Abstract

Agriculture is one of the most important economic sectors in the country, where supplying food needs to the community is the main task of this sector. So that any deficiency and price change of a type of food in the shortest time, even day and hour, is inclusive and spreading everywhere. Hence, in the whole world, the agricultural sector is especially supported, and in most countries farming aid is being provided. Nonetheless, in recent years, concerns have been raised around the world about the consequences and side effects of some agricultural activities on the environment and society. Since the Sistan area has considerable potential in agricultural production, due to the presence of Sistan in the desert area where the rainfall is extremely low, extensive research should be carried out to determine the pattern of sustainable cultivation. In this research, by presenting and introducing a linear programming technique, an optimal model of crop cultivation in Sistan region was considered, considering the constraints and limitations of the farmers. In addition, allocation of resources including water, land, fertilizers and seeds was studied. In order to obtain information from relevant resources and organizations, data on the amount of cultivation, cultivar type and yield of each cultivated product were collected. In the research, cropping area of the most important field crops was used as decision variables. In this research, linear programming method in mathematical programming models was used to determine the optimal pattern of cropping in accordance with environmental indicators for decision making in determining the optimum agronomic program. The results showed that the highest seed consumption per hectare was related to wheat and the least was related to melon. The highest water use and fertilizer per hectare were allocated to melon and watermelon crops, and the highest level of melon and watermelon was allocated to Hirmand city. But the highest level of crops in wheat crops in Sistan is dedicated to price stability. In general, due to the high consumption of water in watermelon, due to price stability and water constraints in Sistan, its cultivation will not be cost effective. The statistical population of this study included four Zabol, Zahak, Nimroz and Hirmand in the Sistan region

Keywords: Optimal cultivation pattern, dehydration, contamination, watermelon and melon, sorghum, linear programming, Test result

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Determination of Sustainable Crop Pattern Based on Environmental Indicators in Sistan Area

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