



University of Zabol

Graduate school

Faculty of Agriculture

Department of Aquiculture

The Thesis Submitted for the Degree of Master of Science

Agroecology

**economic indicators and emissions of , Energy use efficiency
greenhouse gases in Kuhdasht pea production systems**

Supervisor

Dr. A. Ghanbari

Advisor

Dr. M. Asgharipour

By

S. Cheraghi

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Abstract

This study aimed to evaluate the efficiency of energy consumption, economic analysis and greenhouse gas emissions from chickpea production system of Kuhdasht, in 2015. Required information in all stages of planting and harvesting in the fields of chickpea using a questionnaire and through face-to-face interviews with 278 farmers were gathered. In this study, the energy parameters included: energy efficiency, specific energy, pure energy and energy density and economic indices, including the gross value of production, gross income, ratio of profit to cost. The results showed that the total amount of energy input was 7398.89 MJ/ha and diesel fuel and fertilizers had the highest shares, followed by phosphate with 629.33 MJ/ha. The lowest power consumption was related to the energy of manure and pesticides. Total energy input and output was 10581.88 and 25107.4 MJ/ha, respectively. Sensitivity analysis showed that the increase in energy input of phosphorus, nitrogen, manure, gasoline, pesticides, fuel, machinery and labor, increased along seed yield with increased risk of energy inputs of potash and micro. The total emission of CO₂, NO₂ and CH₄ in the field was 536017.19, 93.136 and 789.008 kg per hectare, respectively. The total amount of global warming potential in kilograms of carbon dioxide per hectare was 581758.69, 531.89 and 439.50 kg of carbon dioxide per hectare of grain yield of chickpea. Economic analysis in rainfed chickpea indicated that benefit-cost ratio was 2.56 Overall, the greatest spending was related to human resources in the process of weeding and harvest.

Key words: Energy input, Carbon dioxide, Economic analysis, Energy efficiency, Pea