

Entry No. IRRC-0201

Category	: International Rice Research Conference
Select Theme	: Climate change and environmental sustainability
Endorsement email	:
Keyword 1	: Environmental sustainability
Keyword 2	: Soil, water, and air pollution
Keyword 3	: Carbon and nitrogen cycles
Title of Entry	: IMPACT OF DIFFERENT FERTILIZERS OF NITRATE AND AMMONIUM FORMS AND SLOW RELEASING, ON GROWTH, YIELD AND NUTRIENT USE EFFICIENCY OF RICE (<i>Oryza sativa</i> L.)
Presenting author	: W.K.B. Amila Suresh Parakkrama
Presenting author email	: amila.parakkrama@gmail.com
Co author 1	: S.P. Nissanka
Co author 2	: M. Gunawardane
Co author 3	:
Co author 4	:
Co author 5	:
Co author 6	:
Co author 7	:
Co author 8	:
Co author 9	:

Co author 10 :

Co author 11 :

Co author 12 :

Co author 13 :

Co author 14 :

Affiliation presenting author : S.P Nissanaka

Affiliation 1 :

Affiliation 2 :

Affiliation 3 :

Affiliation 4 :

Affiliation 5 :

Affiliation 6 :

Affiliation 7 :

Affiliation 8 :

Affiliation 9 :

Affiliation 10 :

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Select only one type of presentation : 15 minute oral presentation

Abstract : Worldwide, Nitrogen Use Efficiency (NUE) for major cereal crop production is approximately 33%. In Sri Lanka it is around 15%-30% for rice (*Oryza sativa* L.). Applied Nitrogen fertilizers can be lost from field mainly by Ammonia volatilization, leaching and denitrification. This wasted Nitrogen causes many environmental, economic and health problems. A pot experiment was conducted at University Experimental Station, Dodangolla, Sri Lanka with the objective of assessing growth, yield and agronomic nitrogen use efficiency (AEN) on irrigated rice with different Nitrogen fertilizer sources compared to the Department of Agriculture (DOA) Urea (U) recommendation. As nitrogen fertilizers Urea, Ammonium Nitrate (AN), Urease inhibitor treated Urea (U+UI) and Osmocote (a coated controlled release fertilizer) were used in different rates based on DOA recommended Nitrogen level (DOAN) for rice. Experiment consisted with 11 treatments. They were, no N applied, 100% DOAN provided as Urea (Control), 100% DOAN provided as AN, U+UI and as Osmocote; and 75% of DOAN provided as AN, U+UI and Osmocote; and 50% DOAN provided as AN, U+UI, and Osmocote. Experimental design was Randomized Complete Block Design with 3 replicates. Results of the pot experiment showed that yield obtained from 100% U+UI was significantly higher ($p < 0.05$) than the control and there was no significant difference ($p < 0.05$) between 75% U+UI treatment and control. The highest AEN was reported with the 75% U+UI which was a 26.3% increment compared to the control. According to the results, there could be a considerable yield reduction due to Ammonia volatilization in Urea under greenhouse conditions and it can be recovered significantly by using Urea, treated with Urease inhibitors.

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