

# Effect Of Different Types Of Nitrogen Fertilizers and Different Rates On Potato Crop In Sandy Soil

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## INTRODUCTION

Urea and ammonium sulfate when applied in the sandy soil going to be quickly converted in nitrate, and then it may be lost by leaching and volatilization, mostly in tropical conditions such as Brazilian growing area. The objective of this study was to evaluate the effect of different types of nitrogen fertilizers and different rates on potato in a sandy soil.

## MATERIAL AND METHODS

**Soil:** on a Haplorthox (dystroferic red latosol).

**Local:** Three experiments were carried out an experimental field, with four blocks in a randomized block design, was cultivated with potato var. Ágata in the southeastern São Paulo State, Brazil (at São Manuel, and Avaré).

**Treatments:** (i) Entec 26 (Ammonium Sulfonitrate with nitrification inhibitor DMPP (3.4-dimethylpyrazole phosphate), (ii) ammonium sulfate, and (iii) urea which were applied at three different rates such as 80, 120 and 160 kg ha<sup>-1</sup>. In addition, replications with no N application were used as control treatment. For plots treated with N rate of 80 kg ha<sup>-1</sup>, all N fertilizer was applied at planting; however, N application was divided in 40 kg N ha<sup>-1</sup> at planting and the remainder N was sidedressed at the hilling time for N rates of 120 and 160 kg ha<sup>-1</sup>.

**Evaluation:** It was compared nitrogen and sulfur leaf concentration, yield of total and commercial tuber class of potato (diameter > 23 mm)

## RESULTS AND DISCUSSION

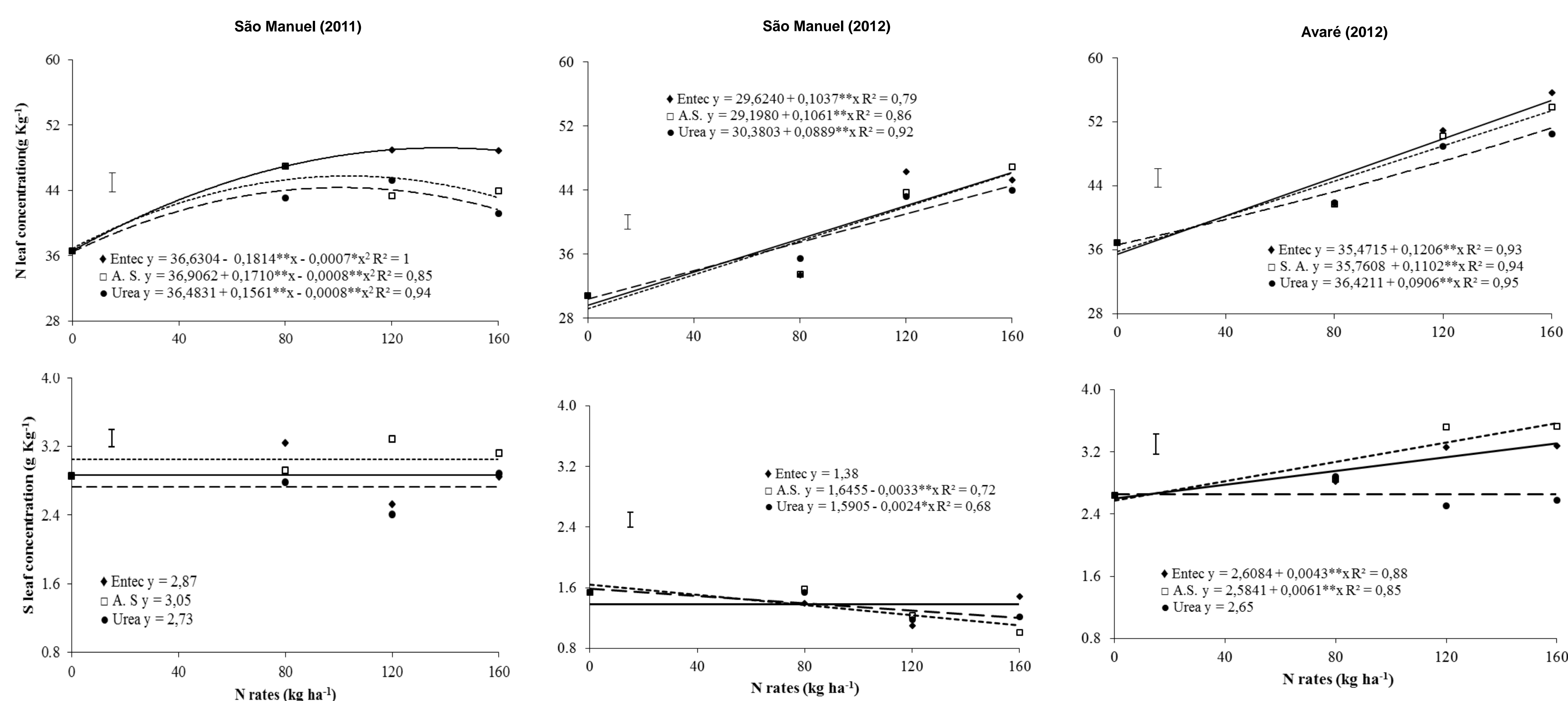


Figure 1. Sulfur and nitrogen leaf accumulation among treatments. (♦) Entec, (□) Ammonium Sulfate, and (●) Urea. The vertical bars indicate the significant difference by the LSD test ( $p \leq 0.05$ ).

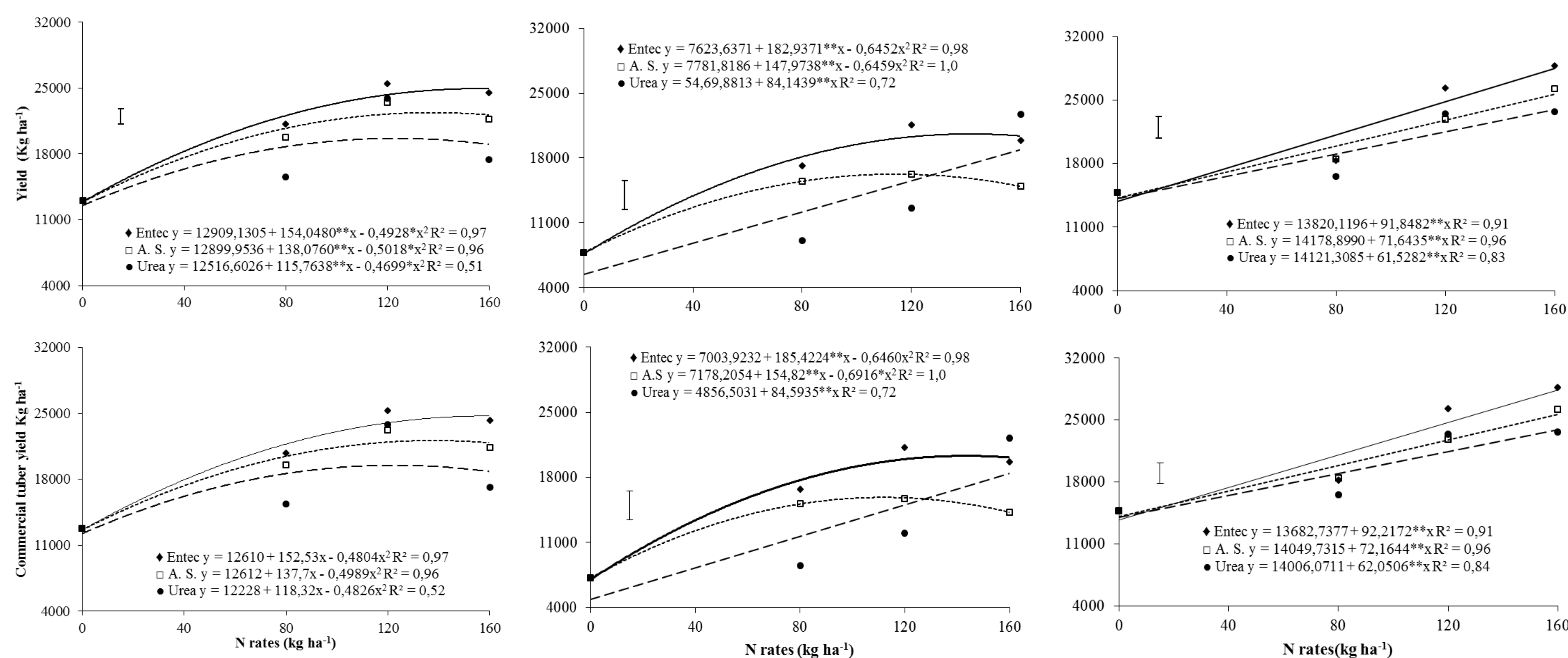


Figure 2. Total and commercial class tuber yield of potato among treatments. (♦) Entec, (□) Ammonium Sulfate, and (●) Urea. The vertical bars indicate the significant difference by the LSD test ( $p \leq 0.05$ ).

## CONCLUSIONS

According to the results, the N rates increased N concentration in leaves, and S concentration was not affected by treatments. The N fertilization increased potato yield. Additionally, Entec 26 promoted higher potato yield than the other evaluated N fertilizer types.