

## RESEARCH ARTICLE

# Survey and surveillance of pigeonpea wilt in Marathwada region

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## ABSTRACT

To assess the severity of the problem, survey for the wilt disease was undertaken in *Kharif* 2009-10. The information collected revealed that incidence of wilt ranged from 1 to 22 per cent with mean incidence of 5.09 per cent. Sole crop of pigeonpea expressed more incidence than the intercrop with sorghum, soybean or cotton. Survey also showed that farmers had tendency to use the saved seed for next year sowing rather than purchasing fresh, treated seeds of recommended variety. Only 40.46 per cent farmers used certified seeds of varieties viz., BSMR-736, BSMR-853 and BDN-708, thereby indicating great scope for seed replacement with processed, treated seeds of recommended varieties of the region.

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## INTRODUCTION

Pigeonpea [*Cajanus cajan* (L.) Mills.], a pulse crop of Indian origin is a major source of protein in world's vegetarian diet. In India South East Asia and in remaining world, it is consumed as "Dal", "Varan" or "Sambhar" and is an important item in the vegetarian menu. Pigeonpea is grown in Kenya, Uganda, Malawi in eastern Africa, Dominican Republic and Puerto Rico in Central America. In Asia it is grown in India and South East Asia. Major area of the world under pigeonpea is concentrated in India which accounts for the 90 (%) of the world hectareage.

Major cause of low productivity is the losses due to diseases. Among diseases, wilt and sterility mosaic diseases are important. Recent surveys have indicated that major losses in the pigeonpea are due to wilt which is caused by *Fusarium udum* Butler Losses varying from 0.2 to 100 per cent have been estimated in India (Gade, 2002). Kannaiyan *et al.* (1984) recorded maximum mean losses to the tune of 22 per cent from Maharashtra.

The disease is known in India with description of wilt of pigeonpea by Butler (1906). Though the disease goes unnoticed in early stages, the symptoms of yellowing and drying of leaves and finally death of few branches or of entire

plant are the conspicuous symptoms manifested during flowering or grain development. If wilted plants are uprooted and longitudinally split, a clear vascular browning in tap root extending to upper stem is seen. Infection of the plants in early stage leads to infection of roots, stem cortex and reaching up to vascular bundles where the pathogen multiplies and blocks water and nutrient flow to upper region which leads to yellowing, drying and finally death of the plant. In order to make in depth study of wilt in pigeonpea the present studies were undertaken.

## MATERIALS AND METHODS

A roving survey on wilt incidence of pigeonpea was undertaken in villages of Aurangabad, Beed, Jalna, Hingoli, Latur, Nanded, Parbhani and Osmanabad districts during October, November and December, 2009. Wilt (%) incidence was noted/plot/location viz., the information was collected, tabulated, analyzed.

The per cent disease incidence of wilt disease was calculated by the using formula :

$$\text{Per cent disease incidence} = \frac{\text{Number of plant infected}}{\text{Total number of plant examined}} \times 100$$

## RESULTS AND DISCUSSION

A standard format was prepared for collection of information during survey. For survey work, at approximately 10 km distance, a plot was selected, where five lines of 20 meter length was selected randomly and count of the standing plants, were taken. Number of plants wilted, out of total plant stand was recorded. Additional information on name of variety, soil type and pervious crop and cropping pattern were also noted.

Results of Table 1 reveal that wilt (%) incidence in different districts of Marathwada ranged from 1 to 22 (%) with mean wilt (%) incidence of 5.09 (%). Survey (Table 2) at various locations in Marathwada has indicated that 50.00 (%) areas were covered by local varieties followed by 16.66 (%) areas under BDN-708. Under BSMR-736 and BDN-2, 14.28 and 2.38 (%) area was noted, respectively. This has clearly indicated that there is wide scope for popularization of wilt resistant

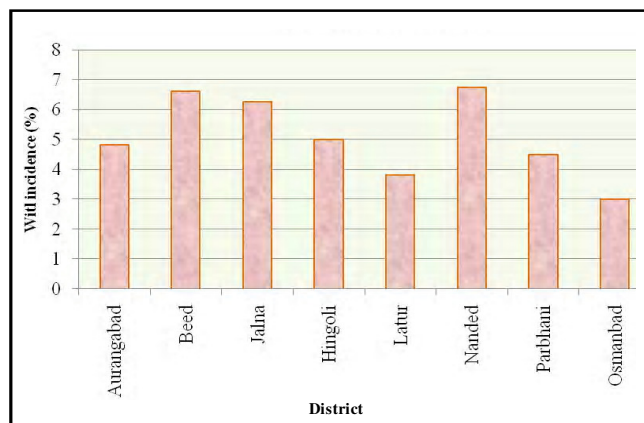


Fig. 1 : Wilt (%) incidence recorded during survey in Kharif 2009-2010 in Marathwada region

high yielding varieties in Marathwada.

Incidence of wilt ranged from 1 to 22 per cent with mean

Table 1: Wilt (%) incidence recorded during survey in Kharif 2009-2010 in Marathwada region

Sr. No.	Districts	Wilt incidence (%)		Predominant variety	Cropping pattern	Remark	
		Range	Mean				
1.	Aurangabad	3 – 9	4.83	BDN-708 -	03	4S : 2P	6 locations in 5 villages
				BSMR – 736-1	01	3C : 2P	
				Local	02	4S : 2P	
2.	Beed	5 – 10	6.6	Local White –	03	4S : 2P	3 locations in 3 villages
3.	Jalna	4 – 10	6.25	Khalki	04	5C : 2P	8 locations in 7 villages
				Local	02	4S : 2P	
				BDN – 708	01	P	
				BDN 2	01		
4.	Hingoli	1 – 5	5.0	Local	01	P	1 location in 1 village
5.	Latur	1 – 5	3.8	Red Local	02	2P :4HJ	7 locations in 7 villages
				White Local	05		
6.	Nanded	4 – 22	6.75	Local	05	3C :2P	8 locations in 8 villages
				BSMR –853	01	4S:2P	
				BDN – 708	02	P	
7.	Parbhani	3 – 5	4.5	BSMR – 736	02	5C :1P	4 locations in 4 villages
				BSMR – 853	01	4C :1P	
				Local	01		
8.	Osmanbad	2 – 4	3.0	BSMR -736	03	3C :2P	4 locations in 4 villages
				BSMR – 853	01	4S :2P	
				BDN – 708	01		
				Local - 1	01		
Average		1 – 22	5.09		43		43 locations in 39 villages
Mean							

**Table 2: Variety wise cultivation observed in Marathwada region**

District	BDN-2	BDN-708	BSMR-853	BSMR-736	Local	Khadki	Total
Aurangabad	---	3	---	1	2	---	6
Beed	---	---	---	---	3	---	3
Jalna	1	1	---	---	2	4	8
Hingoli	---	---	---	---	1	---	1
Latur	0	---	---	---	7	---	7
Nanded	---	2	1	---	5	---	8
Parbhani	---	-	1	2	1	---	4
Osmanabad	---	1	1	3	---	---	5
Total	01	07	03	06	21	4	42
% cultivation	2.38	16.66	7.14	14.28	50.00	9.52	100

incidence of 5.09 per cent. Wherever farmers used their own saved seed, wilt incidence (%) was high. Wilt resistant varieties like BSMR-736, BSMR-853, BDN-2 and BDN-708 were used by 40.46 per cent farmers indicating scope for substitution of seeds of resistant varieties in 59.54 per cent area. The present observations on incidence of wilt (%) are in conformity with Kannaiyan and Nene (1981), Patil *et al.* (1990), Gade (2002) and Anonymous (2005).

## REFERENCES

- Anonymous (2005).** Area and production of pulses in India and Maharashtra. *Hindu Survey*, pp:102-103.
- Butler, E.J. (1906).** The wilt disease of pigeonpea and pepper. *Agric. J. India*, 1:25-36.
- Gade, R.M. (2002).** Integrated disease management of pigeonpea wilt. Ph.D. Thesis, Marathwada Agricultural University, Parbhani, M.S. (INDIA).
- Kannaiyan, J. and Nene, Y.L. (1981).** Influence of wilt at different growth stages on yield loss in pigeonpea. *Trop. Pest Manag.*, 27(1):141.
- Kannaiyan, J., Nene, Y.L., Reddy, M.V., Ryan, J.G. and Raju, T.N. (1984).** Prevalence of pigeonpea diseases associated crop losses in Asia, Africa and America. *Trop. Pest Manag.*, 30(1):62-71.
- Patil, P.V., Patil, B.P. and Karandikar, V.R. (1990).** Studies on wilt disease of pigeonpea with reference to yield losses and varietal reaction. *Proceed. Indian Phytopath. Soc.*, 34:17.

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