestion. Due to its high content of vitamin B₆ they help to reduce stress and anxiety. Wardlaw (1950) for the first time reported the bacterial nature of bacterial head rot or rhizome rot of banana from Honduras. Khan and Nagaraj (1998) reported several banana growing areas of Karnataka. Lakshmanan and Mohan (1986) recorded nearly 40-60 per cent loss in three to five month old crops. Later in 1992, they reported that the incidence ranged from 25-45 per cent and in extreme cases it was high as 60-80 per cent, in some fields. Thammaiah *et al.* (2005) made a roving survey during 2001-2005 and reported the occurrence of rhizome rot disease at different places of northern Karnataka. During 2001-02, the bacterial rhizome rot in Cv. Rajapuri was noticed in Bijapur (4.3%) followed by Gokak (1.0%) and Belgaum (0.5%). During 2002-2003 survey, the bacterial rhizome rot was also noticed in Raibagh (4.5%) followed by Bijapur (3.75%) and Gokak (1.0%). While during 2003-04, the highest incidence was observed in Raibagh on Grand Naine cultivar (12.9%) followed by Kabbur (3.0%) and Gokak

(1%). In 2004-05, the maximum incidence was noticed in Chikkodi (4%) followed by Gokak (3%) and Munavalli (0.5%). Hence, the present investigation was undertaken to know the incidence of the disease in Northern Karnataka.

Material and Methods

Roving survey was conducted during 2012 at different places of Belgaum, Bagalkot and Bijapur districts. Observations were recorded with respect to incidence of rhizome rot. In each plot random samples were made, from which the number of plants affected over the total numbers of plants were counted and expressed as percent disease incidence.

$$\text{Percent disease incidence} = \frac{\text{No. of plants infected}}{\text{Total number of plants}} \times 100$$

During survey, observations were recorded with respect to soil type, cultivar, planting material used and also samples were collected for isolation of pathogens.

Result and Discussion

Roving survey was conducted during 2012 in major banana growing regions of Karnataka *viz.*, Belgaum, Bijapur and Bagalkot districts to assess the incidence of rhizome rot or tip over disease of banana and the data are presented in table-1.

Survey revealed that the incidence of disease ranged from zero to thirty per cent in the major banana growing areas of Belgaum, Bijapur and Bagalkot districts. In

Table 1: Survey on incidence of tip/rhizome rot disease of banana.

| Name of the Place | Planting material used | Soil type | Cultivar | Rhizome rot incidence(%) |
|----------------------------|------------------------|--------------|-------------|--------------------------|
| Belgaum (District) | | | | |
| Shivapur | Suckered | Medium black | Rajapuri | 13.83 |
| Hidakal | Suckered | Medium black | Rajapuri | 13.00 |
| Hattaragi | Suckered | Medium black | Rajapuri | 5.00 |
| Yamakanmaraddi | Tissue culture plant | Medium black | Grand Naine | 11.58 |
| Dastikoppa | Tissue culture plant | Medium black | Grand Naine | 9.93 |
| Dastikoppa | Tissue culture plant | Medium black | Grand Naine | 24.39 |
| Kittur | Tissue culture plant | Medium black | Grand Naine | 5.00 |
| Kittur | Suckered | Medium black | Grand Naine | 2.00 |
| Munavalli | Suckered | Sandy loam | Grand Naine | 5.71 |
| Munavalli | Suckered | Medium black | Rajapuri | 8.67 |
| Munavalli | Suckered | Medium black | Ney Poovan | 0.00 |
| Gokaka | Suckered | Medium black | Rajapuri | 2.00 |
| Ghataprabha | Tissue cultured plant | Medium black | Grand Naine | 2.00 |
| Sanganikeri | Suckered | Medium black | Grand Naine | 7.00 |
| Salahalli | Suckered | Medium black | Grand Naine | 30.00 |
| Bijapur(District) | | | | |
| Nalawathad | Suckered | Black | Grand Naine | 21.67 |
| Mudnal | Suckered | Black | Rajapuri | 22.00 |
| Nagerbetta | Tissue cultured plant | Black | Grand Naine | 17.42 |
| Muddebihal | Suckered | Black | Rajapuri | 16.66 |
| Bagalkot (District) | | | | |
| Lokapur | Suckered | Medium black | Rajapuri | 24.28 |
| Jamakhandi | Tissue cultured plant | Medium black | Grand Naine | 13.75 |
| Siddapur | Suckered | Medium black | Grand Naine | 26.66 |
| Yalahatti | Suckered | Medium black | Grand Naine | 12.50 |
| Rabakavi | Suckered | Medium black | Grand Naine | 20.00 |

Belgaum district, the highest incidence of the disease was recorded in Salahalli (30.00%) on *cv.* Grand Naine followed by Dastikoppa (24.39%) on *cv.* Grand Naine, Shivapur (13.83%) on *cv.* Rajapuri and Hidakal (13.00%) on *cv.* Rajapuri. Survey conducted in Karnataka during 1999-2000 revealed that the rhizome rot was noticed at Gokak, Raibagh and Bijapur districts (Anon., 2002). The lower incidence of the disease was recorded in Yamakanamaradi (11.58%) on *cv.* Grand Naine, Munavalli (8.67%) on *cv.* Rajapuri and Sanganikeri (7.00%) on *cv.* Grand Naine. The disease incidence was not observed in Munavalli on cultivar Ney Poovan. Similar findings were reported by Thammaiah *et al.* (2005a) who reported that the incidence of bacterial rhizome rot was 12.0 per cent in Raibagh and Gokak.

In Bijapur district, the highest incidence of the disease was recorded in Mudnal (22.00%) on cultivar Rajapuri

followed by Nalawathad (21.67%) on cultivar Grand Naine, Nagerabetta (17.42%) on cultivar Grand Naine and Muddebihal (16.66%) on Rajapuri cultivar. In Bagalkot district, the incidence of the disease was highest (26.66%) in Siddapur on Grand Naine cultivar followed by Lokapur (24.28%) on Rajapuri cultivar. Comparitively lower incidence was recorded in Rabakavi (20.00%) on Grand Naine cultivar, Jamakhandi (13.75%) on *cv.* Grand Naine and Yalahatti (12.50%) on Grand Naine cultivar. Similar results were also reported by Thammaiah *et al.* (2005a) who reported the incidence of bacterial rhizome rot (15.0%) in Bijapur. The disease was first noticed on *cv.* Monthan and Pachanadan during 1965 at Coimbatore, Tamil Nadu (Seshadri *et al.*, 1965). Survey results revealed that the incidence of rhizome rot was highest (17.19%) in Banahatti followed by Raibagh (8.33%) and Babaleshwar (8.17%) (Thammaiah *et al.*, 2009).

Chattopadhyay and Mukherjee (1986) also reported the pseudostem rot of banana caused by *Erwinia chrysanthemi* pv. *paradisiaca* on Giant Governor in West Bengal. Khan and Nagaraj (1998) reported that the disease incidence (30-35%) in the districts of Banglore and Kolar of Karnataka State.

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