

Energy Assessment & Management

Improving Energy Efficiency on Irrigated Australian Cotton Farms

The Improving Energy Efficiency on Irrigated Australian Cotton Farms project aims to deliver an industry-wide awareness campaign that provides tailored energy efficiency information and tools to irrigators and their advisors. This activity received funding from the Department of Industry as part of the Energy Efficiency Information Grants program.

Improving on-farm energy use

An energy assessment establishes energy saving opportunities. Measuring (or estimating) energy use enables comparison with industry benchmarks and, in turn, identifies high energy use areas. Reducing energy use is both profitable and environmentally beneficial.

Level 1 Audit

A level 1, or 'summary' audit is the simplest and cheapest form of energy audit where there is only one crop. Total diesel, petrol, other fuels and electricity use are taken from invoices. Energy use is converted to mega joules [MJ] of energy and expressed as MJ per hectare and MJ per bale. This method works well for one commodity. A level 2 audit is required where more than one crop or enterprise is conducted from the same energy sources.

Level 2 Audit

Level two, or 'itemised' energy audits either measures or estimates the energy used in each farming operation. It is effectively a desktop study of the energy usage across the farm and aims to reach an accuracy of $\pm 20\%$. The National Centre for Engineering in Agriculture has developed [EnergyCalc](#) to simplify this process. This user-

For further information on Energy Assessment & Management or the Improving Energy Efficiency on Irrigated Australian Cotton Farms project please contact the Cotton Research and Development Corporation on 02 6792 4088 or the CottonInfo Team member in your area.

EnergyCalc is a user-friendly software tool that identifies high energy consuming items, which allows efficiency a focus on the items with the highest savings.

friendly software allows the user to simply enter the operations performed for each crop and provides calculators to estimate energy used in each operation.



Simple tools can be used to measure energy efficiency.

Level 3 Audit

A level three audit is a comprehensive study that involves direct measurement of energy use. A level 3 audit can be performed across the entire farm; it is most often used to assess the performance of one of two energy consuming items, a pump or a tractor, for example. It will generally focus on the highest energy consuming items identified from a level 2 study. Testing may include simple record keeping or more sophisticated equipment, such as fuel use meters and water flow meters are used. A level 3 audit is generally conducted by an experienced auditor.