

Applying geotechnologies for grain yield intensification and diversification In Uruguay

M Bueno¹, A Roel², L Faria³, J Parfitt⁴ and M Oxley⁵

¹ INIA, Treinta y tres, Uruguay, mbueno@inia.org.uy

² INIA, Treinta y Tres, Uruguay, aroel@inia.org.uy

³ UFPel, Pelotas, Brazil, lessandrofaria@ufpel.edu.br

⁴ Embrapa Clima Temperado, Capão do Leão, Brazil, jose.parfitt@embrapa.br

⁵ INIA, Treinta y Tres, Uruguay, aoxley@inia.org.uy

ABSTRACT

Land-leveling is used to correct soil surface irregularities to improve surface drainage and irrigation and make the area more manageable for an array of agricultural activities. Recently, technology using the Global Navigation Satellite System (GNSS) has been used to carry out projects with varying slope, called land-forming. The main goal of this work was to evaluate the land forming for irrigation (LFI) model in two fields located in Treinta y Tres – Uruguay, a field of 12.6 hectares cultivated with rice and another of 11.8 hectares with soybean. Each field was divided in half, comparing LFI with traditional management. In half of the area where soybean will be grown, the furrow Irrigation system was implemented, and flowmeters where installed to measure water consumption. In both areas soil samples were taken before and after the land forming, in order to verify the changes that occurred in the cutting and fill areas after the LFI model has been executed. Other parameters being measured are apparent electrical conductivity of the soil, moisture and penetration resistance in both areas before and after the LFI model. To measure productivity a combine harvester equipped with a grain yield sensor will be used. statistical analyses will be used to correlate the dependent and independent variables.

Key words: land leveling, irrigation, GNSS, rice, soybean.