

Name:

Energy balance

Definition:

Based on the IRENA 11 indicator (Energy use), the energy balance of the farm is the difference between the energy input and energy output.

Calculation method:

It is calculated as the difference between the energy output (harvested agricultural production) and the energy input derived from the provision of inputs and that used in the management practices on the farm.

$$- \text{Indicator } \frac{\sum_i (EB_i \times A_i)}{A_T}$$

Where:

Indicator: Energy balance (MJ/ha year)

EB_i: Energy balance of the crop *i* (MJ/ha)

A_i: Area assigned to the crop *i* (ha)

A_T: Total area considered (ha)

Interpretation:

When the value of the indicator is positive, the system will consume less energy than the produced one thanks to the photosynthesis. The more positive the value, the less energy is required, and therefore the farm will be more environmentally sustainable.

Associated with this indicator, two more indicators, which give information on the use of energy, can be calculated:

- Energy efficiency, which is the relationship between the energy of the crop and the energy used for the production of that crop.
- Energy productivity, which are the kg of crop per MJ of energy used.

Information source:

The surfaces, inputs and yields of different crops are *obtained* through a *survey to farmers*. The energy associated with each of the inputs and outputs are *obtained* from the attached bibliography.

Bibliography and references:

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