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RESEARCH ARTICLE

Frequency of Occurrence of Disease Complex Caused by will Fungus and Root Knot Nematode in Agra, Mathura and Hathras distict

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ABSTRACT

Pulses are widely grown throughout India particularly in U.P. The disease comples caused by root-knot nematode Meloidogyne incognita and wilt fungus Fusarium oxysporum. Occurrence and intensity of the disease in term of gall index (G.I) or egg mass index (EMI) of each Tehsil of Agra, Mathura and Hathras region was studied. Incidence of the highest in Hathras tehsil to an extent of (78.5&) while lowest in Chhata tehsil of Mathura district. On the basis of Root sample basis it was highest in Hathras tehsil of Hathras district (48.9%) and lowest in Kheragarh district of district Agra where it was 32.5%.

Key words: *Pigeonpea (Cajanus cajan), Meloidaggne incognita, Fusarium oxysporum.*

INTRODUCTION

Pulses are the most important source of proteins, carbohydrates, and minerals needed to maintain health and vigour. Pegion pea is most important pulse crop of India. It was cultivated in Egypt even before 2200 B.C. In India pulses account for about 20% of total area under food grain crops. It is cultivated on 5.50 lakh hectare area in U.P. alone. Disease-complex due to plant parasitic nematodes and fungus infecting various crops clearly reveals that majority of disease-complex are due to root-knot nematode *Meloidogyne incognita* and wilt fungus *Fusarium oxysporum* f. sp. *udum* infecting Pigean pea. These observations were also reflected through the survey conducted in the present investigation in and around different tehsils of district Agra, Mathura and Hathras region of Uttar Pradesh.

MATERIAL AND METHOD

To access the incidence of the disease in the particular tehsil of all these district, frequency of the disease was calculated as follows.

$$\text{Frequency (\%)} = \frac{\text{No of infectied root sample from district}}{\text{Total no of root sample collected from the dish}} \times 100$$

After critical examination it was found that the Pigeon pea crop was heavily infected with will fungus and root knot nematode showing wilting and root galls in varying degree. The plants were graded according to well man's (1939) wiliting grade system. Nematode infestation of root were categorized on the number of galls / root according to root knot index given by Anon (1993), for categorized the plants into different grade field symptoms i.e., wilting and root browning was used.

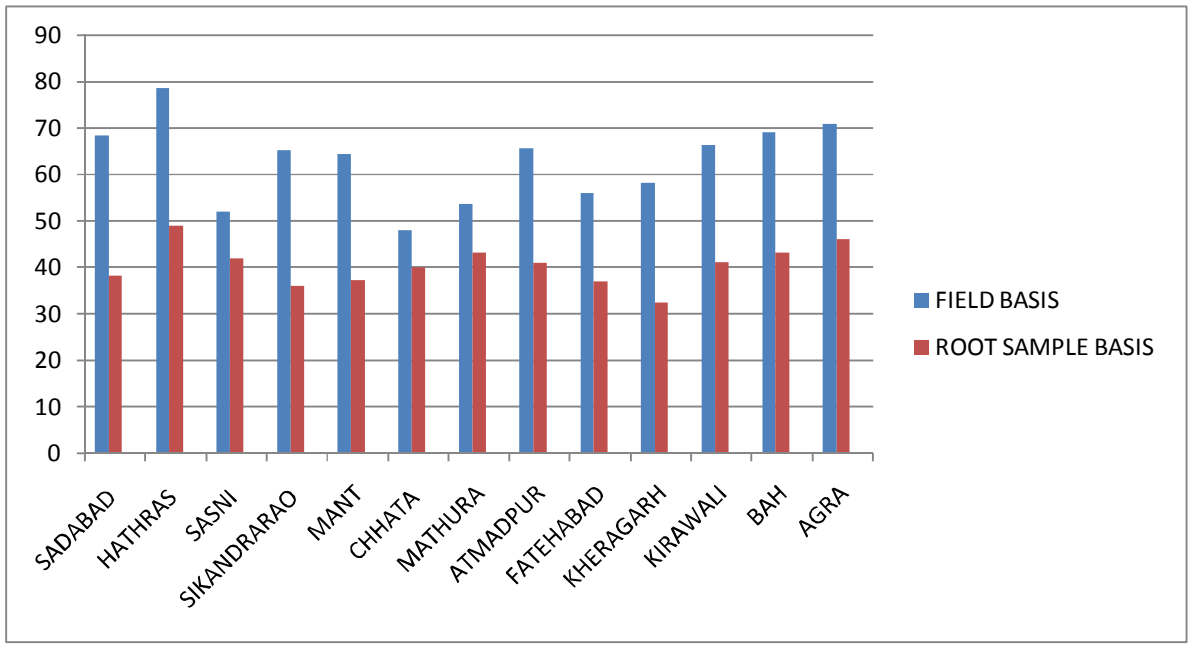
RESULT AND DISCUSSION

It is clear from the following data on frequency of occurrence of disease caused by will fungus and root knot nematode and intensity of the disease in term of gall index (G.I) or egg mass index (EMI) of each tehsil of Agra, Mathura and Hathras region.

Table 1: The frequency of occurrence of disease used by will fungus and root knot nematode in each tehsil of Agra, Mathura and Hathras district is given in the following data

S.No.	Name of District	Name of Tehsil	Crop	Frequency % of The Disease		G.I. / E.M. I. Range
				Field Basis	Root Sample Basis	
1	Hathras	Sadabad	Pigeonpea	68.4	38.2	3-5/4-5
		Hathras	Pigeonpea	78.5	48.9	3-4/1-2
		Sasni	Pigeonpea	52	42	4-5/0-3
		Sikandrarao	Pigeonpea	65.3	36	2-5/4-5
2	Mathura	Mant	Pigeonpea	64.3	37.3	4-5/0-3
		Chhata	Pigeonpea	48	40	2-5/4-5
		Mathura	Pigeonpea	53.6	43.2	4-5/1-5
3	Agra	Etmadpur	Pigeonpea	65.6	40.9	3-4/2-4
		Fatehabad	Pigeonpea	56	37	3-5/4-5
		Kheragarh	Pigeonpea	58.2	32.5	4-5/4-5
		Kirawali	Pigeonpea	66.3	41	3-4/4-5
		Bah	Pigeonpea	69	43.2	2-5/0.5
		Agra	Pigeonpea	70.9	46.1	4-5/3-5
	Over all Frequency of Agra, Mathura and Hathras Region			62.25	40.4	2-5/0-5

Fig. 1: Frequency of occurrence of disease complex caused by wilt fungus and root knot nematode in different tehsils of Agra, Mathura and Hathras



It is clear from the data on frequency of occurrence of disease caused by will fungus and root-knot nematode intensity of the disease in term of gall index (G.I.) or egg mass index (EMI) of each tehsil of Agra, Mathura and Hathras region one given in table -1 and represent through Fig-1. Incidence of the disease was apparently highest in Hathras tehsil of Hathras district showing the frequency of the occurrence of disease in field to an extent of 78.5%. Degree of intensity next to Hathras tehsil was recorded in the field of Agra, Bah and Sadabad tehsils was 70.9%, 69.0% and 68.4% was almost

same around 65% in other blocks except Chhata tehsil of Mathura district which it showed below 50% infestation.

On the basis of examination of root samples higher frequency of the disease incidence was observed on the roots collected from Hathras tehsil of Hathras district (48.9%). While lowest being encountered in Kheragarh tehisl of Agra district (32.5%). Overall frequency of the disease of Agra, Mathura and Hathras region in root samples as clear from Table -1 was recorded to be below 50%. While overall frequency of the disease of Agra, Mathura and Hathras region on field basis was recorded to be above 50%.

It is also apparent from the above table that intensity of the disease on the basis of gall index (G.I.) or egg mass index (EMI) there was a wide range of variations between different tehsil of the three district. The overall intensity of disease in the area under study ranged from wild to severe to serve as observed on the basis of gall index and egg mass index respectively. (Table).

The above data clearly shows a relationship between wilting grade and root gall index. In same tehsils viz., Sadabad, Agra and Bah tehsils where highest wilt incidence (Grade-5) as shown by Figure was observed, the root gall index was also higher which is reflected on the disease intensity as observed at Hathras tehsil where both wilting grade and root gall index were of higher grade.

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