

## **Greenhouse gas emission and sensitivity analysis of energy consumption in wheat production in Nurabad Mamasani the Fars Province**

### **Abstract:**

Nowadays, the agricultural sector in order to respond to food greater supply for the growing population and provide enough nutrients, is extremely intensive requires energy. Concerns about the conservation of fossil fuels and emissions of greenhouse gases, leading to an increase in research on energy balance crop production systems. This study was conducted to evaluate the emissions of greenhouse gases and sensitivity analysis of energy use in the production of wheat in the Mamasani Nurabad city of Fars province. Data were collected through questionnaires and field operations. Questionnaires were completed by interviews on the farms. Energy inputs in agriculture is, including human labor, machines, irrigation water, seed, diesel fuel, electricity, chemical fertilizer and agricultural pesticides. In this study, by calculating the energy use and determine the share of inputs in the production of wheat in both water and dry farming, the effects of these inputs in production and emission of greenhouse gases and comparison of both methods has been determined. The relationship between inputs and emissions of greenhouse gases, according to sources, was determined. The studies found that most of the energy input in the production of rainfed wheat, is related to inputs of urea fertilizer, Seed consumption and fuel respectively with the 12823.74, 4061.74 and 3132.56 MJ per ha, and also most of the energy inputs in Irrigated wheat production is related to inpute of urea fertilizer, electricity and fuel respectively With the 33511.8, 7994.45 and 4772.68 MJ per ha. Then by analyzing the data, the share of inputs consumption in production and emissions of greenhouse gases in the city Nurabad Mamasani was determined. The results showed that the highest rate of greenhouse emissions in the production rainfed wheat, respectively urea fertilizer and fuel with the 275.1 and 227.52 MJ ha, and most greenhouse gas emissions in the production of irrigated wheat, respectively urea fertilizer and fuel with the 718.9 and 346.65 MJ ha. Finally, by analyzing the data to determine the relationship between energy input and function was used of the

Cobb-Douglas production function. After the investigation was conducted, it was found that most of the MPP or marginal productivity in the production of rainfed wheat, respectively machines and urea fertilizer with the 1.32 and 1.15 and most marginal productivity in irrigated wheat production respectively potash fertilizer, Machines and fuel With the amount of 1.81, 1.22 and 1.12, finally, the lowest productivity is related to the herbicide with the -0.33.

**Key words:** greenhouse gases, sensitivity analysis, energy input, production function, marginal productivity



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