BARENBRUG agriseeds

THE MAGIC OF PASTURE

Feed that replaces itself (again & again!) to curb your c/kg MS costs.

SPRING 2018

MAGIC OF PASTURE

When you feed pasture, it grows back. This self-replacing ability makes it the mainstay of New Zealand dairying, costing as little as 7c/kg DM. It is the single biggest driver of strong, resilient farm systems.

Principles in this guide will help you grow and utilise more pasture this season, so you can cut back on imported feed and contain costs of production.

Tip① alone has the potential to improve your income by $145k!

''Pasture is cheaper than any feed that comes on a truck.''

1 CONSISTENT RESIDUALS DAY-IN DAY-OUT (EXCEPT WHEN WET)

In brief

This may sound simple, but achieving consistent post-grazing residuals is worth about $145,000/year extra income on the average South Island farm – and you don't have to buy anything!

Key principle – Utilise more DM/ha, improve pasture ME & feed cows better

The value above comes from a small increase in feed quality measured in metabolisable energy or ME (+0.3 MJ ME) and feed eaten (+3%), when it is multiplied up on a 200ha farm with pastures producing 15 t DM/ha/year as shown below.

Benefit	Amount	Pasture grown on farm	Extra ME	Extra MS*	Value
Increased ME	Extra 0.3 MJ ME/kg DM	3,000 t DM (= 200ha x 15 t DM/ha)	900,000 MJME (3,000 t DM x 0.3 MJME/kg DM)	11,250 kg MS	$67,500 @$6/kg MS
Increase eaten	Extra 3% eaten	3,000 t DM	90 t DM (3,000 t DM x 3%)	12,938 kg MS	$77,620 @$6/kg MS
				Total income for extra ME + eaten =	$145,120

* ME converted to milksolids at 80 MJME/kg MS. Assumed ME of extra pasture eaten of 11.5 MJME/kg DM.

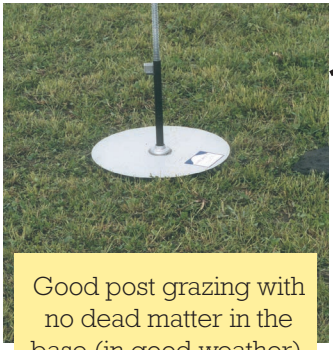
Pasture management is simple (in theory)

There are only three rules:

1. Graze a pasture at the right time with the right stocking rate.
2. Take animals off the pasture when the desired residual is attained.
3. Repeat steps 1 and 2.

These rules apply in dry conditions. In wet weather the aim should shift to protecting soil and pasture from damage.

Pasture management is a continuous cycle as shown below with each step influencing the next. Improved pasture quality (ME) is a result of good residuals, which is captured at the following grazing.



Good post grazing with no dead matter in the base (in good weather). E.g. 1500-1600 kg DM/ha.

Get these in balance and management falls into place

Graze at the right time with no dead matter in the base.

The key to post-grazing residuals is consistency. Some farmers aim to graze to 1500 kg DM/ha, some 1600 kg, others 1700 kg. All these options may be fine, depending on your system. What matters most is that they are maintained consistently, so cows are eating the high quality plant leaf above the same residual each grazing.

Tips for smarter residual management

In practice pasture management is not so simple, so here are some tips:

1. **Define target residual** – Does your whole farm team know what the target residual is? This needs to be clear so it can be consistently achieved by whoever is moving the cows.
2. **Have a photo of right target residual** – This is the easiest way to remember it. Have it in the lunch room, but also on everyone's phones to use in the paddock.
3. **Use a plate meter** – This is a great way for your team to objectively discuss residuals, (avoiding the 'I think it's 1500; no, I think it's 1700' debates.) Measure it with a plate meter, and then decide what to do.
4. **Use 24 hour grazings** – This way you have only half as many residuals to get right as with 12 hour grazings, reducing the number of decisions and potential for error by half. The science shows MS production is equal for 12 vs 24 hour grazings.
5. **Make target residuals a KPI for those shifting cows** – Including target residuals in the job description or contract keeps grazing management top of mind for staff.
6. **Trouble shoot** – Target residuals aren't always achieved (e.g. they can be difficult to reach on old browntop and cocksfoot pastures). Plan ahead as to how residuals will be re-set when required.
7. **Act quickly** – If target residuals aren't achieved act quickly to reset them. This might include putting cows back into the paddock, post-grazing mowing, or pre-graze mowing next round.

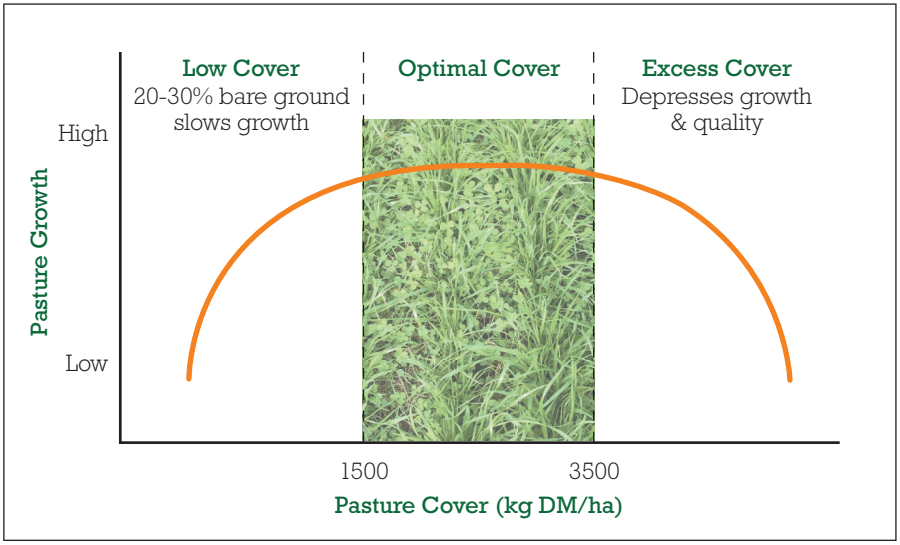
2 GROW MORE

In brief

Good grazing management produces more grass by simply increasing the amount of leaf present, so plants can capture the sunlight they need to grow to their potential. That's the science behind the old adage 'grass grows grass'.

Key principle - Keep pasture covers in the 'sweet spot'

Pasture has a sweet spot. If it's too long, quality declines. If it's too short, growth slows. 'Grass grows grass' is the golden rule to maximise pasture growth as shown below.



The mid-spot between your desired pre-grazing cover and residual is the average cover where you want the farm to be. Most systems have extra cover at calving (e.g. 2500-2600 kg DM/ha), dropping down to the 'sweet spot' of cover (e.g. 2200-2300 kg DM/ha) at balance date.

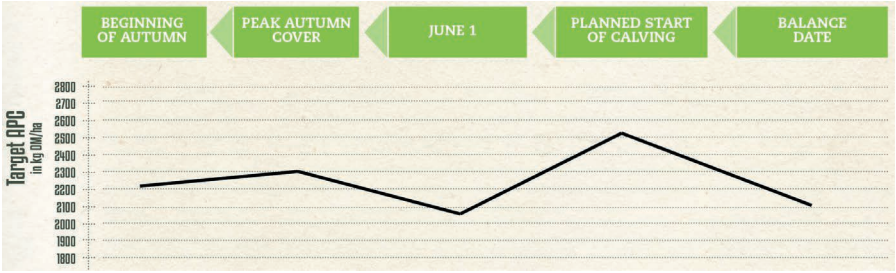
While you may prefer to feed just pasture, this is not always possible. When growth rates slow feed supplements early, to keep average cover across the farm as close as possible to the 'sweet spot', so you grow your way out of the feed deficit as fast as possible. Grass grows grass!

Extra N fertiliser can also be useful in these periods, if you believe the feed deficit will continue for 3-4 weeks (which is the time it takes for a N response).

Tips for keeping cover in the sweet spot

1. **Set targets for cover through the year** – The DairyNZ Pasture Road Map is a good tool for this, and can be kept handy for continual reference.
2. **Monitor regularly** – Nothing is more certain than uncertainty! Pasture growth rates will vary, and regular cover assessment allows you to react to this. Do a farm walk at the same time each week so it becomes a habit.
3. **Act quickly** – The sooner you correct a feed surplus or deficit, the better. For example paddocks cut promptly for baleage are back into the grazing round faster than those that are left too long. This is important in case daily growth rates fall.

Sample Pasture Roadmap. (For more visit www.dairynz.co.nz).



3 SMART RENEWAL PROGRAMME

In brief

We believe growing new grass for 7c/kg DM is achievable on most farms - much cheaper than any imported feed!

Investing in pasture renewal is critical to produce more high ME pasture at home, and there are 3 steps to get the best result.

Key principle - Pasture for 7c/kg DM

To achieve this you need a 3 t DM/ha/year increase from new pasture, as highlighted in green in the table below. Over 5 years an extra 15 t DM/ ha is grown, less 1.5 t lost growth during renewal, for an investment cost of about $900/ha. When imported feed such as PKE costs 30c/kg DM*, extra home grown pasture lowers your kg MS costs.

Comparison of doing nothing versus renewing	Do nothing	Grow extra 3tDM/ha
Extra growth over 5 years	0	+15 t DM/ha
DM lost during renewal	0	-1.5 t
Net increase	0	13.5 t DM/ha
Cost of renewal $/ha	0	$900/ha
Cost c/kg DM	n/a	**7c/kg DM**

*PKE based on $240/t, 90% DM plus handling costs of 3c/kg DM

Our analysis of dairy farms shows that if average pasture growth is 14-15 t DM/ha/year, top paddocks typically grow 18-19 t, and the worst 9-10 t DM/ha. There is huge potential for greater investment in pasture renewal but we would advise first analysing your property to make informed decisions as to how you proceed.

Renewal programme

A good pasture renewal programme will greatly increase returns, and reduce the risk of a poor result (contact us or your local seed reseller if you want help developing a programme).

This progamme should address the factors in the checklist on page 12.

Key principle - Invest in good seed genetics

When you look to maximise return on land worth potentially $40,000+/ha the seed genetics sown are a cheap – but critical - part of future pasture performance.

Budget seed is always available, but a basic rule of life is you get what you pay for. So called 'bargain' seed may have poor germination, high weed content, minimal endophyte, or simply poor genetics.

Forage Value Index

DairyNZ's Forage Value Index (FVI) provides more objective data on different ryegrass cultivars in the NZ market. DairyNZ has worked with the country's main seed suppliers (including Barenbrug Agriseeds) to estimate profit for ryegrass cultivars for dairy farmers, similar to BW in cows.

An example of how the FVI works is shown on page 9.

This is a Forage Value Index table (for perennial ryegass for the upper South Island) and what it means in farm profit.

Perennial Ryegrass Forage Value List

Cultivars are sorted by star rating and then alphabetically. Note:
Perennial ryegrass FVI is currently a combination of seasonal dry matter performance values and economic values.
Metabolisable energy performance values are not yet included in the FVI calculation and are shown below as additional information until sufficient trial data becomes available.
Cultivars with SE are not recommended as they can cause ryegrass staggers in summer and may reduce milksolid production at this time.
Edge endophyte currently has no industry agreed ratings for animal health and performance or insect control.

DairyNZ® Forage Value Index

Evaluation date: 01/11/2017

FVI[1] (Star rating)	FVI Star Rating ($/ha)	Cultivar	Performance Values[2] (1-5 rating)					Other cultivar information					
			Dry matter (DM)					Endo[3]	Ploidy[4]	HD[5]	Marketer	Conf[6]	Interim metabolisable energy content (MJME/kg DM)[7]
			Winter	Early spring	Late spring	Summer	Autumn						
★★★★★	$347 to $449	24 Seven Edge	4	4	4	5	3	Edge	D	VL	DLF Seeds	3	NT
		Alto AR37	5	4	3	4	3	AR37	D	L	Agriseeds	10+	12.7
		Arrow AR1	4	5	4	4	3	AR1	D	MS	Agriseeds	10+	12.8
		Base AR37	5	4	3	5	4	AR37	T	VL	PGG Wrightson	9	12.9
		Excess AR37	5	4	2	5	4	AR37	D	MS	PGG Wrightson	5	12.8
		One50 AR37	5	3	2	5	5	AR37	D	L	Agricom	10+	12.7
		Platform AR37	5	5	2	5	5	AR37	D	L	PGG Wrightson	3	NT
		Request AR37	5	5	2	4	4	AR37	D	MS	Agricom	10	12.7
		Trojan NEA2	5	5	4	5	3	NEA2	D	L	Agriseeds	10+	12.8
★★★★	$245 to $347	Ansa AR1	5	4	2	4	3	AR1	D	L	DLF Seeds	4	NT
		Matrix SE	4	5	2	4	4	SE	D	VL	Cropmark	10	12.9
		Prospect AR37	5	4	2	5	3	AR37	D	L	Agricom	10+	12.7
		Rely AR37	4	3	3	3	4	AR37	D	MS	PGG Wrightson	5	12.7
		Ultra AR1	4	4	2	4	4	AR1	D	L	Cropmark	10+	12.6
★★★	$143 to $245	AberMagic AR1	3	1	5	4	2	AR1	D	L	Germinal	4	NT
		Alto AR1	4	4	3	4	3	AR1	D	L	Agriseeds	10+	12.7
		Expo AR1	4	4	2	3	2	AR1	D	L	PGG Wrightson	9	12.8
		Halo AR37	5	2	2	4	3	AR37	T	VL	Agricom	10+	12.8
		One50 AR1	4	3	2	4	3	AR1	D	L	Agricom	10+	12.7
		Samson AR37	4	5	2	1	2	AR37	D	MS	Agricom	5	12.8
★★	$40 to $143	Base AR1	4	3	2	2	2	AR1	T	VL	PGG Wrightson	4	12.9
		Bronte AR1	4	3	2	2	1	AR1	D	L	DLF Seeds	4	12.7
		Excess AR1	3	3	1	4	3	AR1	D	MS	PGG Wrightson	4	12.8
		Expo AR37	5	3	2	3	2	AR37	D	L	PGG Wrightson	4	12.8
		Ohau AR37	5	3	2	1	1	AR37	T	L	Agricom	4	NT
		Samson SE	3	4	1	2	2	SE	D	MS	Agricom	10+	12.8
★	$-62 to $40	AberGreen WE	1	1	5	3	1	WE	D	L	Germinal	4	NT
		Nui	2	3	1	1	1	Unknown	D	MS	Common	10+	12.7
		Rohan NEA2	4	1	1	2	3	NEA2	D	L	Agriseeds	4	12.8
		SF Stellar AR1	3	3	2	1	1	AR1	D	MS	Seed Force	7	12.8
	$-263 to $-85	AberMagic WE	1	1	4	1	2	WE	D	L	Germinal	7	NT
		Pacific SE	3	4	1	1	2	SE	D	MS	PGG Wrightson	6	NT
		Uncertified P Ryegrass	4	4	1	1	1	Unknown	D	MS	Common	5	NT

[1] 5 = top rank, 1 = bottom rank. , [2] Winter = Winter dry matter production (June-July), Early Spring = Early spring dry matter production (Aug-Sept), Late Spring = Late spring dry matter production (Oct-Nov), Summer = Summer dry matter production (Dec-Feb), Autumn = Autumn dry matter production (Mar-May), [3] Endophyte, WE is without endophyte, [4] Ploidy (D=Diploid, T=Tetraploid). [5] Heading date (M=Mid, L=Late, VL=Very late), [6] Confidence (number of trials). [7] Rest of NZ (LNI, USI, LSI) ME content data based on 2 years of trial data from Canterbury. NT=No trial data available. *For more information visit dairynz.co.nz/fvi.*

Cultivars included in the FVI lists without a star rating have enough trials to be eligible for the FVI, however they were excluded from the FVI Star Ratings due to poor performance in those trials.

We have taken the average operating profit/ha of the upper and lower values in the FVI to show what the benefits could be

Sowing Trojan perennial ryegrass is predicted to give $409/ha/year extra farm operating profit over sowing Nui, each year, on an lower South Island dairy farm.

Even though Trojan seed costs more than Nui, it delivers this extra benefit per hectare!

Cost/benefit of using *Trojan* over *Nui*

	Trojan	*Nui*
Average FVI Value (from table above)	+$398/ha	-$11/ha
Trojan advantage $/ha per year	+ $409/ha extra operating profit each year	

This is worked out by subtracting the Trojan net benefit from the Nui net benefit.
i.e. +$398 less -$11 = $409/ha/year

Barenbrug Agriseeds is the only pasture company with cultivars with the top FVI rating for every ryegrass type, in every region of New Zealand.

Key principle - Choose the right seed mix

Best results come from matching the correct new pasture mix to your specific requirements. Here are three contrasting options and how they might fit in your farm system.

Option 1: Cultivate & roller drill high performance perennial ryegrass mix	
System fit	Perennial ryegrass remains the most profitable pasture in our dairy systems, as it typically lasts 8-10 years (depending on situation & management). Where grass weeds (e.g. browntop) are an issue undertake a double-spray programme using Option 2 this spring, then sow Option 1 spring 2019.
Seed mix example	*Trojan* ryegrass 10 kg/ha *Viscount* ryegrass 15 kg/ha *Kotuku* clover 2 kg/ha *Weka* clover 2 kg/ha **Total 29 kg/ha**
Estimated cost	$900/ha to sow, or 7c/kg DM.
Estimated break even	**12 months -** You typically achieve payback in year of sowing, profit in following years.
Estimated return on investment (@$6/kg MS)	**132% internal rate of return.** Perennial ryegrasses always provide high returns due to the reduced resowing costs. This rate of return assumes an extra 3 t DM/ha is grown for 5 years (as on page 7), new pasture 0.5 ME higher quality and 5% better utilised.

Our new high performance tetraploid perennial ryegrass *Viscount* has replaced *Bealey* in our recommendations.

Option 2: Spray-drill 12 month Italian ryegrass pasture	
System fit	This is a lower-cost option, ideal for early sowings to generate quick feed as it's back into grazing 2-3 weeks faster than Option 1. Ideal as a 12 month pasture where browntop is a problem, because you spray twice, this spring and again in spring 2019, prior to sowing perennial ryegrass.
Seed mix example	*Tabu*+ ryegrass 20 kg/ha **Total 20 kg/ha**
Estimated cost	$600/ha to sow, or 15c/kg DM
Estimated break even	**5 months.** The very fast turnaround time and lower cost means faster payback, typically well within year of sowing.
Estimated return on investment (@$6/kg MS)	**165% internal rate of return.** An ideal fit where quick feed is needed or where grass weeds are a problem. This rate of return assumes an extra 3 t DM/ha is grown over the year, new pasture 0.75 ME higher quality and 5% better utilised.

Option 3: Spray-drill 2-3 year hybrid ryegrass	
System fit	Fits between Options 1 and 2. Generates quick feed similar to Option 2, but provides a 2-3 year pasture.
Seed mix example	*Shogun* ryegrass 30 kg/ha *Kotuku* clover 2 kg/ha *Weka* clover 2 kg/ha **Total 34 kg/ha**
Estimated cost	$750/ha to sow, or 10c/kg DM
Estimated break even	**8 months -** The fast turnaround time and medium cost means fast payback, typically well within year of sowing.
Estimated return on investment (@$6/kg MS)	**165% internal rate of return.** An intermediate option in both cost and persistence. Can fit well into a renewal programme where a 2-3 year pasture required. This rate of return assumes an extra 3.5 t DM/ha is grown for 3 years, new pasture 0.5 ME higher quality and 5% better utilised.

Renewal checklist

This list can be used to check off all the factors behind good pasture renewal.

The key is to do all well. In a good season you may get away with short cuts in technique, however in adverse conditions these will be shown up.

✓	Checklist
	Identify poor paddocks and decide on right rate of renewal for farm (5%? 10%? 20%?).
	Identify reasons for poor performance (eg: soil fertility, soil compaction, weeds, pests).
	Soil test (6-12 months in advance) and correct soil fertility.
	Choose appropriate sowing date.
	If relying on a contractor, book them in early.
	Check for pests (e.g. grass grub, slugs and ASW).
	Choose appropriate renewal method.
	Spray out paddock prior to cultivation or direct drilling.
	If cultivating, prepare a good seed bed (firm, fine and level).
	Choose correct high quality cultivars and seed mix.
	Pest control - use treated seed and insecticide if required.
	Apply slug bait if needed.
	Control weeds in early establishment.
	Graze early to promote tillering, use 'pluck test' to determine when pasture is ready for first grazing.


Curb your c/kg MS costs
547

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for superior returns.

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SEPTEMBER 2018