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Farming Systems

Farming systems projects on Eyre Peninsula in 2017

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There were three major farming systems projects funded by GRDC, delivered on upper Eyre Peninsula in 2017 (Table 1) and four SAGIT funded projects (Table 2).

Table 1. GRDC funded farming systems projects on Eyre Peninsula in 2017.

Title	Maintaining profitable farming systems with retained stubble	Application of CTF in low rainfall zone	Overdependence on Agrochemicals
Project code	EPF00001	ACT00004	CWF00020
Funder	GRDC	GRDC	GRDC
Partners	Lead: EPARF SARDI (delivery)	Lead: Australian Controlled Traffic Farming Association (ACTFA) SARDI (delivery)	Lead: Central West Farming Systems
Duration	5 years, end 30/06/2018	5 years, end 30/06/2019	3 years, end 30/06/2017
Area covered	Upper EP. There is a LEADA project covering lower EP. Part of the GRDC Stubble Initiative, covering the southern grain growing region of Australia. 10 major grower group partners plus CSIRO.	Upper EP. Other groups involved are Upper North Farming Systems, Central West Farming Systems, Mallee Sustainable Farming, BCG, SPAA, DEPI Vic.	Upper EP, Upper North SA. Other groups involved are BCG, Mallee Sustainable Farming.
Aim	Increased knowledge and skills allowing farmers and advisers to improve farm profitability while retaining stubble in farming systems on upper Eyre Peninsula.	Adoption of Controlled Traffic Farming (CTF) in the LRZ is very low (eg SA/ Vic Mallee, 4%) compared to other zones in the Region (eg Vic HR, 26%). This is believed to reflect scepticism about its benefits in many LRZ environments when weighed up against the cost of adopting the practice. The project will evaluate whether or not this scepticism is justified.	By 30 June 2017, 1500 growers and 20 advisors of the low rainfall zone of the southern GRDC region have the knowledge (technical & economic) and tools to reduce their dependence on agrochemicals.

Title	Maintaining profitable farming systems with retained stubble	Application of CTF in low rainfall zone	Overdependence on Agrochemicals
Topics to be addressed	The build-up of snails, mice and fungal disease carryover on cereal stubble and increasing in-crop weed infestation. Difficulty of establishing crops into medic pasture residue. Establishment of crops on non-wetting soils.	Effects of compaction on light soils. Increased yield or cost savings (e.g. less fuel) by alleviating compaction damage. Management of wheel tracks and CTF implementation when using very wide equipment.	Reducing dependence on chemicals by using other methods to reduce weed numbers, such as increasing crop competition through increasing sowing rate, narrowing row spacings, row direction (shading effect).
Trial/demo sites in 2017	Lock – Polkinghorne, comparing crop establishment based on seeding rate and position on non-wetting sand. MAC – South 7, sowing into stubbles, height and in-row vs inter row. MAC – S3S, cereal after two year pasture break. MAC – S3N, herbicide efficacy in stubbles. Mt Cooper – Gunn, establishment of pasture in heavy barley stubble. MAC and farm demonstrations – grass weed seed management strategies (narrow windrows and chaff carts).	Research site MAC S3S – range of compaction treatments applied in wet and dry conditions, to see if there are impacts on yield. Seeking grower demonstration sites on upper EP.	Nil, trials completed in 2016.
Outputs to be delivered	Produce guidelines to control pests, weeds and diseases while retaining stubble to maintain or improve soil health, and reduce exposure to wind erosion.	Research and development sites, extension of information through existing events and publications.	Research and development sites, extension of information through existing events and publications.

Table 2. SAGIT funded farming systems projects on Eyre Peninsula in 2017.

Title	Using soil water information to make better decisions on Eyre Peninsula	Identifying the causes of unreliable N fixation by medic based pastures	Improving fertiliser efficiency and reducing disease impacts using fluid delivery systems	Burning of weed seeds in low rainfall farming systems
Project code	EP216	SARDI1515	S614	S416
Funder	SAGIT	SAGIT	SAGIT	SAGIT
Partners	Lead: EPARF SARDI (delivery)	Lead: SARDI	Lead: SARDI	Lead: SARDI University of Adelaide, Upper North Farming Systems, Mallee Sustainable Farming, EPARF
Duration	3 years, to 30/06/2019	3 years, to 30/06/2018	3 years, to 30/06/2017	1 year, to 31/12/2017
Area covered	Eyre Peninsula	Upper Eyre Peninsula	Upper Eyre Peninsula	Eyre Peninsula, Upper North SA, SA/VIC Mallee
Aim	To use an existing network of soil moisture probes across Eyre Peninsula to provide growers across the region with information on how data the soil moisture probes collect can be converted into easily utilized decision support tools that will assist in targeting yield potential and tailoring inputs to match.	Assess the impacts of current herbicides, adjuvants and rhizobial inoculants on N fixation by medics under field conditions typical of the upper EP and other low rainfall mallee systems. Also assess the impact of nutrition (esp N and P) on N fixation by medics under field conditions and investigate their effects on tolerance to current herbicides.	To provide guidelines to farmers on the best options for fluid delivery systems at seeding for increases in crop yields and decrease impacts of crop diseases across southern cropping regions.	Temperature thresholds for killing the seeds of common weeds for low rainfall farming systems in South Australia will be determined. This will allow farmers to assess the value of narrow windrow and other burning strategies as integrated management tools to manage weeds more effectively.
Topics to be addressed	Using soil water information to make better N decisions.	Current herbicide effects on medic nodulation. N contribution of medics in different soil types in low rainfall farming systems.	Comparison of fluid systems vs granular fertilisers for phosphorus and trace elements. Effectiveness of fungicides to reduce impact of Rhizoctonia in wheat and Blackleg in canola.	Burning temperatures required to kill weed seeds. Burning temperatures achieved in burning stubbles.

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Trial/ demo sites in 2017	32 sites across EP. Visit www.eparf.com.au to access soil moisture probe network – view sites and data. Username: eparf Password: eparf	Piednippie (grey calcareous sand) Pinbong (loamy sand) MAC Airport	Nil, trials completed in 2016.	Weed seeds and burning temperatures to be collected across EP, Upper North, SA/VIC Mallee.
Outputs to be delivered	Web based soil moisture probe network (32 sites) established on EP. Grower group meetings to discuss data and implications. At sites where Yield Prophet indicates benefit from addition of extra N, in crop trials will be conducted. At end of each season an analysis of the information generated from soil moisture probes, how that related to the Yield Prophet data, and what management decisions could have been improved through the use of the data will be provided to growers and advisors.	To help growers understand which chemicals to use or not to use when they are after sheep feed (medic DM), good weed control or more free N. Results presented at farmer meetings, MAC field day and published in EPFS Summary 2017.	To provide guidelines for the adoption of fluid delivery systems if appropriate and determine the economic returns of additions to the system over current fertiliser and disease control strategies. Results presented at farmer meetings and published in EPFS Summary 2017. Final summary articles for wheat and canola published in EPFS Summary 2017. Completed.	Results presented at farmer meetings and published in EPFS Summary 2017. Completed.

