



**University of Zabol
Graduate school
Faculty of Agriculture
Department of Agricultural Economics**

**The Thesis Submitted for the Degree of M.Sc
In the field of Agricultural Economics**

Title:

**Analysis of energy consumption in ruby grapes and
Olive production in Zahak city**

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Abstract

Agriculture is an energy conversion process. In this process, solar energy, fuel products, fossil fuels, electricity and other inputs are converted into food, fibers and materials needed by humans. Economic, energy and environmental analysis, in addition to technical analysis, are important necessities in agricultural projects. The purpose of this study is to analyze the efficiency of energy consumption in the production of ruby grapes and olives in Zahak city. For this purpose, the required information was collected from 49 gardens through an oral questionnaire in August and September 2016. Random sampling method was used for sampling and the sample size was determined using Cochran's relation. The results showed that the average of the total input energy in the round, harvest of ruby grapes and Rayton is 1677.27 GJ / ha and 80.38 GJ / ha, respectively. Energy ratio, energy efficiency and net energy added were calculated to be -0.72, 0.03 and GJ / 86-86, respectively. Electricity used in the irrigation system has the highest amount of energy consumption, followed by chemical fertilizers. The energy share of manpower inputs, pesticides and machines was very low. The modeling results for the energy of the inputs showed that the energy of pesticides is the most important effective inputs in pistachio yield. The effect of energy input of this electricity and fuel on performance was negative. The results of energy sensitivity analysis of inputs showed that the largest share of final production is related to pesticide, worker and chemical fertilizer inputs. The final production branch (MPP) of water, electricity and negative fuel inputs was determined, which indicates that these inputs are not consumed properly or more than the required amount is used. At the end, the production costs of grapes and olives are calculated and economic analysis is performed. The cost-benefit ratio was 1.73, which indicates that the region's orchards are in good economic condition.

Keywords: Ruby Grape, Olive, Energy Ratio, Economic Model, Final Production, Benefit to Cost Ratio