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Foreword

Farmers may not be able to do much about weather events, aside from sound preparation, but we can do a lot about the engine room of our farming system - pasture.

The 2009 BERL Report "Economic Analysis of the Value of Pasture to the New Zealand Economy" for the Pasture Renewal Charitable Trust, found that increased pasture renewal could increase our farm-gate returns by 16.4% each and every year.

If that was done by all farmers, then an additional \$1.6 billion could be put into farm incomes. Pasture renewal is now a vital part of modern farm management.

The sums involved are so large that it's like discovering a whole new industry growing right beneath your feet. Even with the difficult spring and early summer, there's an opportunity to boost our pastoral productivity inside the farm gate.

The challenge we strive for as an organisation is to capture more value inside the farm gate. Pasture renewal is one thing we farmers can directly exert control over.

Farm revenue is tied to good pasture management and that includes the right mix of stock on-farm. High pasture harvest with sound animal husbandry converts this effort into high amounts of milk, meat and fibre. The second thing farmers can do is to take a disciplined approach to financial management in order to control costs. Maximising

pasture from a low cost base will pay handsome dividends in the annual wash up of farm accounts.

Yet, right now, the rate of pasture renewal is very low at only 3 to 4% each year. If we can collectively lift that rate to 10%, then farmers would maximise the benefits of increased dry matter production, better stock performance, improved animal health, greater management flexibility and of course, higher farm gate incomes.

In 2008, pastoral agriculture produced 35% of New Zealand's export earnings but by 2009, that figure had grown to 41%. Pastoral agriculture is an ever more important part of the New Zealand economy.

Making a decision to proactively plan to replace less productive pasture with new cultivars, represents one of the best investments any farmer can make. With it comes a great opportunity to expand our pastoral exports and to grow our farm revenue.

Don Nicolson
Federated Farmers of New Zealand



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Keep the girls satisfied and enjoy all kinds of rewards.

If your business is based on growing grass, this eBook is for you.

Read on to learn why pasture renewal is a great opportunity.

It is NOT about HOW to renew pasture, or WHAT to renew pasture with. The great diversity of New Zealand's climate and other farming conditions means it is impossible to offer "a one size fits all" set of recommendations for renewing pasture.

What works well in Northland may not work in Manawatu or in Southland!

But one thing that does apply to the whole country is that, no matter where you are ...

Pasture Renewal is PROFITABLE!

Three good reasons to renew your pasture

- 1 Better stock performance and health
- 2 Greater management flexibility
- 3 More money



Why does pasture renewal work?

Modern forage cultivars and new technologies have multiple benefits.

- > They establish quickly
- > Produce more dry matter
- > Resist pests and diseases better
- > Are more palatable, making them easier to manage
- > Have high feed value [ME] so stock do better on them
- > Grow more feed than weed grasses in both winter and summer conditions
- > Offer specific seasonal benefits [e.g. some cultivars are better in summer while others are better in winter]

Some numbers to consider

- > Some 1.95 million hectares are estimated to be under dairying in New Zealand.
If the poorest producing 10% of that area - 195,000ha could increase dry matter production from 12 tonnes of dry matter per hectare per year to 17 tonnes, farmers would make an extra \$300 million gross.
That's \$1,500 per hectare of renewed pasture every year!
- > In the beef, sheep and deer sectors, an estimated 9.6 million hectares of pasture are in production. Research shows pasture production increases of 10–30% are possible on these farms with parallel increases in production, especially lamb growth.
- > Pasture cultivars typically peak in performance at 2–3 years after sowing and then start declining.
- > Hundreds of thousands of hectares of New Zealand pastures are 20, 30 and 40-plus years old.



Replacing poor-producing pasture with new pasture is profitable. In fact it is one of the simplest ways to invest on-farm for a significant and relatively predictable return. The potential rewards from pasture renewal are huge.

The higher a farm's performance, the more it can gain from intensifying its pasture renewal programme. When this

eBook was written (Dec 2010) dairy farmers stood to gain more than sheep and beef farmers because of the state of their respective market sectors, but the beneficial outcomes are common to all grazing-based enterprises.

Frequently Asked Questions

In this eBook, we set out the questions you are most likely to consider when thinking about increasing your pasture renewal activity.

If you think you can't increase the amount of pasture you are currently renewing, well, we might just change your thinking on that, too!

This eBook presents the logic, the numbers showing that, if you want a sustainable business, you cannot afford to continue grazing old pasture.

The question and answer format is differentiated into dairy, sheep & beef, or both, to take account of sector differences.

The conclusion, "Ok, what's next?" presents ideas on where to start. [see page 19].

It's also a good idea to consult your local seed retailer — they have all the information in this eBook, plus a good deal more. Their experience and local knowledge will enable them to add significant value to the whole package for you.



Pasture terminology

Cultivar

A cultivated variety which refers to a named line of pasture seed. e.g. "Bronsyn" and "Feast II". This term is used synonymously with variety in the eBook.

Endophyte

A fungus that grows in perennial ryegrass and fescue plants and protects them against attack from a range of insects. Standard (or wild type) endophyte may affect animal health and performance.

ME

Metabolisable energy; measured in megajoules per kilogram of dry matter (MJ/kgDM); a measure of pasture quality.

Palatability

This term is in general use by the New Zealand farming community to express the preference of animals for a particular pasture; i.e. the more they graze a particular species or variety in preference to others, the more palatable that species or variety is deemed to be.

Pasture renewal/renovation

The terms pasture renewal and pasture renovation are used interchangeably by the farming community, but in this eBook pasture renewal is used to refer specifically to the improvement of a poor-producing, run-out pasture paddock through the sowing of new seed and other measures to rectify reasons for the poor plant persistence [e.g. fertiliser, aeration, drainage].

Regrassing

Synonymous with pasture renewal.

“Why should I renew pasture?”

Because pastures deteriorate over time

Most productive pastures deteriorate over time from a combination of natural and induced causes: weed invasion [particularly low quality grasses such as browntop, sweet vernal, crested dogstail, fine fescue, Yorkshire fog, or summer grasses such as paspalum and Mercer grass], dry/drought conditions, wet/flooding, poor fertility, poor drainage, diseases, insects, pugging, soil compaction, overgrazing and poor management.

Over time, the population of desirable, productive plants in a pasture declines, while populations of undesirable or unproductive plants increase, and pastures become ‘runout’. Typically old pasture produces less dry matter, is lower in ME and stock preference, and this decline compounds as the pasture ages.

New pasture is significantly more productive

Successful pasture renewal will increase dry matter per hectare per year production by around 3–6 tonnes [each year].

This is true of all farms whether they are dairy or sheep, intensive or extensive, irrigated or not.

Differences between these groups arise, of course, in the extent to which that extra production can be converted into additional income.

Control over seasonality of production

Modern pasture cultivars allow the farmer to choose the periods of the year when a new pasture will be most productive and when it goes to seed.

Cultivars can be chosen to produce more grass in winter, summer and autumn than traditional pastures.

Ryegrasses can be chosen with a more than six week difference between the earliest and latest seeding dates.

Farmers can pick cultivars to achieve the seasonal production peaks that create the best opportunities for them.

Consistently higher ME

New pastures consistently produce an average of 0.5 more megajoules of ME/kg DM.

Note this benefit is over and above the extra dry matter produced by a new pasture.

Reasons include:

- > Higher proportion of desirable species
- > Later and more uniform flowering
- > Leafier sward, with fewer seed heads produced
- > Less dead leaf material

Higher ME produces compounding benefit

These attributes make a new pasture sward more attractive to the grazing animal, and thus easier to manage for the control of quality during the late spring and early summer, thereby helping maximise animal intakes and pasture utilisation.

As these pastures are grazed more uniformly, farmers can more easily control the quantity of residual dry matter when the animals are removed.

The optimum post-grazing residual means optimum ME regrowth and, therefore, increased animal performance at the next productive grazing.

Access to new endophytes

Most new perennial ryegrass cultivars are available with the ‘novel’ [new] endophytes developed to solve particular problems in different regions.

The endophyte occurring naturally in New Zealand ryegrass pastures [variously called ‘standard’ or ‘wild’ endophyte] confers resistance of its host ryegrass plants to Argentine stem weevil and some other insect pests, but it was found in the early 1980s to be the cause of ryegrass staggers and heat stress in animals. Novel

endophytes have been, and are continuing to be, developed to maintain good animal health while enhancing the grass’s pest resistance characteristics. As well as Argentine stem weevil, novel endophytes confer resistance to pasture mealy bug, black beetle and root aphid, with more pests likely to be added to this list.

DairyNZ carried out a three-year study comparing pastures with the novel AR1 and standard endophyte; the former produced 9% more milksolids than the latter.

Animals are better fed

As noted above, animals on new pasture graze more grass, and that grass is leafier, higher in ME and more palatable. This will be reflected in:

- > More milk production
- > Faster liveweight gains
- > Higher stocking rates
- > More contented animals

“How much more money would I make?”

Dairy farmers can make a lot more money. It's not difficult to calculate.

Let's make some conservative assumptions

Increased production from renewal of a poor paddock:	5 tonnes DM/ha/year [4-6 is typical]
Percentage of DM production eaten:	75%
Pasture to milk solids conversion factor:	15kg DM = 1kg MS
Milk payout:	\$6/kg MS

So...

Per hectare, the cows eat	3,750 kg DM more pasture per year [75% of 5 t]
---------------------------	--

So they produce

	250 kg more MS per hectare
	[3,750 kg ÷ 15] per year
	= \$1,500 more per hectare
	[250kg x \$6] per year



Total benefit

It is safe to say the improved production of new pasture over the old will be sustained for at least five years, and we've factored in a 10% annual decline in the extra production off the new pasture:

Total benefit	
Benefit extra MS/ha year 1	\$1,500/ha
Benefit year 2	\$1,350/ha [\$1,500 less 10%]
Benefit year 3	\$1,200/ha [\$1,350 less 10%]
Benefit year 4	\$1,050/ha [\$1,200 less 10%]
Benefit year 5	\$900/ha [\$1,094 less 10%]
Total benefit over 5 years	\$6,000/ha

Less the cost of pasture renewal:

As well as the direct costs of sowing new pasture [drilling, seed etc] an allowance is made to buy in 2 t DM silage.

This compensates for lost growth while the new pasture is establishing and out of grazing for around nine weeks.

Add the costs (seed fert etc) [see Appendix 1]	= \$932/ha
And purchase 2tDM @ 30c/kgDM	= \$600/ha
Total cost	\$1,532/ha

Less the cost of extra MS production:

Extra milksolids [MS] production has a cost.

However, additional milk costs less to produce than the total farm production costs, as a number of fixed costs have already been met [rates, insurance etc].

Cost of extra MS production	
This has a huge range, very specific to each property. We have assumed the cost of extra MS production is 40% of additional income.	
Cost of extra MS production	\$2,400 [40% of \$6,000/ha]

Net benefit

While pasture renewal itself is highly profitable, it must be remembered its major benefit is likely to be the gain in capital value of the farm from its extra MS production.

Extra MS production	\$6,000
Less pasture renewal cost	\$1,532
Less cost of extra MS production	\$2,400
Net benefit	\$2,068/ha

“I’m convinced, but I can’t afford to take paddocks out of production.”

Actually, you can’t afford not to.

Let’s look at what happens on a typical 120ha dairy farm.

How much income do dairy farmers miss out on if they have a number of run-out pastures, but undertake only their normal pasture renewal over 5% of their farm area, rather than renewing 10% of their farm?

Let’s use a typical dairy farm as an example:

Average dairy farm size:	120 hectares
Area presently renewed after crop [5%]:	6 hectares

It’s a powerful argument

If you sow an additional six hectares [5%] of new pasture every year the benefits compound: in year two, you sow another additional six hectares of new pasture, while gaining the benefit the extra six hectares of new grass sown in year one.

With each passing year, the potential income lost from not regrassing an extra 5% of the farm gets bigger and bigger.

On page 8 is what could have been earned: [we’ve factored in a 10% annual decline in the extra production off the new pasture]:



Dairy

So you can see how the lost income keeps stacking up when renewal of poor paddocks is not undertaken.

This example omits two things.

It does not include the harder to quantify but no less real benefits of the additional ME produced by these paddocks.

Or the extra growth in year six, seven etc from the new pastures sown.

So...

Year 1:	Extra income from extra 6 ha new pasture	= \$9,000 [\$1,500 x 6ha – see page 8]
Year 2:	Total increased income	= \$17,100 [\$9,000 from new pasture + \$8,100 from 2nd year pasture]
Year 3:	Total increased income	= \$24,300 [\$17,100 + \$7,200]
Year 4:	Total increased income	= \$30,600 [\$24,300 + \$6,300]
Year 5:	Total increased income	= \$36,600 [\$30,600 + \$5,400]
Total	Increased income before costs over 5 years	= \$117,000

Less the cost of pasture renewal:

To renew an extra 6ha of pasture on a 120ha farm will mean the loss of 2 t DM/ha growth [through nine weeks out of grazing].

In total, 12 t of dry matter is needed as replacement feed each year.

12 t DM silage @ 30c/kg DM	= \$3,600
5 year silage cost	= \$18,000
Direct cost of renewal/ha	= \$932/ha
6 hectares	= \$5,592
Over five years	= \$27,960
Total cost [renewal + silage]	= \$45,960

Less the cost of extra MS production:

Extra milksolids [MS] production has a cost, as mentioned on page 9.

Cost of extra MS production	\$46,800
	[40% of \$117,000]

Net benefit

The net benefit is lower than on page 9, as you are analysing the farm at year five. There is still benefit from pasture renewal to come, especially from pasture sown in year 5. While pasture renewal itself is highly profitable, the benefit is likely to be the gain in capital value of the farm from its extra MS production.

Extra MS production	\$117,000
Less pasture renewal cost	\$45,960
Less cost of extra MS production	\$46,800
Net benefit	\$24,240

“How will I replace the feed from the paddock I’m renewing?”

Buy it in, or make extra supplies in advance. You can afford to.

The examples on pages 8 - 11 both have the purchase of 2 t dry matter of feed for each hectare renewed factored in, and the result is still highly profitable.

The usual supplementary feeding options apply - silage, palm kernel extract or whatever else suits your system best.

Another point to remember: if the farm is enjoying good growth when renewal takes place, it may be that additional feed will not be required.

It is worth repeating here that the paddocks taken out of the system for renewal are the poorest - and the poorer they were, the less additional feed will be needed to replace them.

However it would *always be prudent* to have additional feed on hand.



Dairy

“I’m going to do it.

Does that mean I have to grow a lot more crop first?”

Not necessarily, but taking paddocks through a crop before regrassing is preferable in most situations. The cropping process offers:

- > Two chances to control weeds [in the spring before a summer crop is planted and in the autumn before the new pasture is sown]
- > The ability to incorporate base fertiliser and lime when cultivating
- > The opportunity to do contour and/or drainage work
- > The ability to increase DM production from the paddock over the summer, affording more stored feed on hand for the autumn when the new grass is coming into production
- > Reduced insect pressure [using the crop to break the insect pest cycle]
- > Breaks the cycle of difficult to control weeds like Californian thistle

Cropping isn’t essential to pasture renewal.

Grass-to-grass programmes [i.e. going straight from old grass to new grass] can enable you to renew more paddocks than you can practically [or profitably] plan to break-crop.

This technique gives you a relatively fast turnaround, with paddocks typically back producing grass 7–9 weeks after being removed from the rotation for renewal.

If you are not familiar with grass-to-grass, your usual rural supplier will be able to help. They can advise you on which method to use, since cultivation, spray-drill and undersowing all have their respective advantages, depending on your particular situation.



“How much more money would I make?”

More than you might think.

- > Sheep and beef operations vary widely, with many stock policies.
- > To demonstrate the financial benefits we have used examples for breeding ewes and lamb finishing separately.
- > These are the properties where additional pasture renewal, as advocated in this publication, has good potential.
- > High, hill and back country enterprises producing store cattle and lambs do not typically have a lot of land easily covered by a tractor and, for them, the more practicable avenue for significant pasture improvement is most likely to be by aerial oversowing.
- > The simplest way of expressing the benefits to be gained by sheep farmers in our target sector from superior pasture are through:
 - the ability to run more breeding ewes, and/or
 - the ability to finish lambs faster, creating the opportunity to finish additional trading lambs [mostly applicable to summer-moist regions]

More breeding ewes

To express the first of these examples, we use the tried and true measure of the gross margin per ewe.

Assumptions	
The modern breeding ewe	= 1.2 stock units
With an annual feed requirement	660 kg DM [1 s.u. = 550]
Gross margin per ewe [See Appendix 2]	= \$ 84
Increased pasture production from renewal	3.3 tonnes/ ha per year [3-6 is typical]
So...	
Extra 3,300 kg DM annually will support	5 additional ewes [3300/660] = \$420/ha [\$84 x 5]



Finish extra lambs

This benefit will not always be available to farmers in summer-dry regions but the opportunity will present itself in

some seasons - certainly more often than it would if pasture renewal were not undertaken at all!

Assumptions	
Average lamb growth rate on old pasture	120g/day
Average lamb growth rate on new pasture	200g/day
Stocking rate	20 lambs/hectare
Finished lamb value /kg liveweight	\$2.00
Starting liveweight	24kg
Target finishing liveweight	36kg
Therefore target liveweight gain	12kg [12,000g]
So: faster finishing	
Finishing on old pasture takes	100 days [12,000g @ 120g/days]
Finishing on new pasture takes	60 days [12,000g @200g/days]
So: more finishing capacity!	
The faster growth rate frees up an additional 40 days of grazing.	
With 15 lambs/ha average at a gross margin of \$20/head for 3 trades a year = \$900/ha/year	
See Appendix 3 for the lamb gross margin	

Remember: This is one example of what could be achieved. This does not take into account the additional benefit of improved seasonality of dry matter production of new cultivars.

Note: To assist feeding stock while new pasture is establishing, an allowance has been made to buy in 1 t DM silage at 30c/kg DM = \$300/ha. This may be necessary if feed supply is restricted at this time.

Look at a farm system as the numbers start to stack up

The powerful compounding effect works here too.

Taking a 350ha farm that currently sows 4% of area into new pasture, what happens if you increase this to 8%? (For the purpose of this example it is assumed that half the re-grassed area is used for ewe grazing and half for lamb finishing.)

It's a powerful argument

If you sow an additional 14 hectares of new pasture every year the benefits compound: in year two, you sow another additional 14 hectares of new pasture, while gaining the benefit the extra 14 hectares of new grass sown in year one.

With each passing year, the potential income lost from not regrassing an extra 4% of the farm gets bigger and bigger.

Here's what could have been earned [we've factored in a 10% annual decline in the production off the new pasture]:

First, some more assumptions

Average farm size:	350 hectares - say 3000 breeding ewes
Area presently renewed after crop [4%]	14 hectares
Extra annual income from renewing an extra 14 hectares [4%]:	\$9,240 [(\$420 x 7ha) + (\$900 x 7ha)]

Year 1:	Extra income from extra 14ha new pasture	\$9,240 [see above]
Year 2:	Total increased income	= \$17,556/ha [\$9,240 from new pasture + \$8,316 from 2nd year pasture]
Year 3:	Total increased income	= \$25,040 [\$17,556 + \$7,484]
Year 4:	Total increased income	= \$31,776/ha [\$25,040 + \$6,736]
Year 5:	Total increased income	= \$37,838 [\$31,776 + \$6,062]
Total	Increased income before costs over 5 years	= \$121,450

Sheep and Beef

Sheep and beef farmer:

Just as with dairying, income keeps stacking up when renewal of poor paddocks is undertaken. The net benefit at year 5 is over \$30,000 and this doesn't account for benefits still to come from new pastures sown in that year.

Note: The estimated 1.0 t DM/ha supplement on hand for pasture renewal on sheep farms is less than dairy farms [2.0 t DM/ha] as less pasture production is lost through renewal.

Total cost	
Extra 14ha pasture renewal on 350ha farm loses 1 t DM/ha (9 weeks out of grazing), so 14 t DM is needed.	
14 t DM silage @ 30c/kg DM	= \$4,200
Silage cost for 5 years	= \$21,000
Direct costs of renewal [see Appendix 1]	= \$932/ha
14 hectares	= \$13,048
Over five years	= \$65,240
Extra ewes (35 @ \$80)	= \$2,800
Total Costs	= \$89,040
Net benefit	
Increased income	= \$121,450
Total cost	= \$89,040
Total return on investment is	= \$32,410



“Which paddock[s] should I renew?”

Start with your poorest performing ones.

The best paddock[s] to renew are, obviously, the poorest producers. These have the potential for greatest improvement.

The trick is to know which ones these are.

DairyNZ analysis has shown that on dairy farms the difference between the best paddocks and the worst ones is commonly 100% - or in other words the former are producing twice as much dry matter as the latter.

Or, to put it another way, if the best paddock is producing 20 t DM/ha, the poorest is producing only 10 t DM/ha.

On dairy farms and sheep farms where the difference between paddocks is great, visual observation is usually a sufficiently accurate gauge to determine the most suitable paddocks for renewal.

In intensive situations, however, it's not so simple, unless detailed grazing records are kept or some other objective measure of pasture growth, a platometer for example, is used. If a farmer can establish which paddocks yielded the least grazings during a season, this will indicate which one[s] should be renewed.

High-performing farmers guided by such objective means are known to have renewed paddocks that would not have

been their first choice on the basis of eye assessment.

It is important to establish accurately which paddocks are performing most poorly, because if they are successfully renewed, the return on *the renewal investment is the greatest.*

Dairy, Sheep and Beef

“Ok, what's next?”

Deal with any factors that might have accelerated the decline of the old pasture.

Before renewing pasture it is essential to determine the factors behind the decline of the pasture to be replaced.

These need to be rectified, either before establishing new pasture or as part of the management of the renewed pasture:

Before renewal

Poor drainage:	drainage [could also reduce flood risk]
Poor fertility:	soil testing & capital fertiliser application
Low soil pH:	addition of lime
Soil compaction:	aeration by subsoiling, cultivation

At renewal

Insects and slugs:	seed treatment or granular insecticide particularly with spray-drilling; monitor and apply molluscicide if required
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After renewal

Weed invasion:	herbicide application
Poor fertility:	soil testing & fertiliser application
Insects:	insecticide application

Environmental conditions

Desirable plants die through a combination of stresses related to moisture extremes:	
Dry/Drought:	plant hardship, increases insect and weed pressure
Wet/Flood:	plant hardship, leading to weed invasion
Pugging:	damaging desirable plant population in wet conditions, leading to weed invasion
Overgrazing:	grazing plants close ground level in dry conditions, affecting their recovery and persistence

The natural conditions are impossible to control but it is possible to reduce their impact:

Dry/Drought:	destocking, irrigation
Wet/Flood:	destocking, drainage
Pugging:	remove/spread out stock in wet conditions, use of sacrifice paddock or feeding pad
Overgrazing:	destocking polices, additional supplement on hand, sacrifice paddocks

Appendix 1.

Pasture renewal cost assumptions

Direct Costs/ha		\$ [ex GST]
Glyphosate	3 litres/ha	\$54.00
Application cost		\$40.00
Cultivation	1 pass	\$150.00
Grass seed (treated)	20kg/ha	\$180.00
Clover seed	4 kg/ha	\$60.00
Fertiliser	150 kg/ha 15:10:10	\$206.00
Roller drilling		\$150.00
Selective herbicide	4 litres/ha	\$52.00
Application cost		\$40.00
Total cost		\$932.00

Appendix 2.

Breeding ewe gross margin assumptions

Per Ewe		\$ [ex GST]
Lambing %		140%
Replacements kept		28%
Lamb income	1.1 lambs @ \$75 =	\$82.50
Cull ewe income	20% ewes @ \$60 =	\$12.00
Wool income	5.0kg wool/ewe \$3.50 =	\$17.50
Ram purchases	25% of rams @ \$700 =	-\$2.19
Ewe income less purchases		\$109.81
Less direct costs:		
Freight	\$1.33 per head =	\$1.33
Animal health	\$3.50 per sheep su =	\$5.00
Shearing	\$3 per head =	\$8.00
Interest	8% on capital	\$11.48
Total direct costs		\$25.81
Gross Margin		\$84.00

Appendix 3.

Lamb gross margin assumptions

Per lamb		\$ [ex GST]
Lamb meat 30 April sale	38kg LWT 44% yield 16.72kg CCWT	
Schedule price	\$5.60/kg CCWT	\$93.63
Wool	1.3kg	
Wool price	\$3.50/kg	
Wool income		\$4.55
Total lamb income		\$98.18
Adjustment for deaths:	1.0%	\$97.20
Less:		
Lamb purchase 21 March	30kg LWT	\$70.50
Price/kg LWT	\$2.35/kg LWT	
Less direct costs:		
Freight		\$1.38
Animal health		\$1.50
Shearing		\$3.00
Interest		\$0.82
Total direct costs		\$6.70
Gross Margin		\$20.00

IMPORTANT NOTE: These appendices provide indicative conservative figures, which will vary between situations. Calculators for both dairy and sheep & beef farms are available online at www.pasturere renewal.org.nz, please use these to calculate the specific costs for your own individual situation.