SRDC Grower Group Innovation Project
Final Report

SRDC project number:	**GGP010**
Project title:	**Accurate, consistent bed forming to promote better farming practices**
Group name:	M.A.D. Cane Planting
Contact person:	Anthony Durrington
Due date for report:	01/01/07
Funding Statement:	This project was conducted by M.A.D. Cane Planting in association with the Sugar Research and Development Corporation (SRDC). SRDC invests funds for sugar R&D derived from the sugar industry and the Australian Government.

a) Report on M.A.D. cane planting group managing, maintaining and co-ordinating the use of this equipment by three productivity Boards for trials by interested farming groups.
b) Details of farmers planning to establish their own trials.
c) MAD cane planting group worked with BSES & agricultural staff to promote the Farming System of which properly formed beds are the starting point and the key to success.
d) Report of promotion activities at Cane Check meetings, field days and articles in Sunshine Sugar News, including reporting on costs and benefits compared to multiple-pass bed forming operations.

Criteria (a)

Report on M.A.D. cane planting group managing, maintaining and co-ordinating the use of this equipment by three productivity Boards for trials by interested farming groups.

Management of the bed former has been handled through Mark North and David Bartlett. Simply David would arrange with the specified person when and where the bed former is to be used and Mark would either arrange transport or do the bed forming for the said person. The BSES employed staff would sometimes arrange a field day or help with transport organisation and setup of the bed former. Maintenance of the bed former has been greasing and unblocking of crumble roller. Modifications of the bed former have been additional strips of flat steel welded to the bottom of the furrow boards to obtain optimum bed consistency at specified heights of 75mm to 150mm. Although there has not been a great deal of interest from farmers. We have had 8 farmers from Harwood and Broadwater use the implement thus far.

Criteria (b)

Detail of farmers planning to establish or who have already established trials:

Fraser Chapman – Harwood mill area
Alan Munro – Harwood mill area
Alister McFarlane – Harwood mill area
Chris Shannon – Harwood mill area
John Clarke – Broadwater mill area
Geoff Pye – Broadwater mill area
Bluedog Farming – Broadwater mill area
Bernard Schiller - Condong mill area
Bill Stainlay – Condong mill area

Traditional soil preparation methods were used to the point of bed forming.
All farmers used GPS guidance in conjunction with the bed-former which greatly enhances accuracy and consistency. Row spacings were at between 1.8m to 2.0m to coincide with the planting of dual row cane the following year. The soil must be prepared so there is good tilth so when rainfall occurs then there is less settling of the formed beds and gives greater consistency. This is most important in heavy clay based soils.

Criteria (c)

MAD cane planting group worked with BSES & agricultural staff to promote the Farming System of which properly formed beds are the starting point and the key to success.

M.A.D. Cane Planting has worked with Peter McGuire and Bob Aitken of BSES Ltd. In addition we have used the services of our Agricultural Services Manager, Rick Beattie of NSW Sugar Milling Co-operative and Nathan Ensby who is currently employed by the

Milling Co-operative for Controlled Traffic research under S.R.D.C. funding. All of the abovementioned assisted in the co-ordination of field days and Canecheck meetings.

Criteria (d)

Report of promotion activities at Cane Check meetings, field days and articles in Sunshine Sugar News, including reporting on costs and benefits compared to multiple-pass bed forming operations.

i) **2005 Farming Systems Field Day** held at Geoff Pye's property on 5th April 2005. Peter McGuire of BSES talked on benefits of raised bed farming. Mark North talked on how M.A.D. Cane Planting acquired funding through S.R.D.C. to carry out and encourage grower based research. Attended by 47 farmers.

ii) **North Coast Oilseed Association Soybean Field Day.** Sponsored by DPI and G.R.D.C. at Grafton Research Station on 10th March 2005. Mark North once again (getting boring) and Alan Munro talked on raised bed farming in sugar cane and their experiences with the Gessner bed former. Attended by 32 farmers.

iii) **Harwood Mill Canecheck Meeting** held at Alan Munro's farm on 22nd March 2005. Group of 41 growers viewed the Gessner bed former and made comparison to the sled type Easy Fix bed former.

iv) Benefits and costs of 'One pass' bed forming compared to 'Multiple pass' are as included Milestone 2 report. With the recent increase in world oil prices the need for reduced passes is even more apparent. Even for those that love to burn fuel.

Body of Report

Executive Summary:

The aim of the project was to establish an economic and sustainable way of forming beds in our area to aid the sustainability of the SYDJV. Key results from our project were economic and environmental benefits. Learning's from the project were the economics, sustainability and the environmental effects of 'one pass' operations surpassed our previous practises in all aspects.

Background:

The background from this project came from a couple of frustrating seasons of trying to establish properly formed beds. As individuals we were attempting to bed-form but with mixed results which we all thought were inadequate. This was hampering the adoption process of the SYDJV farming system. The Gessner bed former was chosen for its ability to perform when there are substantial amounts of crop residue left after the cane cycle i.e. remaining stools and leaf matter.

Aims:

The aim of the project was to show that if beds were formed accurate and consistent this would greatly increase the survival of fallow crops such as Soya bean thus improving the

uptake of the SYDJV farming system. The expected benefits of the project were: Using the GPS fitted tractor to form beds greatly increases consistency and accuracy and reduces forming to a one pass operation. Costs of previous practises were:
Estimated cost for scribing at $8.64 per hectare.
Estimated cost for 2 bed forming passes $49.60 per hectare
Estimated cost for 2 rotary hoe passes $38.41
Total cost equals $96.65 per hectare
Costs of bed-forming using a contractor with GPS guidance was $75.00 per hectare.

Other expected benefits are:
less synthetic fertiliser applied
less reliance on
chemicals
reduction in waterlogging
less environmental impact
better soil health
sustainable future in the industry

Methodology:
The project was primarily conducted through field days and meetings.
1. M.A.D. purchased a Gessner bed former
2. We formed beds on approximately 120 ha of our farms.
3. The bed former was made available to other interested farmers in all three mill areas.
4. The bed former was readily available for the SRDC funded farming system for example, Bernard Schiller had 2ha bed formed by Mark North and will be planted with sugar cane using our own double-disc opener billet planter this year 2007. M.A.D. Cane Planting will use our own planter due to the fact of it will be more economical to use ours than Nathan Ensby's SRDC funded planter.
5. Soy beans planted into beds at various times due to weather constraints. Establishment of Soy beans was excellent, as was continued growth through the season as we had expected over the conventional method of flat planted Soy beans.
6. Soy beans were harvested with an average of 3.75 tonnes per hectare. District average was approximately 2.90 tonnes per hectare. In late August early September sugar cane was planted also achieving excellent results.

Results and Outputs:
All of the results as were previous correspondence. All photos of project will be included.
We think the project has been a great success for our situation. The project achieved all it had set out to. The results were outstanding in our view.
Optimum bed shape determined as a result of this project in the NSW cane growing region

Capacity Building:
The group has been able to extend themselves somewhat to the extent of talking in front of a crowd of people. For example Mark, David and I had a presentation at the first GIVE day in the Burdekin region.
Project information also presented at local cane check meetings.

Outcomes:
We think that the benefits of the project have been achieved except maybe the lack of uptake from farmers. More time may be needed for that? We think predominantly farmers are very set in their ways and to change is too big of a risk considering the majority of farmers are over the age of 55. Most farmers of this age are debt free and can maybe afford to be less efficient. It would be difficult to estimate the number people to be bed forming in 2007 but indications are from our BSES extention officer Peter Mcguire that around 15% would be either converting or trialling this farming system this year. Most farmers are hard nuts to crack!

Environmental Impact:
Apart from perhaps a small problem with erosion of headlands and drain banks which can be overcome by the planting of grass or small shrubs to stabilise the bank or headland. All other practises lead to an environmentally friendlier way of farming. Less tractor movements, less chemical and synthetic fertiliser use. Most importantly better soil health for a more sustainable way of farming for future generations.

Communication and Adoption of Outputs:
Most communication with people has been direct face to face. In all our field days and Canecheck meetings SRDC has been acknowledged for their involvement in the project and the SYDJV farming system project which both are critically linked. Providing presentation at the Burdekin GIVE day. Presentations to various farm group visit's particularly Mackay growers.

Recommendations:
No recommendations to date. Our project was very particular and straight forward.

Publications:
As attached.

PHOTOS 1 TO 5 REPRESENT FIELD DAY 09.08.05 USING 'EASYFIX' BED-FORMER

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4

PHOTO 5

PHOTOS 6 TO 8 REPRESENT SETUP OF GESNER BED-FORMER DATED 08.11.05.

PHOTO 6

PHOTO 7

PHOTO 8

PHOTO 9

BED-FORMING USING GPS GUIDANCE ON DAVID BARTLETT'S FARM DATED 19.12.05.
PHOTOS 10 TO 12

PHOTO 11

PHOTO 12

BED-FORMING WITH GPS ON ALAN MUNRO'S 20.12.05 PHOTO 13 TO 15
PHOTO 13

PHOTO 14

PHOTO 15

DRAINAGE OF BEDS ON MARK NORTH'S FARM IN ESTABLISHED SOY CROP AFTER 175MM OF RAIN DATED 06.01.06
PHOTO 16

DRAINAGE OF BEDS ON JOHN CHIESA'S FARM IN NEWLY PLANTED SOY CROP AFTER 175MM RAIN
PHOTO 17

WELL ESTABLISHED SOY CROP ON MARK NORTH'S FARM 10.01.06
PHOTO 18

INSPECTION OF BEDS BY TOURING PARTY FROM MACKAY DATED 12.10.05
PHOTO
19

ADVERTISEMENT IN HARWOOD AREA NEWSLETTER
PHOTO 20

by senior extension officer, Bob Aitken

BSES

Clarence Cane News

January 2006

Soybean Beds Established Using GPS.

With the ultimate aim of being able to direct drill cane into zero till ground following soybeans, a Gessner bed former was recently used by Alan Munro to form soybean beds with GPS guidance. This followed successful trials during the 2005 planting season comparing conventional tillage with zero till cane planting using the Hodge double disc billet planter. The beds (see photos) were formed on 22nd December and soybeans planted on 23rd December. The moisture at planting was marginal and ideally Alan would have preferred to establish the beds a couple of months prior to soybeans but did not get the bed former until late December. Alan is aiming for beds 90-100mm high on well drained country and slightly higher beds on poorly drained areas. Following soybean harvest, weeds will be controlled by glyphosate and dual row cane planted into the beds which are on 1.8m (6 ft) spacing. GPS (self steer, ± 2cm) was used to form the beds and, while there was no GPS on the soybean planter, Alan found that the planter 'tracked' quite well over the preformed beds.

Zero Till Cane Planting Successful

During the 2005 planting season Nathan Ensbey established some zero till cane planting trials. The photos below show a comparison of conventional tillage and zero till cane planting on Woodford Island. The zero tilled strips are performing better than the conventional tillage strips at this site.

Prior to planting

Zero till straight after planting

Conventional tillage (left)
Zero till (right)
- in early December 2005