Abstract

Energy and economic analysis of rose production in Isparta province where there is intensive-rose production were performed. 11 villages from Isparta Centre, Atabey, Keciborlu, Gönen, districts of Isparta province were surveyed by applying a face to face questionnaire method with 109 rose growers. Results revealed that total energy consumed per hectare for rose production was 29313.12 MJ ha⁻¹ and the most energy demanding input was chemical fertilizers (46.67%), especially nitrogen (39.81%). Energy consumption due to diesel fuel was 21.87% of total energy input. Chemicals (insecticide and fungicide) for plant protection had a small portion (3.51%) of total energy input. Total bioenergy output was calculated as 21150.69 MJ ha⁻¹ considering its yield (5041.88 kg ha⁻¹) and its energy contents (4.20 MJ kg⁻¹). Energy use efficiency, specific energy, and energy productivity of rose production were found to be 0.72, 5.81 MJ kg⁻¹, and 0.17 kg MJ⁻¹, respectively. Possible practical measures to increase energy use efficiency of rose production were also discussed. Effects of total energy input on rose flower yield were expressed by a linear equation with values for R² of 0.87. Results showed that yield increased linearly with the total energy input. Energy use efficiency as function of rose field size was expressed with linear equation yielding a moderate R²= 0.53. It was concluded that the direct and indirect energy inputs were 36.08 and 58.90% of total energy input, respectively. Renewable energy sources among the inputs constituted 16.43% of total energy whereas non-renewable resources (chemical fertilizers and diesel fuel) constituted 78.55 % of total energy input. Results showed that net return from rose production in the surveyed farms was at satisfying level. Benefit to cost ratio was found to be 1.58.