



The SAGIT Snapshot

SA grain growers
funding research
solutions

2022

The South Australian Grain Industry Trust ...

SA grain growers funding research solutions

SAGIT has longevity

The South Australian Grain Industry Trust Fund (SAGIT) was established in 1991 to administer the voluntary research levy contributed by SA grain growers.

YOUR support keeps SAGIT going

SAGIT is funded by a 30 cents per tonne contribution on all grain delivered by SA grain growers. Without your support, there would be no SAGIT.

SAGIT invests in a range of areas

Research and development investment of more than \$1.8 million a year is supported in a range of areas crucial to advancing the SA grain industry, including grain growing, farming systems, soil management, harvesting, storage, processing and marketing and for dissemination of technical information to growers.

SAGIT is directed by growers

SAGIT has a board of four grower trustees and a trustee appointed by the South Australian Minister for Agriculture. An open call is held annually and the trustees take into consideration issues affecting SA grain production and innovative ideas to progress the industry. Trustees receive specialist agronomic and scientific advice to ensure their funding decisions are informed and credible.

SAGIT is accountable to growers

An annual report on how levy funds are spent is available to growers and provided to Grain Producers SA and the South Australian Minister for Agriculture.

SAGIT is unique

No other state has a research fund supported by growers for state-based, grains industry research. We are the envy of other states!

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Investment Index

✓ = new investments starting in 2022-23 totalling \$2.01 million

Code	Organisation	Supervisor	Project title	New	Pg
AEG4022	Australian Export Grains Innovation Centre	Siem Siah	Developing a new high value noodle market for South Australian growers	✓	8
AEP1022	AIR EP	Naomi Scholz	Managing crown rot on upper EP – a joint learning experience	✓	8
AEP1422	AIR EP	Naomi Scholz	Eyre Peninsula internship in applied grains research 2023	✓	8
AGC0432	AgCommunicators	Belinda Cay	Lead agriculture teacher for South Australia - growing curriculum and learning	✓	9
AGS4922	Agronomy Solutions	Sean Mason	Sulphur dynamics and budgets in two contrasting soil profiles	✓	9
AGX3822	AgXtra	Richard Porter	AgXtra high school and university crop competition	✓	9
AIA1122	Ag Institute Australia	Craig Davis	Student Compendium – supporting the next generation, 2023-25	✓	10
CAS4822	Central Ag Solutions	Sam Holmes	On row sowing benefits on Yorke Peninsula – what are the drivers?	✓	10
CSI3522	CSIRO	Gupta Vadakattu	Improved resilience of soil function through crop management	✓	10
ELD3422	Elders	Adam Hancock	Nitrogen strategies for HRZ wheat in waterlogged soils and denitrification	✓	11
EP120	AIR EP	Andrew Ware	Eyre Peninsula internship in applied grains research		11
GGG121	Global Grain Genetics	Michael Materne	Lentil varieties for low rainfall and sandy soil environments		11
H120	Hart Field-Site Group	Rebekah Allen	Regional internship in applied grains research		14
H121	Hart Field-Site Group	Rebekah Allen	Variety selection and weed management options for genetically modified canola		14
LEA120	EPAG Research	Andrew Ware	Taking South Australian canola profitability to the next level		14
MFM120	MacKillop Farm Management Group	Meg Bell	MacKillop Farm Management Group annual trial results book		15

Code	Organisation	Supervisor	Project title	New	Pg
MF4522	MacKillop Farm Management Group	Meg Bell	Reducing wheat yield loss from Barley Yellow Dwarf Virus in the HRZ	✓	15
MHR121	Mid North High Rainfall Zone Group	Michael Faulkner	Frost Learning Centre for farmers, advisers and researchers		15
MPF221	Murray Plains Farmers	Deanna Lush	Pasture legume choices, establishment and persistence for the Murray Plains		16
PA121	Precision Agriculture	Adam Brinkmann	A practical approach to sub-surface acidity in the Mid North		16
PIR121	PIRSA	Brian Hughes	Developing criteria for soil and plant aluminium and manganese toxicity in South Australia		16
SAR1222	SARDI	Melissa McCallum	Ground truthing wheat and barley flowering time in the Mid North and Mallee using the Mesonet	✓	17
S/UA121	SARDI / University of Adelaide	Amanda Cook	Improving management of Group A resistant barley grass in current farming systems		17
S/UA221	SARDI / University of Adelaide	Katherine Linsell	Grower crop root health workshops		20
S/UA421	SARDI / University of Adelaide	Blake Gontar	Measuring and managing yield loss caused by Phoma root in lentil and faba bean		20
S/UA721	SARDI / University of Adelaide	Kathy Ophel-Keller	Extension support for SA Drought Hub Internship Program		20
S/UA821	SARDI / University of Adelaide	Rhiannon Schilling	Investigating aluminium speciation in wheat roots in alkaline soil		21
S/UA921	SARDI / University of Adelaide	Rhiannon Schilling	Evaluating super high oleic acid safflower in sodic and saline soils		21
S/UA1021	SARDI / University of Adelaide	Brendan Kupke	Characterising the optimal flowering period for the Murray Plains		21
S121	SARDI	Amanda Cook	Eyre Peninsula Farming Systems Summary 2021-2023		22
S220	SARDI	Phil Davies	SA Crop Variety Sowing Guide		22
SAN120	SANTFA	Greg Butler	SANTFA Conference 2021-2023		22
SAN121	SANTFA	Greg Butler	The implications of green hydrogen for SA grain growers		23
TC121	Trengove Consulting	Sam Trengove	Improving crop safety and broadleaf weed control with herbicides in lentil		23
TC221	Trengove Consulting	Sam Trengove	Improved management of variable phosphorus requirement and strategies for highly responsive soils		23

Code	Organisation	Supervisor	Project title	New	Pg
TRC5022	Trengove Consulting	Sam Trengove	Independent benchmarking of harvester weed seed mills	✓	26
UA221	University of Adelaide	Judith Rathjen	Understanding and managing fertiliser toxicity in pulses in SA		26
UA420	University of Adelaide	Scott Boden	Enhancing grain production and quality traits for bread wheat		26
UA720	University of Adelaide	Iain Searle	Development of a dual-purpose common vetch variety for arid South Australia		27
UAD1722	University of Adelaide	David Peck	Harvest and use of medic pods on-farm	✓	27
UAD1922	University of Adelaide	Penny Roberts	Agronomy strategies for frost management in pulse crops	✓	27
UAD2222	University of Adelaide	Brendan Kupke	Realising cereal yield potential using crop physiology and drone technology	✓	28
UAD2522	University of Adelaide	Kym Perry	Revegetation for enhanced biocontrol of pest conical snails	✓	28
UNF2822	Upper North Farming Systems	Ruth Sommerville	Canola profitability as a break crop in the Upper North?	✓	28
USA118	University of South Australia	Enzo Lombi	Comparative effects of agricultural pesticides on SA soil microbial functions		29
USA121	University of South Australia	Enzo Lombi	Developing a DGT methodology to assess bioavailability of herbicide residues		29

Grower group events

Code	Organisation	Supervisor	Project title	New	Pg
AEP1522G	AIR EP	Naomi Scholz	Lower Eyre Peninsula Ag Expo 2022	✓	29

SAGIT INVESTMENTS

Research Projects

✓ indicates new project starting in 2022-23



AEG4022: Developing a new high value noodle market for South Australian growers



Australian Export
Grains Innovation
Centre



\$399,700



1/7/2022 – 30/6/2025



This project aims to establish a new high-value noodle wheat market for South Australia, increasing demand in Taiwan, South Korea and Hong Kong, estimated at \$95 million annually for SA wheat and improving returns for growers. It will position a segment of the Australian Hard (AH) class as a premium noodle grade in Asia, creating additional value for selected hard wheat varieties grown in SA at AH protein levels. This project is a co-investment, with the Grains Research and Development Corporation providing 50% of the total funding (above).



Siem Siah, 02 8025 3200, siem.siah@aegic.org.au

AEP1022: Managing crown rot on upper EP – a joint learning experience



AIR EP



\$150,724



1/7/2022 – 30/6/2024



This project aims to reduce yield losses due to crown rot, increasing the amount and consistency of grain for export; increase the adoption of existing and novel options for managing crown rot; and improve the ability of farmers and advisers (and researchers) to understand trials and demonstrations and how to interpret the results for application and implementation in local farming systems.



Naomi Scholz, 0428 540 670, eo@airep.com.au

AEP1422: Eyre Peninsula internship in applied grains research 2023-24



AIR EP



\$140,000



1/7/2022 – 30/6/2024






To improve the capacity of grains research, development and extension on the Eyre Peninsula and to further develop applied research skills of recent graduates so they will be able to make an improved contribution to the grains RD&E industry in SA, through the annual appointment of a recent graduate as an intern in applied grains research on EP.



Naomi Scholz, 0428 540 670, eo@airep.com.au





AGC432: Lead agriculture teacher for South Australia – growing curriculum and learning

 AgCommunicators
  \$143,080
  1/7/2022 – 30/6/2024
 


The lead agriculture teacher is a pilot program which will see a leading agriculture teacher engaged to mentor, support and train agricultural teachers across SA and to engage students in meaningful food and fibre production content. The role will assist teachers seeking access to new curriculum content and individualised support to revitalise their teaching programs across all secondary year levels.

 Belinda Cay, 0423 295 576, belinda.cay@agcommunicators.com.au





AGS4922: Sulphur dynamics and budgets in two contrasting soil profiles

 Agronomy Solutions
  \$69,548
  1/7/2022 – 30/6/2024
 

This demonstration project aims to provide valuable information on immediate and longer-term sulphur management options applicable to a wide range of growing regions. The project aims are to be achieved by comparing different forms of sulphur fertilisers for mobility and availability within soil profiles with detailed profile sampling; and assess the impact of two different crop types in sulphur accessibility due to varying rooting depths.

 Sean Mason, 0422 066 635, sean@agronomysolutions.com.au

AGX3822: AgXtra high school and university crop competition

 AgXtra
  \$116,790
  1/7/2022 – 30/6/2025
 

A wheat production competition for high school students and university agricultural students which promotes agriculture as a career choice to high school students and engages tertiary students with agribusiness and consultants for career option awareness. Promotes hands-on learning to participating students and addresses the urban/rural disconnect by moving students out of the classroom and into the field to experience, and participate in, field crop agronomy.

 Richard Porter, 0413 027 670, rporter@agxtra.com.au

AIA1122: Student Compendium – supporting the next generation, 2023-25



Ag Institute
Australia



\$22,500



1/7/2022 – 30/6/2025



The Student Compendium is an annual collation of graduate programs, internships, training, competitions, conferences, associations, awards and scholarships for high school and vocational training students and tertiary agricultural, animal and veterinary and agribusiness undergraduates. It assists the next generation of South Australian students to find opportunities to connect them with industry and broaden career horizons and empower students in agriculture.



Craig Davis, 0447 541 654, craig.davis.nominees@outlook.com

CAS4822: On-row sowing benefits on Yorke Peninsula – what are the drivers?



Central Ag
Solutions



\$108,350



1/7/2022 – 30/6/2024



This project aims to understand improved early crop vigour from on or near row sowing. Two trials will demonstrate yield benefits from on or near row sowing of previous crop stubble lines under different phosphorus management programs. On-farm paddock trials (8) will demonstrate variation in soil type within paddocks across Yorke Peninsula; a general survey will be undertaken of soil conditions in 2022 on-row sowing vs interrow sowing across YP (50 paddocks x 2 production zones).



Sam Holmes, 0427 700 219, sam@centralagsolutions.com.au

CSI3522: Improved resilience of soil function through crop management



CSIRO



\$189,270



1/7/2022 – 30/6/2024



This project will identify management practices that promote resilience of biological functional capacities relevant to nutrient supply, carbon sequestration and overall soil health. It proposes to determine the impact of cover crop systems on soil biological functional resilience and its relationship with crop performance. Additionally, the impact of soil and crop management practices such as stubble management, tillage, fertilisers and rotations on soil functional resilience will be quantified in ongoing field experiments in SA.



Gupta Vadakattu, 08 8303 8579, gupta.vadakattu@csiro.au

ELD3422: Nitrogen strategies for HRZ wheat in waterlogged soils and denitrification



Elders



\$65,500



1/7/2022 – 30/6/2023



The aim of this project will be to quantify, if any, the amount of nitrogen lost from denitrification in cropping soils in the South East of South Australia. The project will assess and compare the effectiveness of the various nitrogen application strategies applied to waterlogged crops while allowing a scientific look at less commonly used tools and models for nitrogen budgeting.

Adam Hancock, 0427 475 254, adam.hancock@elders.com.au

EP120: Eyre Peninsula internship in applied grains research

EPAG Research
(on behalf of AIR EP)

\$25,600



1/7/2020 – 30/6/2023

To fund two interns to be based on the Eyre Peninsula. One intern per year, starting February 2021. Interns will be supervised by Andrew Ware with two weeks at Minnipa Ag Centre and two weeks with independent agronomists. Interns will also conduct a project of field trials and aerial imagery linked with the National Landcare Program AIR EP project. The 2022 EP intern is Rebekah Fatchen.

Andrew Ware, 0427 884 272, andrew@epagresearch.com.au

GGG121: Lentil varieties for low rainfall and sandy soil environments

Global Grain
Genetics Pty Ltd

\$158,094



1/7/2021 – 30/6/2024

Lentil germplasm developed in SAGIT project GGG118 is to be evaluated at multiple low rainfall sites and a contrasting higher rainfall site to understand traits that confer adaptation to sandy soils, and to identify lines for variety release. Lentil germplasm is screened to identify lines with specific adaptation to Mallee duplex soils and deep sandy soils. Outcomes will identify traits for lentil adaptation to sandy soils and agronomy required to increase yield and yield stability.

Larn McMurray, 0466 113 848, lmcmurray@globalgraingenetics.comMichael Materne, 0413 977 940, mmaterne@globalgraingenetics.com

Progress in developing low rainfall lentils

The development of lentil varieties specifically suited to production in South Australia's low rainfall cropping regions is progressing thanks to advances being generated from SAGIT-funded projects led by Global Grain Genetics (GGG), the research arm of the private plant breeding company Grains Innovation Australia (GIA).

Until the commencement of GGG118, there had been little or no specific breeding and development of lentil in SA's low rainfall environments, despite lentil being the major pulse crop grown in SA and its production area continuing to expand in low rainfall regions.

The lentil varieties grown in the State's low rainfall environments have generally been the same as those grown in more favourable regions, despite evidence that variety performance varies on sands compared to heavier textured soils.

In 2018, GGG commenced work on a three-year SAGIT-funded project which aimed to identify the key traits required for lentil production in low rainfall areas and develop innovative lentil germplasm with improved and unique traits for SA's low rainfall cropping regions.

GGG plant breeder Dr Larn McMurray said the project was successful in many respects.

"Firstly, we identified a positive relationship between plant biomass pre-flowering and grain yield in lentils in low rainfall environments; this relationship has not been found in the favourable lentil growing regions of SA," Dr McMurray said.

"We also identified imidazolinone-tolerant advanced breeding lentil lines with high grain yields in low rainfall environments that resulted in the release of GIA Lightning specifically for the light textured soils of these regions, and developed and identified



GGG plant breeder Larn McMurray (left) at a Bute trial site with SAGIT's Malcolm Buckby and Jenny Davidson.

mutation-derived PBA Jumbo2 lines with up to 12 per cent higher grain yield than the popular broadly adapted PBA Jumbo2 across all low rainfall evaluation sites.”

Other successful outcomes from the project included the:

- Development of lentil germplasm with specific traits (vigour, multiple herbicide tolerances, improved harvestability and pod retention) for low rainfall environments;
- Development of novel screening tests for soil texture and Group C herbicides in lentil; and
- Linkages with relevant SAGIT projects (MSF115, TC116, TC119, MSF219) to provide project researchers with a unique and extensive understanding of lentil growth, response and performance in dune-swale low rainfall environments.

SAGIT has now funded a new three-year project (GGG121) that aims to exploit all the germplasm developed in GGG118 and provide variety/varieties that improve the reliability of lentil production in low rainfall environments.

“The identification and development of varieties with specific adaption to the low rainfall environment of SA will have the potential to increase the area sown to lentils over time to at least five per cent of the total low rainfall crop area, or approximately 100 to 150,000 ha,” Dr McMurray said.

“This represents a five-fold increase over the current area in low rainfall environments and a significant increase in the total lentil area in SA. Additional rotational benefits of between 0.3 and 0.5t/ha would also be expected over this area in the following cereal crop.”

Any line selected in GGG121 with specific adaptation and benefits for the low rainfall regions will be rapidly progressed and released by GIA to SA growers, according to Dr McMurray.

GGG118: Rapid development of innovative lentils for low rainfall regions

H120: Regional internship in applied grains research



Hart Field-Site
Group



\$198,568



1/7/2020 – 30/6/2023

To fund a two-year internship, starting March 2021. The intern will also undertake a 4-6 week placement with SARDI on a project relevant to Hart research. The 2021- 2022 Hart regional intern is Declan Anderson.



Rebekah Allen, 0428 782 470, rebekah@hartfieldsite.org.au

H121: Variety selection and weed management options for genetically modified canola



Hart Field-Site
Group



\$61,708



1/7/2021 – 30/6/2024

GM canola varieties are to be demonstrated at the Hart Field Site for the Mid North region and herbicide regimes for best annual ryegrass control are to be determined.



Rebekah Allen, 0428 782 470, rebekah@hartfieldsite.org.au

LEA120: Taking South Australian canola profitability to the next level



EPAG Research
(on behalf of AIR EP)



\$130,400



1/7/2020 – 30/6/2023

To maximise water use efficiency of canola, this project will have two-year rotation trials of canola after wheat or pulses at two sites (Vanilla and Yeelanna) on the lower Eyre Peninsula. The project will also test timings and higher rates of nutrients (P, S and N), and an economic analysis of the findings.



Andrew Ware, 0427 884 272, andrew@epagresearch.com.au

MFM120: MacKillop Farm Management Group Annual Trial Results



MacKillop Farm
Management Group



\$18,000



1/7/2020 – 30/6/2023

To fund compilation of MacKillop Farm Management Group Annual Trials Results book for trials undertaken in 2020, 2021 and 2022. The book will be available in March the following year.



Meg Bell, 0433 499 630, ceo@mackillopgroup.com.au

MFM4522: Reducing wheat yield loss from Barley Yellow Dwarf Virus in the HRZ



MacKillop Farm
Management Group



\$90,000



1/7/2022 – 30/6/2024



Barley Yellow Dwarf Virus (BYDV) consistently and significantly impacts wheat crops in the high rainfall zone (HRZ) of South Australia. This impact appears in the form of erect heads with poor grain fill, approximately 3-4 weeks before harvest in crops that have previously appeared generally healthy, and results in yield loss. This project aims to evaluate agronomic tactics and insecticide regimes to reduce the impact of BYDV on wheat yields in the SA HRZ.



Meg Bell, 0433 499 630, ceo@mackillopgroup.com.au

MHR121: Frost Learning Centre for farmers, advisers and researchers



Mid North High
Rainfall Zone Group



\$304,600



1/4/2021 – 30/6/2023

Frost research is conducted on (1) physiological traits that result in a slight increase in frost tolerance, (2) frost avoidance strategies such as variety, time of sowing, mixes and intercropping, plant growth regulators, delayed maturity interventions, (3) mitigation of frost damage through dual purpose wheat and barley for yield, hay or grazing and (4) rapid and remote sensing of frost damage. The centre, established with SAGIT funding, aims to be a template for establishing frost learning centres elsewhere. This project is a co-investment, with the Grains Research and Development Corporation providing 50% of the total funding (above).



Michael Faulkner, 0428 857 378, mick.faulkner@bigpond.com

MPF221: Pasture legume choices, establishment and persistence for the Murray Plains



Murray Plains
Farmers



\$29,760



1/5/2021 – 31/12/2022

Appropriate pasture species are to be identified for the low rainfall Murray Plains environment, which has highly variable soil types. Ten pasture species will be sown into a trial site and dry matter cuts and seed banks will be measured. Sowing rate is measured in three species, and N fixation as well as soilborne diseases are measured via soil tests the following autumn.



Deanna Lush, 0419 783 436, deanna.lush@agcommunicators.com.au

PA121: A practical approach to sub-surface acidity in the Mid North



Precision
Agriculture



\$91,315



1/7/2021 – 15/12/2022

The variability in subsoil acidity in cropping paddocks of the Mid North is quantified by a range of means including correlation to topsoil pH maps, and other soil data layers such as electrical conductivity, radiometrics and elevation. This will provide cheaper identification compared to conventional approaches and provide growers with practical tools and guidance for amelioration, including variable rate application of lime that matches soil requirements.



Adam Brinkmann, 0459 276 882, a.brinkmann@precisionagriculture.com.au

PIR121: Developing criteria for soil and plant aluminium and manganese toxicity in South Australia



PIRSA



\$76,660



1/7/2021 – 28/2/2023

Critical soil and plant aluminium and manganese toxicity levels will be developed for South Australian conditions, including soil types, crops and local soil testing methods.



Brian Hughes, 0429 691 468, brian.hughes@sa.gov.au

SAR1222: Ground truthing wheat and barley flowering time in the Mid North and Mallee using the Mesonet



SARDI



\$62,860



1/7/2022 – 30/6/2023



The project aim is to characterise the environmental differences across the Mid North and South Australian Mallee regions and the subsequent effect on planting time and variety selections for cereals. This aim will be achieved by utilising the Mesonet weather network to ground truth wheat and barley flowering time.



Melissa McCallum, 0448 188 841, melissa.mccallum@sa.gov.au

S/UA121: Improving management of Group A resistant barley grass in current farming systems



SARDI / University of Adelaide



\$224,861



1/6/2021 – 30/6/2024

Control of resistant barley grass is to be investigated on upper Eyre Peninsula through (1) impact of new herbicides and management options in cereals and break crops, (2) understanding the seed dormancy and germination patterns of barley grass in that region, and (3) identifying soil constraints that impact on herbicide efficacy by monitoring five farmer paddocks per season.



Amanda Cook, 0427 270 154, amanda.cook@sa.gov.au



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Stuart Sherriff (left) and Sam Trengove, from Trengove Consulting, are now working on a new SAGIT-funded project looking at improved management of variable phosphorus requirements and strategies for responsive soils.

Targeted phosphorus pushes profit potential

A SAGIT-funded project has demonstrated that grain grower profitability can be increased by targeting phosphorus (P) fertiliser to where it is required rather than applying blanket rates across paddocks.

The TC219 project from 2019-21, led by Sam Trengove from Trengove Consulting, showed that an average increase in partial gross margin of \$41/hectare was achievable for P responsive soils by using higher optimal P rates than those recommended by P replacement strategies.

In addition, a saving in fertiliser on non-responsive soils could be achieved where lower fertiliser rates could be applied without incurring any yield loss.

With P fertiliser inputs being one of the largest variable input costs associated with producing grain crops in SA, the aims of the project were to increase the profitability derived from P fertiliser application and to better understand how these data layers can be integrated to produce variable rate P prescription maps that optimise P rates across variable paddocks.

Mr Trengove said the project, 'Improved phosphorus prescription maps – beyond replacement P', had shown that the P rates required to optimise partial gross margin varied widely across five trial paddocks in the Mid North and northern Yorke Peninsula region according to soil type and production zones.

"Within a paddock it was shown that the optimal P rate can range from 0 kg/ha up to more than 40 kg/ha, depending on location within the paddock," he said.

"It was also shown that several spatial data layers can be used to predict the variable P response in advance of seeding," Mr Trengove said.

"In particular, combining soil pH and historical satellite imagery into a single index provided good prediction of spatial P response."

A methodology has been developed for combining these data layers and generating P prescription maps for use in variable rate seeders and spreaders.

Mr Trengove said it was conservatively estimated that across the Mid North and northern YP region, 20 per cent of paddock area was responsive to higher P rates than standard practice.

"There's a potential annual benefit of \$3.28 million in increased productivity in this region if every grower applied higher optimal P rates, based on an average increase in partial gross margin of \$41/ha," he said.

"At 25 per cent adoption, this still equates to \$820,000 benefit annually to this region. The benefit will be increased further through reducing fertiliser cost on non-responsive soils."

Mr Trengove is now leading SAGIT-funded project TC221, 'Improved management of variable phosphorus requirements and strategies for responsive soils', which started in 2021 and runs to June 2024.

Through this project, P response prediction based on spatial data in variable soils is to be validated in a series of field trials encompassing different soil types. Best practice for long term management of high P response sites is to be determined.

TC219: Improved phosphorus prescription maps - beyond replacement P

S/UA221: Grower crop root health workshops



SARDI / University
of Adelaide



\$131,716



1/7/2021 – 30/6/2023

Nine grower crop root health workshops are to be held across SA over two years, led by two teams of SARDI pathologists. DNA testing of crop samples will be offered if chosen by the participant and at the cost of the participant. Workshops are to be organised and facilitated by AgCommunicators. Post workshop online consultation will be delivered to discuss DNA results.



Katherine Linsell, 0417 889 253, katherine.linsell@sa.gov.au

S/UA421: Measuring and managing yield loss caused by Phoma root in lentil and faba bean



SARDI / University
of Adelaide



\$347,511



1/7/2021 – 30/6/2024

The effect of Phoma root rot on yield in lentil and faba bean is to be measured in a series of field trials which are inoculated with varying rates of the pathogen. Trials are subjected to various levels of soil water via supplementary irrigation to investigate the role of soil water in the root rot disease. A range of chemical options are tested for disease control.



Blake Gontar, 0430 597 811, blake.gontar@sa.gov.au

S/UA721: Extension support for SA Drought Hub internship program



SARDI / University
of Adelaide



\$30,000



1/7/2021 – 30/6/2024

This project links to the Federal Government Future Drought Fund which has a South Australian Hub, to demonstrate and increase grower adoption of innovative drought resilience tools, technologies and practices. The SA Drought Hub extension intern will run a series of workshops to extend the outcomes of previous SAGIT investments aligned to the Hub.



Kathy Ophel-Keller, 8303 9368, kathy.ophelkeller@sa.gov.au

S/UA821: Investigating aluminium speciation in wheat roots in alkaline soil



SARDI / University of Adelaide



\$35,350



1/4/2021 – 30/12/2022

The form of aluminium in an alkaline soil profile and the form and spatial distribution of aluminium in wheat roots in a pH range is to be determined using the Canadian Light Synchrotron. Outcomes will assist in developing crop varieties with tolerance to aluminium.



Rhiannon Schilling, 0407 815 199, rhiannon.schilling@sa.gov.au

S/UA921: Evaluating super high oleic acid safflower in sodic and saline soils



SARDI / University of Adelaide



\$76,546



1/4/2021 – 30/3/2023

Safflower varieties, including the super high oleic (SHO) lines, are to be evaluated in a field trial in saline soils in the Coomandook region. The level of tolerance to sodic soils in these lines is to be compared to canola in a pot trial in The Plant Accelerator® at the Waite Campus.



Rhiannon Schilling, 0407 815 199, rhiannon.schilling@sa.gov.au

S/UA1021: Characterising the optimal flowering period for the Murray Plains



SARDI / University of Adelaide



\$112,840



1/4/2021 – 30/6/2023

The Optimum Flowering Period (OFP) for wheat and barley varieties, with different maturity windows, is to be characterised for the Murray Plains region. APSIM modelling will initially determine the OFP using long-term climate data and designated soil types. The model is tested with seasonal weather data and a time of sowing field trial at Palmer, for two years, incorporating wheat and barley varieties with different maturity windows.



Brendan Kupke, 0429 411 032, brendan.kupke@sa.gov.au

S121: Eyre Peninsula Farming Systems Summary 2021-2023



SARDI



\$30,000



1/7/2021 – 30/6/2024

The Eyre Peninsula Farming Systems Summary is an annual publication consisting of research results undertaken on EP and other areas of relevance, and their implications to the upper Eyre Peninsula farming systems.



Amanda Cook, 0427 270 154, amanda.cook@sa.gov.au

S220: SA Crop Variety Sowing Guide



SARDI



\$108,838



1/7/2020 – 30/6/2023

SAGIT funds SARDI staff to compile the SA Crop Variety Sowing Guide and the Grains Research and Development Corporation (GRDC) funds the layout, printing and distribution costs. It is mailed to all SA grain growers, advisers and agribusinesses on GRDC's GroundCover mailing list.



Phil Davies, 0427 012 130, phil.davies@sa.gov.au

SAN120: SANTFA Conference 2021-2023



SA No-Till Farmers Association



\$22,500



1/7/2020 – 30/6/2023

For part funding of speakers from outside SA at SANTFA conferences for three years (2021 to 2023).



Greg Butler, 0427 424 278, greg@santfa.com.au

SAN121: The implications of green hydrogen for SA grain growers



SA No-Till Farmers Association



\$41,000



1/7/2021 – 30/6/2023

A series of e-documents is to be published to update grain growers on the techno-economics of participating in the green hydrogen transformation. The publications will explain green hydrogen technology and the opportunities for South Australian grain growers for on-farm production of green hydrogen and nitrogen fertiliser using straw. Information will be freely accessible on the SANTFA website.



Greg Butler, 0427 424 278, greg@santfa.com.au

TC121: Improving crop safety and broadleaf weed control with herbicides in lentil



Trengove Consulting



\$82,752



1/4/2021 – 30/6/2023

Newly registered Group G herbicides are to be evaluated for lentil crop safety alone and in combination with other chemistries, in sandy soils. The effects of herbicide treatments on weed efficacy on sand and clay loam soils are to be measured in lentil field trials. This project builds on previous SAGIT projects TC116 and TC119.



Sam Trengove, 0428 262 057, samtrenny34@hotmail.com

TC221: Improved management of variable phosphorus requirement and strategies for highly responsive soils



Trengove Consulting



\$207,822



1/4/2021 – 30/6/2024

Phosphorus (P) response prediction based on spatial data in variable soils is to be validated in a series of field trials encompassing different soil types. Best practice for long term management of high P response sites is to be determined.



Sam Trengove, 0428 262 057, samtrenny34@hotmail.com

Root health workshops drive practice change

A series of crop root health workshops delivered over three years with funding from SAGIT has influenced significant on-farm practice change and an increased understanding and recognition of root diseases.

The project, led by Dr Katherine Linsell on behalf of the South Australian Research and Development Institute (the research division of the Department of Primary Industries and Regions) and the University of Adelaide, involved eight root health workshops across SA.

Dr Linsell said that prior to the workshops, 70 per cent of participants said they did not check root health of crops and 30 per cent of participants were not confident in recognising root diseases.

“Post workshops, 100 per cent said that they were confident in assessing crop root health, with 50 per cent now knowing when roots are not healthy and where to seek advice, and the other 50 per cent being able to recognise the main root diseases,” Dr Linsell said.

“When surveyed 12 months after the workshops, participants still reported greater confidence in identifying root health issues and recognised root diseases are more common than they thought.

“As well, 82 per cent indicated they made an on-farm practice change as a result of attending the workshop.”

Dr Linsell said this success rate indicated the hands-on learning approach was achieving the desired result of encouraging growers to be more active in their diagnosis and management of root diseases, which in turn improved productivity and profitability.



A series of crop root health workshops delivered over three years has influenced significant on-farm practice change.

“The success of these workshops was driven by the hands-on sessions where participants assessed the health of their own plant roots and of those in their district,” she said.

Dr Linsell said 85 per cent of participants indicated they would attend the workshop again to receive updated information, particularly on emerging pulse diseases, and 73 per cent said they would recommend the workshop to colleagues.

A total of 126 growers and advisers participated in the workshops through the S318 project, and 258 root samples were examined.

Following DNA testing of the samples, participants received a report summarising the visual symptoms and the DNA levels for the pathogens tested.

Based on the feedback of participants in 2018, a back pocket grower manual was developed: *A practical guide to identifying and managing cereal root diseases in South Australia*.

The manual provides identification and management information to assist growers and advisers to manage cereal root diseases. When surveyed 12 months post-workshop, 81 per cent of participants had referred to the guide and found it a valuable resource.

The courses were delivered by early and mid-career researchers Dr Linsell, Blake Gontar, Dr Tara Garrard and Dr Liz Farquharson, and were supported by Ross Ballard, Dr Marg Evans and Dr Alan McKay. AgCommunicators organised logistics and marketing, with Belinda Cay facilitating each workshop.

A new series of grower crop root health workshops commenced in 2021. Nine workshops will be delivered across SA over two years.

S318: Grower crop root health workshops

TRC5022: Independent benchmarking of harvester weed seed mills



Trengove Consulting



\$116,019



1/7/2022 – 30/6/2023



This aim of this project is to test the performance of all commercially available harvest weed seed mills in a controlled and comparable way that will provide independent weed seed kill data for grower decision making. Each mill will be tested under the same conditions and protocol. A range of treatments will be imposed with each mill to understand the sensitivity to weed seed type, chaff load and mill wear.



Sam Trengove, 0428 262 057, samtrenny34@hotmail.com

UA221: Understanding and managing fertiliser toxicity in pulses in SA



University of Adelaide



\$96,706



1/7/2021 – 30/6/2023

The role of fertiliser toxicity in poor pulse performance is to be investigated in a series of pot experiments to (1) determine the impact of fertilisers on emergence of common pulse crops, (2) investigate the effect of fertilisers on nodulation of inoculated seed, (3) evaluate toxic effect of fertilisers in different soil types, and (4) investigate effect of fertiliser placement on emergence, nodulation, and nitrogen fixation.



Judith Rathjen, 8313 1430, judith.rathjen@adelaide.edu.au

UA420: Enhancing grain production and quality traits for bread wheat



University of Adelaide



\$174,021



1/7/2020 – 30/6/2023

Speed breeding to back cross F3-4 of wheat lines from AGT, Intergrain and LongReach Plant Breeders with lines with potential to increase grain yields. These lines will be assessed for nitrogen use efficiency in glasshouse and field trials at Roseworthy, Mallala and Bordertown.



Scott Boden, 0413 801 112, scott.boden@adelaide.edu.au

UA720: Development of a dual-purpose common vetch variety for arid South Australia



University
of Adelaide



\$230,648



1/7/2020 – 30/6/2023

Aims to produce a vetch line with zero toxin and green seed coat so it can be used safely in monogastric diets and is readily identifiable. This project has also received Australian Research Council funding using the SAGIT grant as co-funding.



Iain Searle, 0416 662 895, iain.searle@adelaide.edu.au

UAD1722: Harvest and use of medic pods on-farm



University
of Adelaide



\$180,000



1/7/2022 – 30/6/2024



This project will research novel ways of harvesting and sowing medic pods which have the potential to reduce medic establishment costs by 60 per cent. A cheaper method of harvesting and sowing medic pods is expected to result in increased medic dry matter production and increased benefit to subsequent grain crops.



David Peck, 0407 528 104, david.peck@adelaide.edu.au

UAD1922: Agronomy strategies for frost management in pulse crops



University
of Adelaide



\$123,036



1/7/2022 – 30/6/2025



This project will provide management strategies for growers to successfully include a wider range of break crops in frost prone environments. Novel management strategies that either provide crop protection or avoidance during the critical reproductive stages, such as including mixed species cropping (intercropping) and delayed sowing, will be investigated to successfully grow pulse crops in frost prone environments. This project is a co-investment, with the Grains Research and Development Corporation providing 50% of the total funding (above).



Penny Roberts, 0436 678 982, penny.roberts@sa.gov.au

UAD2222: Realising cereal yield potential using crop physiology and drone technology



University
of Adelaide



\$69,921



1/7/2022 – 30/6/2024



The optimal flowering period for wheat and barley for the Murray Plains will be refined and validated from previous investment S/UA1021 through field trials and crop modelling. Drone imagery will be used to estimate both plant establishment and biomass of these field trials to help dissect key grain yield drivers independent of flowering time. Drone methods will be further developed from UA217 and UA318 in collaboration with the Unmanned Research Aircraft Facility (URAF).



Brendan Kupke, 0429 411 032, brendan.kupke@sa.gov.au

UAD2522: Revegetation for enhanced biocontrol of pest conical snails



University
of Adelaide



\$239,917



1/7/2022 – 30/6/2025



This study investigates the impact of native revegetation on suppressing conical snail populations on the Yorke Peninsula. The establishment of revegetation strips adjacent to grain cropping paddocks and near silos can enhance the survival of a beneficial parasitoid fly by providing essential floral food resources and refugia, boosting parasitism rates and suppression of pest conical snails. This project is a co-investment, with the Grains Research and Development Corporation providing 50% of the total funding (above).



Kym Perry, (08) 8429 0738 / 0421 788 357, kym.perry@adelaide.edu.au

UNF2822: Canola profitability as a break crop in the Upper North?



Upper North
Farming Systems



\$101,180



1/7/2022 – 30/6/2025



This project aims to explore if new canola technology allows it to be a more reliable and viable break crop option in the Upper North agricultural zone. The project will assess the profitability of different canola agronomy packages in local validation trials (GM vs open pollinated TT) against wheat over a three-year period.



Ruth Sommerville, 0401 042 223, unfs@outlook.com

USA118: Comparative effects of agricultural pesticides on SA soil microbial functions



University of
South Australia



\$208,759



1/8/2018 – 11/11/2022

To assess the impact of 20 pesticides (insecticides, herbicides and fungicides) separately on microbial community structure and diversity in three soil types (calcareous or sodic) in laboratory tests. Will also assess the effects of repeated applications on soil microbes. In 2020 and 2021, will test five pesticides in field trials at Hart.



Enzo Lombi, 8302 6267, enzo.lombi@unisa.edu.au
Casey Doolette, 8302 6233, casey.doolette@unisa.edu.au

USA121: Developing a DGT methodology to assess bioavailability of herbicide residues



University of
South Australia



\$213,806



1/9/2021 – 31/8/2024

A robust testing system for imidazolinone residues is to be developed using Diffusive Gradient in Thin-Films (DGT) technology. This tool will provide information on bio-availability of herbicide residues independent of soil type characteristics. The DGT tool will be validated in spiked soils, in a range of soil types and two water regimes. The DGT tool for glyphosate residue is also to be assessed.



Enzo Lombi, 8302 6267, enzo.lombi@unisa.edu.au

SAGIT Investments

Grower group funding

AEP1522G: Lower Eyre Peninsula Ag Expo 2022



AIR EP



\$3,000



8/3/2022



Speaker travel expenses and venue hire expenses for Lower Eyre Peninsula Ag Expo 2022.



Naomi Scholz, 0428 540 670, eo@airep.com.au

Key project dates

Key Date	Description
August 2022	Trustee visits to projects commence
25 August 2022	Final reports and financial statements (Form A) due
September 2022	Trustee visits to projects continue. Final reports reviewed
November 2022	Call for applications for next round of funding
1 January 2023	Current project invoices to be submitted 14 days prior to the payment date
3 February 2023	Project applications due
3 March 2023	Progress reports (continuing projects) due
March 2023	Applications assessed by SAGIT. Applicants notified of results of application by the end of March
1 July 2023	First payment*. Successful applicants must submit invoice 14 days prior to payment date
November 2023	Call for applications for next round of funding
1 January 2024	Second payment. Successful applicants must submit invoice 14 days prior to payment date

**Contract and payment can be earlier than 1 July. Please contact SAGIT management if this is required.*





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