A Multicriteria Mathematical Programming Model for Farm Planning in Greece

Authors : Basil Manos, Parthena Chatzinikolaou, Fedra Kiomourtzi

Abstract : This paper presents a Multicriteria Mathematical Programming model for farm planning and sustainable optimization of agricultural production. The model can be used as a tool for the analysis and simulation of agricultural production plans, as well as for the study of impacts of various measures of Common Agriculture Policy in the member states of European Union. The model can achieve the optimum production plan of a farm or an agricultural region combining in one utility function 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 the region of Larisa in central Greece. The optimum production plan achieves a greater gross return, a less fertilizers use, and a less irrigated water use than the existent production plan.

Keywords : sustainable optimization, multicriteria analysis, agricultural production, farm planning

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