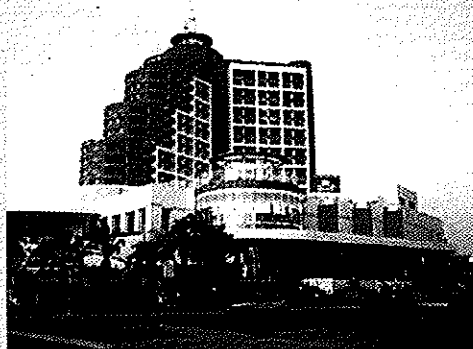
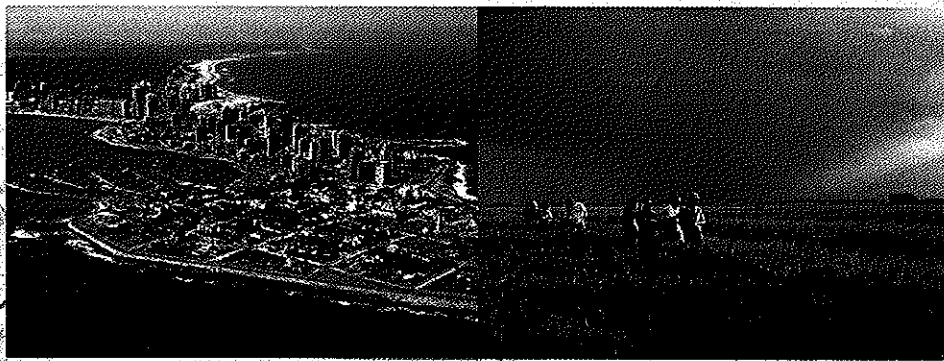




# 3ra. Conferencia Internacional de Arroz de Clima Templado

## 3rd International Temperate Rice Conference

10 - 13 Marzo - March 2003



Hotel Conrad Resort & Casino, Punta del Este - Uruguay

# RESUMENES

# ABSTRACTS



Instituto Nacional de Investigación Agropecuaria - Uruguay  
*National Agricultural Research Institute - Uruguay*



**A.C.A.**

Asociación Cultivadores de Arroz - Uruguay  
*Rice Growers Association - Uruguay*



Gremial de Molinos Arroceros - Uruguay  
*Rice Millers Association - Uruguay*



Fondo Latinoamericano de Arroz de Riego - (FLAR)  
*Latin American Fund for Irrigated Rice - (FLAR)*

# BASF

061

**SHADOW AND NITROGEN FERTILIZATION EFFECT ON RICE CROP**

Kraemer A.F.; Marín A.R.; Méndez M.A. and Giménez L.I. Corrientes Experiment Station / INTA. Corrientes. Argentina.

Growth and development of rice plant is basically due to: genetic background, climatic conditions and crop management. Solar radiation has a great influence on rice yield. However, sunshine has not the same importance along different growing stages. The objective of this work was to measure the effect of low light intensity (shadow) and nitrogen rate during different rice phenological phases. Treatments were 15; a factorial combination of 5 levels of shadow (No Shadow; Shadow all the period; shadow form initial flooding to panicle differentiation (DPF); DPF-Heading; Heading-Harvest), and three levels of nitrogen (0, 45, 90 kg/ha N). A completely randomized block design with 4 replications in a split plot was used. Level of shadow was the main plot and N rate the sub-plot. Trial was conducted three years. Low solar radiation (shadow) reduced rice yield significantly, but in different way according to the phenological phase. During the vegetative growth stage, shadow reduced number of tillers and made taller plants. During the reproductive period, shadow decreased number of panicles, filled grains and harvest index. During the ripening stage, it caused reduction in filled grains, harvest index and increment in the percentage of blanking grains. Along all the growing period, shadow caused decrease in number of tillers and harvest index, and an increase in blanking spikelets. There were not differences due to N level.

Index words: *Oryza sativa*, rice, solar radiation, shadow, nitrogen rate, growth stages.

062

**NITRIFICATION AND UREASE INHIBITORS IN WATER SEEDED RICE IN ITALY**ROMANI, M.

Ente Nazionale Risi - Centro Ricerche sul Riso, Castello d'Agogna (PV), Italy

Several studies showed a very low efficiency of nitrogen fertilization in flooded soils. Nitrification-denitrification and ammonia volatilization are considered the main causes of nitrogen efficiency reduction. The use of nitrification and urease inhibitors has been proposed to increase nitrogen efficiency in paddy rice but both the international and the Italian literature report contrasting results. This study compares the effects of some old and new inhibitors with a traditional use of urea. The trial was located in a silt loam soil (2000-2001) and on a sandy soil (2001). The treatments considered two nitrogen rates, 100 and 140 kg/ha, and four fertilizers: urea + 3, 4-dimethylpyrazole-phosphate (DMPP), urea + N-long, calciumcyanamide and urea. Inhibitors were applied entirely 15 days before flooding (DBF), while urea was fractionated in 60 % 15 DBF, 20 % at tillering and 20 % at panicle initiation. In 2001 another treatment was added with the 60% of urea applied 1 DBF. In 2000 the experiment showed a great difference between the grain yields of the two nitrogen rates. Urea had a minimum grain yield at both nitrogen rates. Calciumcyanamide and N-Long had good performance at both nitrogen rates, while DMPP had a significant higher yield only at a 140 kg/ha of nitrogen. In 2001, in the silt loam soil, the best results were obtained by DMPP and Calciumcyanamide though there was no significant difference between inhibitors and urea at the higher nitrogen rates. In the sandy soil DMPP had the highest grain yield while the other inhibitors had no effects. Conclusions suggest that the use of inhibitors permit to reduce the number of nitrogen applications and obtain a higher grain yield in many cases, particularly, when weather conditions in the preflooding time were favorable to nitrogen loss.

Keywords: nitrogen, nitrification inhibitor, urease inhibitor, DMPP, Calciumcyanamide, N-Long, paddy.

061

**EFFECTO DEL SOMBREADO Y DEL NITROGENO SOBRE EL CULTIVO DE ARROZ**KRAEMER, Alejandro Fausto; MARIN, Alfredo Ruben; MENDEZ, Miguel Alberto; GIMENEZ, Laura Itati

Experiment Station / INTA. Corrientes. Argentina.

El crecimiento y desarrollo del arroz depende de: potencial genético, condiciones climáticas y prácticas de manejo. El parámetro climático que más influye sobre el rendimiento es la radiación solar. Esta no tiene la misma importancia en las distintas etapas fenológicas del cultivo. El objetivo fue medir los efectos del sombreado sobre las distintas etapas fenológicas del cultivo y la fertilización nitrogenada. Los tratamientos fueron 15: combinación de 5 niveles de sombreado, Sin Sombra, Sombreado todo el ciclo, inicio de riego-diferenciación primordio floral, (DPF), DPF-Floración, Floración-Cosecha, y 3 dosis de nitrógeno 0, 45, 90 kgN/ha. El diseño fue parcelas divididas, en bloques completos al azar, con 4 repeticiones. Parcela principal nivel de sombreado y las sub parcelas dosis de nitrógeno, repetido tres años. La baja luminosidad redujo los rendimientos significativamente y de diferente manera según la etapa fenológica sobre la que se presentó. En la vegetativa, provocó menor número de macollos y plantas más altas; en la reproductiva redujo, número de panojas, granos llenos e índice de cosecha. En llenado de granos mermas, en granos llenos, índice de cosecha y mayor porcentaje de granos vanos. Durante todo el ciclo, menor número de macollos, mayor porcentaje de granos vanos y bajo índice de cosecha. Las dosis de N no mostraron diferencias.

063

**RESPUESTA DEL ARROZ A LA FERTILIZACIÓN NITROGENADA EN DOS MOMENTOS DE INUNDACIÓN EN LA ZONA ESTE DEL URUGUAY**

Casterá, Fernando; Roel, Alvaro; Deambrosi, Enrique; Méndez, Ramón INIA Treinta y Tres, Uruguay

The interaction between flooding time and nitrogen fertilization on rice (*Oryza sativa* L.) production was studied during three growing seasons in the East rice production region of Uruguay. The response in growth and yield of three different cultivars were studied. Flooding treatments were: early flooding (EF) and late flooding (LF), 20 and 42 days after emergence, respectively. For Nitrogen (N), three different moment of applications were used (planting, tillering and panicle initiation) with 4 doses between 0 and 120 Kg N/ha. The Phosphorous content was higher in plants subjected to the early flooding until they reach panicle initiation, when no differences among treatments were detected. The N content was not affected by the flooding treatments. Higher levels of dry matter were achieved in the EF plants, but in general no yield differences were detected among flooding treatments. The weather that is a factor that can not be regulated by the grower, affected yield response in each growing season, reassuring its importance in management practices. The more clear increases in dry matter production and yield per N applied coincided with the growing seasons with higher solar radiation and temperature, while a depression in yield was observed in low radiation years. The EF decreased the growth cycle of the crop which is an important advantage since it decreased the exposure of the crop to potential low temperatures during sensible stages of the crop, that are common in this region of the country.

Key words: Flooding moment, irrigation.