**Evaluation of sustainability in saffron agroecosystems in some parts of southern khorasan province**

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**Abstract**

Saffron is one of the strategic and exportable products in Iran. This plant, as the most valuable agricultural product and medicinal plant in the world, occupies a high position among Iranian industrial and exportable products and plays a critical role for livelihood of many farmers. Due to these reasons. saffron was selected for this research to determine quantity of ecological sustainability. This research was counducted during 2009 at a regional scale in Birjand and Qaen counties, Southern Khorasan, as an attempt to develop a sustainability index (SI) for quantifying the sustainability of saffron agroecosystem.It was tried to incorporate almost all aspects of sustainability (i.e. agricultural, ecological, social and economical) designed index. Based on this overview, a Sustainability Index (SI) which was an integration of 75 indicators, was designed for saffron agroecosystems. The information of these agroecosystems, including socio-economic, production, livestock, fertilizers and chemical materials, water and irrigation, tillage and machinery and pest management indicators were collected using questionnaires and were subjected to statistical analyzing. The average of SI in these agroecosystems was 39.46 for whole studied region, and 37.20 and 45.09 for Birjand and Qaen respectively. These low indices show (demonstrate) the undesirable sustainability condition of saffron agroecosystems. In general, only 9.18 percent of all farmers achieved to a SI equal to or greater than 50 and the greatest score was 55.12. Among all indicators, the lowest obtained values of total for each indicator was belong to the tillage and machinery (28.31%), and water and irrigation (30.01%). The stepwise analysis indicated that the most important factors determinaninig SI for these agroecosystems were the gross income from saffron yield, saffron farm size, summer irrigation, availability of insurance and loan, presense of livestock in farms, other incomes, water consumption, availability of agricultural extension service, availability of agricultural inputs and practicing one-time plowing.

**Keywords**: Sustainability Index, saffron, Southern Khorassan, tillage and machinery, agroecosystems.