



Office Use Only

Project Code	UA518
Project Type	Travel

FINAL REPORT 2018

Applicants must read the *SAGIT Project Funding Guidelines 2018* 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	: UA518
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PROJECT TITLE	(10 words maximum)
Development of wheat population using speed breeding for salinity tolerance	

PROJECT DURATION

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

Project Start date	1 st May 2018					
Project End date	30 th August 2018					
SAGIT Funding Request	2018/19	\$	2019/20	\$	2020/21	\$

PROJECT SUPERVISOR CONTACT DETAILS

The project supervisor is the person responsible for the overall project

Title:	First Name:	Surname:	
Dr	Allison	Pearson	
Organisation:			
The University of Adelaide			
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:	
Ms	Chelsea	DuBois	
Organisation:			
The University of Adelaide			
Mailing address:			
Telephone:	Facsimile:	Mobile:	Email:

PROJECT REPORT

Provide clear description of the following:

Executive Summary (200 words maximum)

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

In South Australia it has been estimated that approximately 50% of farms are at risk of showing signs of transient salinity. I was fortunate to be able to travel to the Gordon Research Conference on 'Salt and water stress in plants' which is a gathering of leading scientists from around the globe who work in the area of salinity, focusing on agricultural crop plants. Attendance at this conference gave me invaluable insight into the research that is being conducted, I made new connections for future collaborations and was able to see new software tools that have been developed that I will use to aid my research in the future.

PROJECT REPORT

I was fortunate to receive a grant from the South Australian Grains Industry Trust supporting my travel to attend the 2018 "Salt and Water stress in Plants" Gordon Research Seminar and Conference.

The Gordon research conference is held every two years in a different country and this year it was held in Waterville Valley, New Hampshire, United States which is a beautiful ski resort in the winter and has excellent hiking tracks throughout the other times of year. The beautiful scenery made for a great experience at the conference.

Before the conference begins on the 3rd of June there is the Gordon Research Seminar which is a two day program that has been designed specifically for early career researchers and PhD students to get together and talk about their research. This year I

was invited to be a discussion chair for the session “Applications in Fundamental Research in Field Conditions”. During this session we heard talks from John Ferguson on ‘Increasing stomatal resistance to water loss in sorghum’, Simon “Niels” Groen on ‘Systems genetics of stress adaptation in rice’, Stephanie Klein on ‘Smaller root metaxylem vessels for improved drought tolerance in maize’ and Stephanie Saade on ‘Identifying the components of salinity tolerance in a barley association mapping population’. These were only a few of the many excellent talks given by both post-doctoral researchers and PhD candidates during the seminar.

The conference on “Salt and water stress in plants” consists of about 200 scientist from around the world who specialise in the research of salinity and water stress of many types of agricultural crops including wheat, barley, maize and rice to name a few. There are a number of different session over the five days some of which included ‘Dealing with a Changing Environment’, ‘Genome Level Responses to the Environment’ and ‘Crop Productivity Under Abiotic Stress’. Some of the excellent presentations included those by Julia Bailey-Serres from the University of California who gave a talk about the ‘High resolution of developmental plasticity to too much or too little water in rice’. She highlighted that in 2017 there were \$4b in loss due to extreme events with a third due to flooding, a third from drought and a third to other stresses including salinity for rice production. One of her questions was “what are the key genetic mechanisms of stress and post-stress recovery that are common across species?”

Talks that were of particular interest to me were given by Magdalena Julkowska from King Abdullah University of Science and Technology and Maximilian Feldman from Donald Danforth Plant Science Centre who have developed software tools that can be used to aid our research back here in Australia. Magdalena presented the MVApp which is a simple load and go application which you can use to upload your experimental measurements from the field or glasshouse and look for outliers in your data, correlations between traits, perform hypothesis testing and also calculate broadsense heritability. For people who aren’t proficient in R this is a good starting point for looking at all of your data easily. Maximilian presented his research on ‘Components of Water Use Efficiency have Unique Genetic Signatures in the Model C4 Grass *Setaria*’ and part of his presentation was his QTL analysis pipeline in R that can analyse hundreds of traits a day for the detection of QTL in genetic mapping populations.

I presented the poster ‘Development of a wheat RIL population using embryo rescue and speed breeding for salinity tolerance’ which was very well received by the members of the conference and who were looking forward to seeing what the outcomes of this very exciting research will be.

This conference has given me the chance to meet new people from around the world, many of which I will remain in contact with and who I may be able to have future collaborations with. I would like to thank the South Australian Grains Industry Trust for giving me the opportunity to attend the Gordon Research Seminar and Conference on Salt and Water Stress in Plants.

POSSIBLE FUTURE WORK

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

Travel to the conference has benefited this research as this is a world class conference which is attended by leading scientists in the area of salinity, focusing on agricultural crop plants. I was able to attend talks by many outstanding scientists which has allowed me to increase my understanding of research that is being undertaken in other laboratories.

I have been able to connect with other scientists which I hope will allow for collaborations in the future and I have also been able to access useful tools like MVApp, which I wouldn't have known about for some time without attending this conference. This software will be used to help with the analysis of data that is collected from research into salinity tolerance. This tool will be of particular use when we run our greenhouse experiment next year which is funded by SAGIT to look at the relationships between the traits we are studying for salinity.

AUTHORISATION

Name:

Position:

Signature:

Date:

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.

