



Nitrogen soil mapping through crop growth.

M.T. Castellanos(1), A.M. Tarquis(2,3), Fco. Ribas(1), M.J. Cabello(1), A. Arce(4) and M.C. Cartagena(4)

(1)Centro Mejora Agraria El Chaparrillo - Delegación Provincial de Agricultura, Ciudad Real, Spain. (2)Dpto. Matemática Aplicada - E.T.S. Ing. Agrónomos - Technical University of Madrid, Spain. (3)CEIGRAM - Technical University of Madrid (4) Dpto. Química y Análisis Agrícola - E.T.S. I.A.- Technical University of Madrid, Spain. (mtcastellanos@jccm.es)

Soil nitrogen content has often showed highly variability due to intrinsic soil spatial heterogeneity and the methodology applied to measure it. Labs procedures of this methodology are time consuming being one of the main reason to sampling a reduce number of points beside its cost.

The objectives of this study were to analyze nitrogen variability in a soil transect through the variability of a wheat crop. In order to do that plant weight, grain weight and N uptake were measured every 0.5 m along a line obtaining 157 samples inside the crop field. Earlier than the beginning of the wheat crop, the plots were used for melon crop experiments to optimize fertirrigation. The agronomic practices created a higher variability in soil Nitrogen content and a record of the spatial location of the plots, fertirrigation lines and the treatments applied were kept. No fertilizer or organic amendments were use for the cereal crop.

Measurements of soil mineral nitrogen at 0-20 cm depth were analyzed at three different wheat crop phenologic times. These data points were used to establish the correlation between crop and soil variables. The average soil depth of the experimental site was 0.60 m, the texture is a sandy-loam soil, slightly basic (pH 7.9), poor in organic matter (0.20%), rich in potassium (407 ppm, ammonium acetate) and with a medium level of phosphorous (19.4 ppm, Olsen). These soils are characteristic of Mancha Occidental presenting a restrictive subsurface “caliche” pan layer (petrocalcic horizon).

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