

Spinetoram 10% WG+Sulfoxaflor 30% WG: A Promising Green Chemistry to Manage Pest Complex in Bt Cotton

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Abstract : Cotton is a premier commercial fibre crop of India subjected to ravages of insect pests. Sucking pests viz thrips, Thrips tabaci, (lind) leaf hopper *Amrsca devastance*, (dist) miridbug, *Poppiocapsidea beseratense* (Dist) and bollworms continue to inflict damage Bt Cotton right from seeding stage. Their infestation impact cotton yield to an extent of 30-40 percent. Chemical control is still adoptable as one of the techniques for combating these pests. Presently, growers have many challenges in selecting effective chemicals which fit in with an integrated pest management. Spinetoram has broad spectrum with excellent insecticidal activity against both sucking pests and bollworms. Hence, it is expected to make a great contribution to stable production and quality improvement of agricultural products. Spinetoram is a derivative of biologically active substances (Spinosyns) produced by soil actinomycetes, *Saccharopolypara spinosa* which is semi synthetic active ingredient representing Spinosyn chemical class of insecticide and has demonstrated higher level of efficacy with reduced risk on beneficial arthropods. The efforts were made in the present study to test the efficacy of Spinetoram against sucking pests and bollworms in comparison with other insecticides in Bt Cotton under field condition. Field experiment was laid out during 2013-14 and 2014-15 at Agricultural Research station Dharwad (Karnataka-India) in a randomized block design comprising eight treatments and three replications. Bt cotton genotype, Bunny BG-II was sown in a plot size of 5.4 m x 5.4 m. Recommend agronomical practices were followed. The Spinetoram 12% SC alone and in combination with sulfaxaflor with varied dosages against pest complex was tested. Performance was compared with Spinosad 45% SC and thiamethoxam 25% WG. The results of consecutive seasons revealed that nonsignificant difference in thrips and leafhopper population and varied significantly after 3 days of imposition. Among the treatments, combiproduct, Spinetoram 10%WG + Sulfoxaflor 30% WG@ 140 gai/ha registered lowest population of thrips (3.91/3 leaves) and leaf hoppers (1.08/3 leaves) followed by its lower dosages viz 120 gai/ha (4.86/3 leaves and 1.14/3 leaves of thrips and leaf hoppers, respectively) and 100 gai/ha (6.02 and 1.23./3 leaves of thrips and leaf hoppers respectively) being at par, significantly superior to rest of the treatments. On the contrary, the population of thrips, leaf hopper and miridbugs in untreated control was on higher side. Similarly the higher dosage of Spinetoram 10% WG+ Sulfoxaflor 30% WG (140 gai/ha) proved its bioefficacy by registering lowest miridbug incidence of 1.70/25 squares, followed by its lower dosage (1.78 and 1.83/25 squares respectively) Further observation made on bollworms incidence revealed that the higher dosage of Spinetoram 10% WG+Sulfoxaflor 30% WG (140 gai/ha) registered lowest percentage of boll damage (7.22%), more number of good opened bolls (36.89/plant) and higher seed cotton yield (19.45q/ha) followed by rest of its lower dosages, Spinetoram 12% SC alone and Spinosad 45% SC being at par significantly superior to rest of the treatments. However, significantly higher boll damage (15.13%) and lower seed cotton yield (14.45 q/ha) was registered in untreated control. Thus Spinetoram 10% WG+Sulfoxaflor 30% WG can be a promising option for pest management in Bt Cotton.

Keywords : Spinetoram 10% WG+Sulfoxaflor 30% WG, sucking pests, bollworms, Bt cotton, management

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