**Entry No. IRRC-0390**

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| Category | : International Rice Research Conference |
| Select Theme | : Sustainable and equitable farming systems |
| Endorsement email | : |
| Keyword 1 | : Sustainable management practices |
| Keyword 2 | : Pest management |
| Keyword 3 | : Livelihood and social equity |
| Title of Entry | : Using a Green Chemistry to Manage Lepidopteran Pests In A Sustainable Manner |
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| Select only one type of presentation | : 15 minute oral presentation |
| Abstract | : Sustainable agriculture manages food systems that balances natural resource use and environmental protection with the needs of production, economic viability, food security, and social well-being. Rice is the most important human food crop in the world and is in need of sustainable management. Rice producers in Asia have numerous challenges and have a need to adapt current practices and adopt new practices to be sustainable. Rice stem borer (RSB) and rice leaf folder (RLF) are key Lepidoptera pests o rice. RSB are especially problematic because they have developed resistance to almost all classes of insecticides. Older |

chemistries such as organophosphates, carbamates, nereistoxin, pyrethroids and phenylpyrazoles are minimally effective due to resistance and are either already phased out or under regulatory pressure. The situation is further accentuated as the newer diamide chemistry demonstrates signs of resistance. Few options are available and a new mode of action is desired in rice for Lepidoptera management. Spinetoram is an insecticide active ingredient that provides the opportunity to control lepidopteran pests of rice in a sustainable manner. Spinetoram is derived from a natural product that is synthetically modified to results in an active ingredient with high insecticidal activity. Spinetoram was registered under the U.S. EPA Reduced Risk Pesticide initiative and received a Green Chemistry Award due to the wide margin of safety it poses to humans and the environment. Spinetoram is manufactured using non-hazardous and renewable raw materials, which have minimal environmental and nontarget organism effects. The resulting product is effective against target insects at low rates compared to traditional chemistry, offers selectivity to beneficial arthropods and non-target organisms, and maintains a low level of human and environmental toxicity. Spinetoram has short persistence in the environment and is degraded by physical and microbial processes into simple fragments. This rapid degradation minimizes exposure to nontarget organisms and residue levels on treated crops. Spinetoram provides rice growers the opportunity to meet production needs, protect yields, and secures food supply through effective control of RSB and RLF while also protecting human health and the environment.

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