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Population dynamics of insect pests of RABI Sorghum and their management through eco-friendly approaches

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Sorghum (*Sorghum bicolor* (L.) Moench) is one of the most important cereal crops in the semi-arid tropics. India contributes about 16% of the world's sorghum production. In Karnataka major area under cultivation is in the Northern dry zone of Karnataka. The production in these zone is affected by a wide array of biotic constraints, of which insect pests are major once. As many as 150 species of insects have been recorded as pests of sorghum from emergence to late grain filling stage. Among them sorghum shoot fly, (*Atherigona varia soccata* Rondani), stem borer (*Chilo partellus*), sugarcane aphid [*Melanaphis sachari* (Zehntner)], Shoot bug or plant hopper (*Peregrinus maidis* Ashmead and head bug (*Calocoris angustatus*) are major once and is reflected in low grain yields with avoidable losses ranging from 12 to 83%. In the present investigation the efforts were made from 2008-09 to 2016-17 to know the pest dynamics on the crops over the years, Data clearly indicated that shoot fly incidence was ranged from 2 to 51% with maximum during 2013-14. Stem borer incidence is increasing trend, which was 2-6% in 2008-09 compared to 2016-17 season (1.76 - 10.34%). Aphid (1- 9 grade) and shoot bug (15-80 bugs/pl) incidence was highly variable depending upon the temperature and amount of rainfall received during the cropping season. Further different integrated pest management module were framed and evaluated against the major pests of rabi sorghum. Pooled data of two years revealed that shoot fly and stem borer dead heart as well as shoot bug incidence was did not differ significantly among the modules. The cost economics data indicated that module comprising of Seed treatment with Biofertilizers (Trichoderma+ PSB + Azospirillum)+ Btk @ 2g/l at 25 DAE -Spray of Lecanicillium lecani @ 2ml/l at 45DAE recorded highest net profit (Rs. 29584/ha) with highest Benefit cost ratio of 2.46

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