

Sustainable Management of Agricultural Resources in Irrigated Agriculture

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Abstract : This paper presents a mathematical model for the sustainable management of agricultural resources in irrigated agriculture. This is a multicriteria mathematical programming model and used as a tool for the planning, analysis and simulation of farm plans in rural irrigated areas, as well as for the study of impacts of the various policies in irrigated agriculture. The model can achieve the optimum farm plan of an agricultural region taking in account different conflicting criteria as the maximization of gross margin and the minimization of fertilizers used, under a set of constraints for land, labor, available capital, common agricultural policy etc. The proposed model was applied to four prefectures in central Greece. The results show that in all prefectures, the optimum farm plans achieve greater income and less environmental impacts (less irrigated water use and less fertilizers use) than the existent plans.

Keywords : sustainable use of agricultural resources, irrigated agriculture, multicriteria analysis, optimum income

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