

**Energy Accounting of Irrigated Wheat Production to Post Production (Baking Bread) in Doroodzan, Fars Province, Iran**

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**ABSTRACT**

The total energy input (TEI) of irrigated wheat in Fars province, Iran, was estimated at 901 liter diesel oil equivalent per hectare (LDOE ha<sup>-1</sup>) (423 LDOE or 4819 Mcal, (47%) and 478.14 LDOE or 5454 Mcal, (53%) for wheat production and post production, respectively. The TEI for 1 ton wheat was estimated at 200 LDOE and for 1 ton of bread at 181 LDOE (wheat bread at 28% moisture). The direct use of fossil fuel oil in land preparation, planting, harvesting and transportation was estimated at 106 LDOE ha<sup>-1</sup>. The applications of fertilizer and pesticide contributed about 40% of the total energy bill in production while it was larger in baking the bread at 72.3 LDOE ton<sup>-1</sup> or 75% of the energy costs of post production. At 4515 kg ha<sup>-1</sup> average yield of irrigated wheat in Fars province, Iran, the energy output was estimated at 15848 Mcal for raw wheat, 13409.55 Mcal for bread and 2895 Mcal for straw. The energy balance for raw wheat production (field level) was estimated at 3.3. Post- production (baking bread) consumed a lot of energy. The estimated energy balance was 1.3. Measures on how to reduce the energy bill for wheat production and for post-production (baking bread) are discussed.

*Keywords:* energy balance, energy input, energy output, liter diesel oil equivalent (LDOE), national average yield, organic farming