Wheat Fertilization Opportunity (*Triticum aestivum* L.) with Localized Irrigation

Rossi F A[1], Barneto S J[1], Chimenti F[2], Defilipis C*[1], Salinas A[3], Borioni L[2], Jimenez A[1], De Luca R[4]

[1]*Luján State University, Technology Department, Basic Agronomy Division. Ruta Nac. 5 and Ave. Constitución, Luján (postcode 6700), Buenos Aires, Argentina.*
[2]*Luján State University, Agronomy undergraduate.*
[3]*INTA EEA Manfredi, Córdoba, Argentina.*
[4]*Investigador privado. Universidad Nacional de Luján.*
E-mail: cdefilipis@unlu.edu.ar

Abstract

In Argentina, the moment of application of agrochemicals on extensive crop dryland farming is reduced by the development of the vegetative phases. Although it is hardly implemented by producers, sprinkler irrigation extends the time period for the application of fertilizers. Localized irrigation, which has been incorporated into these production systems, increases the fertilization opportunity thus reducing the doses if compared to other irrigation methods. The aim of this paper was to assess the fertilization opportunity of the wheat yield (*Triticum aestivum* L.) by using localized irrigation in the city of Luján, Buenos Aires. The yield with traditional fertilizers was compared to other methods where fertilizers were fractioned. Klein Tauro wheat was planted on August 6th 2014. The field received the following treatments: dryland farming fertilization to the crop, fertilizer irrigation to the crop, irrigation through fractionation of fertilizers to the crop including the poaceae stage, irrigation though fractionation of fertilizers to the crop and pod filling, and irrigation through fractionation of fertilizers, poaceae stage and pod filling. Upon harvest, the yield and its components were assessed as well as the efficiency of water used as regards to the dry weight of the grain. Statistically, there were no significant differences (Tukey test, p-value < 0. 05) except for the dry weight of 1000 grains, taking into account the dryland farming fertilization and the irrigation through fractionation of fertilizers and pod filling 42, 70 g and 37, 36 g respectively. Mid-levels were: dry weight of 1000 grains, 39, 74 g, crop yield, dry weight yield 3665, 75 kg ha^{-1}. Mid efficiency in the production of matter considering the water used during the crop cycle was 7. 99 g mm^{-1} ha^{-1}.

Keywords: extensive crops, nitrogen fertigation, water use efficiency, yield components