ISSN 2277-9663
AGRES - An International e-Journal

Volume 1 Issue 2 April-June,2012

SUSCEPTIBILITY OF CITRUS SPECIES TO PSYLLA, *Diaphorina citri* KUWAYAMA

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ABSTRACT

The experiment on sreening of different citrus species against *Diaphorina citri* Kuwayama was carried out at Anand Agricultural University, Anand during 2011. The six different citrus species were screened against *D. citri* for their susceptibility. Among them kagzi lime and adenima lime were found most susceptible to *D. citri.* The rangpur lime was noticed moderately susceptible, whereas hill lemon, jambori and bijoru were found less susceptible to *D. citri*.

Key word: *D. citri*, screening, citrus.

INTRODUCTION

Citrus occupies third position next to mango and banana. Citrus is not only delicious and refreshing to eat, but also provide vitamins, minerals and many other essential elements which are required for human health. In India, citrus covers about 8.46 lac hectares area and about 74.64 lac tonnes production with an average productivity of 8800 kg/ha (Anon., 2011). In India, Gujarat is fifth largest producer with 5.48% production of citrus. In Gujarat, citrus covers the area about 39200 hectares and production about 4.09 lac tonnes with an average productivity of 10400 kg/ha (Anon., 2011). Citrus trees are reported to be damaged by more than 250 insect species during different stages of crop growth from seedling in nursery till the plant exit (Butani, 1979). Loss due to psylla infestation ranged from 83-95% (Randhava, 1974). With a view to

ISSN 2277-9663
AGRES - An International e-Journal

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know the susceptibility of citrus species against *D. citri*, an experiment was carried out at Anand Agricultural University, Anand during the year 2011.

MATERIALS AND METHODS

Different species of citrus *viz*., kagzi lime (*Citrus aurantifolia*), rangpur lime (*Citrus limonia*), adenima lime, hill lemon (*Citrus limon*), jambori (*Citrus jambhiri*) and bijoru (*Citrus medica*) available at Horticulture Farm, AAU, Anand were screened for their susceptibility against *D. citri*. For the purpose, single tree of each species was selected and keep unsprayed during the study period. Ten twigs were selected randomly, covering the whole canopy of each plant. The nymphal population of *D. citri* was recorded from ten randomly selected fresh tender twigs of each group of citrus at weekly interval, throughout the year. Data, thus obtained were compiled to determine the susceptibility of various citrus species.

RESULTS AND DISCUSSION

Data on mean nymphal population over 52 standard weeks (Table 1) showed that kagzi lime recorded highest (1.52) nymphal population indicating its higher susceptibility to *D. citri* as compared to other citrus groups. Adenima lime recorded 1.29 nymphs per twig of *D. citri* and found more susceptible than remaining four citrus groups. Hill lemon, jambori and bijoru recorded lower nymphal population of *D. citri* (0.23, 0.29 and 0.37 nymph/twig, respectively) and found less susceptible, whereas rangpur lime recorded 0.76 nymph per twig which seem to be moderately susceptible to *D. citri*.

The higher incidence of citrus psylla, *D. citri* was observed on different citrus groups during April and August when there were plenty of fresh twigs available in citrus orchard (Table 1). The activity of this pest was noted throughout the year on kagzi lime only, whereas it was during 3rd week of January to 1st week of May (3-18th SMW), 3rd week of July to 1st week of September (29-36th SMW) and 4th week of October to end of November (43-48th SMW) on rangpur lime; 2nd week of January to 1st week of May (2-18th SMW), 2nd week of June to end of August (24-35th

SMW) and 3rd week of November to end of December (47-52nd SMW) on adenima lime; 2nd week of February to 3rd week of April (7-16th SMW) and 3rd week of July to 2nd week of August (29-32nd SMW) on hill lemon; 3rd week of February to 3rd week of April (8-16th SMW) and 3rd week of July to end of August (29-35th SMW) on jambori; 2nd week of March to end of April (11-17th SMW), 1st week of July to 1st week of September (27-36th SMW) and last week of October to 3rd week of December (44-51st SMW) on *bijoru.*

Banerjee and Mookerjee (1962) reported higher infestation of *D. citri* on kagzi lime as compared to pomelo, lemon and sweet lime. Desai (1995) noticed that kagzi lime and tirupatti lime were more susceptible to *D. citri*. Sahu and Mandal (1997) noted the pest remained active from second week of February to the end of April on bijoru. Patel (2007) observed the highest nymphal population of *D. citri* on kagzi lime and adenima lime which showed its higher susceptibility than rangpur lime, bijoru, jambori and hill lemon. Bihari and Narayan (2010) proved the susceptibility of kagzi lime against *D. citri*.

CONCLUSION

Among the six different citrus species, kagzi lime and adenima lime recorded 1.52 and 1.29 nymphs per twig, respectively and found most susceptible, whereas rangpur lime (0.76 nymph/twig) proved to be moderately susceptible. Hill lemon, jambori and bijoru noted 0.23, 0.29 and 0.37 nymph per twig, respectively and they were less susceptible to *D. citri*.

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ISSN 2277-9663
AGRES - An International e-Journal

Volume 1 Issue 2 April-June,2012

Table 1 : Activity of *D. citri* on different citrus species

Month and weeks		SMW	No. of nymphs/twig in different citrus groups					
			Kagzi lime	Rangpur lime	Adenima lime	Hill lemon	Jambori	Bijoru
January	I	1	0.0	0.0	0.0	0.0	0.0	0.0
	II	2	0.1	0.0	0.9	0.0	0.0	0.0
	III	3	0.2	0.1	1.1	0.0	0.0	0.0
	IV	4	0.4	0.2	2.1	0.0	0.0	0.0
	V	5	0.5	0.4	4.1	0.0	0.0	0.0
February	I	6	0.7	0.5	2.4	0.0	0.0	0.0
	II	7	0.9	0.8	2.5	0.1	0.0	0.0
	III	8	1.1	1.0	1.6	0.2	0.2	0.0
	IV	9	1.2	1.2	1.0	0.4	0.4	0.0
March	I	10	1.7	1.6	1.5	0.5	0.5	0.0
	II	11	1.7	1.7	1.8	0.6	0.6	0.3
	III	12	2.1	2.0	2.7	1.0	0.9	0.5
	IV	13	4.7	2.4	2.8	1.9	1.8	1.7
April	I	14	8.8	6.7	7.1	2.7	3.4	3.6
	II	15	7.0	4.9	5.2	1.5	1.8	1.5
	III	16	4.9	2.3	2.8	0.4	0.3	0.6
	IV	17	3.4	1.2	1.6	0.0	0.0	0.1
May	I	18	2.1	0.4	0.7	0.0	0.0	0.0
	II	19	1.8	0.0	0.0	0.0	0.0	0.0
	III	20	1.1	0.0	0.0	0.0	0.0	0.0
	IV	21	0.2	0.0	0.0	0.0	0.0	0.0
	V	22	0.3	0.0	0.0	0.0	0.0	0.0
June	I	23	0.5	0.0	0.0	0.0	0.0	0.0
	II	24	0.3	0.0	0.4	0.0	0.0	0.0
	III	25	0.6	0.0	0.7	0.0	0.0	0.0
	IV	26	1.3	0.0	1.6	0.0	0.0	0.0
July	I	27	1.9	0.0	2.2	0.0	0.0	0.1
	II	28	1.7	0.0	2.9	0.0	0.0	0.4
	III	29	1.3	0.4	2.1	0.1	0.2	0.5
	IV	30	1.5	1.1	1.8	0.5	0.8	0.5

ISSN 2277-9663
AGRES - An International e-Journal
Volume 1 Issue 2 April-June,2012

August	I	31	3.4	1.8	3.2	1.2	1.1	1.6
	II	32	6.2	2.9	4.1	0.4	1.8	2.2
	III	33	2.9	1.4	2.3	0.0	0.9	1.0
	IV	34	1.1	0.4	1.1	0.0	0.2	0.8
	V	35	1.0	0.6	0.4	0.0	0.1	0.7
September	I	36	0.6	0.8	0.0	0.0	0.0	0.3
	II	37	0.5	0.0	0.0	0.0	0.0	0.0
	III	38	0.3	0.0	0.0	0.0	0.0	0.0
	IV	39	0.0	0.0	0.0	0.0	0.0	0.0
October	I	40	0.2	0.0	0.0	0.0	0.0	0.0
	II	41	1.8	0.0	0.0	0.0	0.0	0.0
	III	42	0.8	0.0	0.0	0.0	0.0	0.0
	IV	43	0.8	0.3	0.0	0.0	0.0	0.0
	V	44	1.3	0.8	0.0	0.0	0.0	0.2
November	I	45	0.7	0.6	0.0	0.0	0.0	0.6
	II	46	0.5	0.6	0.0	0.0	0.0	0.3
	III	47	0.6	0.4	0.2	0.0	0.0	0.4
	IV	48	0.9	0.2	0.8	0.0	0.0	0.7
December	I	49	0.5	0.0	0.4	0.0	0.0	0.2
	II	50	0.4	0.0	0.2	0.0	0.0	0.1
	III	51	0.3	0.0	0.4	0.0	0.0	0.1
	IV	52	0.2	0.0	0.4	0.0	0.0	0.0
		Mean	**1.52**	**0.76**	**1.29**	**0.23**	**0.29**	**0.37**

SMW : Standard Meteorological Weeks