

## SURVEY FOR ASSESSMENT OF INSECT PEST INCIDENCE ON FCV TOBACCO IN KARNATAKA LIGHT SOILS

P. VENKATESWARLU<sup>1</sup>, S.S. SREENIVAS<sup>2</sup> AND P. NAGESH<sup>2</sup>

<sup>1</sup>CTRI Research Station, Guntur-522004, Andhra Pradesh, India

<sup>2</sup>CTRI Research Station, Hunsur-571 105, Karnataka, India

(Received on 14<sup>th</sup> April 2018 and accepted on 15<sup>th</sup> May, 2018)

FCV tobacco is an important commercial crop grown under monsoon climate in Karnataka Light Soils (KLS). Every year 100 million kg of tobacco is producing approximately, in this state. The quality of tobacco produced in this particular region is superior to other regions and is mainly of export oriented. Although there are several limiting factors of production, insect pest incidence plays an important role. Four major insect pests viz., tobacco aphid, *Myzus nicotianae*, caterpillar, *Spodoptera litura*, bud worm, *Helicoverpa armigera* and stem borer, *Scobipalpa heliopa* are the commonly occurring insect pests in this region. The intensity of these above pests varies from region to region. The pest damage is mainly dependant on the weather conditions and management practices adopted in that area. The survey in this particular locality during the peak crop season will help in identifying the key/major pest and its extent of damage. The data generated will help in formulating projects on management of insect pests based on their damage and economic threshold levels. The data will also help in developing a forecast model for major pests of tobacco and tobacco based cropping systems which in turn will help in taking timely management practices.

Hence, keeping the above concept in view, a survey for five consecutive years from 2008 to 2012 was conducted for assessment of insect pest incidence in KLS tobacco. Five major tobacco growing areas/*Taluks* of Karnataka viz., Hunsur, H.D.Kote, Periyapatna, K.R.Nagar and Ramanathapura were selected for this study. A total of 50 villages and 200 nurseries were covered under nursery survey. For main field survey, 100

villages and 300 fields were covered. Four major pests of tobacco viz., aphid, *Myzus nicotianae*, budworm, *Helicoverpa armigera*, stem borer, *Scrobipalpa heliopa* and tobacco caterpillar, *Spodoptera litura* were recorded in all the five *Taluks* of KLS. The data collected from 2008 to 2012 were pooled and presented in Tables 1 to 2. The data collected on the incidence of tobacco caterpillar, *Spodoptera litura* in KLS nurseries from 2008 to 2012 revealed that average per cent infestation was more (3.9) in 2008 followed by 2009 (2.0), 2011 (1.2), 2010 (1.0) and 2012 (0.8). Among the five *Taluks* surveyed, Periyapatna recorded more infestation (2.2) followed by Hunsur (2.1), H.D.Kote (1.7), Ramanathpura (1.3) and K.R.Nagar (1.2). The average infestation of caterpillar in KLS tobacco nurseries over five years was 1.8% which is much below than the economic threshold level (ETL). The overall insect pest incidence in main field of FCV tobacco of KLS region for five consecutive years revealed that aphid infestation was more (2.9%) in the region followed by stem borer (2.4), bud worm (2.1) and caterpillar (0.7). The infestation of aphid was more (8.1%) in 2008, stem borer in 2012 (6.5%) and bud worm in 2010 (3.4%). Whereas, caterpillar infestation was remain same over 5 year period. The survey indicated that caterpillar and aphid are main insect pests of KLS tobacco in nursery and main field, respectively.

### ACKNOWLEDGEMENTS

The authors are thankful to the Director, Central Tobacco Research Institute, Rajahmundry for providing necessary facilities and for his keen interest in the study.

<sup>1</sup> For Correspondence: CTRI Research Station, Guntur-522004 (Andhra Pradesh) India. E mail: pvl\_u\_65@yahoo.com

**REFERENCES**

- Karuppaiah, V. and G.K. Sujayanand. 2012. Impact of climate change on population dynamics of insect pests. **World J. of Agril. Sci.** 8:240-246.
- Khaliq, A., M. Javed, M. Sohail and M. Sagheer. 2014. Environmental effects on insects and their population dynamics. **J. of Entomol. and Zool. Studi.** 2:1-7.
- Porter, J.H., M.L. Parry and T.R. Carter. 1991. The potential effects of climatic change on agricultural insect pests. **Agril and For. Meteorol.** 57:221-240.
- Shivanna, B.K., B.G. Naik, R. Nagaraja and R.K. Naika. 2013. Population dynamics of insects in tobacco ecosystem. **Environ. and Ecol.** 31:1869-1872.
- Srivastava, C.P., N. Joshi and T.P. Trivedi. 2010. Forecasting of *Helicoverpa armigera* population and impact of climate change. **Ind. J. of Agril. Sci.** . 80:3-10.

**Table 1: Overall incidence (%) of *Spodoptera litura* in FCV tobacco nurseries of different Taluks of KLS (2008- 2012)**

S.N	Year	Hunsur	H.D.Kote	Periyapatna	K.R.Nagar	Ramanathpura	Average(%)
1	2008	4.7	3.4	5.1	2.5	2.3	<b>3.9</b>
2	2009	2.1	2.5	2.6	1.3	0.9	<b>2.0</b>
3	2010	1.0	0.8	1.2	0.8	1.0	<b>1.0</b>
4	2011	1.5	1.2	1.0	0.9	1.4	<b>1.2</b>
5	2012	1.0	0.8	0.9	0.6	0.8	<b>0.8</b>
<b>Average in festation</b>		<b>2.1</b>	<b>1.7</b>	<b>2.2</b>	<b>1.2</b>	<b>1.3</b>	<b>1.8</b>

**Table 2: Overall insect pest incidence (%) in main field of FCV tobacco of KLS region (2008-2012)**

S.No	Year	Aphid ( <i>Myzus nicotianae</i> )	Stem borer ( <i>Scobipalpa heliopa</i> )	Bud worm ( <i>Helicoverpa armigera</i> )	Caterpillar ( <i>Spodoptera litura</i> )	Average Infestation (%)
1	2008	8.1	0.8	0.8	0.8	<b>2.6</b>
2	2009	2.2	1.7	2.4	0.7	<b>1.8</b>
3	2010	1.4	1.5	3.4	0.6	<b>1.7</b>
4	2011	1.6	1.3	2.2	0.9	<b>1.5</b>
5	2012	1.1	6.5	1.5	0.5	<b>2.4</b>
<b>Average infestation</b>		<b>2.9</b>	<b>2.4</b>	<b>2.1</b>	<b>0.7</b>	<b>2.0</b>