

Category	: International Rice Research Conference
Select Theme	: Climate change and environmental sustainability
Endorsement email	:
Keyword 1	: Climate smart agriculture
Keyword 2	: Multidimensional sustainability (environment, economic, social, governance)
Keyword 3	: Ecosystem services
Title of Entry	: Sustainable Management of Climate Change induced Invasive Alien Weeds in Rice
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Climate change has resulted in altered rainfall, evaporation and temperature patterns, ultimately leading to sea level rise, frequent disasters like cyclones and flash floods, especially in the coastal wetland rice ecologies. In the northern coastal districts of Tamilnadu State in India, the impact of these recurrent disasters have resulted in a weed flora shift. The earlier preponderant native weeds such as <i>Echinochloa crusgalli</i> (L.) P. Beauv and <i>Sphenoclea zeylanica</i> Gaertn. are being replaced and the wet land transplanted rice fields in these tract are now invaded by Invasive Alien Weeds such as <i>Marsilea quadrifolia</i> L. and <i>Leptochloa chinensis</i> (L.) nees. Further, in the distributing channels of Lake Veeranam, that supports more that 100 thousand hectares of transplanted rice, the invasive alien weed <i>Eichhornia crassipes</i> Mart. <i>Solanum</i> has invaded and blocked the water flow adding to inundation of adjoining rice fields during the monsoon that coincides with the main cropping season and causes evapotranspirational water loss during the post monsoon rice season. Sustainable management options such as use of fish, poultry birds as bio – agents have been tried in rice through on – farm participatory experiments in 1200 farmers holdings. Use of fish and poultry as components of an integrated rice farming system complimented control of weeds predominated by <i>L. Chinenses</i> and <i>M.quadrifolia</i> in 1200 rice fields by 50 percent and 37 percent, respectively. The rice grain yield increase in these 1200 on farm experiments were 9.38 percent. For managing water hyacinth, various options including an integrated bio – control involving the allelopathic plant material of <i>Coleus amboinicus</i> L. and insect agent <i>Neochetina eichhornia / bruchii</i> was demonstrated in 36 watersheds in 12 different locations. Further, the allelopathic straws of different rice cultivars were also shown to manage water hyacinth infestation.

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