

CASE STUDY PRESENTATION

Filling the Autumn FeedGap

Thursday July 15th 2021



Project Aim

To demonstrate the potential of autumn grazed fodder crops that will provide a lower cost and more productive (measured by pasture quality, quantity, animal performance and cost benefit analysis) alternative to supplement feeding with conserved fodder for beef in the high rainfall Lower South West region in WA.



Project Structure

4 YEARS (JAN 2020-DEC 2023)

- Year 1: 2 x strip demonstration sites established
- Years 2-4: 5 x paddock scale (5ha or more) of well performing varieties rolled out across the Lower Blackwood region
- All years: Case studies, field days, producer project guide





2020-21

Site 1 – Andrew McNab
Scott River



Site Characteristics

Soil

Sandy

Very Low PBI but optimum P levels

Potassium levels a little low

Sulphur levels ok

Very good Organic Carbon

No salinity issues

Low pH

pH	4.35
PBI	1.95
P (Colwell-mg/kg)	10.5
K (Collwell-mg/kg)	86
S (mg/kg)	9
Organic Carbon (%)	4.95

Landscape

Low lying flats with a slight rise to drier upslope



Farming operation

- FAMILY FARM
- FARMING SINCE 2000
- 600 HECTARES OF PASTURE
- COMMERCIAL HERD OF ANGUS CATTLE AND PRIME LAMB FLOCK
- TYPICAL WINTER PASTURES OF RYEGRASS AND SUB-CLOVER

Inputs & their costs

Operation	Time	Cost (\$/ha)
Knockdown	Early Sept	\$15
Lime - 4t/ha (1/10yr cost)	Sept	\$11
Hayburst - 250kg/ha	Late Sept	\$165
Cultivations	Sept/Oct	\$40
Seeding	2&26 Oct	\$15
Insect control x 3	Oct & Nov	\$95
Urea - 100kg/ha	Early Nov	\$75
Fertiliser - shed cleanout	Oct	\$75
Total (ex seed)		\$491



Demo Site Layout

FENCE

Plot 1: Fodder Beet (Geronimo – *Bell Seeds*)

Plot 2: Perennial Rye (Base – *PGG Wrightson*)

Plot 3: Fescue (Quantica – *PGG Wrightson*)

Plot 4: Cocksfoot (Aurus – *PGG Wrightson*)

Plot 5: Chicory (Puna11 – *PGG Wrightson*)

Plot 6: Plantain (Ecotaine – *PGG Wrightson*)

Plot 7: Raphno (Pallaton – *PGG Wrightson*)

Plot 8: Raphno (Pallaton – *PGG Wrightson*)

Plot 9: Turnip (Appen – *PGG Wrightson*)

Plot 10: Forage Brassica (Pillar – *Bell Seeds*)

Plot 11: Millet (Shiroie – *PGG Wrightson*)

Plot 12: Super Sweet Sudan (SSS – *Pioneer*)

Plot 13: Sorghum (Sprint – *Bell Seeds*)

Plot 14: Lablab (Highworth – *PGG Wrightson*)

ROAD

Seeding Day - 02/10/2020

Speed Tiller





2021-22

Site 2 – Asher Cohen Forest Grove

Site Characteristics



Soil

Loamy Clay

Very High PBI but very low P levels

Potassium levels ok

Sulphur levels ok

Good Organic Carbon

No salinity issues

Borderline pH (on the low side)

pH	4.9
PBI	740
P (Colwell-mg/kg)	12
K (Collwell-mg/kg)	136
S (mg/kg)	19.6
Organic Carbon (%)	4.12

Landscape

Range of good loam soil types some wet areas



Farming operation

- FARMING SINCE 2017
- APROX 65 HECTARES
- CURRENTLY 30 CATTLE BUT INCREASING THE HERD
- TYPICAL PASTURES OF CLOVER, RYE, SOME CHICORY AND KIKUYU

Inputs & their costs

Operation	Time	Cost (\$/ha)
Two weed control cultivations	Sept	\$20
Lime - 3t/ha (1/10yr cost)	Sept	\$11
Fertiliser 200kg/ha Super CZM + 300kg/ha MAP	Pre seeding	\$330
Seeding	5th Oct	\$15
Insect control x 2	Oct & Nov	\$260
Urea - 100kg/ha	Early Nov	\$75
Total (ex seed)		\$711

Demo Site Layout

FENCE

Plot 1: Fodder Beet (*Geronimo – Bell Seeds*)

Plot 2: Perennial Rye (*Base – PGG Wrightson*)

Plot 3: Fescue (*Quantica – PGG Wrightson*)

Plot 4: Cocksfoot (*Aurus – PGG Wrightson*)

Plot 5: Lucerne (*Stamina – PGG Wrightson*)

Plot 6: Chicory (*Puna11 – PGG Wrightson*)

Plot 7: Plantain (*Ecotaïne – PGG Wrightson*)

Plot 8: Perennial Mega Mix

Plot 9: Sorghum (*Sprint – Bell Seeds*)

Plot 10: Raphno (*Pallaton – PGG Wrightson*)

Plot 11: Turnip (*Appen – PGG Wrightson*)

Plot 12: Forage Brassica (*Pillar – Bell Seeds*)

Plot 13: Millet (*Shiroie – PGG Wrightson*)

Plot 14: Summer Mix (*Bell Seeds*)

FENCE

Seeding Day – 05/10/2020

Duncan Duel Box Eco Seeder



Varieties





PERENNIAL RYE



Variety: Base, PGG Wrightson

Suggested seeding Rate: 25kg/ha

Actual Seeding Rates:

- Andrew: 30kg/ha
- Asher: 31.6kg/ha

Cost per ha

- \$350 at 25kg/ha
- \$420 as seeded

+ Good early vigour and yield

+ Preferred by sheep

- Did not survive heavy grazing (more potential)

Needs careful management to protect investment



FESCUE



Variety: Quantica, PGG Wrightson

Suggested seeding Rate: 15kg/ha

Actual Seeding Rates:

- Andrew: 9.3kg/ha
- Asher: 12.4kg/ha

Cost per ha

- \$270 at 15kg/ha
- \$170 - \$220 as seeded

-Poor establishment not competitive

- Did not survive heavy grazing

Needs careful management

Perhaps suited to a mixed sward?



COCKSFOOT

Variety: Aurus, PGG Wrightson

Suggested seeding Rate: 5kg/ha

Actual Seeding Rates:

- Andrew: 5kg/ha
- Asher: 10kg/ha

Cost per ha

- \$100 at 5kg/ha
- \$100-\$200 as seeded

- Poor establishment, not competitive

- Did not survive heavy grazing

Needs careful management and higher seed rates?

Perhaps suited to a mixed sward?



CHICORY



Variety: Puna 11, PGG Wrightson

Suggested seeding Rate: 5kg/ha

Actual Seeding Rates:

- Andrew: 6.26kg/ha
- Asher: 6kg/ha

Cost per Ha

- \$130 at 5kg/ha
- \$160 as seeded

+ Good establishment, yield and feed quality

+ Survived heavy grazing and still growing

- Limited broad leaf weed control options



PLANTAIN



Variety: Ecotain, PGG Wrightson

Suggested seeding Rate: 4kg/ha

Actual Seeding Rates:

- Andrew: 5.5kg/ha
- Asher: 6kg/ha

Cost per Ha

- \$90 at 4kg/ha
- \$124 as seeded

+ Good establishment and early yield/quality, preferred by sheep

- Did not survive heavy grazing (more potential)

- Limited weed control options



RAPHNO



Variety: Pallaton, PGG Wrightson

Suggested seeding Rate: 8kg/ha

Actual Seeding Rates:

- Andrew: 7.72kg/ha
- Asher: 13.5kg/ha

Cost per Ha

- \$285 at 8kg/ha
- Up to \$430 as seeded

+ Good establishment and grazing survival

-Diamond back moth need management with insecticides or sowing time



FORAGE BRASSICA



Variety: Pillar, Bell Seeds

Suggested seeding Rate:
6kg/ha

Actual Seeding Rates:

- Andrew: 4.6kg/ha
- Asher: 4.34kg/ha

Cost per Ha

- \$60 at 6kg/ha
- \$46 as seeded

+ Good establishment and
grazing survival

- Diamond back moth need
management with insecticides
or sowing time



TURNIP



Variety: Appen, PGG Wrightson

Suggested seeding Rate: 4kg/ha

Actual Seeding Rates:

- Andrew: 3kg/ha
- Asher: 16kg/ha

Cost per Ha

- \$60/ha at 4kg/ha
- \$45 as seeded – up to \$240

+ Good establishment

- Less tolerant of heavy grazing

- Diamond back moth need management with insecticides or sowing time



MILLET SOIL TEMP 14C +



Variety: Shiroie, PGG Wrightson

Suggested seeding Rate: 15kg/ha

Actual Seeding Rates:

- Andrew: 10kg/ha
- Asher: 17.8kg/ha

Cost per Ha

- \$70 at 15kg/ha
- \$47 as seeded (Andrew)

+ Good establishment and dry matter production

+ Can be sown at lower soil temp (earlier into better moisture)

-Lower feed quality

Low risk option



SSS

SEEDED
26/10/2020

SOIL TEMP 17C
AND RISING



Variety: Super Sweet Sudan,
Pioneer Seeds

Suggested seeding Rate:
5kg/ha

Actual Seeding Rates:

- Andrew: 5.2kg/ha
- Asher: N/A

Cost per Ha

- \$70 at 5kg/ha

**Did not get favourable
conditions at this site (more
potential)**



SORGHUM



Variety: Sprint, Bell Seeds

Suggested seeding Rate: 5-10kg/ha

Actual Seeding Rates:

- Andrew: 8kg/ha
- Asher: 10kg/ha

Cost per Ha

- \$90 as seeded

Did not get favourable conditions at this site (more potential)



LABLAB



Variety: Highworth, PGG
Wrightson

Suggested seeding Rate:
15kg/ha

Actual Seeding Rates:
Andrew: 15.7kg/ha
Asher: N/A

Cost per Ha
• \$70

**Did not appear to be suited
to our environment.
Soil temp?**



LUCERNE



Variety: Stamina GT6, PGG Wrightson

Suggested seeding Rate:
12kg/ha

Actual Seeding Rates:
Andrew: N/A
Asher: 10.9kg/ha

Cost per Ha

- \$120

Poor establishment, possibly insect attack (RLEM)



SUMMER MIX



Variety: Summer Mix, Bell Seeds
(Millet, Pillar Rape, Sunflower,
Sorghum, Safflower, Mustard,
Radish, Linseed and Purple Top
Turnip)

Suggested seeding Rate: 25-30kg/ha

Actual Seeding Rates:

Andrew: N/A

Asher: 30kg/ha

Cost per Ha

- \$165/ha

Was not cut but looked good.



PERENNIAL MEGA MIX



Variety: Perennial Custom Blend,
PGG Wrightson (Perennial Rye,
Fescue, Cocksfoot, Lucerne,
Plantain, Chicory)

Actual Seeding Rates: Asher only

Perennial Rye - 11kg/ha

Fescue - 2.2kg/ha

Cocksfoot - 2.2kg/ha

Lucerne - 4.5kg/ha

Plantain - 1.5kg/ha

Chicory - 1.5kg/ha

Total Mix Seeding rate - 22.9kg/ha

Cost per Ha

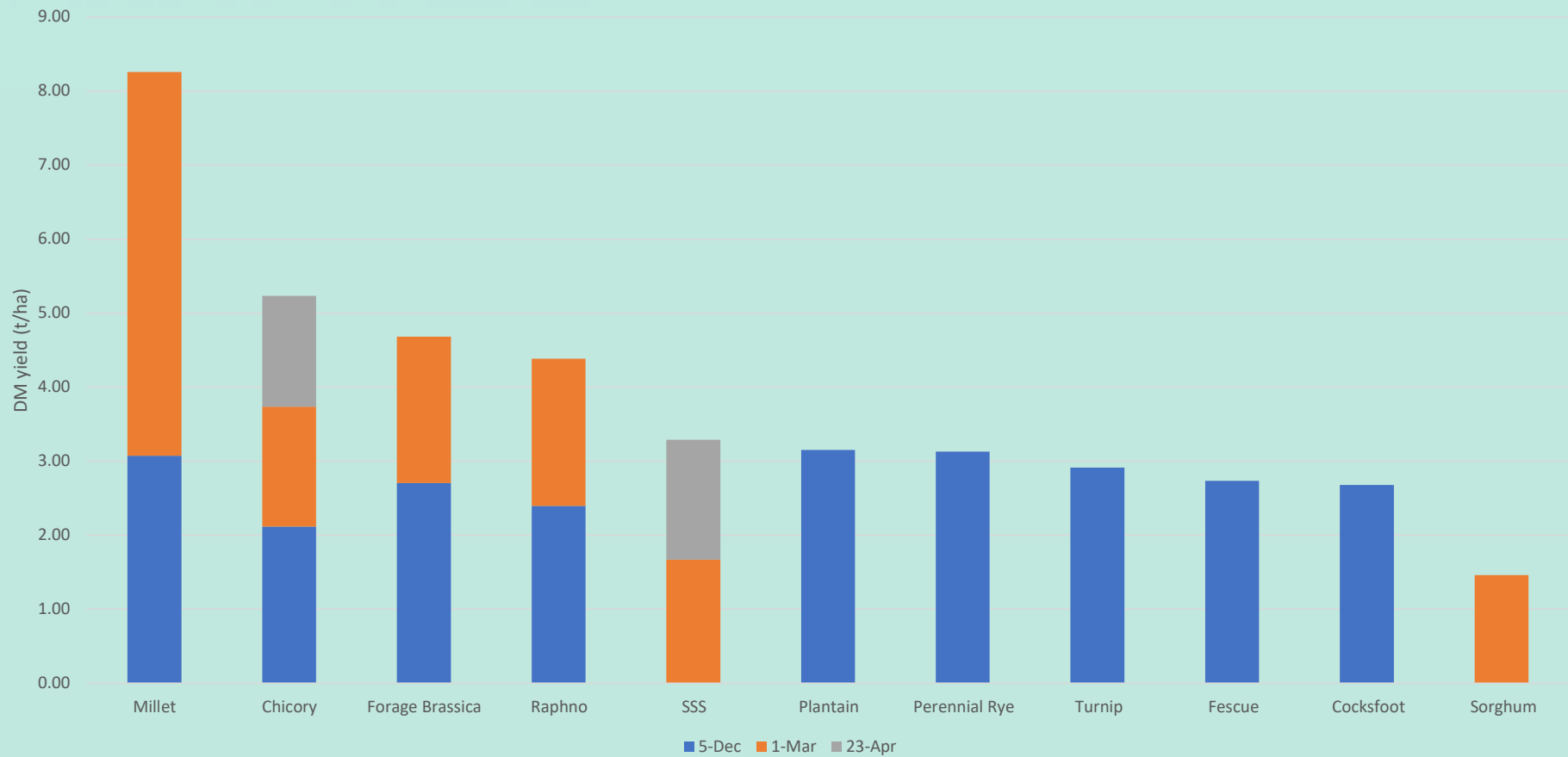
- \$355/ha



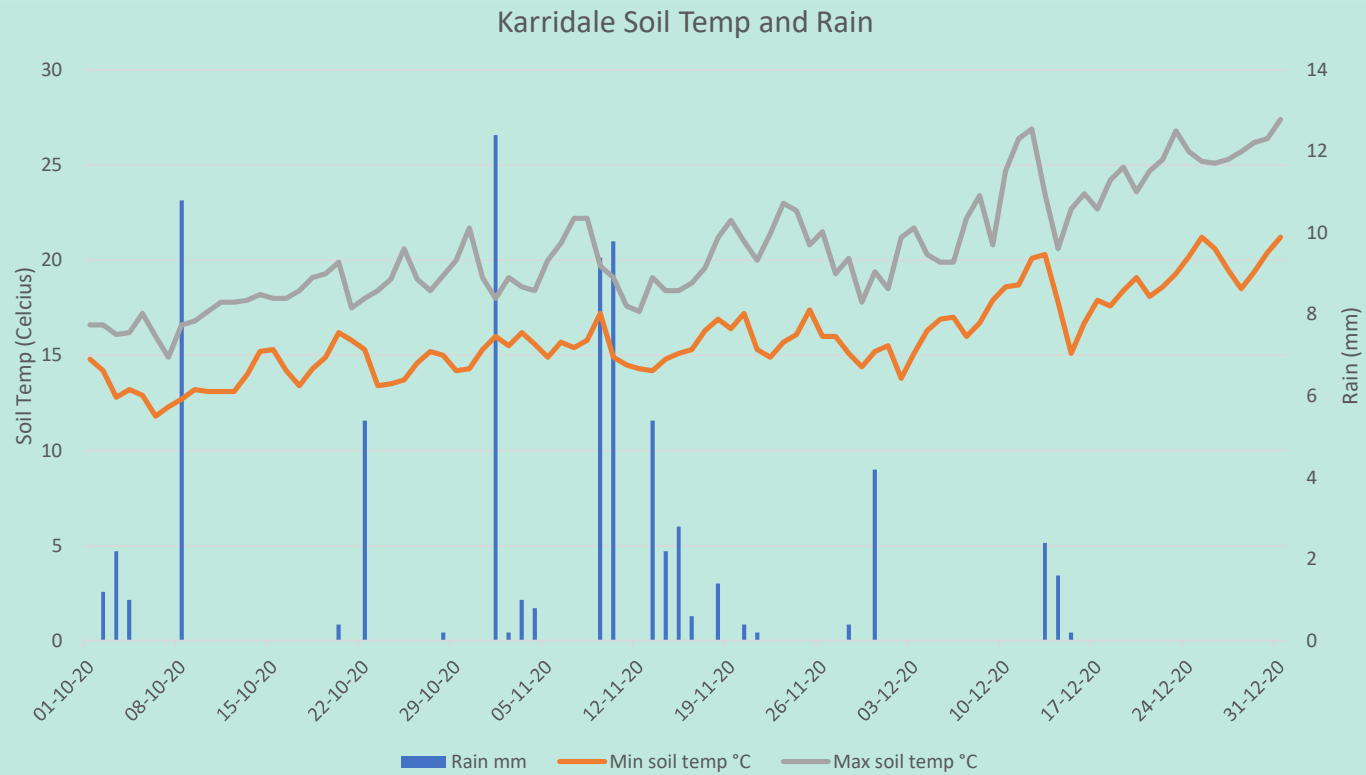
PASTURE CUT RESULTS - SITE 1 MCNAB

PASTURE CUT RESULTS

Pasture Cut Results

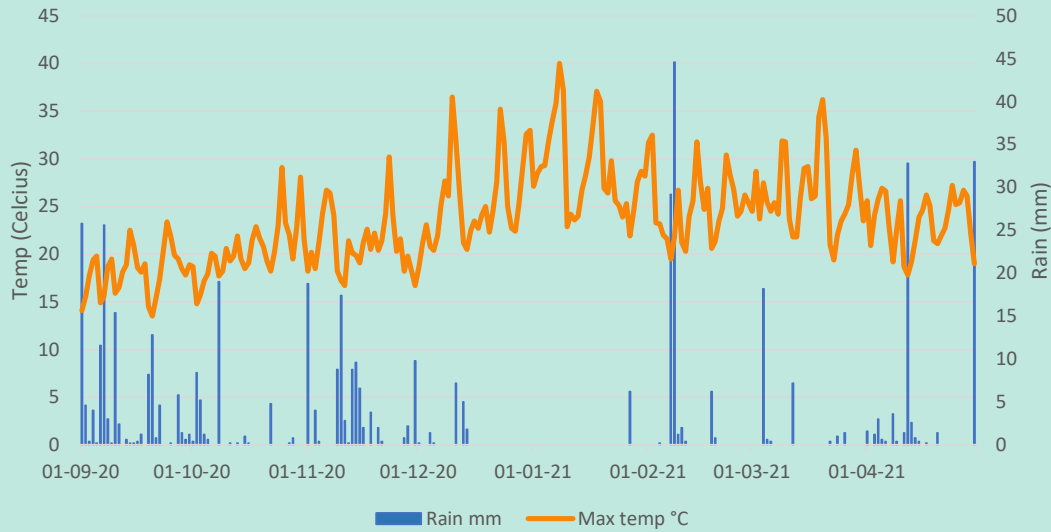


SOIL TEMPERATURE

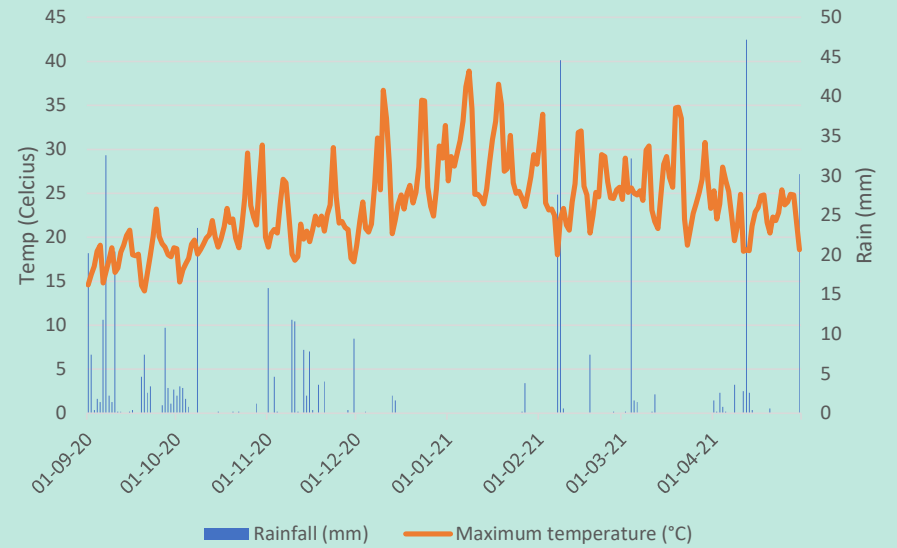


RAIN AND TEMPERATURE

Scott River East Rain and Max Temp



Witchcliffe Rain and Max Temp



FEED QUALITY

- Detailed results in booklet
- Generally broad leaf crops had higher energy, protein and digestibility than summer grasses.
Maybe too much? Fibre supplement?
- Perennial rye on par with the broad leaf crops but data from one cut only.



COST/BENEFIT: COST PER TONNE OF DRY MATTER

		Total Input Costs (\$/ha)			
		\$400	\$500	\$600	\$700
DM Yield (t/ha)	2	\$200	\$250	\$300	\$350
	4	\$100	\$125	\$150	\$175
	6	\$67	\$83	\$100	\$117
	8	\$50	\$63	\$75	\$88
	10	\$40	\$50	\$60	\$70

SUMMARY

- DBM Management for forage brassicas is critical
- Potential loss of spring production when chasing good establishment
- Soil temp requirement and risk
- Tolerance of grazing – some species are better than others
- Species that did not handle heavy grazing still have potential with careful management.

NEXT STEPS...



5 x 5ha sites established
(beef)



Animal Weights



Field Days



THANKYOU!