



***If you are participating in the presentations this year, please provide a written report and a copy of your final report presentation by 31 October.
If not, please provide a written report by 30 September.***

Part 1 - Summary Details

Please use your TAB key to complete Parts 1 & 2.

CRDC Project Number: CGA1203

Project Title: Feasibility Study into Utilising a Biomass
Burner At Tandou Gin

Project Commencement Date: 1/8/2011 **Project Completion Date:** 1/12/2011

CRDC Program: - Please Select One -

Part 2 – Contact Details

Administrator:	David McClure
Organisation:	Menindee and Lower Darling CGA
Postal Address:	PO Box 19 Menindee
Ph: (08) 8091 1513	Fax: (08) 8091 1512 E-mail: dmcclure@tandou.com.au
Principal Researcher:	Mr John Allison
Organisation:	Consulting Engineer
Postal Address:	1/34 Patterson St Middle Park Vic 3206
Ph: 0419348714	Fax: E-mail:
Supervisor:	(Name & position of senior scientist overseeing the project).
Organisation:	
Postal Address:	
Ph:	Fax: E-mail:

Signature of Research Provider Representative:



Part 2 – Final Report Executive Summary

A CRDC Small Capacity Building Project Grant was successfully applied for to conduct a feasibility study into utilising a biomass burner at the Tandou Gin to off-set the increasing costs of LPG used in the ginning process.

Mr John Allison, a consulting engineer was retained to conduct a site inspection of Tandou Gin to determine the current energy requirements and to determine how a biomass burner might be utilised to reduce LPG usage. Mr Allison had successfully installed and commissioned 2 biomass burners at olive oil processing sites in Northern Victoria effectively negating the use of LPG at these sites.

Potential on-farm fuels were identified and assessed. Cotton gin trash, upland cotton seed, pima cotton seed and cotton stalks were all assessed with gin trash being identified as the most suitable fuel based on costs, quantity, locality, calorific value and ash content.

It was determined that there was a surplus of gin trash created on site to supply the heating requirements of the gin up to 70⁰ C. The design concept was that the biomass burner would supply base heating requirements up to this figure at which time the existing LPG burners would cut in if required.

An assessment of different types of heat generating equipment was conducted that included

- Low pressure boiler
- High pressure boiler
- Hot air generators

The consultant determined that hot air generators would be the simplest most cost effective installation to meet the gins requirements. The consultant determined that the installation and commissioning of 2 x 500KW hot air generators would cost in the vicinity of \$320K.

Part 3 – Final Report Guide (due 31 October)

Background

The Tandou Gin was recommissioned to process the 2011 crop following a period of 5 years of inactivity due to the drought. The cost of LPG had risen sharply compared to previous contracts and further price rises were expected. With this in mind it was determined to investigate alternative sources of fuel to provide heat for the ginning process.

Objectives

- To determine the heating requirements of Tandou Gin
- To identify potential alternative fuels available on farm
- To identify the calorific value and ash content of alternative fuels
- To identify the most suitable equipment able to utilise alternative fuels
- To produce a concept design of how a biomass burner would complement existing infrastructure
- To conduct an economic analysis of installing a biomass burner at Tandou Gin.



Methods

- To retain a HVAC engineer to conduct a site assessment of existing equipment, processes and energy requirements
- Identify available alternative fuel stocks and have them analysed to determine calorific value and ash content.
- Conduct a desk top study to determine the suitability of available technology to utilise the fuel stocks available on cotton farms
- To make commercial enquiries to ascertain performance and maintenance parameters of available technology.
- To conduct an economic analysis based on identified alternative fuel stocks

Results

- Cotton gin trash was identified as the most suitable alternative fuel source based on cost, available quantities, calorific value and ash content
- There is surplus gin trash available to supply the gin with heating requirements up to 70⁰C.
- 2 x 500KW hot air generators were identified as the simplest affordable installation to meet gin heating requirements up to 70⁰ C.
- The approximate cost of the installation is \$320K

Outcomes

- Increased knowledge about calorific value of alternative fuel stocks available on farm
- Increased knowledge on available biomass burners and heat generating equipment
- Increased awareness of the economic returns associated with installation of a biomass burner at Tandou Gin
- An unplanned outcome of the project was participation by Tandou in an energy audit facilitated and subsidised by the NSW Office of Environment and Heritage to identify potential efficiency gains. Participation in the energy audit may facilitate future subsidised investment under the Ausindustry for the Clean Technology Investment Program.

Conclusion

- The study identified that utilisation of a biomass burner is feasible at the Tandou Gin and by extension other gin sites.
- Outcomes of the feasibility study will influence the Tandou Board when considering capital investment in a biomass burner.
- Involvement in the CRDC grant process has identified a pathway whereby Tandou is participating in an energy audit of its operations which may lead to Federal Government subsidies to install a biomass burner at its gin and potentially other energy saving projects.



Extension Opportunities

- The outcomes of the feasibility study may be used as a case study into utilising alternative energy technologies to address current pressures on non-renewable fuels in a carbon tax economy. Potential exposure includes CGA members, Ginning Association members and local high school students.
- A pathway exists to turn the results of the feasibility study into reality by participation in the Energy Saver Program (NSW OEH), which may entitle Tandou to a 50% subsidy on the cost of purchasing, installing and commissioning a biomass burner at Tandou Gin under the Ausindustry for the Clean Technology Investment Program.

Publications

- An abridged version of the feasibility study titled “Cotton Gin Waste Use to Offset Non-Renewable Energy Sources” is available for review and dissemination. All inclusions that may be viewed as commercial in confidence in relation to Tandou’s operations have been removed from the abridged version of the document.