



Energy Efficiency Gains for Australian Irrigators

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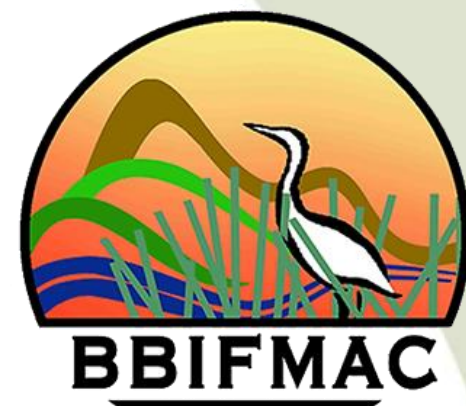


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Discussion topics

- The EEGAI project
- Energy Auditing
 - Benchmarking and detailed investigations
- Preliminary data and trends
- Difficulties
- Continuation



EEGAI Project



■ Funding from the Australian Government 2013 - 2015



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- Energy Efficiency Information Grants
- Target Area are the Burdekin and Bowen basins

■ A holistic approach

- Scrutiny of *infrastructure*
- A review of *water use and application efficiencies*
- A review of *tariff options*



The EEGAI project
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EEGAI Project

Aims to build the capacity of Australian Irrigators to adopt energy efficiency practices and technologies

- Information research
- Develop new information materials
- Conduct training
- Conduct workshops, seminars, etc
- Auditing
- Benchmarking



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Energy Auditing



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■ Level 1

- Basic look at gross energy usage
- Overview – Accuracy of savings and costs +/-40%

■ Level 2

- More detailed look at individual areas of energy use
- Energy Use Survey – Accuracy +/-20%

■ Level 3

- Detailed investigation into how much energy is being used over time
- High Level Audit - +/- 10%

Level 1 Energy Auditing



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Welcome

Welcome to the Burdekin Bowen Integrated Floodplain Management Advisory Committee (BBIFMAC) Level 1 Energy Assessment tool.

System Type

Furrow

Lateral move

Center pivot

Trickle

Sprinkler

Water source

Ground

Surface

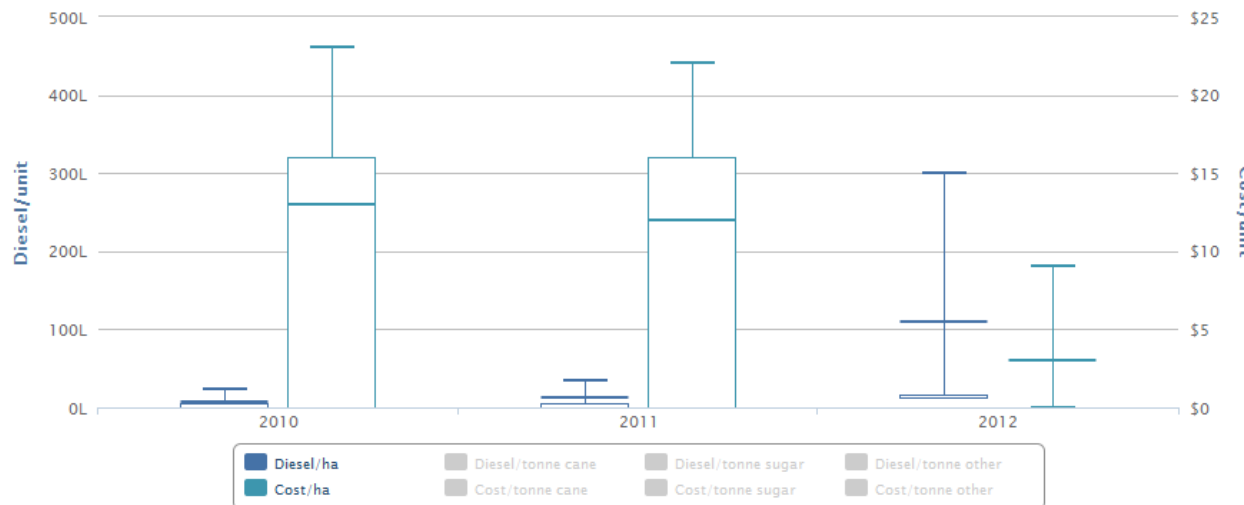
Number of diesel pumps

3

This tool has been developed to collect

The project
build the
organisa
case stud

Diesel usage per unit and cost per unit

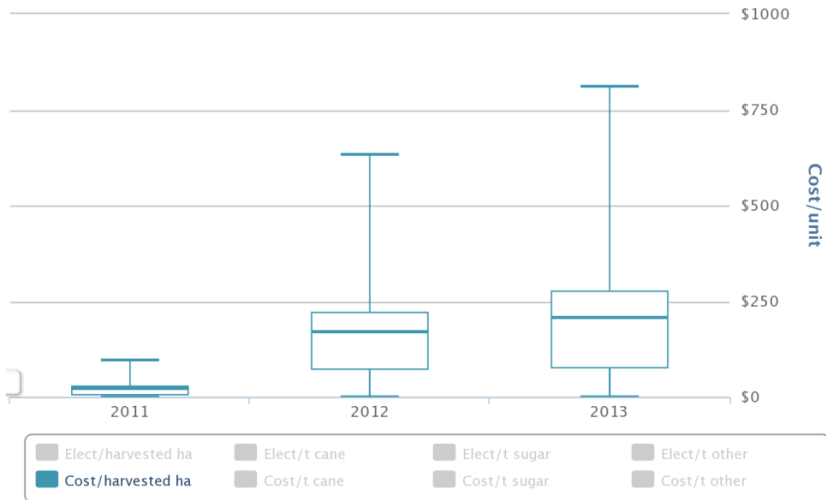


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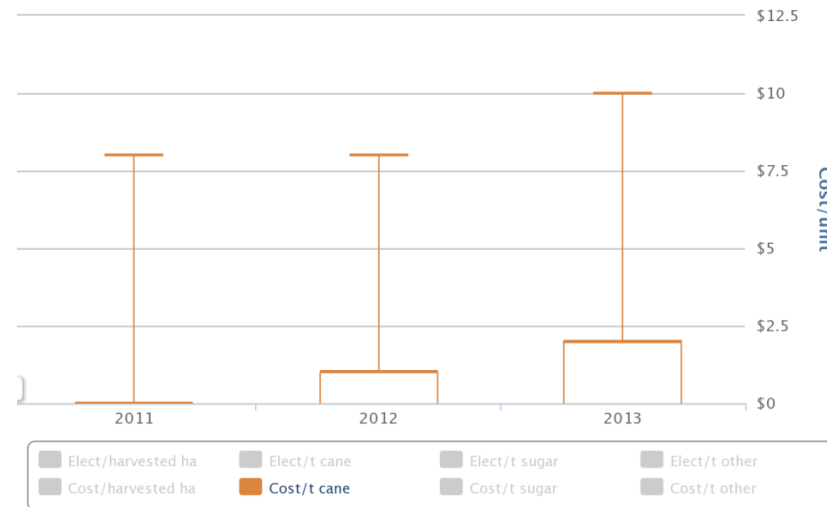
Preliminary Data and Trends



Electricity usage per unit and cost per unit



Electricity usage per unit and cost per unit



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Difficulties



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- ~~Grower engagement~~
- ~~Industry engagement~~
- Getting data – electricity data from the supply company
- Effort involved in a L1 underestimated
 - Initial plan was a kitchen table interview
 - Has evolved into a bulk data collection from the electricity supplier and mill

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■ Training program

■ Very successful

■ To continue in the Burdekin and satellites



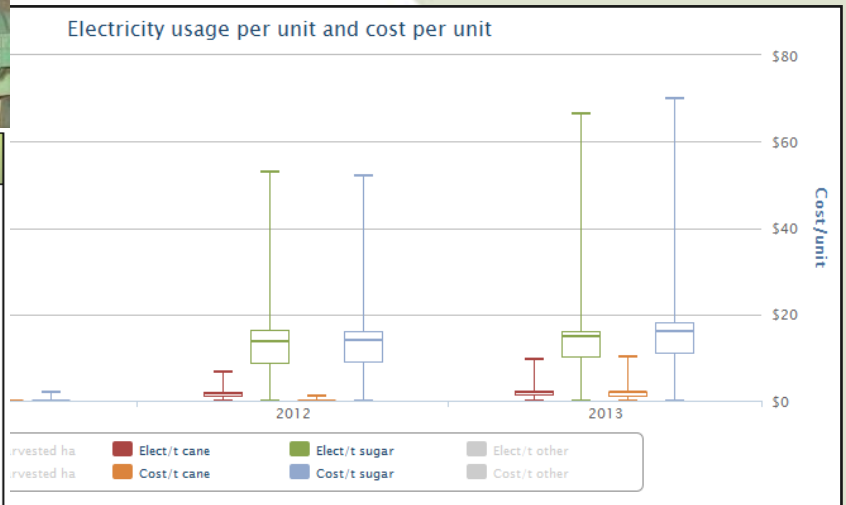
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Continuation

- Complete 220 Level 1
- Complete 30 Level 3



Calculated Performance Parameters	
Flow Rate	26.78 ML/Day (310 l/sec)
Flow Rate (target)	25.06 ML/Day (290 l/sec)
Total Dynamic Head	33.66 (m)
Total Dynamic Head (target)	27.96 (m)
Energy/Volume	104.44 (kW.h/ML)
Engine Derating Factor	98%
Performance	
Combined / Overall Performance	28.04%
Specific Speed	
Target Specific Speed	<i>Insufficient input to calculate Target Specific Speed</i>
Nominal Specific Speed	<i>Insufficient input to calculate Nominal Specific Speed</i>
Measured Specific Speed	71.92
Pumping Cost	
Grower Cost	32.93 (\$/ML)
Comparison Cost at \$1.20/l	37.63 (\$/ML)
Grower Cost (\$/ML/m)	0.98 (\$/ML/m)
Comparison Cost at \$1.20/l	1.12 (\$/ML/m)



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- Tool is web based
 - growers can use it year after year
- Case studies to publish some findings

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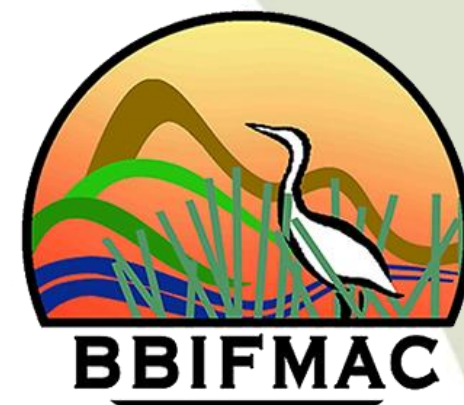


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