Pest and Disease Surveillance in Flue cured Tobacco growing zones of India

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Abstract

Pests and diseases are major yield limiting factors in tobacco production and theses biotic factors reduce the productivity besides affecting the quality of leaf. The control of these pests and diseases warrant more amount of pesticide usage that result in Pesticide residues in cured leaf. The Pest and Disease surveillance study was conducted for three years from 2014-16 in tobacco in three FCV growing zones (Northern Light Soils –NLS, Traditional and Mysore) of India covering 72 villages and 144 farms in NLS, 206 villages 412 farms in Traditional and 154 villages and 308 farms in Mysore with an objective to identify the pest and disease endemic areas and to sensitize the crop development teams on pest hotspots.

The cumulative data for surveillance from the three seasons show that the leaf eating caterpillar incidence was the highest in Mysore and Traditional (8.74% & 8.64%). The Aphid infestation was lowest (0.52%) in Traditional area. The leaf curl incidence was high (3.49%) in NLS followed by Mysore (2.73%). The Tobacco Mosaic Virus incidence was >6% across the three years both in Mysore and NLS regions. Fusarium wilt incidence was noticed only in Mysore area with range of 1.15% to 3.98% Fusarium incidence was not significant in NLS and Traditional areas.

Orobanche, a complete root parasite, has been observed consistently for the last 3 years and the incidence was very high (8.45 – 9%) in NLS and Mysore during 2014 and high in Traditional during 2015-16. This study helped in identifying the most endemic areas of Pest and Diseases for guiding the crop development teams on possible risk elements.

Results

- The three years (2014 – 16) cumulative data on surveillance from the three seasons show that the leaf eating caterpillar incidence was the highest in Mysore and Traditional regions (8.74% & 8.64%).
- In NLS, Jangaredigudem -1 recorded higher incidence of Spodoptera litura (3.60%) while Kayaligudem area recorded highest incidence of Helicoverpa armigera (3.50%).
- The Aphid infestation was lowest (0.52%) in Traditional area. The leaf curl incidence was high (3.49%) in NLS followed by Mysore (2.73%).
- The Tobacco Mosaic Virus incidence was >6% in all the three years both in Mysore and NLS regions.
- Fusarium wilt incidence was noticed only in Mysore area with a range of 1.15% to 3.98% Fusarium incidence was not significant in NLS and Traditional areas.
- Orobanche, a complete root parasite, has been observed consistently for the last 3 years and the incidence was high (8.45 – 9%) in NLS and Mysore during 2014 and high in Traditional during 2015-16.
- Overall Fungal incidence was high in 2015 compared to 2014 and 2016.
- Percent incidence of sucking complex was noticed more in 2015 and 2016 compared to 2014.

Objective

- Objective of the study was to identify the pest endemic areas and to support and sensitize the crop development team on pest hotspots.
- To develop a list of pests or hosts present in Tobacco growing area.

Material and Methods

- A roving survey was conducted to find out the per cent incidence of the Pest and Disease for three years from 2014-16 in tobacco.
- Developed pest and disease identification manual.
- The three FCV growing zones (Northern Light Soils –NLS, Traditional and Mysore), of India were covered.
  - 72 villages and 144 farms in NLS,
  - 206 villages 412 farms in Traditional and
  - 154 villages and 308 farms in Mysore

For the survey two fields from each village were considered for the data collection. Pest and disease incidence data was recorded at 5 random spots and 5 plants at each spots from each field. The pest and disease data was collected at the two different growth stages of the Tobacco crop. The survey was carried out for three years 2014 to 2016 across the three FCV growing regions of India.

Table

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<th>Lepidopteran Insects</th>
<th>Sucking Complex</th>
<th>Viral Diseases</th>
<th>Fungal Diseases</th>
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Conclusions

- Lepidopteran pest populations were high in Mysore and Traditional tobacco growing regions during 2014-16.
- Among the viral diseases, leaf curl incidence was recorded high in NLS and Mysore regions during the surveillance period.
- Fusarium wilt incidence was recorded high in Mysore region, Overall Fungal incidence was high in 2015 compared to 2014 and 2016
- The pest and disease surveillance not only provided clues on pest endemic areas, but also paved the way for targeted use of management tools in the hot spot areas.

References