# Nitrogen Use on Irrigated Rice

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## Introduction

- ✓ **Rice (*Oryza sativa* L.) is an important food crop for a large proportion of the world's population.**
- ✓ **The rice crop demands high nutrient input. In most areas where rice is cultivated, nitrogen is the main limiting factor to yield.**
- ✓ **The rational use of nitrogen fertilization is essential to not only increase crop productivity, but also to reduce production.**
- ✓ **Cultivars more efficient at absorption and translocation of nutrients are taking priority in plant breeding programs.**

## Aim

- ✓ **The aim of this study was to evaluate and discuss N doses in morphological characteristics and yield on the rice cultivar I-464 developed by EMBRAPA and University of Tocantins (UNITINS).**

## Material and methods

- ✓ **The experiment was carried in Palmas, TO, Brazil.**
- ✓ **Data were collected from May to June 2016.**
- ✓ **A completely randomized blocks design was used, with five treatments and four replications.**
- ✓ **Rice plants were grown in six-liter pots filled an Oxisol, under greenhouse conditions.**
- ✓ **Treatments were five nitrogen doses: 0, 15, 30, 45 and 60 mg dm$^{-3}$, using urea as N source.**
- ✓ **N fertilization was splitted into two applications, at 34 and 55 days after germination.**
- ✓ **Characteristics evaluated were: Plant height, tillers number, panicle number, spike number, leaf dry matter and grain dry matter.**
- ✓ **Data were estimated and compared by F test at 5%, and when significant, regression analysis were performed.**

## Results and discussion

- ✓ **N doses did not affect (P>0.05) plant height, tillers number, panicle number, spike number and grain dry matter, probably due to the low N doses tested in this study.**
- ✓ **Leaf dry matter was affected (P<0.05) by the N doses and a linear regression model was fitted to the data, as follows:**

$$y = 12.22 + 0.1589x$$

$$R^2 = 0.45 \quad CV\% = 29.99$$

- ✓ **When the N doses increased 1 mg N dm$^{-3}$ the leaf dry matter increased 0.1589 g.**

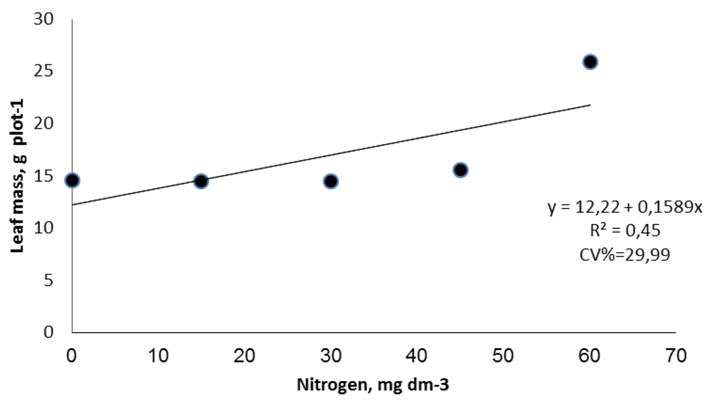


**Figure 1. Leaf dry matter (g pot$^{-1}$) depending on the N doses, Palmas-TO.**

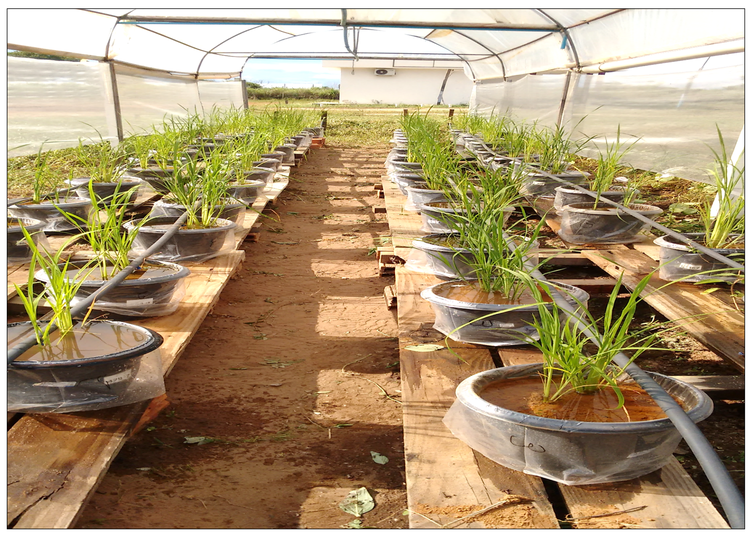

**Figure 2. Experiment in greenhouse conditions.**

## Conclusion

- ✓ **The I-464 rice cultivar showed positive results to nitrogen fertilization. Higher doses need to be tested to find the most economical dose.**

## Acknowledgments

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