mla MEAT & LIVESTOCK AUSTRALIA

factsheet

FEEDLOTS

A framework for water and energy monitoring and efficiency in feedlots

Factsheet 20: Energy data collection tools

This factsheet forms part of the Measuring energy usage phase of the framework (*Figure 1*).

This factsheets outlines the various methods for collecting energy usage data. The most obvious tools for collecting usage data are supplier metering.

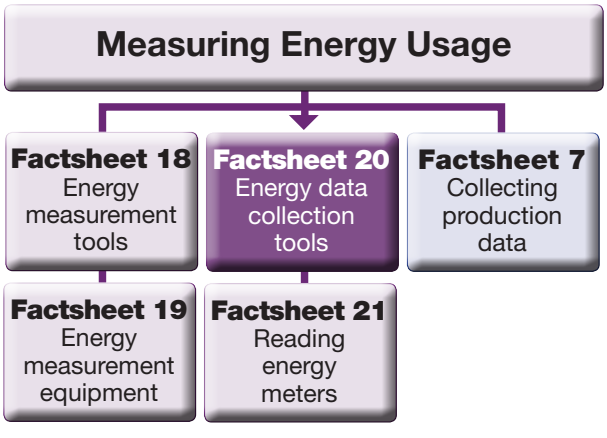

Figure 1: Measuring energy usage flowchart

Key benefits

- There are number of methods available for estimating energy usage.
- One or a combination of methods may be used.
- Develop a pro-forma for collecting energy meter usage data.

Supplier data

Energy usage from the various energy sources for the whole site can be sourced from supplier's data. These include electrical energy from your relevant power authority, fuel supply from fuel company and gas from your gas supply company. There may be other point source supply such as solid fuel usage which can be obtained. These data are usually contained on invoices.

Electricity

All sites that use electrical energy will have power authority electricity meters. It is important to identify the location of existing power metering equipment. There will be a power authority meter or multiple meters on each overhead supply point coming into the property.

Each power authority meter has a identifier number. This identifier appears on the supplier's invoice/statement along with the meter reading at the start of the period and at the end. The supplier may also be charging different tariffs to better reflect the costs of generations and transmission. The kilowatt hours used are presented for each meter and each tariff.

Fuel

Total fuel delivered to the site measured in litres will be available from the supplier. Depending on the storage capacity and storage levels the fuel delivered may not equal the fuel usage.

To estimate actual fuel usage, the volume in storage at the beginning of the period and at the end can be used, along with the total volume of fuel delivered.

Example 1: A total of 25,000L of fuel was supplied to the feedlot from the 1 June to 30 June. There is 5,000L of onsite storage. The estimated volume of fuel in the bowser on June 1 was 1,000L. The bowsers were full on June 30.

Total fuel usage = Fuel delivered - (Volume in Storage June 30 - Volume in Storage June 1)

= 25,000 - (5,000 - 1,000)

= 21,000 L

Gas
Total gas delivered to the site measured in litres or cubic metres (m^3) will be available from the supplier. Depending on the volume of onsite storage and storage levels, the fuel delivered may not equal the fuel usage.

To estimate actual fuel usage the volume in storage at the beginning of the period and at the end can be used along with the total fuel delivered will be required. Follow the method outlined in *Example 1* to estimate gas usage.

Energy Meter usage

Electrical, fuel and gas usage may be documented directly from metering equipment. Recording meter readings will provide the required information to enable better analysis of activity energy usage.

It is important to develop a reporting pro-forma tool to provide a simple and effective way to internally record activity energy usage from the different sources.

The simplest form is a paper-based record, which allows you to simply record the reading of each energy meter. Data records are a legal and auditable document and must be kept safe at all times. It is good practice to have one sheet for each meter, which records the date on which the meter is read, the meter reading, meter location, the reading units and any other notes.

The reader is then able to quickly check the current reading with the previous readings and assess the quality of the data. An example of a simple form is shown in *Figure 2*.

For electricity meters energy usage on different tariffs, may also be recorded.

For fuel usage the pro-forma may also record the vehicle and activity undertaken.

Example of data collection sheet—energy meter usage

Meter ID: 978596

Date	Time	Meter location	Reading	Units	Comments
1 January 2009	7:00 am	main switchboard	1203.55	kWh	-
1 February 2009	7:00 am	main switchboard	2209.81	kWh	-

Figure 2: Data collection sheet for energy meters.

Acknowledgement

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

Further information

This fact sheet series is based on MLA funded research in projects FLOT.328, B.FLT.0339 and B.FLT.0350.

MEAT & LIVESTOCK AUSTRALIA

Level 1, 165 Walker Street
North Sydney NSW 2060
Ph: +61 2 9463 9333
Fax: +61 2 9463 9393
www.mla.com.au

Published September 2011 ISBN: 9781741916133

Example of data collection sheet—energy meter usage

Meter ID: 978596

Date	Time	Meter location	Reading	Units	Comments