



Office Use Only

Project Code	
Project Type	

FINAL REPORT 2017

Applicants must read the *SAGIT Project Funding Guidelines 2017* prior to completing this form. These guidelines can be downloaded from www.sagit.com.au

Final reports must be emailed to admin@sagit.com.au as a Microsoft Word document in the format shown ***within 2 months*** after the completion of the Project Term.

PROJECT CODE	:	SAN 117
---------------------	---	---------

PROJECT TITLE	Farm Scale AquaTill Demonstration and Field Day

PROJECT DURATION

*These dates **must** be the same as those stated in the Funding Agreement*

Project Start date	01.04.2017					
Project End date						
SAGIT Funding Request	2017/18			\$		\$

PROJECT SUPERVISOR CONTACT DETAILS

The project supervisor is the person responsible for the overall project

Title:	First Name:	Surname:	
Mr	Gregory	Butler	
Organisation:			
South Australian No-Till Farmers Association Inc.			
Mailing address:			
Telephone:	Facsimile:	Mobile:	Email:

ADMINISTRATION CONTACT DETAILS

The Administration Contact is the person responsible for all administrative matters relating to the project

Title:	First Name:	Surname:	
Mrs	Mandy	Pearce	
Organisation:			
South Australian No-Till Farmers Association Inc.			
Mailing address:			
Telephone:	Facsimile:	Mobile:	Email:

PROJECT REPORT

Provide clear description of the following:

Executive Summary (200 words maximum) <i>A few paragraphs covering what was discovered, written in a manner that is easily understood and relevant to SA growers. A number of key dot points should be included which can be used in SAGIT communication programs</i>
<p>The project demonstrated the features of the AquaTill Liquid Coulter to SA grain growers at a field day (28 participants).</p> <p>The project also delivered a field demonstration that monitored the relative hair-pinning of moist residue caused by disc-seeders fitted with and without AquaTill.</p> <p>The AquaTill Liquid Coulter did reduce hair-pinning of lentil seeds in moist wheat residue. This discovery was extended to SA grain growers via several channels including the SANTFA conference, social media and Youtube channel.</p>
Project Objectives <i>A concise statement of the aims of the project in outcome terms should be provided.</i>
<p>The objective of the project was to demonstrate the features of the AquaTill Liquid Coulter.</p> <p>In particular, the project sought to generate information that could be used to demonstrate the potential advantages that AquaTill can offer SA grain growers through better residue management during seeding operations.</p>
Overall Performance

A concise statement indicating the extent to which the Project objectives were achieved, a list of personnel who participated in the Research Project including co-operators, and any difficulties encountered and the reasons for these difficulties.

The project achieved the objectives.

SANTFA staff including the R&D Manager (Greg Butler) and SANTFA Technical Officer (Andrew Bird) both participated in the project delivery.

Ben Marshman and Alec Bowyer, both innovative farmers at Owen were also major contributors to the project through the provision of equipment and services.

Key Performance Indicators (KPI)

*Please indicate whether KPI's were achieved. The KPI's **must** be the same as those stated in the Application for Funding and a brief explanation provided as to how they were achieved or why they were not achieved.*

KPI	Achieved (Y/N)	If not achieved, please state reason.
AquaTill installed on Bartleville RAZR.	Yes	
AquaTill Field day conducted at Bartleville.	Yes	28 participants
SANTFA extension outputs	Yes	Please note. SANTFA Journal article is drafted but not yet published in the magazine. SAGIT is recognized in the article and a PDF of the final Journal article will be provided at once published.

Technical Information (Not to exceed **three** pages)

Provide sufficient data and short clear statements of outcomes.

The AquaTill Liquid Coulters were fitted onto every second disc on a section of a Morris RAZA seeder at Owen, SA.

Lentil seed was sown into a damp wheat residue.

Residue condition was monitored post seeding to assess the impact of hair-pinning.

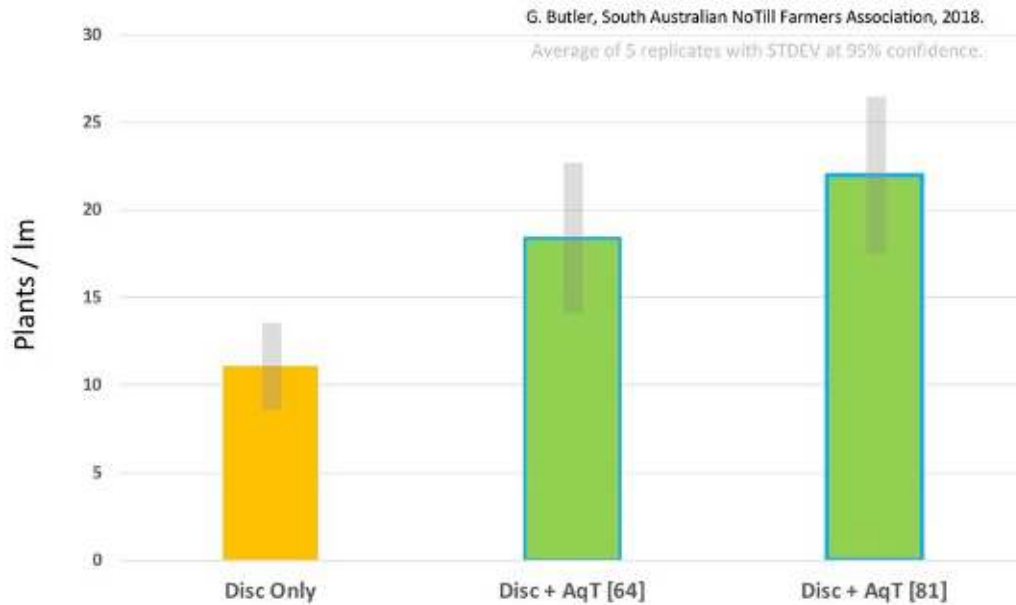
Lentil emergence per linear meter was counted by the SANTFA technical officer at five locations along the row 6 weeks after sowing (Table 1).



Table 1. Lentil emergence per linear meter off row

	Disc Only	Disc + AT [64]	Disc Only	Disc + AT [81]	Disc Only
R1	10	20	21	20	11
R2	9	11	7	25	12
R3	10	16	13	14	15
R4	2	23	14	25	7
R5	7	22	11	26	17
AVG	7.6	18.4	13.2	22	12.4
St Dev	3.4	4.9	5.1	5.0	3.8

Crop establishment in damp residue using a disc seeder with +/- AquaTill



Conclusions Reached &/or Discoveries Made (Not to exceed one page)

Please provide concise statement of any conclusions reached &/or discoveries made.

Seeding with a disc into moist residue resulted in significant hair-pinning.

A strong correlation between hair-pinning and reduced seed germination was observed.

The use of the AquaTill Liquid Coulter reduced hair-pinning and resulted in a significantly higher establishment of plants in the row when disc-sowing into moist wheat residue.

Intellectual Property

Please provide concise statement of any intellectual property generated and potential for commercialisation.

Nil.

This was a conceptual demonstration of the AquaTill system.

For example: It is not possible to commercialize the No-Till farming system.
It is possible to commercialize No-Till equipment, but not the No-Till concept.

Application / Communication of Results

A concise statement describing activities undertaken to communicate the results of the project to the grains industry. This should include:

- Main findings of the project in a dot point form suitable for use in communications to farmers;
- A statement of potential industry impact
- Publications and extension articles delivered as part of the project; and,
- Suggested path to market for the results including barriers to adoption.

Note that SAGIT may directly extend information from Final reports to growers. If applicable, attach a list of published material.

Field day:

The Field day was promoted via electronic and print media.



Paddock Demonstration:

The results of the paddock demonstration have been promoted via social media, a youtube video, a SANTFA Conference presentation and will be printed in a SANTFA Journal Article (to be supplied to SAGIT as PDF once published).





R&D Report at SANTFA Conference 2018.



Opening image of the YouTube video.

- *Main findings of the project in a dot point form suitable for use in communications to farmers;*

Seeding with a disc-seeder into moist residue can result in significant hair-pinning.

There is a strong correlation between hair-pinning and reduced seed germination.

The use of the AquaTill Liquid Coulter reduced hair-pinning and resulted in a significantly higher establishment of lentil plants in the row when disc-sowing in moist wheat residue.

- *A statement of potential industry impact*

Seeding is inhibited when crop residues become moist and most farmers are forced to delay seeding until residues are sufficiently dry.

AquaTill offers potential to sow in moist conditions, offering efficiency to the seeding program and opportunities to better capitalize on optimum 'time of sowing'.

According to the farm co-operators at Owen, the AquaTill liquid rate per hectare looks viable under the current farm infrastructure for row-spacings at or greater than 381mm (15").
Faba beans, canola, etc ...

The liquid rate for narrow row-spacings is a potentially limiting factor and would require a shift in farm infrastructure and management. However, in spite of the higher liquid rate, strong interest to adopt AquaTill has been expressed by a farmer on 10" rows in a high rainfall zone (Kangaroo Island).

- *Publications and extension articles delivered as part of the project; and,*
- *Suggested path to market for the results including barriers to adoption.*
The communication mechanisms being delivered in the project are believed to be satisfactory.

POSSIBLE FUTURE WORK

Provide possible future directions for the research arising from the project including potential for further work and partnerships.

SANTFA has sought future support from SAGIT for a NLP2 application that seeks to build AquaTill research capacity at the UniSA AMRDC in conjunction with Dr Jack Desbiolles.

The ARMDC will look more closely at specific configurations relevant to the adoption of AquaTill by SA grain growers.

--

AUTHORISATION
Name: Greg Butler
Position: R&D Manager
Signature:
Date: 05.03.2018

Submit report via email to admin@sagit.com.au as a Microsoft Word document in the format shown ***within 2 months*** after the completion of the Project Term.