

Abstract

Due to sustainability and water resource management as a vital source, in recent year's sideshow, a central and important issue, especially in the agricultural sector has become. The uncontrolled harvesting of ground water has caused a sharp drop in the quantity and quality of resources and sustainable agriculture at risk and threatens. Protect vital source of water alongside economic considerations, atmosphere over the decision to require agricultural systems has renewed serious attitude. The study seeks to provide solutions to balance and sustainability of water resources in the province is plain spring. For this purpose, optimization purposes of consumption patterns and reduce groundwater consumption in the form of a simple linear programming, Goal programming, fuzzy Goal programming, and Chi Bi Chef is modeled. Three goals of Fuzzy, including minimizing the use of water, fertilizers and pesticides and maximize gross margin were compared. Required Information was collected by this research through interviews with farmers as well as statistics in the spring of Agriculture of the Bahar city. Wheat, corn, potato, onion and sugar beet selected products are studied in this research. According to the results obtained in this study, corn and potato pellets are one of the most important products. The optimal pattern provided by the fuzzy goal programming model, among other proposed patterns of water allocation among agricultural activities is the best agricultural plains of Bahar Plain. And is Maximum profitability and highest per cubic meter of water from underground (in comparison with other models and templates).

Keywords: Groundwater, optimization, sustainability, Hamedan