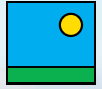


**Heritage**seeds



# **PASTURE RENOVATION GUIDE**

**EDITION 3**

**GROW WITH CONFIDENCE**

**INSIST ON THE YELLOW BAG**

**Heritage**seeds





# PASTURE RENOVATION GUIDE

## INTRODUCTION

No matter what type of stock you are running, you need pastures that will deliver. With the right pasture for your situation, you can meet the needs of your livestock in a profitable and sustainable way. This will enable you to keep your options open and concentrate on making every stock unit count and maximise your profits. Whether you are growing winter lambs, dairy cows, prime beef or perhaps all three, with the right pasture for your enterprise, you can grow with confidence using the tools in this guide.





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## CONSIDERATIONS AND SOME IMPORTANT PRINCIPLES

### Reasons for pasture renovation:

- Obvious or measured poor composition
- Grazing records/pasture measurements that show under performance
- Introduce improved cultivars
- Part of an on-going farm improvement plan
- Maximise income potential/achieve particular production targets.

### Why did previous pasture not do well enough?

- Over or under-grazing?
- Decline in fertility?
- Species or types used?
- Weeds/pests?
- Environmental extremes?

Combination of a number of the above is commonly the case.



### Effect of grazing mis-management

- Over grazing duration too long/rest-phase too short:
  - Loss of valuable species
  - Bare ground: cockchafers, erosion, annual weeds: *vulpia* (silvergrass), *barley grass*, *capeweed* etc.
- Lax/under-grazing:
  - Selective grazing of palatable species
  - Crowding out of prostrate species
  - Proliferation of weedy biennials/perennials, e.g. *fog grass*, *bromes*, *sweet vernal*, *brown-top* etc.

### Soil test - fertility targets



A soil test is essential to achieve production expectations and may often save money on unnecessary fertiliser. These figures are a general guide only. Consult an experienced advisor to work through specific circumstances.

pH (CaCl <sub>2</sub> )	4.5 – 5.4 is adequate for grass/clover (approx 5.4 – 5.9 pH in water) 5.6 + for lucerne (6.0 in water)	S	12 - 20 ppm about right
		Mg	Don't overlook, especially if applying solid rates of K
P (Olsen)	target range 15 - 20 ppm, ideally 18+, (25 - 30 for dairy/intensive production)	Mo	Needed for legumes to function: 50 - 60 g/ha of Mo every 3 - 5 years. Apply in conjunction with Cu
K	130 - 150 ppm for lighter soils 150 - 220 for medium clay/silts/loams 200 - 250ppm for clayey types	B	Needed for legumes
		Co	Sometimes needed in small amounts
		Se	May be needed (animal performance)



### Setting up a paddock for success:

- Soil test and address nutrients as is feasible
- Allow 6 – 18 months preparation phase
- Weed control:
  - o Grass weeds: topping, break crops, fallow
  - o Broad-leaved weeds: As above, but many options in pasture
  - o Onion weed/pin rush: Break crop with Group B herbicide
  - o Break crops: Cash crop/fodder crop opportunities

High chance of success  Less chance of success	Spray, Cultivate, Fallow, Drill <sup>1</sup>	Higher cost  Lower cost
	Spray, Cultivate, Drill <sup>1</sup>	
	Spray, Drill <sup>2</sup>	
	Drill into existing cover	

1. Broadcasting seed may also be effective

2. Spray, Drill (no - till) may be very effective in low-weed burden situations

*More preparation offers higher success rates*

### Give your clovers a fighting chance

If a good legume content is desired, keep the sowing rate of grass relatively modest and increase clover percentage in a mix, or adopt other tactics such as cross-sowing. Early grazing management should allow for a quick first grazing in order to open up the sward, let the clovers have room and sunlight.

### Post-sowing weed control

Control of emerging weeds is usually essential post-sowing. Timely sowing plus good seed placement will offer quick, even emergence that will assist in good herbicide timing. Seek good, experienced advice for suitable options, timings and over-all approach.

### Pasture maintenance and continued performance

- New pastures are likely to offer more grazing than older ones-treat them carefully and apply extra fertiliser to maintain performance if more grazing than usual has taken place.
- Measure performance/pasture growth: Grazing records, pasture measurement
- Soil test at regular intervals (say every 3 - 4 years)
- Fertiliser budget: apply maintenance PKS and traces if needed
- Pests: Monitor and respond
- Broad leaved weeds: fairly straightforward (mostly), but do before subs start to set flowers
- Weedy grasses: winter cleaning and or pasture topping
- Develop a calendar of pasture monitoring and probable maintenance requirements for your particular circumstances and engage an experienced advisor to assist with technical issues and tactical options.



# AUTUMN STRATEGIES FOR PASTURE RENOVATION

Overriding factor leading to poor performance:	Pasture Full Renovation ( $<30\%$ desirable species)	Process and Timing:	Early Autumn	Late Autumn
	<b>Weeds:</b>	→ Control weeds in a forage cereal crop. Reduce seed burden and/or crop out plant numbers	→ Systemic knock-down herbicide. Short fallow.	→ 2nd knock-down. Sow forage cereal. Consider using a suitable pre-em herbicide
			450 - 600 mm	
	Broad-leaved weeds:	→ Use definitive herbicide program to have a number of applications on hard-to-kill weeds such as some thistles, docks, wire-weed and other biennial/perennial weeds	<b>MAMMOTH FORAGE OATS</b>	40 - 70 kg/ha
	Annual grass weeds:	→ Reduce weed-seed burden. Use of pasture topping, short fallows, pre-em herbicides, crop-topping, early silage harvest. If pH and fertility OK, then consider going straight into lucerne	<b>CRACKERJACK 2 FORAGE TRITICALE</b>	40 - 70 kg/ha
	Staggers causing grasses, biennial or perennial grass weeds:	→ Reduce plant numbers under a 2 crop strategy. Use systemic knock-downs, and in-crop grass weed control options. If pH and fertility OK, then consider going straight into lucerne	<b>DICTATOR 2 FORAGE BARLEY</b>	40 - 70 kg/ha
	<b>Pasture pests:</b>	→ Remove old ryegrass from system under a 2 crop strategy	→ Break life-cycle through cultivation	→ Prepare good seed-bed and sow pasture
			450 - 600 mm	
	Cockchafers	→ Use tall-fescue, phalaris or cocksfoot based pastures	→ <b>MEATMASTER GT</b>	12 - 18 kg/ha
			<b>RENOVATOR 500+</b>	12 - 18 kg/ha
	Argentine stem-weevil	→ Use NEA/2 or AR1 endophyte ryegrasses	→ <b>KIDMAN</b> or <b>ROHAN</b>	10 - 15 kg/ha
		<b>RENOVATOR GRAZIER</b>	12 - 18 kg/ha	
	Black-beetle/Root aphid	→ Use NEA/2 endophyte ryegrasses or a hardy perennial blend	→ <b>ROHAN</b>	10 - 15 kg/ha
		<b>RENOVATOR 500+</b>	12 - 18 kg/ha	
	<b>Soil conditions:</b>	→ Hostile/troublesome sites with little prospect of ameliorating state of soil conditions	→ Highly Acidic: pH (CaCl <sub>2</sub> ) $< 4.5$	→
		Key grass variety/species	→ <b>ADVANCED AT</b> (wet sites), <b>COCKSFOOT</b> (dry)	
		Useful pasture legume options	→ <b>VISTA, MONTI, CAMPEDA, LOSA</b>	
		Mix options	→ <b>MEATMASTER AT</b>	12 - 18 kg/ha

Winter	Early Spring	Late Spring	Summer	Autumn (next year)
Graze forage cereal. In-crop weed-control	→ Fertiliser N,K,S to maximise production	→ Silage crop or cereal (grain) crop. Possible crop-top herbicide	→ Summer forage crop (with pre-em and/or in-crop herbicide options) or Summer Fallow	→ Finish grazing forage. Knock-down herbicide. Sow new pasture
600 - 750 mm		750 mm+ / Irrig		
<b>MAMMOTH FORAGE OATS</b>	60 - 80 kg/ha	<b>MAMMOTH FORAGE OATS</b>	80 - 120 kg/ha	FEB - MAY (general purpose, early sowing)
<b>CRACKERJACK 2 FORAGE TRITICALE</b>	60 - 80 kg/ha	<b>CRACKERJACK 2 FORAGE TRITICALE</b>	80 - 120 kg/ha	MAR - JUN (mid-season sowing, wetter sites, lower pH)
<b>DICTATOR 2 FORAGE BARLEY</b>	60 - 80 kg/ha	<b>DICTATOR 2 FORAGE BARLEY</b>	80 - 120 kg/ha	MAY - JUL OR LATER (later sowing, good pH, well drained)
Manage weeds and pests	→ Start grazing management	→ Grazing management. Avoid silage or hay in 1st year	→ Rotationally graze	→ Start seasonal maintenance program
600 - 750 mm		750 mm+ / Irrig		
<b>RENOVATOR GT</b>	15 - 20 kg/ha	<b>RENOVATOR GT</b>	18 - 25 kg/ha	(light - medium soils)
<b>RENOVATOR 500+</b>	15 - 20 kg/ha	<b>RENOVATOR 500+</b>	18 - 25 kg/ha	(heavier soils)
<b>ROHAN</b> or <b>IMPACT 2</b>	12 - 18 kg/ha	<b>IMPACT 2, BEALEY, VISCOUNT</b>	25 - 30 kg/ha	
<b>RENOVATOR 700+</b>	18 - 25 kg/ha	<b>RENOVATOR HR, 850i</b>	25 - 30 kg/ha	
<b>ROHAN</b> or <b>IMPACT 2</b>	20 - 25 kg/ha	<b>IMPACT 2, BEALEY, VISCOUNT</b>	25 - 30 kg/ha	
<b>RENOVATOR 700+</b>	18 - 25 kg/ha	<b>RENOVATOR HR</b>	25 - 30 kg/ha	
Waterlogging frequent		→ Rising level of salinity, still < 3 - 4 dS/m		
<b>RYEGRASS, FESCUE, PHALARIS</b>		<b>RYEGRASS, FESCUE, PHALARIS</b>		
<b>VISTA, STORM, STRAWBERRY, MONTI, NAPIER, GOSSE</b>		<b>VISTA, STRAWBERRY, SCIMITAR, SULTAN SU</b>		
<b>RENOVATOR 500+</b>	12 - 25 kg/ha	<b>RENOVATOR 500+</b>	12 - 25 kg/ha	

<b>Oversowing and Maintenance</b> (> 30% desirable ground cover)		<b>Process and Timing:</b>		<b>Early Autumn</b>	<b>Late Autumn</b>
30% - 50% desirable varieties	Over-sow with short-term varieties	→	Over-sow with an annual or annual/Italian blend Monitor and consider as a candidate for renovation in 1 - 2 years	→ Graze-down hard. Possibly use a knock-down herbicide	→ Over-sow into moisture →
		Seed options:		450 - 600mm	
		Straight variety		<b>VORTEX</b>	8 - 12 kg/ha
		Blend		<b>MEATMASTER ST</b>	10 - 15 kg/ha
50% - 70% desirable varieties	Over-sow with medium-term varieties	→	Over-sow with an Italian or Italian/hybrid blend Monitor and consider as a candidate for renovation in 2 - 3 years+	→ Graze-down hard. Possibly use a knock-down herbicide	→ Over-sow into moisture →
		Seed options:		450 - 600mm	
		Straight variety		<b>HULK</b> or <b>TEMPO</b>	8 - 12 kg/ha
		Blend		<b>BARBERIA + HULK</b>	10 - 15 kg/ha
70% - 90% desirable varieties	Top-up existing pasture	→	Over-sow with a perennial or perennial/hybrid blend Monitor and consider as a candidate for renovation in 3 - 5 years+	→ Graze-down hard. Possibly use a knock-down herbicide	→ Over-sow into moisture →
		Seed options:		450 - 600mm	
		Straight variety		<b>BARBERIA, KIDMAN</b>	8 - 12 kg/ha
		Blend		<b>RENOVATOR GRAZIER</b>	10 - 15 kg/ha
>90% useful varieties	Maintain existing pasture	→	Seasonal pasture maintenance:	→ SoilTest, apply capital fertiliser, soil amendments	→ Monitor for grubs, mites and treat appropriately →

## THE "HOW TO" OF AUTUMN PASTURE RENOVATION



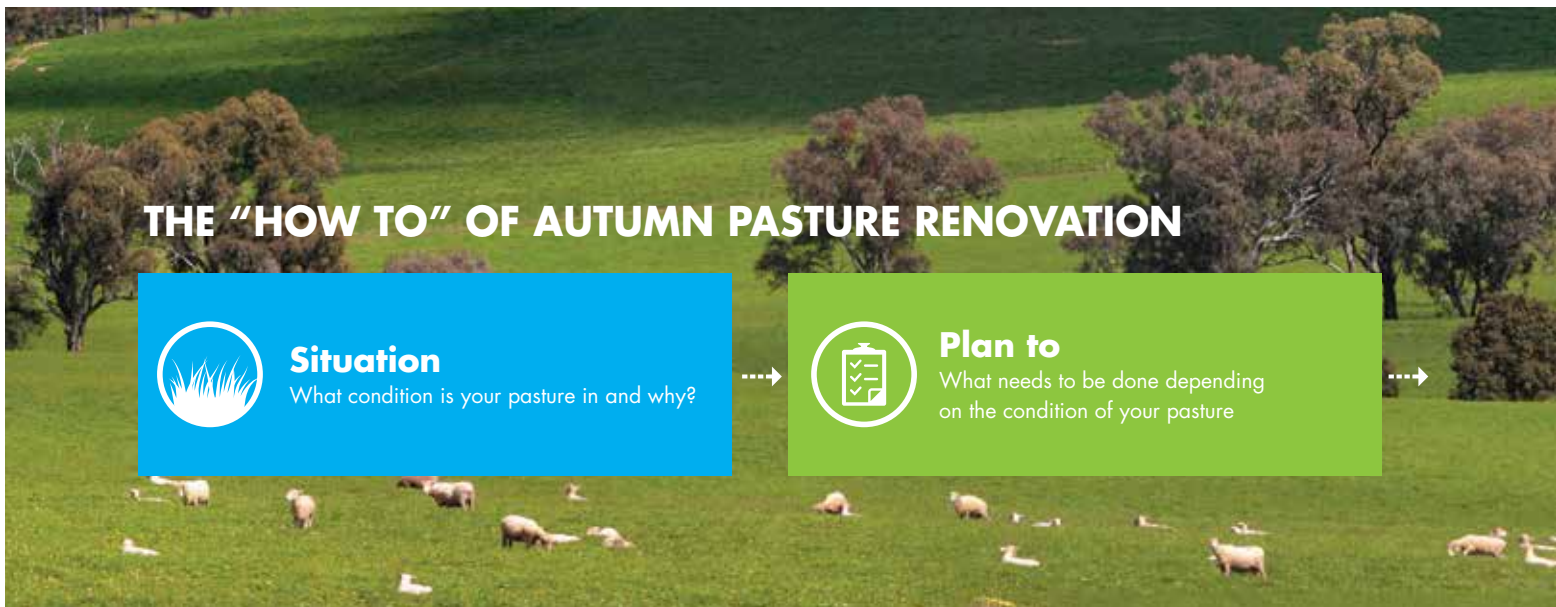
### Situation

What condition is your pasture in and why?



### Plan to

What needs to be done depending on the condition of your pasture





Winter	Early Spring	Late Spring	Summer	Autumn (next year)
Start grazing, manage weeds and pests	→ Grazing	→ Silage or hay crop	→ Grazing as applicable or summer forage crop	→ Finish grazing forage. Knock-down herbicide. Sow new pasture
600 - 750mm		750mm+/Irrig		
<b>VORTEX</b> or <b>ARNIE</b> <b>RENOVATOR SR</b>	10 - 15 kg/ha 15 - 25 kg/ha	<b>ARNIE</b> or <b>HOGAN</b> <b>RENOVATOR SR</b>	15 - 25 kg/ha 20 - 30 kg/ha	
Start grazing, manage weeds and pests	→ Grazing	→ Silage or hay crop	→ Rotationally graze, do-not overgraze good pastures	→ Evaluate performance and pasture composition and respond accordingly
600 - 750mm		750mm+/Irrig		
<b>TEMPO</b> or <b>SHOGUN</b> <b>TEMPO + SHOGUN</b>	10 - 15 kg/ha 12 - 20 kg/ha	<b>ASTON</b> or <b>SHOGUN</b> <b>ASTON + SHOGUN</b>	15 - 25 kg/ha 15 - 25 kg/ha	
Start grazing, manage weeds and pests	→ Grazing	→ Silage / hay making, pasture topping. Stop weed-seed set with herbicides or good grazing management	→ Rotationally graze, do-not overgraze good pastures	→ Start seasonal maintenance program
600 - 750mm		750mm+/Irrig		
<b>KIDMAN, IMPACT 2</b> <b>RENOVATOR 700</b>	10 - 15 kg/ha 12 - 20 kg/ha	<b>SHOGUN, BEALEY, VISCOUNT</b> <b>RENOVATOR ELITE, HR</b>	15 - 25 kg/ha 15 - 25 kg/ha	
Winter herbicides for annual grasses and/or broad-leaved weeds	→ Fertiliser N,K,S to maximise production	→ Silage / hay making, pasture topping. Stop weed-seed set with herbicides or good grazing management	→ Rotationally graze, do-not overgraze good pastures	→ Continue seasonal maintenance program



## Process and Seasonal Timing

How to renovate and manage your pastures throughout the season



## Pasture Seed

What species and varieties to use and sowing rates based on your annual rainfall



**Options**

# PASTURE AND FORAGE READY RECKONER

## TEMPERATE GRASSES AND PASTURE LEGUMES

	Plan for	Heritage Seeds' Proprietary Variety		Use pattern	Typical kg/ha	Similar fit to:
<b>Perennial Ryegrass</b> 5 - 8 years+	Early (-14)	<b>KIDMAN</b>	dip	AR1, Persistence, dry areas, unique low AMH	15 - 25	<b>Fitzroy, Kingsgate, Avalon, Vic-types</b>
	Mid-mid-late (+6)	<b>ARROW</b>	dip	AR1, Utility perennial, suits most systems	15 - 25	<b>BRONSYN, Excess, Samson, Nui</b>
	Late (+16)	<b>IMPACT 2</b>	dip	NEA2, Performance with high persistence	15 - 25	<b>One50, Prospect, Ultra, Matrix, Impact</b>
	Late (+18)	<b>ROHAN</b> <small>NEW</small>	dip	NEA2, Persistent, spreading type, sheep/beef	15 - 20	<b>Expo, One50</b>
	Late (+19)	<b>VISCOUNT</b> <small>NEW</small>	tet	NEA, Improved winter and early spring performance	20 - 30	<b>Base, Halo, Banquet 2, BEALEY</b>
	Very late (+25)	<b>BEALEY</b>	tet	NEA2, Highest performance perennial	20 - 30	<b>Base, Halo, VISCOUNT</b>
<b>Hybrids</b> 3 - 5 years+	Very early (-17)	<b>BARBERIA</b>	dip	Winter feed, multiple years, dry tolerant	15 - 25	<b>Unique variety.</b>
	Very late (+26)	<b>SHOGUN</b>	tet	NEA, High performance, oversowing	20 - 30	<b>Ohau, Optima, Jeta, Reward, Tonnus</b>
<b>Italian Ryegrass</b> 1 - 2 years	Late (+19)	<b>HULK</b>	dip	Utility biennial, mid-late season	15 - 25	<b>Crusader, Indulgence, Sonik, Icon</b>
	Late (+18)	<b>TEMPO</b> <small>NEW</small>	dip	High performance diploid	15 - 25	<b>TABU, Knight, Concord 2, Asset</b>
	Late (+15)	<b>ASTON</b>	tet	Highest performance biennial, late season	20 - 30	<b>Feast 2, Jeanne, Thumpa, Nourish</b>
<b>Annual Ryegrass</b> 8 - 12 mths	Early (-3)	<b>GRASSMAX</b> <sup>TM</sup>	dip	Autumn and winter, spring quality not important	20 - 30	<b>Tetila, Tetrone, DiamondT</b>
	Mid-late (+10)	<b>VORTEX</b>	tet	Newest mid-late season, fast establishing	20 - 30	<b>W'star 2, Mach1, Adrenalin, Jivet</b>
	Very late (+17)	<b>ARNIE</b>	dip	High performance annual, excellent late quality	15 - 25	<b>Sultan, Flyer</b>
	Very late (+23)	<b>HOGAN</b> <small>NEW</small>	tet	High performance annual, excellent late quality	15 - 25	<b>Zoom, Ascend</b>
<b>Tall Fescue</b>	Winter active	<b>PROSPER</b>		Winter dominant rainfall, summer dry	2 - 6	<b>Resolute, Flecha, FRAYDO, Origin</b>
<b>Phalaris</b>	Low pH	<b>ADVANCED AT</b>		Low pH and Al <sup>3+</sup> tol, rotation graze, winter act.	2 - 6	<b>Unique Al tolerance, LANDMASTER</b>
	Set-stock	<b>HOLDFAST GT</b>		High grazing tolerance, most soils, winter act.	2 - 6	<b>Holdfast, Sirolan, LAWSON</b>
	Utility	<b>LANDMASTER</b>		Extensive beef/sheep, most soils, winter act.	2 - 6	<b>Holdfast, Sirolan, ADVANCED AT</b>
	Rotational	<b>LAWSON</b>		Extensive beef/sheep, most soils, winter act.	2 - 6	<b>Holdfast, LANDMASTER, Sirolan</b>
<b>Cocksfoot</b>	Summer dormant	<b>KASBAH</b>		Extensive, early areas, summer dry	2 - 4	<b>Currie, Uplands, YarcK</b>
	Intermediate	<b>HOWLONG</b>		Versatile, Extensive beef/sheep, lighter soils	2 - 4	<b>Porto, Kara, Vision, Tekapo, Wana</b>
	Summer active	<b>SAFIN</b> <small>NEW</small>		Summer rainfall, milder climates, high output	2 - 6	<b>GRASSLY, Greenly, Lazuly, Savvy</b>
<b>Brome</b>	Winter active	<b>BARENO</b>		Winter growth, standing summer feed	15 - 30	<b>Atom, Exceltas, Matua</b>

	Plan for	Heritage Seeds' Proprietary Variety		Use pattern	Typical kg/ha	Similar fit to:
<b>White Clover</b>	Large leaf	<b>STORM</b>		Intensive dairy/beef/lamb	2 - 5	<b>MINK, Legacy, Kopu, Tribute, Will</b>
	Medium leaf	<b>WEKA</b>		Extensive grazing beef/sheep, dryland dairy	2 - 5	<b>Bounty, Prestige, Sustain, Demand</b>
<b>Red Clover</b>	Med-large leaf	<b>TUSCAN</b>		Intensive grazing dairy/beef/lamb	2 - 6	<b>Collenso, Astred, Hamua, USA Red</b>
<b>Sub Clover</b>	Very early	<b>LOSA</b>	sub	Early country, extensive sheep/beef, acid-neut	4 - 8	<b>Dalkieth, Nungarin, Dalsa, Izmir</b>
	Early	<b>MAWSON</b> <small>NEW</small>	bchy	Early areas, heavy soils, sheep/beef, neutalk	6 - 10	<b>Unique early brachy</b>
	Mid	<b>MONTI</b>	yan	Mid-season for most areas, acid-neut	4 - 8	<b>Hatrick, Riverina, Trikkala</b>
	Mid	<b>MINTARO</b>	bchy	Mid-season for most areas, neutalk	6 - 10	<b>Clare, Clare 2</b>
	Mid-late	<b>CAMPEDA</b>	sub	Sheep/beef/dryland dairy, most soils, low pH	4 - 8	<b>Urana, Goulburn, Coolamon</b>
	Mid-late	<b>GOSSE</b>	yan	Sheep/beef/dryland dairy, heavier soils	4 - 8	<b>Larisa, NAPIER, Trikkala</b>
	Mid/late-late	<b>ANTAS</b>	bchy	Highest performance. All stock classes	6 - 12	<b>Clare, MINTARO</b>
	Late	<b>DENMARK</b>	sub	Productive, low pH, higher rainfall	4 - 8	<b>Leura, Rosabrook, Ovaflow</b>
	Very late	<b>NAPIER</b>	yan	Late areas, heavy soils, sheep/beef, low pH	4 - 8	<b>Larisa, GOSSE</b>
<b>Annual Clover</b>	Very early	<b>FRONTIER</b>	Bal.	Winter growth, low rainfall, most soil types	1 - 4	<b>Border</b>
	Early	<b>CEFALU</b>	A-leaf	Most soils, low-neutral pH, HDL mixes	3 - 6	<b>Arrowleaf (common)</b>
	Early-mid	<b>NITRO PLUS</b>	Pers.	Hard-seeded Persian for early areas	2 - 6	<b>Kyambro, SARDI</b>
	Mid	<b>LIGHTNING</b>	Pers.	Low-neutral pH, hay/silage mixes, HDL mixes	2 - 6	<b>Shaftal</b>
	Mid-late	<b>VISTA</b> <small>NEW</small>	Bal.	Low-neutral pH, hay/silage mixes, HDL mixes	1 - 4	<b>BOLTA, Viper, Paradana</b>
	Mid-late	<b>ZULU II</b>	A-leaf	Deep loamy/sandy soils, low pH	3 - 6	<b>Arrowtas, Zulumax</b>
	Late - very late	<b>LASER</b>	Pers	Most soils, neutral pH, hay/silage, HDL mixes	2 - 6	<b>Shaftal, Turbo</b>
<b>Medics</b>	Early	<b>SULTAN-SU</b>	barrel	Extensive crop/sheep zone, SU tolerant	2 - 10	<b>Caliph, Parabinga, Jester</b>
	Early - mid	<b>SCIMITAR</b>	burr	Crop/sheep zone, salinity tolerant	2 - 10	<b>Santiago, Cavalier</b>





## LUCERNE, FORAGES AND FODDER CROPS

	Plan for	Heritage Seeds' Proprietary Variety		Use pattern	Typical kg/ha	Similar fit to:
<b>Lucerne</b>	8 years+	<b>SARDI-GRAZER</b>	6.5	Extensive grazing and under cropping	8 - 20	<b>SARDI 5, Stamina 6, GTL60</b>
	5 - 8 years+	<b>SARDI 7 SERIES 2</b>	7.4	Grazing, hay, general purpose	8 - 20	<b>SARDI 7, Haymaster 7, Aurora</b>
	5 - 8 years+	<b>GENESIS II</b>	7	Grazing, hay, general purpose	8 - 20	<b>Titan 7, L70, L71, Force 7, Q75</b>
	3 - 4 years+	<b>SARDI 10 SERIES 2</b>	10	Winter grazing, highest hay potential	8 - 20	<b>Force 10, ML99, SARDI 10</b>
<b>Forage Brassicas</b>	Leafy Turnip	<b>FALCON</b>		6-8 weeks, broad application	4 - 6	<b>Pasja, Hunter</b>
	Rape	<b>LEAFMORE</b>		8-12 weeks, extensive sheep/beef	3 - 5	<b>Winfred, Rangi, Bonar, Sub-zero</b>
	Rape	<b>INTERVAL</b>		10-12 weeks, intensive systems	3 - 5	<b>Greenland, Goliath, Titan</b>
	Turnip	<b>DYNAMO</b>		12-14 weeks, all stock classes	2 - 4	<b>Barkant, Marco, MPT, New York</b>
	Kale	<b>CALEDONIAN</b>		16-20 weeks, intensive systems	4 - 6	<b>Kestrel, Sovereign, Voltage</b>
	Swede	<b>INVITATION</b>		16-20 weeks, extensive systems	2 - 3	<b>Dominion, Highlander</b>
<b>Chicory</b>	1 - 3 years+	<b>COMMANDER</b>		ShortTerm quality forage, summer active	4 - 8	<b>Choice, Grouse, Chico, Puna 2, 501</b>
<b>Forage Cereals</b>	Oats	<b>MAMMOTH</b>		Feb - May sowing, graze/silage/hay	40 - 100	<b>Quamby, Graza, Wintaroo, Outback</b>
	Triticale	<b>CRACKERJACK 2</b>		Mar - Jun sowing, graze/silage	40 - 110	<b>Granador, Endevaur</b>
	Barley	<b>DICTATOR 2</b>		Apr - Aug sowing, graze/silage/hay	40 - 120	<b>Moby, Sthn Green</b>
<b>Summer Forage Cereals</b>	Forage Sorghum	<b>CENTAUR</b>	Early	Oct/Dec sowing, graze/silage/hay	10 - 25	<b>Sud x Sud, fine stems, good tillering</b>
	Forage Sorghum	<b>STARGRAZER</b>	Mid	Oct/Dec sowing, graze/silage/hay	10 - 25	<b>Sorg x Sud, fast estab., fine stems</b>
	Forage Sorghum	<b>ASTRO</b>	Late	Oct/Dec sowing, graze/silage/hay	10 - 25	<b>Sorg x Sud, fine stems, rapid re-graze</b>
	Forage Sorghum	<b>SUGAR SWEET</b>	Late	Oct/Dec sowing, graze/silage/hay, standover	10 - 25	<b>Sweet x Sorg, increased ME at maturity</b>
	Forage Millet	<b>PEARLER</b>		Nov/Dec sowing, graze/silage/hay	5 - 25	<b>High feed quality and improved yield</b>
	Forage Millet	<b>SUMMER GREEN</b>		Oct/Dec sowing, graze/silage	50 - 100	<b>Greenfeast, Greenfeed</b>



	Plan for	Heritage Seeds' Proprietary Variety		Use pattern	Typical kg/ha	Similar fit to:
<b>Vetch</b>	Early	<b>VOLGA</b> <small>NEW</small>	com	Soft seed, winter feed, cereal hay, low rainfall	30 - 50	<b>Rasina</b>
	Early - Mid	<b>RASINA</b>	com	Soft seed, winter feed, cereal hay, low rainfall	30 - 50	<b>Timok</b>
	Mid	<b>MORAVA</b>	com	Soft seed, hay, low-med rainfall	30 - 50	<b>Blanchfleur</b>
	Early - Mid	<b>RM4</b> <small>NEW</small>	woolly	Soft seed, hay, grazing, green manure	20 - 40	<b>Capello</b>
	Mid	<b>CAPELLO</b>	woolly	Partly soft seed, hay, grazing, green manure	20 - 40	<b>Namoi</b>
	Mid-late	<b>HAYMAKER</b>	woolly	Hard seed, intensive hay, grazing, green manure	20 - 40	<b>Popany</b>

**Notes:**

**NEW** varieties subject to commercial release dates, stock availability and programmed introduction. Limited availability and/or commercialisation TBC.

**dip** = diploid, **tet** = tetraploid; lucerne numbers indicate dormancy group; **sub** = ssp subterraneum, **yan** = ssp yanninicum, **bchy** = ssp brachycalycinum;

**Sowing rates:** general guide, lower rates for dryland / low rainfall sites, or guide for inclusion in a mix; higher rate for pure/dominant stand.

**Pasture mix guide: Dryland: 15 - 25kg/ha** (10 - 15kg grass + 5 - 10 kg legume/ha);

**Med/high rainfall/irrig: 20-30kg/ha** (15 - 25kg grass + 4 - 8kg legume/ha)

## Help with pasture and forage development plans:

Managing a pasture is just as important as choosing the right seed. Our highly experienced team of territory managers can offer valuable and timely advice to guide farmers, agronomists and retailers in making the right decision.

Heritage Seeds' territory managers have an intimate knowledge of the eco-agricultural aspects of their area plus the resources and back-up from regional agronomists and technical support from research, seed production and plant breeding nationally and internationally.

Your territory manager can offer guidance on such things as:

- Pasture and crop economics
- Crop sequencing
- Paddock selection and preparation
- Fertiliser
- Weed and pest control
- Grazing management
- Animal production and health issues
- Fodder conservation
- Lawns and turf
- Winter grain and summer grain crops
- Temperate and tropical species
- Seed treatments.



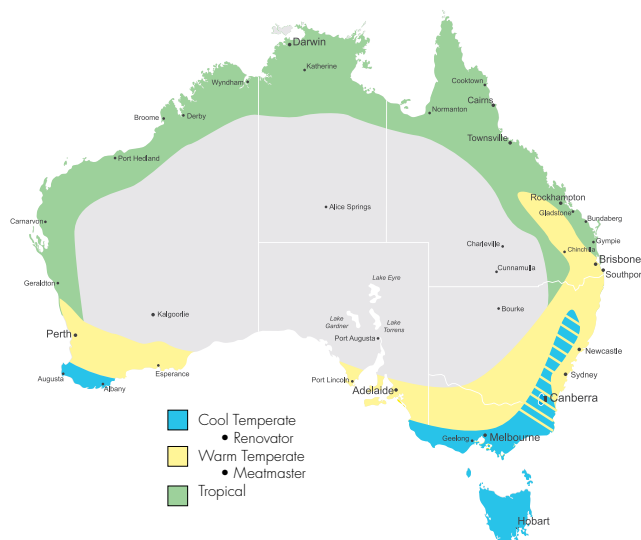
## TEMPERATE PREMIUM PASTURE BLENDS

The Renovator and Meatmaster temperate range of pasture blends provide farmers with the right mix necessary to produce superior results and superior pastures. They are premium seed blends formulated using Heritage Seeds' strong agronomic, technical and research advantage. They are designed using only the highest quality seed and are 'ready to sow' providing livestock farmers with the best possible pasture outcomes.

### Key to Pasture Blend Charts

<b>D</b>	Dairy	(d) diploid ryegrass
<b>B</b>	Beef	(t) tetraploid ryegrass
<b>L</b>	Lamb	
<b>W</b>	Wool	All clovers AgriCote
<b>E</b>	Equine	AgriCote grasses available
<b>C</b>	Cropping rotation short pasture phase	

In circumstances where specific varieties are not available, an appropriate alternative may be substituted that suits the agronomic application.



## MEATMASTER PASTURE BLENDS - 2017/18 GUIDE

Plan for	Min.av.rain		Contains % by weight:
<b>3 years+</b> Oversowing, performance		<b>MM B-DOUBLE MIX</b> 15 - 25 kg/ha (use 25kg/ha for a pure stand)	60% Bealey NEA2 perennial ryegrass (t) 40% Barberia long rotation ryegrass (d)
<b>D B L C</b>	<b>650mm+</b>		
<b>3 - 4 years+</b> Specially finishing blend		<b>MEATMASTER LC</b> 20 - 25 kg/ha	25% Commander chicory 75% SARDI 7 series 2 lucerne
<b>D B L</b>	<b>650mm+</b>		
<b>5 - 10 years+</b> Summer rainfall		<b>MEATMASTER HP</b> 18 - 25 kg/ha	75% Summer active tall fescue 10% Storm white clover 15% Tuscan red clover
<b>D B L C</b>	<b>650mm+</b>		
<b>5 - 10 years+</b> Hardy blend for late areas		<b>MEATMASTER 500</b> 18 - 20 kg/ha	30% Summer active tall fescue 20% Prosper winter active tall fescue 20% Holdfast GT phalaris 10% Mintaro sub clover 10% Campeda sub clover 10% SARDI-Grazer lucerne
<b>D B L W E C</b>	<b>500mm+</b>		
<b>5 - 10 years+</b> Hardy beef and sheep blend		<b>MEATMASTER GT</b> 8 - 15 kg/ha	45% Holdfast GT phalaris 27.5% Campeda sub clover 27.5% Mintaro sub clover
<b>B L W E</b>	<b>400mm+</b>		
<b>5 - 10 years+</b> Hardy beef and sheep blend		<b>MEATMASTER AT</b> 12 - 18 kg/ha	30% Advanced AT phalaris 10% Howlong cocksfoot 30% Mintaro sub clover 30% Monti sub clover
<b>B L W E</b>	<b>400mm+</b>		
<b>1 year+</b> Hardy beef and sheep blend		<b>MEATMASTER ST</b> 25 kg/ha	80% Vortex annual ryegrass (t) 10% Laser (Persian) annual clover 10% Vista balansa clover
<b>D B L W C</b>	<b>550mm+</b>		



## RENOVATOR PASTURE BLENDS - 2017/18 GUIDE

Plan for	Min.av.rain		Contains % by weight:
<b>5 years+</b>			
Highest performance		<b>RENOVATOR HR</b> 25 - 30 kg/ha	50% Bealey NEA2 perennial ryegrass (t) 34% Impact 2 NEA2 perennial ryegrass (d) 8% Storm white clover 8% Weka white clover
<b>D B L</b>	<b>700mm+</b>		
<b>5 years+</b>			
Performance, wet sites		<b>RENOVATOR 850i</b> 25 kg/ha	40% Arrow perennial ryegrass (d) 40% Impact 2 NEA2 perennial ryegrass (d) 10% Storm white clover 10% Weka white clover
<b>D B L E</b>	<b>700mm+</b>		
<b>3 years+</b>			
Oversowing, performance		<b>RENOVATOR ELITE</b> 20 - 30 kg/ha (use 25kg/ha for a pure stand)	50% Bealey NEA2 perennial ryegrass (t) 50% Shogun hybrid ryegrass (t)
<b>D B L C</b>	<b>550mm+</b>		
<b>5 years+</b>			
Performance, dry summers		<b>RENOVATOR 700+</b> 25 kg/ha	32.5% Rohan NEA2 perennial ryegrass (d) 32.5% Impact 2 NEA2 perennial ryegrass (d) 10% Storm white clover 12.5% Monti sub clover 12.5% Denmark sub clover
<b>D B L W E</b>	<b>700mm+</b>		
<b>5 years+</b>			
Hardy, winter performance		<b>RENOVATOR GRAZIER</b> 12 - 25 kg/ha	30% Kidman perennial ryegrass (d) 30% Barberia perennial ryegrass (d) 10% Howlong cocksfoot 15% Monti sub clover 15% Campeda sub clover
<b>B L W E</b>	<b>550mm+</b>		
<b>5 - 10 years+</b>			
Hardy, long-term pasture Salinity, drought, acidity tol. Heavier soils, potentially wet sites		<b>RENOVATOR 500+</b> 12 - 18 kg/ha	32.5% Summer active tall fescue 20% Barberia long rotation ryegrass (d) 10% Howlong cocksfoot 10% Lawson phalaris 20% Antas and Denmark sub clovers 7.5% Palestine strawberry clover
<b>B L W E</b>	<b>450mm+</b>		
<b>5 - 10 years+</b>			
Persistent and productive long-term pasture for extensive grazing Most soil types, drought tolerant		<b>RENOVATOR GT</b> 12 - 18 kg/ha	20% Holdfast GT phalaris 7.5% Howlong cocksfoot 35% Kidman perennial ryegrass (d) 15% Mintaro sub clover 15% Campeda sub clover 7.5% Storm white clover
<b>B L W E</b>	<b>500mm+</b>		
<b>1 - 2 years</b>			
All-year feed + hay/silage		<b>RENOVATOR SR</b> 25 kg/ha	30% Hulk Italian ryegrass (d) 50% Hogan annual ryegrass (t) 20% Laser (Persian) annual clover
<b>D B L C</b>	<b>550mm+</b>		
<b>3 years+</b>			
Oversowing, performance		<b>RENOVATOR ALLGRASS</b> 12 - 18 kg/ha (use 25kg/ha for a pure stand)	60% Bealey NEA2 perennial ryegrass (t) 40% Barberia long rotation ryegrass (d)
<b>D B L C</b>	<b>550mm+</b>		
<b>5 years+</b>			
Quality horse pasture		<b>RENOVATOR EQUINE</b> 30 - 50 kg/ha	30% Summer active tall fescue 30% Arrow perennial ryegrass (d) 40% Barberia long rotation ryegrass (d)
<b>B L W E</b>	<b>550mm+</b>		

# LUCERNE PREPARATION CHECK-LIST

Question?	Yes	No – Action required
Lucerne not grown in site for at least 2 years	OK	Crop for at least 2 years with alternative species.
Drainage OK (casual water lays < 1 day)	OK	Improve drainage or select alternative site.
pH (CaCl <sub>2</sub> ) > 5.7	OK	Increase pH through liming or select alternative site.
Exchangeable Al <sup>3+</sup> < 5%	OK	Decrease Aluminium at depth through liming over a number of years or select alternative site.
Weed burden previously reduced	OK	Crop for 1 – 2 years with cereals or other grain crops, paying attention to weed control.
Irrigation available	Spring sow OK	Autumn or early spring sow.
Winter active variety (dormancy rating > 6)	Autumn or spring sow OK	Spring sowing recommended in winter cold areas, for winter dormant varieties.

## Variety to fit the job:

LONGEVITY INCREASES				
Plan for:		3-4+ years	5-8+ years	8-10+ years
Dedicated hay production	First choice	SARDI 10 SERIES 2 LUCERNE	SARDI 7 SERIES 2 LUCERNE	SARDI-GRAZER LUCERNE
HAY QUALITY INCREASES				
Dual purpose hay and grazing	First choice	SARDI 10 SERIES 2 LUCERNE	SARDI 7 SERIES 2 LUCERNE	SARDI-GRAZER LUCERNE
	Good alternative		GENESIS II LUCERNE	
DM YIELD PER ANNUM INCREASES				
Grazing/ extensive pasture	First choice	SARDI 10 SERIES 2 LUCERNE	SARDI-GRAZER LUCERNE	SARDI-GRAZER LUCERNE
	Good alternative		SARDI 7 SERIES 2 LUCERNE	
GRAZING TOLERANCE INCREASES				

SOWING RATE KG/HA INCREASES

## LUCERNE SOWING RATES:

Annual rainfall	350 mm – 450 mm	450 mm – 600 mm	600 mm – 800 mm	800 mm+ / Irrigated
kg/ha	4 – 6	6 – 8	10 – 12	15 – 25

It is strongly recommended that prior to sowing, a pre-plant pre-emergent herbicide be considered. Herbicides such as trifluralin and pendimethalin are commonly used with good success. Consult an agronomist and check label instructions before proceeding. Low-till/no-till systems can be used to good effect, but paddock preparation, weed burden and herbicide spray systems need to be considered and prepared for prior to sowing.

## LUCERNE STAND THINNING OUT?

Sometimes after a number of years, lucerne plant numbers in a paddock may reduce to lower than desirable levels, but the lucerne stand may still be the best option for a while yet. It can be a very useful strategy to over-sow the stand with a suitable companion species. If a full lucerne stand is required on that site, then it is better to terminate the existing lucerne, crop for a few years, address reasons for decline, and then re-sow. In winter dominant rainfall zones the following examples may be considered.

### For winter dominant rainfall zones:

Desired outcome:	350 mm – 450 mm	450 mm – 600 mm	600 mm – 800 mm	800 mm+ / Irrigated
Keep lucerne for 1 more year	Over-sow in autumn with a one-year species, terminate crop in following summer.			
	<b>MAMMOTH FORAGE OAT</b> 20 – 60 kg/ha	<b>VORTEX ANNUAL RYEGRASS</b> 10 – 15 kg/ha	<b>ARNIE ANNUAL RYEGRASS</b> 10 – 15 kg/ha	<b>HOGAN ANNUAL RYEGRASS</b> 15 – 20 kg/ha
Keep lucerne for 2 more years	Over-sow with a biennial species. Consider chicory for stands with many grass-weeds.			
	<b>HULK ITALIAN RYEGRASS</b> 8 – 12 kg/ha	<b>TEMPO ITALIAN RYEGRASS</b> 10 – 15 kg/ha	<b>COMMANDER CHICORY</b> 4 – 8 kg/ha	<b>ASTON ITALIAN RYEGRASS</b> 15 – 20 kg/ha
Keep lucerne for 3 - 4 more years*	Over-sow with a long-rotation grass.			
	<b>BARENO GRAZING BROME</b> 6 – 10 kg/ha	<b>BARBERIA HYBRID RYEGRASS</b> 10 – 12 kg/ha	<b>SHOGUN<sup>®</sup> HYBRID RYEGRASS</b> 12 – 15 kg/ha	<b>SHOGUN<sup>®</sup> HYBRID RYEGRASS</b> 15 – 20 kg/ha
Keep lucerne indefinitely*	Over-sow in autumn with a one-year species, terminate crop in following summer.			
	<b>HOLDFAST GT PHALARIS</b> 2 – 3 kg/ha	<b>HOLDFAST GT PHALARIS</b> 3 – 5 kg/ha	<b>IMPACT<sup>®</sup> PERENNIAL RYE</b> 10 – 15 kg/ha	<b>BEALEY<sup>®</sup> PERENNIAL RYE</b> 15 – 20 kg/ha
Full lucerne stand required	Terminate current stand. Crop for 2 years minimum to utilise nitrogen fixation from the lucerne. Address reasons for decline such as weed burden, fertility, pH, drainage, cultivar disease susceptibility, prior to re-sowing lucerne.			

### Notes:

\* In low-medium rainfall areas, an alternative to oversowing with grass is to consider introducing 6 - 8 kg/ha of one or two sub-clovers that suit the environment. Antas should be considered as a very good option for 3 - 4 years, Mintaro, Campeda and Monti for a longer time-frame.

↔ = interchangeable



# SPRING STRATEGIES FOR RUN-OUT AND WINTER DAMAGED PASTURES

Scenario 1	Some damage / bit run-out (50 - 70% useful species) → Over-sow with 3 - 4 year option				
	Options:	500 - 600 mm rain	<b>BARBERIA</b>	10 - 15 kg/ha	
		600 - 750 mm rain	<b>SHOGUN</b>	15 - 20 kg/ha	
	Strategy:	750+ mm rain	<b>RENOVATOR ELITE</b>	20 - 30 kg/ha	
	Late Winter	Early Spring	Late Spring	2 Years	3 - 4 Years' time
Scenario 2	Moderately damaged or run-out (30 - 50% useful species) → Over-sow with Italian ryegrass				
	Options:	500 - 600 mm rain	<b>HULK</b>	10 - 20 kg/ha	
		600 - 750 mm rain	<b>TEMPO</b>	12 - 25 kg/ha	
	Strategy:	750+ mm rain	<b>ASTON / SHOGUN</b>	15 - 30 kg/ha	
	Late Winter	Early Spring	Late Spring	2 Years	3 - 4 Years' time
Scenario 3	Moderately damaged or run-out (30 - 50% useful species) → Over-sow with Italian ryegrass				
	Strategy:				
	Late Winter	Early Spring	Late Spring	Early Autumn	Mid-Autumn
	Graze through until Aug - Sep	Spray-out and prepare a good seed bed	Forage crop as per Summer Forage Decision Tool	Graze forage crop out by Feb/Mar	Full pasture renewal next autumn after forage crop
			OR	Late Autumn	Early Winter
Summer Forage Decision Tool					
	Enterprise	Climate	Quick Feed/Single Graze	Multiple Graze	Carry into Autumn or later
	Intensive Dairy/ Beef/Finishing often irrigated	Hot summer	<b>STARGRAZER FORAGE SORGHUM</b>	<b>CENTAUR FORAGE SORGHUM</b> <b>COMMANDER CHICORY</b>	<b>ASTRO FORAGE SORGHUM</b>
		Mild summer	<b>FALCON LEAFY TURNIPS</b> (quick) <b>DYNAMO TURNIPS</b> (single)	<b>INTERVAL RAPE</b> <b>COMMANDER CHICORY</b>	<b>CALEDONIAN KALE</b>
	Extensive Sheep/ Beef, usually dryland	Hot summer	<b>STARGRAZER FORAGE SORGHUM</b>	<b>PEARLER MILLET</b> <b>CENTAUR FORAGE SORGHUM</b>	<b>SUGAR SWEET FORAGE SORGHUM</b>
		Mild summer	<b>FALCON LEAFY TURNIPS</b>	<b>LEAFMORE RAPE</b> <b>COMMANDER CHICORY</b>	<b>INVITATION SWEDE</b>

NOTES

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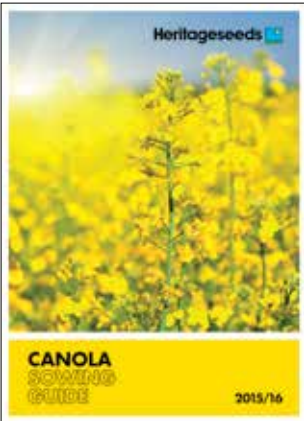
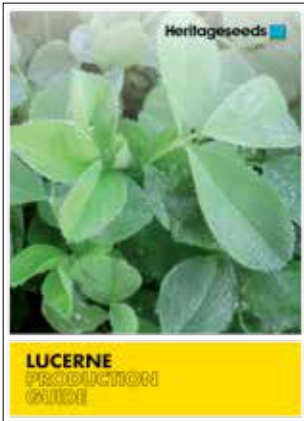
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