



Influence of a fertilizer solution on yield and quality of bread wheat in Guadalquivir Valley (Córdoba, Spain)

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The use of by-products of food industries in agricultural practices has become a routine over the last few decades. The addition of beet vinasse, by-products of the two sep olive mill process and by-products of defatted sunflower flour, etc., to soils is a common agricultural practice, since sensible use has been reported to improve the physical, chemical and biological aspects of the soil and to increase harvest yield, and in many cases harvest quality. Previous research carried out by the authors (Ordóñez et al., 2001) examined a process whereby a protein concentrate is obtained from defatted sunflower flour. In this process, floating liquid phosphorus, potassium contents and smaller amounts of humic substances and nitrogen are obtained. The potential application of this solution as a fertiliser has been evaluated on rye grass, confirming that its effects are comparable to those produced by a nutritional solution in terms of phosphorus and potassium foliar levels.

The experiment was performed on soil classified as Typic Haploxererts located in the Middle Valley of the river Guadalquivir

Cajeme wheat (*Triticum aestivum* var) variety was used at a dose of 180 kg seeds / ha.

For both crop, four fertiliser treatments were applied in triplicate to randomly distributed 7 x 8 m plots.

The greatest positive effect of applying the experimental phospho-potassic solution was found for the leaf levels of K, in maturity; this influence was most significant when the highest dosage of said solution.

With reference to the levels of N, P and K in wheat grain, the levels of potassium were significantly different for all the fertilising treatments, and the plot fertilised with the highest dosage of the experimental phospho-potassic solution presented the highest values.

As for the data obtained for harvest yield and quality, the addition of the experimental solution was observed to have a significantly positive influence (but only in the highest dosages) on the production levels.