SPRING/SUMMER SOWN CROPS

GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

WESTERN REGION

CASE STUDIES OF GROWERS IN THE GREAT SOUTHERN REGION OF WESTERN AUSTRALIA

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COVER: Nutrien Ag Solutions and SCF field walk at the Green Range small plot trial site, 25 January 2022.
PHOTO: SCF

Contents

Introduction

Waterlogging is a critical constraint in the south-west of WA, particularly during seeding and early growth stages. The Great Southern area is increasingly prone to summer rains, which can fill the soil profile and lead to waterlogging conditions around the autumn break. Shallow duplex, non-wetting and shallow sandy soils are commonplace in the Great Southern and exacerbate these conditions.

The 2021 season was subject to extreme waterlogging, resulting from above-average 2020-21 summer rainfall followed by consistent rain in autumn 2021. This resulted in a significant yield penalty and, in places, total crop loss. In some areas, paddocks were too wet for machinery and sowing of the winter crop was not possible.

At this time, growers in the region expressed concerns about the lack of information on available options for where winter crops had failed or were not able to be seeded. They wanted to know what crops and varieties could be successfully planted in spring/summer and how these late-sown crops might impact on the following season's winter crops. Given these decisions tend to be responsive to weather conditions rather than planned, growers wanted to be confident that any crop planted in spring/summer would not adversely affect their planned rotations for the following year.

This project, with GRDC investment, aimed to provide this information and increase grower awareness of spring and summer cropping options available to them and how they would perform within their region after a waterlogged growing season. The project was carried out in the high and medium-rainfall zones in the Great Southern region of Western Australia, where there is potential for summer crops to be incorporated into an agronomic system.

The trial activities involved paddock-scale single-grain crop demonstration sites, paddock-scale multi-species forage crop trials and a small plot trial.

We hope you enjoy reading the grower case studies and that the information helps to inform your own summer cropping journey.

Dan Fay and Lizzie von Perger,
STIRLINGS TO COAST FARMERS

Tips and tactics for growing spring/summer-sown crops in the Great Southern

Soil moisture

To produce a viable summer crop, there needs to be moisture available to ensure good germination and early growth (particularly root growth) to stand up to the dry conditions that can be experienced. The amount of soil moisture needed to produce a viable summer crop will depend on:

- the species of summer crop and its water use efficiency;
- the soil type and its water-holding capacity; and
- forecast rainfall and temperatures.

Generally, forage grass species are the most water-efficient summer cropping options, particularly C4 plants such as millet and sorghum. Brassica species are very water hungry, and legume varieties tend to fall in-between cereals and the brassicas. Although not so water efficient, spring-sown brassica species grazed down can hold on well over harsh summer conditions, and they go on to produce great biomass once rain is received (although they may look shrivelled and purple!).

Take home message: Having soil moisture at seeding is crucial to producing a profitable summer crop. With summer cropping, research shows that good soil moisture pre-seeding is a greater driver of yield per millimetre of rainfall received than in-crop rainfall.

Seed availability

The seeding window for spring or summer-sown crops in a mixed farming system occurs at an extremely busy time of year, coinciding with either hay/silage making, swathing and/or harvest. As a result, early planning or ease of seed availability is an imperative, given growers are time-poor and unlikely to seek out a novel 'hard-to access' variety. Fortunately, the diversity of summer cropping options is increasing every year, and specialty seed providers are recognising the market for summer crop varieties in WA. Forage cereals such as sorghum and millet, legumes such as cowpea and lablab, and brassicas such as leafy turnips and forage rape are all widely available and can be procured with relative ease through resellers and/or directly from seed companies. This allows for opportunistic seeding if there is a significant summer rainfall event.

Take home message: Although summer crop seed – such as sorghum, millet, cowpea, pigeon pea, lablab and so on – is relatively available (through resellers), it pays to be somewhat prepared. Call ahead and see what is in stock/accessible prior to the busy harvest time.

Crop selection

Crop selection will largely be dictated by the purpose of the summer crop and the time you are sowing.

If it is predominantly for livestock, feed type and quality will be important. If you are looking to assist the following winter crop with nitrogen, legumes will need to be considered. If you rely on subsoil moisture from summer rainfall events for winter crop success, then a water-efficient crop type (such as C4 grass) is a better option.

Time of sowing should be factored into your crop selection decision too. Species that have been adapted from warmer climates often require a high soil temperature to germinate; for example, lablab needs a soil temperature of at least 18 degrees to ensure even germination. Sowing lablab in October/November in the southern region of WA would not be recommended, whereas December would most likely be fine due to warmer soil temperatures.

Dormancy is important to consider when selecting a summer crop type. As mentioned previously, brassica varieties and certain grass species such as sorghum are very effective at regenerating and producing biomass after an extensive period of minimal rainfall and hot temperatures. If you are looking to fill a late summer/early autumn feed gap, these plants' ability to regenerate on a significant rainfall event after a period of dormancy can be very valuable.

If you are looking to graze first and then take the crop through to grain, increasing the seeding rate should also be considered. Summer crops, such as millet, can be thinned out by grazing and a robust seeding rate can assist for grain harvest.

Take home message: In selection of a summer crop, carefully consider its purpose (for example, for livestock – feed quality and feed gaps) and your realistic time of sowing, as soil temperature can make a big difference to successful establishment.

Pest and weed management

The key to effective pest control is crop selection, monitoring and management.

Pest control is critical during early growth stages of the summer crop. Crops must be monitored regularly and sprayed if necessary. As adequate biomass is produced, grazing can be used to defoliate the crops, acting as a natural pest control by removing the feed source. This is a particularly effective management technique with spring-sown brassicas. These crops then remain dormant while conditions are dry over summer.

Different crop types will host different pests and differ in their level of susceptibility. As an example, pearl millet is fairly insect tolerant and the need for chemical control is highly unlikely (unless wingless grasshoppers come through). Brassicas and legume species need extra attention as they can be prone to diamondback moth and aphid infestations. With these crop types, at least one insecticide spray should be factored into your management planning.

In-crop weed management can be fairly easily managed; however, good harvest weed seed control and knockdowns prior to seeding the summer crop can help alleviate the weed pressure. Grazing, crop competition (with good establishment) and spraying out weeds before seed-set can also effectively reduce the weed burden for following winter crop.

Take home message: Monitoring for pests is particularly important during crop establishment and, if growing brassicas or legumes, at least one insecticide spray should be factored into your management planning. Weeds are fairly easily managed through grazing and spraying (if necessary).

Harvesting and marketing of grain

Although the vast majority of summer crops grown in southern WA are grown for forage, many growers in this region have dabbled in summer crop grain production.

Harvestability does not tend to be an issue with most harvesters being able to be set up to harvest summer crop grain.

On the other hand, grain markets for niche products, such as sunflower seed, can be hard to access. If producing grain is the intention of your summer cropping program, it is important to first establish that you have adequate on-farm storage and a buyer. Birdseed companies are a good first point of call, although as the birdseed market tends to be small, it can be easily flooded.

Take home message: If you intend to sell grain from your summer crops, ensure you have adequate on-farm grain storage and do your research on a buyer. Birdseed companies are a good place to start.

Impact on the following crop

The impact of a summer crop on the following winter crop will be highly dependent on the summer crop type, its season length and the environmental conditions. However, it is important to keep the following information in mind when assessing how the summer crop will impact the following winter crop.

Given most soil types in southern WA do not efficiently hold or bank nutrients, it is unlikely that summer crop production will adversely impact a paddock's nutrient status for the following season. That said, soil testing prior to the following winter crop is recommended.

If summer crops are to be grown with the purpose of reducing the risk of waterlogging in the following winter crop by using up the available subsoil moisture, a variety with a low fallow efficiency such as a brassica can effectively drain the soil profile to depth prior to establishing a winter crop.

On the flip side, there is an inherent soil moisture-limiting risk associated with producing a summer crop. Although some species of summer crops can be very efficient in preserving soil moisture, particularly when grazed, most will dry out the soil profile to some degree prior to seeding the winter crop. If the success of your winter crops is typically reliant on residual subsoil moisture from summer rain, summer cropping should be carefully considered.

Take home message: Soil test before planting the following winter crop and reconsider summer cropping if your winter crops are typically reliant on subsoil moisture for successful growth and profitability.

Grower case studies

Each of the following case studies has been written from interviews with the growers who participated in the farm-scale demonstrations associated with the project between 2021 and 2022. Some of the growers opted to conduct a single crop type demonstration, whereby a whole paddock was either spring or summer sown into one crop type and monitored. Other growers were keen to investigate a number of crop types, whereby farm-scale machinery strips were sown to up to three different summer crop species.

The benefits for each type of demonstration were quantified with a broad economic analysis completed by Farmanco Management Consultants. The analysis for the multi-species sites only included the summer period up until they were terminated prior to the sowing of the winter crop. As such, only grazing value was accounted for. The economic analysis conducted for each of the single crop type demonstrations, which were all sown to either winter wheat or winter canola, included both the grazing and harvest data as these were taken through to harvest in 2022. To conduct the analysis, the following broad assumptions were made:

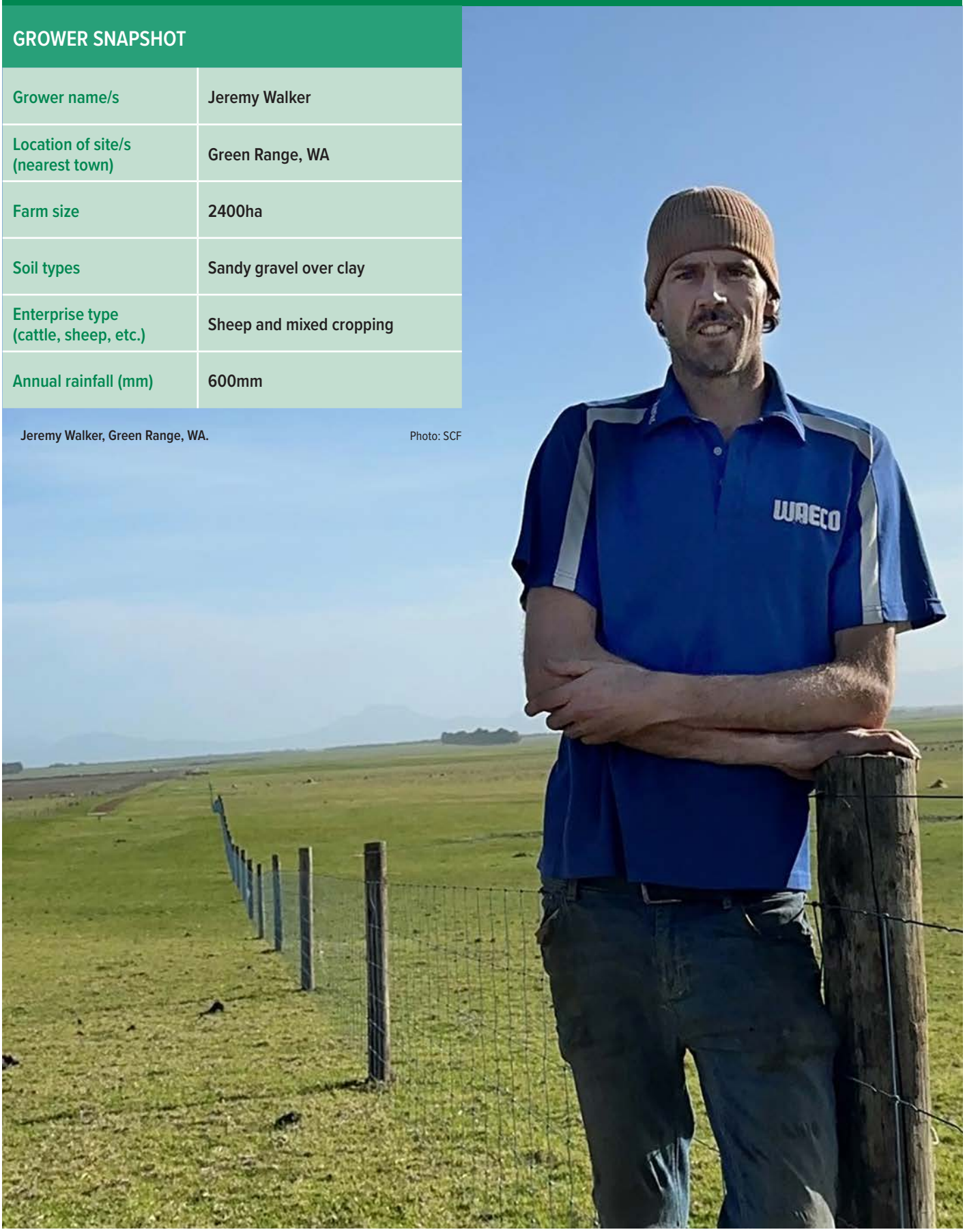
- value gain of running sheep on fodder crop (after management and operating costs were considered) was assumed to be 90 cents per head per week;
- variable operating costs for sowing a summer crop (seed, machinery, fuel but minimal fertiliser and chemical inputs) was assumed to be $120/ha. This was not applicable to the winter canola/wheat sites, where cost was more accurately assigned;
- overhead costs (depreciation, insurances, rates and management time) were assumed to be $125/ha, but only for the sites taken through to harvest (winter wheat and canola); and
- grain prices for canola were $825 per tonne and for wheat $400/t in 2022.

Overall, the following case studies pick up on the host grower's experiences and key learnings.

Jeremy Walker, Green Range, WA

GROWER SNAPSHOT

Grower name/s	Jeremy Walker
Location of site/s (nearest town)	Green Range, WA
Farm size	2400ha
Soil types	Sandy gravel over clay
Enterprise type (cattle, sheep, etc.)	Sheep and mixed cropping
Annual rainfall (mm)	600mm



Jeremy Walker, Green Range, WA. Photo: SCF

JEREMY WALKER – GREEN RANGE (multi-crop type demonstration)	
Topic	**Summer cropping demonstration site**
Grower group / interviewer name	Stirling to Coast Farmers / Sheridan Kowald
Why was the grower keen to have a go?	I was keen to have a go at measuring the benefits as we have been trialling summer crops for a few years now.
What benefits could successful summer cropping offer to the current enterprise?	Understanding the benefits, particularly, trying to get a better financial outlook on these benefits.
Demonstration site details: ■ **What was sown?**	■ Millet ■ Sorghum ■ Millet/lablab ■ Chemical fallow
■ **Sowing date? Sowing rate?**	All seeded on the 31 October 2021. Millet (10kg/ha), sorghum (6kg/ha) and millet/lablab (10kg/ha and 5kg/ha).
■ **Grazed? How many times for how long? DSE?**	The trial was grazed twice, at 46 DSE for 3.5 weeks first time and two weeks the second time.
■ **Rainfall received during the summer period?**	111mm of rainfall fell between November 2021 and March 2022. Almost half of this was received in the month of March, with December, January and February being particularly dry.
■ **Performance of following crop?**	The performance of the following winter crop had a better germination and establishment on the part of the paddock where the summer cropping was undertaken. However, the summer cropping section looked visually drier than the fallow when it began to get dry towards the end of the season. With good finishing rains, the summer cropping strips recovered and plant biomass looked even in the end.
What were the three key take-home learnings from this demonstration site?	1 For us, in our environment we are always happy to utilise the moisture when it's there with waterlogging being a big risk. Drying out a paddock usually doesn't have any major yield impacts the following year. Less is more, keep it simple. 2 Lablab struggled to return from grazing. Sorghum offered far more biomass, and millet was more palatable. 3 On paddocks that are bared off going into the summer, having ground cover (such as a sorghum crop) will always have more positive benefits than negative impacts over the summer.
Was it a profitable decision? Can this be roughly quantified?	Yes, it was. Ewes were joined on the paddock on a rising plane of nutrition with good conception. More lambs justified those weight gains in the ewes. From my sums, the first grazing generally pays for costs and then some, and anything else is a bonus. **Farmanco economic analysis:** Operating gross margins were $15/ha for millet and the millet/lablab mix and $68/ha for the sorghum treatment. The higher profitability for the sorghum was due to it being grazed twice. The millet and millet/lablab were preferentially grazed in the first grazing and did not survive through to the second grazing.
Would the grower try it again? And in what circumstances?	Yes, this is something that will be considered annually, but not always sown (depending on the season). I'd use it more as a tool in the wet years especially when we experience failed crops. Summer cropping is always the next crop option, and always after we experience heavy rains during or after canola harvest. Summer cropping is more of an opportunistic option going forward. It won't be a set regime of spraying out a pasture to grow a summer crop. This is not because it doesn't pay, it's the investment of time and energy that should be invested in other areas of my farming business at certain times.

"It's great to see a trial on summer forage systems that not only captures value over summer but also has a positive impact on the following winter crop. I'm happy with the results. Will do it again, specifically looking at sorghum."

– JEREMY WALKER

Ben Webb, Quaelup, WA

GROWER SNAPSHOT	
Grower name/s	Ben Webb
Location of site/s (nearest town)	Quaelup, WA
Farm size	2150 arable hectares
Soil types	Duplex gravel/loam/clay
Enterprise type (cattle, sheep, etc.)	Sheep and cropping
Annual rainfall (mm)	535mm

Ben Webb, Quaelup, WA. Photo: Evan Collis Photography

BEN WEBB – QUAELUP (multi-crop type demonstration)	
Topic	**Summer cropping demonstration site**
Grower group / interviewer name	Southern Dirt / Adele Scarfone
Have you had much experience growing summer crops in the past? **If so, what have you grown, and how often have you grown them/were they part of a planned rotation?**	In most years we have planted a summer crop. Normally we plant Super Sweet Sudan (sorghum) and Sweet Jumbo (sorghum) on paddocks cut for hay. We seed late in October and graze before Christmas. The exact grazing time is dependent on rainfall. We have grown millet but with limited success.
Why was grower keen to have a go? What benefits could successful summer cropping offer to the current enterprise?	We are keen to use the summer rain for the grazing benefits (out-of-season feed). Summer crops also dry out the soil profile for following year's winter crop.
Demonstration site details: ■ **What was sown?** ■ **Sowing date? Sowing rate?** ■ **Grazed? How many times for how long? DSE?** ■ **Rainfall received during the summer period?** ■ **Performance of following crop?**	 ■ Sorghum ■ Sunflower ■ Grain millet December 2021. Grain sorghum (6kg/ha), sunflower (4 kg/ha), grain millet (10 kg/ha). As we were not able to graze the sunflower, the whole trial was not grazed until the crops had dried and set seed in April, set stocked with 1500 sheep for two weeks. 11.8mm from December 2021 to February 2022; 72mm March to April 2022. Following crop was RGT Accroc(1) – 4.4t/ha. Grazed 67 ewes/lambs July–August 2022
What were the three key take-home learnings from this demonstration site?	1 Sunflowers are tough, and in our experience not profitable. 2 Broadleaf weeds could become an issue when growing sunflowers. Suppression with herbicides would increase cost and labour, particularly when there are other priorities on–farm. 3 If the trial had not included sunflowers, grazing during the summer growing period would have controlled the paddymelon and mint weed more effectively.
Was it a profitable decision? Can this be roughly quantified?	Sunflowers were not a profitable decision in this trial, perhaps a faster finishing variety would be more viable (if available). Sorghum had great grazing value. **Farmanco economic analysis:** The overall operating gross margin for the trial was $135/ha. It was initially intended that the summer crops be taken through to harvest; however, due to the dry summer they were only grazed. It is possible grazing value would have been higher if the crops had been grazed earlier. The sunflowers were not grazed well by stock.
Would the grower try it again? And in what circumstances?	Yes, we'd plant sorghum again, but only opportunistically when there has been rain. It grows well in the higher, well-drained parts of the paddock, but not so well in the low-lying areas.

"It's great to be happy about summer rain when you can get in a summer crop."

– BEN WEBB

Reece Curwen, South Stirling, WA

GROWER SNAPSHOT

Grower name/s	Reece Curwen
Location of site/s (nearest town)	South Stirling, WA
Farm size	12,000ha
Soil types	Sandy gravel over clay
Enterprise type (cattle, sheep, etc.)	Sheep and mixed cropping
Annual rainfall (mm)	620mm in 2022

Reece Curwen, South Stirling, WA. Photo: SCF

REECE CURWEN – SOUTH STIRLING (single crop type)	
Topic	**Summer cropping demonstration site**
Grower group / interviewer name	Stirlings to Coast Farmers / Sheridan Kowald
Why was the grower keen to have a go? What benefits could successful summer cropping offer to the current enterprise?	Winter canola shows potential as a dual-purpose crop where two incomes streams could be achieved through crop grazing from December to May, and harvest in the following January.
Demonstration site details:	
■ **What was sown?**	Winter canola – Hyola® CL 970
■ **Sowing date? Sowing rate?**	Sowing date 10 September 2021 at 2.4kg/ha
■ **Grazed? How many times for how long? DSE?**	Three grazes: ■ 1 December 2021 to 5 January 2022; ■ 20 February 2022 to 10 March 2022; ■ 12 April 2022 to 1 May 2022. 16-20 DSE
■ **Rainfall received during the summer period?**	■ October 2021 – 72mm ■ November 2021 – 37mm ■ December 2021 – 0mm ■ January 2022 – 5mm
■ **Performance of following crop?**	Final grain yield 1.45t/ha
What were the three key take-home learnings from this demonstration site?	1 Huge value to the livestock system with summer rainfall events, through summer–autumn grazing. Plus, the dual purpose of crop harvest. 2 The variety had a weakness with aphid-induced turnip yellows virus – also the tight canola/barley rotation in the district may place too much pest and disease pressure on this system. 3 Final grain yields didn't match the yield of spring canola crops.
Was it a profitable decision? Can this be roughly quantified?	Lamb weight gains at $3.60/kg covered the cost of seed, herbicide and fertiliser in 2022. Seed harvested was pure profit. **Farmanco economic analysis:** The operating profit for the winter canola was estimated to be $249/ha with the grain income (canola yield 1.4t/ha) making up a significant proportion of the income generated. The assumed grazing value was most likely underestimated in this case.
Would the grower try it again? And in what circumstances?	Yes, if there was excess moisture in early September. A different variety may have provided a better outcome.

"Winter canola shows potential as a dual-purpose crop through summer grazing and harvest. More research is required to answer whether this could be our most consistent summer cropping option."

– REECE CURWEN

Jarrod King, Gairdner, WA

GROWER SNAPSHOT	
Grower name/s	Jarrod King (Warralea Poll Merino Stud)
Location of site/s (nearest town)	Gairdner, WA
Farm size	6600ha
Soil types	Duplex
Enterprise type (cattle, sheep, etc)	Livestock (sheep + cattle)/cropping
Annual rainfall (mm)	480 to 500mm

Jarrod King, Gairdner, WA. Photo: SCF

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JARROD KING – GAIRDNER (single crop type)	
Topic	**Summer cropping demonstration site**
Grower group / interviewer name	Fitzgerald Biosphere Group / Maddy Wylie
Have you had much experience growing summer crops in the past? **If so, what have you grown, and how often have you grown them/were they part of a planned rotation?**	Yes, opportunistically – lucerne, millet, sorghum. It's not part of a planned rotation, but we've reacted to seasonal rainfall that has fallen in the key planting window for summer crops.
Why was grower keen to have a go?	To make the most of warm season rainfall and to grow a crop over summer months that can be utilised to fill the feed gap in January/February when it tends to be dry on the south coast. The summer crops grown are predominantly for the grazing enterprises – we have not grown any crops through to grain harvest. Millet has also been found to be useful in ameliorating paddocks with non-wetting sands (lighter duplex country), with a positive impact on yields in the subsequent wheat crop in this demonstration.
What benefits could successful summer cropping offer to the current enterprise?	There is also an additional benefit in cleaning up paddocks with an extra knockdown before the subsequent winter crop phase.
Demonstration site details:	
■ **What was sown?**	Shirohie millet
■ **Sowing date? Sowing rate?**	Seeding – ideal window, early September 2021 at 10 to 15kg/ha. If intending to take through to grain harvest, we would up the seeding rate to 20 to 30kg/ha.
■ **Grazed? How many times for how long? DSE?**	Primary reason for growing millet is to graze. Grazed through January/February 2022 for four to six weeks at 10–15 DSE (half that rate for cattle).
■ **Rainfall received during the summer period?**	No summer crop planted in the previous two seasons due to lack of favourable rainfall in early September.
■ **Performance of following crop?**	Positive impact on following wheat crop, where planted into soils with historical non-wetting issues.
What were the three key take-home learnings from this demonstration site?	1 Good option in the right seasonal conditions. 2 Good option for growing out young stock. 3 Not a year-in-year-out option but would always consider it as an option in any given year where seasonal conditions are suited (we always keep some millet and lucerne seed in the shed).
Was it a profitable decision? Can this be roughly quantified?	Yes, especially given the alternative of feeding sheep. **Farmanco economic analysis:** The operating gross margin was slightly negative. This is most likely due to the dry summer experienced. This analysis did not take into account the alternative of feeding-out grain, or the improvements to establishment in the following winter crop by alleviating non-wetting somewhat.
Would the grower try it again? And in what circumstances?	Yes, when there is good rain in September resulting in good subsoil moisture. Soil temperatures also need to be more than 16°C.

"When we have suitable subsoil moisture in spring, we will plant a summer crop, usually Shirohie millet for our livestock operation. Not only is it great feed value but it also helps alleviate non-wetting issues for the following winter crop establishment."

– JARROD KING

Brenton and Justine Tyson, Jitarning, WA

Brenton Tyson and family.
Photo: Facey Group

GROWER SNAPSHOT

Grower name/s	Brenton and Justine Tyson
Location of site/s (nearest town)	Jitarning, WA
Farm size	3800ha
Soil types	Loamy sand over grey clay
Enterprise type (cattle, sheep, etc)	Mixed cropping and sheep (Merino)
Annual rainfall (mm)	Wickepin recorded 350mm in 2022

BRENTON AND JUSTINE TYSON – JITARNING (single crop type)	
Topic	**Summer cropping demonstration site**
Grower group / interviewer name	Facey Group / Tina Astbury and Kaitlyn Anderson
Why was grower keen to have a go? **What benefits could successful summer cropping offer to the current enterprise?**	Brenton did not have much experience with early sown long-season wheat. Long-season wheat is not commonly grown in this area. More often, late summer rains are common, followed by a dry period in early autumn before it rains again. As such, early sown wheat could be a solution to this often-staggered start to the winter season. Brenton did grow barley years ago that was grazed and taken to harvest so had some experience with crop grazing. Crop grazing barley was successful, and he was keen to try the long-season wheat. He was also looking forward to making use of the early break to provide a valuable crop grazing opportunity but then also take the crop through to harvest where he was hoping for more yield (compared with spring wheats) due to the longer growing season. The paddock chosen for the demonstration is also occasionally impacted by frost and the longer growing season and delayed vernalisation may have provided some protection.
Demonstration site details: ■ **What was sown?** ■ **Sowing date? Sowing rate?** ■ **Grazed? How many times for how long? DSE?** ■ **Rainfall received during the summer period?** ■ **Performance of following crop?**	 Illabo$^{(D)}$ wheat and Denison$^{(D)}$ wheat Illabo$^{(D)}$ wheat at 50kg/ha on the 16 April 2022. Denison$^{(D)}$ wheat at 65kg/ha on the 2 May 2022 Six plots of 3.52ha for total trial size of 10.6ha. Total paddock size 71ha. Grazed once with 600 ewe hoggets from 8–16 June 2022 (eight days) at 8.5 DSE (dry sheep equivalent). Annual rainfall was 350mm at the closest townsite of Wickepin as per the BOM website. This paddock yielded below average due to the conditions. It was a wet season, and the paddock became waterlogged. Brenton believes that with an earlier sowing and in the absence of waterlogging the yield would have been higher.
What were the three key take-home learnings from this demonstration site?	1 Denison$^{(D)}$, which was sown later, outperformed Illabo$^{(D)}$ on yield. More research in the Facey Group area needs to be completed on the optimal sowing dates for these long-season wheats. 2 Brenton only grazed the trial site once this season but might have been able to graze twice if the Denison$^{(D)}$ had been sown earlier. Brenton's grazing rate of 8.5 (DSE) was higher than he would usually do for this property (DSE typically 3 or lower). 3 Brenton did not save on feed due to this trial in this year but likes the possibility of resting pasture during critical times through further use of long-season wheat.
Was it a profitable decision? Can this be roughly quantified?	This paddock yielded below average due to the conditions. It was a wet season, and the paddock became waterlogged. Brenton believes all wheat varieties would have struggled in the conditions and perhaps the long-season wheat did as well or better than most. Had waterlogging not occurred, this may have provided great biomass for grazing. **Farmanco economic analysis:** The operating profit was $459/ha for Denison$^{(D)}$ wheat and $13/ha for Illabo$^{(D)}$ (both ungrazed). Where grazing occurred, the profit was slightly more for Illabo$^{(D)}$ ($41/ha) and slightly less for Denison$^{(D)}$ ($420/ha). The main profit driver was the higher average yield for Denison$^{(D)}$ over Illabo$^{(D)}$ by approximately 1t/ha.
Would the grower try it again? And in what circumstances?	Brenton is keen to try long-season wheat again, but perhaps in a paddock less prone to waterlogging. He has some concerns about heavier weed burdens due to grazing so would want it to follow a fallow or hay paddock. It would be an opportunistic decision.

"Denison$^{(D)}$ stuns Illabo$^{(D)}$! At the start of the trial, it was thought that Illabo would perform better as it was sown earlier. The Denison$^{(D)}$ wheat was put in when it had not rained for a period and was not expected to perform as well, but it did."

– BRENTON TYSON

Robert Egerton-Warburton, Mobrup, WA

GROWER SNAPSHOT

Grower name/s	Robert Egerton-Warburton
Location of site/s (nearest town)	Mobrup, WA
Farm size	6000ha
Soil types	Forest gravels
Enterprise type (cattle, sheep, etc)	Sheep 2000ha, crop 3500ha
Annual rainfall (mm)	550mm

Robert Egerton-Warburton, Mobrup, WA.

Photo: GRDC

ROB EGERTON-WARBURTON – MOBRUP (single-crop type)	
Topic	**Summer cropping demonstration site**
Grower group / interviewer name	Southern Dirt / Adele Scarfone
Have you had much experience growing summer crops in the past? **If so, what have you grown, and how often have you grown them/were they part of a planned rotation?**	Yes, we have. In the past we've mostly grown sorghum and millet opportunistically. The opportunity to plant either of these arises every five years or so.
Why was the grower keen to have a go? What benefits could successful summer cropping offer to the current enterprise?	It was a wet year and due to waterlogging, paddocks couldn't grow a crop. It was hoped the canola planted could use up some of the moisture. It would also provide young (lamb) with stockfeed during summer.
Demonstration site details: ■ **What was sown?** ■ **Sowing date? Sowing rate?** ■ **Grazed? How many times for how long? DSE?** ■ **Rainfall received during the summer period?**	 Hyola® CL 970 It was sown on 4 November 2021 at 2kg/ha. 2500 lambs grazed the paddock over a two-month period in rotation, with an overall average stocking rate of 1.6 DSE. 40mm of rainfall was received in November 2021, but then nothing through the summer (very dry).
What were the three key take-home learnings from this demonstration site?	1 There was lower biomass production as the soil moisture was used up. 2 It provided a benefit by using up excess soil water in low-lying areas. 3 Insect control was an ongoing issue, particularly for diamondback moth.
Was it a profitable decision? Can this be roughly quantified?	Some yield penalty to the canola by grazing; however the following winter crop tends to be good. Maximus® CL barley was sown in the paddock in 2023. **Farmanco economic analysis:** The operating profit for this demonstration paddock was $609/ha. This included the grazing and canola grain yield (1.6t/ha). The grain yields were the profit driver; however grazing values were conservative.
Would the grower try it again? And in what circumstances?	Yes, but only when there is excess moisture at seeding time (October/November) to grow biomass to provide a feed source over summer.

"There is certainly opportunity in WA for spring/summer sown crops if there is a prior wet winter season."

– ROB EGERTON-WARBURTON

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