



University of Zabol
Graduate School
Faculty of Agriculture

**The Thesis Submitted for the degree of Master of M. Sc
In Agroecology**

Title

**Evaluation of greenhouse production
systems ecological sustainability at the
Sistan using composite indicators**

Supervisor

Professor Ahmad Ghanbari

Advisors

Dr. Mohammad R. Asgharipour

By

Mr. Ahmad Lavasani

September 2013

Abstract

Sustainability of greenhouse production systems at risk due to indiscriminate use of external chemical and low ratio of energy input to energy output. The aim of this study was to compile an index for quantifying the ecological sustainability of greenhouse production system in Sistan. Information about the social and economic indices, greenhouse production, crops and livestock, fertilizer and chemicals, crop residue management, irrigation water, mechanization and plowing, weed management and diversity were collected and analyzed through questionnaire. Average score of sustainability index in greenhouse system is 51.11 and 64.2% of greenhouse owner have earned 40 or less scores. The progressive step by step regression showed that the most important factors determining the sustainability index in the systems were: Crop diversity, diversity of herbicides and fungicides, crop residue management, and access to inputs, respectively. While the use of chemical fertilizers, especially nitrogen had no decisive impact on the sustainability index. The study critical points two system showed that for improving their sustainability, training of farmers, helping them to economic stability, improved crop management and water resource management has a priority.

Key words: Sustainability quantification, Sustainability index, Greenhouse production systems, Sistan