Comparative evaluation of ecological sustainability of saffron production systems in Birjand and Qaen counties

Abstract

This study was conducted to evaluate the ecological sustainability of saffron production agroecosystems in Birjand and Qaen counties. The needed data were collected using questionnaires and were subjected to statistical analysis during the winter of 2017. Results showed that the farmers obtained about 60% of the defined scores, in both of the studied areas. Accordingly, the sustainability index (SI) in studied ecosystems was moderate. However, a main problem to be addressed by farmers and planners was the low sustainability of irrigation systems management, where only 30% of related scores were obtained about this index. The results of the correlation between indicators groups and total SI in Birjand county revealed that there was a significant positive relation between SI and all indicators Groups except for irrigation. The stepwise regression analysis for 63 indicators showed that most important factors determining positively the SI for agroecosystems in Birjand were farmer's age, the type of land ownership, farmer's annual income, production costs (fertilizer, pesticides, etc.), corm size, planting diversity and fertigation (application of fertilizers in irrigation water), while farmers' gender and price per unit of stigma had a negative impact on sustainability. In Qaen agroecosystems, the type of land ownership, farmer's annual income, production costs (fertilizer, pesticide, etc.), cultivation area and organic of manure had a positive impact on the SI, but green manure application, access to insurance and planting depth of corms reduced the sustainability.

Keywords:Agroecosystem, household income, planting area, farmer's age, production cost.

University of Zabol

Graduate school

Faculty of Agriculture

Department of Agronomy and Plant Breeding

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Supervisors:

Dr. M. Ramroudi

Dr. M.R. Asgharipour

Advisors:

Dr. M.R. Bakhshi

By:

Mrs. T. Ameli Sarchahi

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