



Research Paper

## Energy use pattern in production of wheat crop in Bikaner district of Rajasthan

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**ABSTRACT :** The present study was conducted to analysis the energy requirement in wheat crop and relationship between energy inputs with crop yield in Bikaner district. The analysis of energy requirement in agricultural sector revealed that maximum use of energy was in irrigation, seedbed preparation and harvesting/ threshing in wheat. The operational energy was found highest on large farms followed by medium and small farms. The source-wise energy analysis revealed that fertilizer, diesel and seed in wheat crop were main energy inputs, which affected the crop production. The maximum use of renewable energy was on small farms while non-renewable energy use was maximum on large farms. In wheat crop, the energy ratio was 3.8 suggesting that wheat crop was the most remunerative crop. The analysis of functional relationship between crop yield and energy inputs revealed that nitrogen, phosphorus, spray, machinery and irrigation energy contributed significantly to the crop yield.

**KEY WORDS :** Wheat, Production, Energy use pattern

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### INTRODUCTION

Agriculture is both a producer and consumer of energy. It uses large quantities of locally available non-commercial energies, such as seed, manure and animate energy, and commercial energies directly and indirectly in the form of diesel, electricity, fertilizer, plant protection chemicals, irrigation water, machinery etc. Efficient use of these energies helps to achieve increased production and productivity and contributes to economy, profitability and competitiveness of agricultural sustainability of rural living. Energy plays a key role in the developmental process of a country and the quantum of energy input used in different sectors including agriculture determines the level of progress and the standard of living of its people. In the agricultural sector, the energy use pattern for unit production and processing of crops has been observed to vary under different agro-climatic zones.

A detailed energy census and resource availability surveys have been conducted by Vyas and Singh (1984) for the village Hambran, district Ludhiana, Punjab State (northern India), by

Maheshwari *et al.* (1981) for the village Islamnagar, district Bhopal, Madhya Pradesh State (central India) and by Swaminathan and Ramanathan (1984) for the village Selkkachal, district Coimbatore, Tamil Nadu State (southern India). Attempts have also been made to collect the information on one aspect or the other for a number of villages at different locations in India under All India Coordinated Research Project on Energy Requirement in Agricultural Sector. The present study is an attempt to document the energy use pattern and the availability of resources in the ecosystem of Indira Gandhi Canal Command (IGNP) area for planning to meet the energy demand through use of alternate energy and scarce available resources in the region.

### MATERIALS AND METHODS

The study was conducted in Bikaner district of Rajasthan state. Multi-stage sampling was used for the selection of farmers. Bikaner district was purposively selected because it has Rajasthan canal command area. There are four tehsils in