

ABSTRACT:

Due to massive use of chemical off-farm inputs and subsequently low level of output/input proportion of energy, sustainability of agro-ecosystems is highly at risk. The aim of this study is to quantify the agro-ecological sustainability of melon and watermelon production systems through a compound index in Sistan province. Related data for agro-ecosystems including climate and socio-economic items, quantity of greenhouse, farm and livestock production, chemicals utilization, plant residual, soil and water management and biodiversity as well as data for pest management were collected through interview and enquiries. Value of sustainability index is based on 100 and is the mean of the score of mentioned indicators. Sustainability index for watermelon and melon agro-ecosystems were 42.10 and 37.78 respectively. Results show that, the melon agro-ecosystem is approximately not-sustainable while the watermelon's is relatively sustainable. Among different calculated indicators for watermelon agro-ecosystems, climate and biodiversity and for melon's, production and yield acquire the most scores. Besides, there is a significant correlation between production, income, energy use efficiency and sustainability index.

Keywords: sustainability quantification, sustainability index, energy use efficiency, Sistan resionk



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**Health assessment of melon and
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composite indicators in sistan**

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