Abstract

Specific and no alternative role of Water in agriculture and scarcity of this production input, Specifically in dry regions such as Zabol leads to effort to find new ways for optimize the use of this input. In optimization of conventional cropping pattern, culture combination is determined so that the benefit maximized. While in dry areas, including most parts of Iran, the limiting factor is water, not land. Accordingly, it is preferable that water be allocated between the competing activities so that profit maximized. In this regard, in current paper, it has been tried that a model be presented for the allocation of irrigation water among the cultivable crops in Zabol region. That for every unit of water cosumption, most profit be achieved. To achieve this goal, fuzzy-goal programming method has been used. Three fuzzy-goal include maximizing profit, minimizing the use of water, fertilizers and pesticides were compared in three scenarios. Needed information for this research were collected through questionnaires and interviews and, as well as statistics of Agricultural Jihad of Zabol city. Three optimal pattern of water consumption with different weights in the objective function was estimated. Wheat, barley, cistanche, cucumbers, tomatoes and grapes, are the crops studied in this research. The findings showed that there was tangible difference between these three optimal pattern of water consumption. Grape and cucumber are exist in all of the optimal patterns of water consumption. Tomato is eliminated of all the optimal patterns of water consumption.

Keywords: Optimization, Water allocation, Fuzzy-goal programming, Environment

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