

**Entry No. IRRC-0261**

|                                      |   |
|--------------------------------------|---|
| Category                             | : International Rice Research Conference  |
| Select Theme                         | : Sustainable and equitable farming systems   |
| Endorsement email                    | :   |
| Keyword 1                            | : Pest management   |
| Keyword 2                            | : Decision support tools  |
| Keyword 3                            | : Advisory systems  |
| Title of Entry                       | : Crop Pest Decision Support System in Rice - a Case Study  |
| Presenting author                    | : Ch Padmavathi   |
| Presenting author email              | : chintalapatipadmavathi68@gmail.com  |
| Co author 1                          | : Gururaj Katti   |
| Co author 2                          | : YG Prasad   |
| Affiliation presenting author        | : Principal Scientist   |
| Affiliation 1                        | : Principal Scientist and Head  |
| Affiliation 2                        | : Principal Scientist and Director, ATARI   |
| Select only one type of presentation | : 15 minute oral presentation   |
| Abstract                             | : Insect pests are one of the key biotic constraints affecting rice crop resulting in yield loss of about 20 – 25%. A Decision Support System (DSS) integrates a user-friendly front end to often-complex models, knowledge bases, expert systems, and database technologies. Crop pest DSS in rice ( <a href="http://www.crida.in:8080/naip/index.jsp">http://www.crida.in:8080/naip/index.jsp</a> ) was developed based on phenology based degree day models to predict the timing of insect activity and stage for decision making in the management of key pests of rice. Crop pest DSS provides vital information on key rice pests, their diagnostics, degree day models, pest weather database, agroclimatic |

analysis, life table calculator and population trend index needed for critical interventions in IPM. The rice leaffolder, *Cnaphalocrocis medinalis* Guenée (Lepidoptera: Pyralidae), is the most widely distributed and commonly found foliage feeder pest of rice growing tracts of Southeast Asia. Initial studies focussed upon life table analysis to identify key mortality factors at different stages of the pest. In case of leaffolder, larval and pupal parasitoids were found as key bio-mortality factors causing 32.35 to 34.15% mortality. Among the abiotic factors, temperature was found to be the most important factor directly influencing development, survival and reproduction, while there was also an indirect impact on generation time and population growth rate. A thermodynamic Sharpe-Schoolfield-Ikemoto model (SSI model) estimated intrinsic optimum temperature for the development of leaffolder as 24.2° C with a thermal constant of 445 degree days. Lower (TL) and upper (TU) threshold temperatures were estimated at 11.2°C and 36.4° C, respectively. Based on these parameters insect phenology model was developed to predict leaffolder population in the field. The investigations on off-season survival of *C. medinalis* led to identification of alternative hosts which helped in pest carry over across seasons. Based on field life table studies, phenology based degree day model and off-season survival strategies; a decision support framework was developed and validated for the management of leaffolder in rice. The crop pest DSS is being further refined to make it holistic and practically applicable to various stakeholders involved in rice IPM.

[Read Less»](#)

Uploaded Files »

**No files found.**