AUTUMN EDITION

Product Guide 2026

BARENBRUG

Resilience comes from having great pasture.

It's the cornerstone of what we do, providing both profitability and emissions efficiency. But not all pasture or crop is the same. You need great seed genetics matched to your situation. Inside this guide you'll find great information to help you do this.

Contents

Governor perennial ryegrass

Governor is our great all-rounder, persistent, growthy and dense. If you need reliable ryegrass with _AR37_ or _AR1_ endophyte, _Governor_ has your back.

Genetic legacy

The persistence of _Bronsyn_, with the high DM yield and palatability of _Tolosa_, make _Governor_ an ideal diploid ryegrass for dairy, sheep and beef systems.

A true survivor

Governor is the Rambo of _AR37_ ryegrasses for persistence. Fine and densely tillered, it's survived outstandingly well under grazing through drought and high insect pressure in farm trials nationwide. _Governor_ is also available with _AR1_ endophyte if you don't need _AR37_.

Seasonal growth

Want more feed in early spring and autumn? Most farmers do. Sow _Governor_, and you're sorted.

Staunch

With a +8 days heading date, low aftermath heading and better rust resistance than its parents, _Governor_ is your dependable, hardy multi-purpose pasture.

Governor providing a great all-round pasture, South Otago.

Sowing _Governor_

Dairy		kg/ha
Top performing all-round pasture	_Governor_ perennial ryegrass	18-22
	Kotuku white clover	2
	Ruru white clover	2
	Captain CSP plantain	2-4
	Total	24-30

Sheep, Beef		kg/ha
Top performing, all-round pasture	_Governor_ perennial ryegrass	16-20
	Ruru white clover	2
	Apex white clover	2
	Redefine cocksfoot	3-6
	Total	23-30

Array NEA2 perennial ryegrass

Array NEA2 is our superstar, bred for the good of both your animals, and the environment. Delivering a unique mix of high intake, yield, nitrogen uptake and persistence, this is the diploid of the future.

Easy to eat

Array is the perennial ryegrass hard-working ruminants have been hoping for. Upright, leafy and densely tillered, it's made for easy eating and high intake.

Chomping through thousands of bites every day demands a lot of physical energy! *Array* takes some effort out of this process, because it stands tall and literally puts itself closer to those hungry mouths.

Your animals will naturally eat more as a result, and have extra time to relax, ruminate and produce meat or milk. That's better for them, and for you too.

Very persistent

Keep your diesel in the tank, and leave your soil undisturbed, because *Array* has our highest ranking for pasture persistence. It's every bit as good as *Maxsyn*.

Top yield

Array is right up there with the best cultivars in total DM yield too (see industry NFVT results on page 12).

Great cool season growth

Array has the best cool season growth of any perennial ryegrass we've bred. That helps fill the gap when feed is short, and makes your farm more resilient so you can adapt to shifting climatic patterns.

Get your eye in

You will see *Array* pastures look different, very dense but erect. This can initially deceive some farmers, as Chris Knowles of Tariki explains.

"Next to a paddock of Governor AR37, if you shut them both up at the same time, it looks the same length, but because it's so dense there is close to 20% more pasture there."

Two seasons and many more hectares of *Array* later, they've embraced the difference, making sure the cows go in four to five days earlier each time.

It's a small change to capture what *Array* has to offer, Chris says, and he's '*definitely*' happy to continue with it.

He estimates his *Array* paddocks are growing 20% more than his other pastures.

Happy, healthy animals

Array keeps animals happy and healthy with leafy, high energy grazing and a very late heading date (+23 days). For dairy cows and beef, *Array* provides ryegrass staggers free pasture. For sheep and deer, there is a very low risk of ryegrass staggers when grazing *NEA2* endophyte.

Eats N for breakfast

In trials, *Array* has grown significantly more feed under low nitrogen conditions than other ryegrass cultivars.

What does this mean for you? First, more even pasture growth at times when soil nitrogen is deficient, something that happens on virtually every farm during the year. Second, a win for the environment, because you have the potential to utilise nitrogen more efficiently.

Six leading cultivars in a low nitrogen trial. Array (second from left) was greener, and grew more, demonstrating its ability to extract more nitrogen from the soil.

Sowing *Array*

Dairy and cattle systems		kg/ha
High intake permanent pasture	*Array* perennial ryegrass	18-22
	Ruru medium leaved white clover	2
	Kotuku large leaved white clover	2
	Total	22-26
Dairy and cattle systems		**kg/ha**
Performance plus extra palatability and reduced nitrogen leaching	*Array* perennial ryegrass	10
	4front tetraploid perennial ryegrass	15*
	Ruru medium leaved white clover	2
	Kotuku large leaved white clover	2
	Captain CS plantain	2
	Total	31
Sheep and beef systems		**kg/ha**
Productive, efficient red meat pastures	*Array* perennial ryegrass	16-20
	Ruru medium leaved white clover	2
	Apex small leaved white clover	2
	Redefine cocksfoot	2-4
	Total	22-28

** Tetraploids are sown at a higher rate than diploids, because of their larger seed.*

Endophyte	*NEA12, NEA4, LE*
Stock Type	Dairy, Sheep, Beef, Deer*

**NEA12 isn't recommended for deer or horses*

NEW with NEA12

Maxsyn perennial ryegrass

Maxsyn **is NZ's top selling perennial for all farm systems. It's our 'go-to' grass, now supercharged with *NEA12* endophyte for even stronger persistence and summer growth.**

Persistence +

Maxsyn with *NEA4* endophyte had our top persistence rating. With *NEA12* it's better again. That's what you get when top endophytes meet strong summer growth and tillering, plus plenty of daughter tillers in spring to thicken pasture.

Densely tillered

The more tillers a pasture has, the more robust and persistent it is. *Maxsyn* is denser than *Trojan* ryegrass.

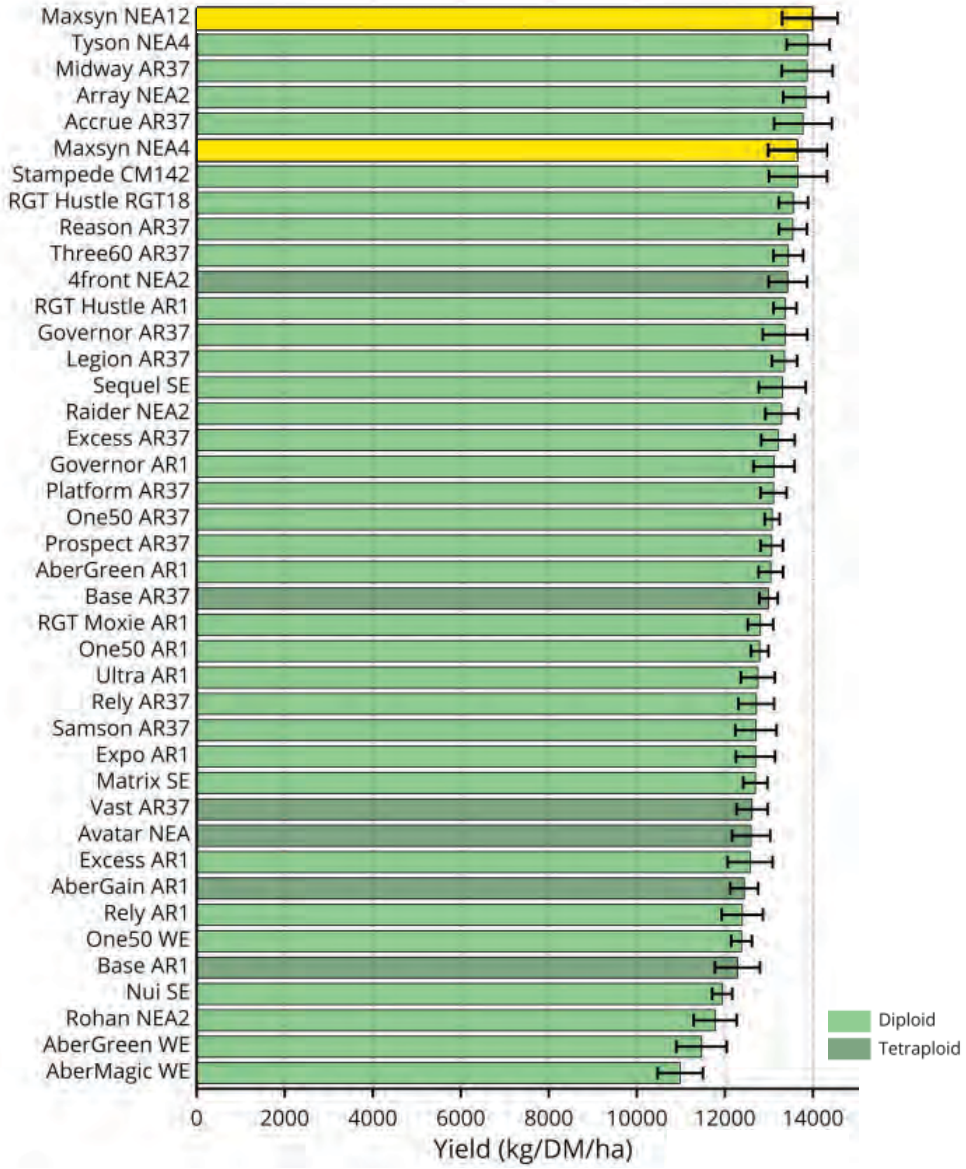
Proven

Maxsyn excelled in our breeding programme, particularly on tough sites and on difficult soils. *Maxsyn's* persistence advantage is partly due to strong summer growth and tillering. But the gain starts in spring, as it is easier to graze. This encourages new daughter tillers, thickens your pasture, and helps prepare it for summer.

Unbeaten yield

Nothing else yields more dry matter in the National Forage Variety Trials. That boosts your supply of home grown feed, and keeps animals well-fed.

2025-26 NFVT Perennial ryegrass summary, total yield, all New Zealand trials.



Shines in summer

Warm season growth is *Maxsyn's* super-power. If you've ever run short of feed in summer, you know how valuable this is. Visually you can see the difference - *Maxsyn* stays green longer when the heat is on. *Maxsyn NEA12* takes this up a notch, with over 4% more summer yield than *NEA4*.

Maxsyn, standing out in North Waikato in January.

Maxsyn, centre, still green in Taranaki in February.

Pest control +

Maxsyn with *NEA4* has proven to deliver excellent persistence under moisture stress, heat and insects, sometimes all at once! *NEA12* supercharges *Maxsyn*, providing a greater level of control of more insects including Argentine stem weevil, root aphid, black beetle, root aphid and porina.

Staggers risk

In most cases *Maxsyn NEA4* and *NEA12* will deliver excellent animal health.

- *NEA4*: For dairy cows and beef it provides ryegrass staggers free pasture. For sheep and deer, there is a very low risk of ryegrass staggers when grazing *NEA4* endophyte.
- *NEA12*: For dairy cows and beef, we believe it will provide ryegrass staggers free pasture in nearly every situation. There is a risk of ryegrass staggers in sheep or lambs if you graze into the base of the pasture in summer dry conditions. *NEA12* is not recommended for horses or deer

In all cases ryegrass staggers is much less likely if you sow a pasture mix with high legume or herb content, or feed supplement as part of the diet.

Sowing *Maxsyn*

Dairy		kg/ha
Next generation dairy pasture	*Maxsyn* perennial ryegrass *Kotuku* white clover *Ruru* white clover	18-22 2 2
	Total	22-26
Dairy		**kg/ha**
Next generation pasture with extra palatability and less nitrogen leaching	*Maxsyn* perennial ryegrass *4front* perennial ryegrass *Kotuku* white clover *Ruru* white clover *Captain CS* plantain	10 15* 2 2 2-4
	Total	31-33
Sheep, Beef, Deer		**kg/ha**
Next generation red meat pasture	*Maxsyn* perennial ryegrass *Ruru* white clover *Apex* white clover *Redefine* cocksfoot	16-20 2 2 3-6
	Total	23-30

** Tetraploids are sown at a higher rate than diploids, because of their larger seed.*

Rohan spreading perennial ryegrass

Rohan is our unique spreading perennial ryegrass, giving red meat farmers robust, tasty, easy-to-manage hill country pasture.

Super spreader

Rohan's spreading habit helps fill bare areas in your pasture, so you can protect your soils and keep weeds at bay (see photo below).

This also helps pasture recover from adverse climatic events, particularly long dry periods, because *Rohan* spreads to fill space where ryegrass tillers may have died.

Rohan is not indestructible. Like all ryegrasses, it performs best under reasonable management and soil fertility. But its spreading habit improves persistence.

Rohan stolon spreading across the ground.

Red meat fit

Success with any pasture comes from matching a cultivar to a particular situation. So where does *Rohan* fit? Let's look at different pasture types across your farm, based on persistence:

Pasture type	High animal performance	More density & robustness	Persistence key requirement	Toughest, non-ryegrass situations
	Increasing persistence →			
Example	*Array*/ *4front* mix OR *Maxsyn*/ *4front* mix	*Array* OR *Maxsyn* OR *Governor*	*Rohan SPR*	*Bareno* *Redefine*
Description	*Array* or *Maxsyn* provides density and robustness, tetraploid *4front* adds high palatability driving animal intakes.	*Array, Maxsyn* and *Governor* are densely tillered cultivars that provide robust, high yielding pastures.	*Rohan SPR* is a very persistent spreading ryegrass suited to hill country and tougher conditions.	Some situations are just too tough or dry for ryegrass. This is where *Bareno* pasture brome and *Redefine* cocksfoot suit.

Self managing

On semi-intensive to semi-extensive farms, it's not easy to maintain pasture quality in late spring. A continual comment from farmers with *Rohan* is that it 'always looks good' - it stays greener and leafier and is usually preferentially grazed. In farm trials, it has shown a 0.7 higher ME than some other cultivars in November and December

Three year old Rohan (green) sown beside Nui ryegrass (brown) in the same paddock in Central Otago. Rohan is much preferred by stock.

Very low stagger risk

Rohan with *NEA2* endophyte provides very low staggers risk pasture for sheep and staggers free pasture for cattle. In the 20 years we have sold *NEA2*, no ryegrass staggers have been seen in sheep or cattle on commercial farms.

Grow more in the dry

Under ideal conditions *Rohan* does not have the same yield potential as cultivars like *Maxsyn*, growing about 10% less. But under tough, dry conditions *Rohan* will probably persist better and yield more over the life of a pasture.

Sowing *Rohan SPR*

Sheep, Beef, Deer		kg/ha
Tough easy to manage pasture	*Rohan* perennial ryegrass	16-20
	Ruru white clover	2
	Apex white clover	2
	Redefine cocksfoot	3-6
	Total	23-30*

* Sub clover(s) are often added to this mix.

Tyson perennial ryegrass

Tyson is the earliest of early starters, adding more feed to the menu for hard-working mums during lambing and calving to power red meat breeding systems. Plus it has strong yield year round, and *NEA4* endophyte for better persistence.

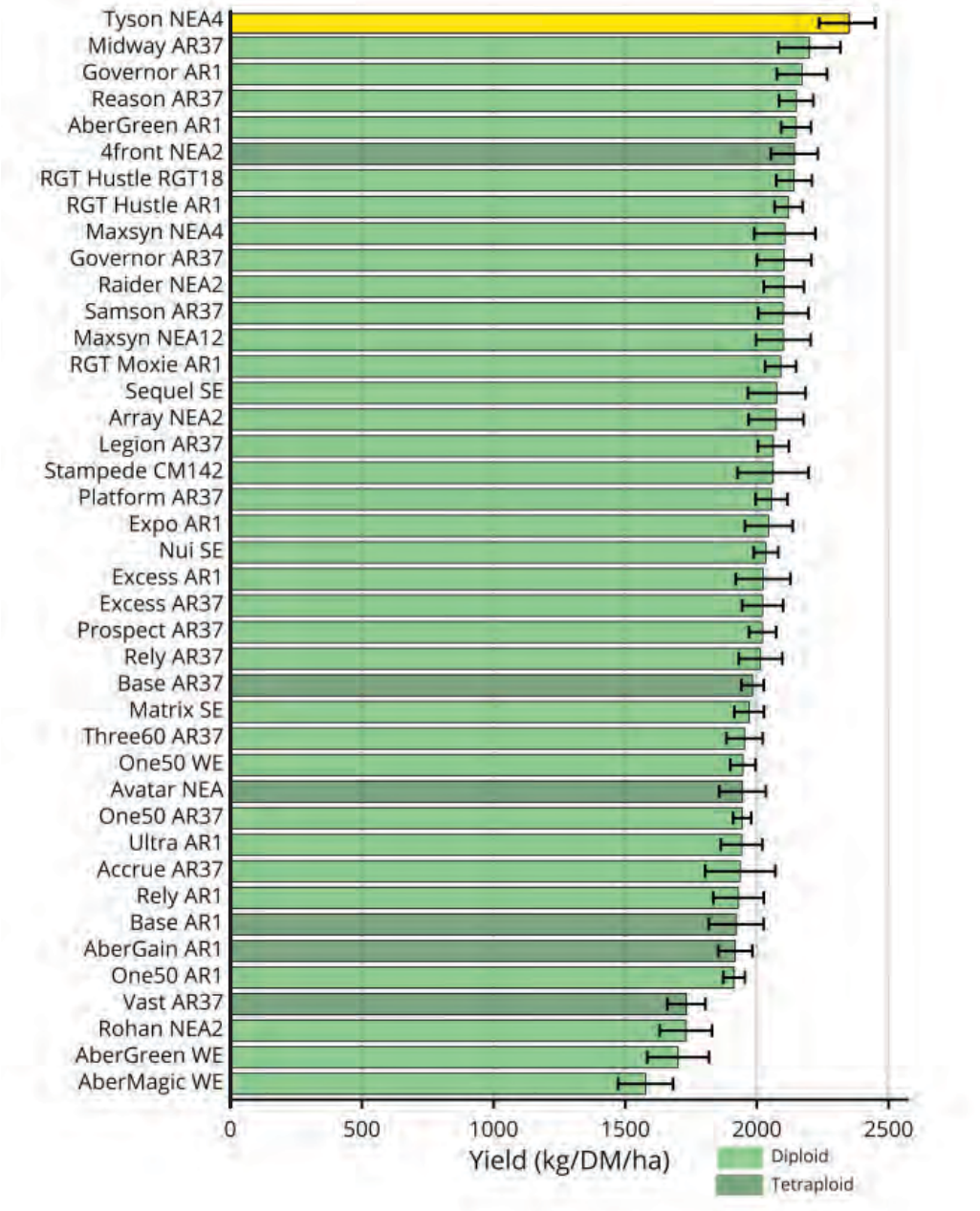
Ultra efficient

With superb early growth, *Tyson* is arguably the most exciting perennial ryegrass the red meat sector has seen. Feed your ewes and cows better through early lactation, and watch those lambs and calves flourish without stripping it all it off mum's back. Especially good for early weaning, with all the associated benefits:

- Meet early schedules, typically at better prices.
- Avoid the weaning check (2 weeks lost LWG) plus lambs dress out better.
- Use less drench; free up feed for other animals.

Start spring sooner

2025-26 NFVT perennial ryegrass summary, early spring yield, all New Zealand trials.



Tyson's outstanding early growth (left) is obvious in this trial. Photo taken in September.

Ahead of the pack

Tyson is the earliest heading perennial ryegrass you can buy, at -10 days. And don't worry about feed quality during the rest of the season – we selected *Tyson* for lower aftermath heading, too.

Capture the gains

There's no free lunch here – if you want *Tyson* to do what it can do in early spring, you have to manage it right! Set stock in spring at < 1200-1300 kg DM/ha (or 3-4 cm pasture height) for single-bearing ewes, 1500-1600 kg DM/ha (or 4-5 cm height) for twin-bearing, or 1700+ kg DM/ha for triplet-bearing through lambing.

Otherwise, *Tyson* won't have the leaves to catch enough sunlight to achieve its genetic potential, which is the science behind the saying 'grass grows grass.' Also, as pasture height drops so does bite size, and although ewes take more bites, both their pasture intake, and lamb growth rate, drop.

Fine & dense

Tyson is a fine leaved, densely tillered diploid perennial for both set stocking and rotational grazing.

Protected too

Tyson has been upgraded to *NEA4* endophyte, providing good control of Argentine stem weevil, black beetle and pasture mealy bug, with no negative impacts on animal health. It is also available with *Low* endophyte.

Sowing *Tyson*

Sheep, Beef, Deer		kg/ha
Early lamb/calf feeding pasture	*Tyson* perennial ryegrass	16-20
	Apex white clover	2
	Ruru white clover	2
	Morrow MS red clover	6
	Total	26-30

Possible additions

Captain CS plantain at 2-4 kg/ha provides extra summer feed value, lasts 2-3 years. *Redefine* cocksfoot at 3-6 kg/ha provides extra summer feed in drier conditions.

4front perennial ryegrass

NZ's top selling tetraploid perennial, with superior year-round growth, enhanced persistence, easy grazing and excellent animal performance. It's better for the environment, too.

Best of the best

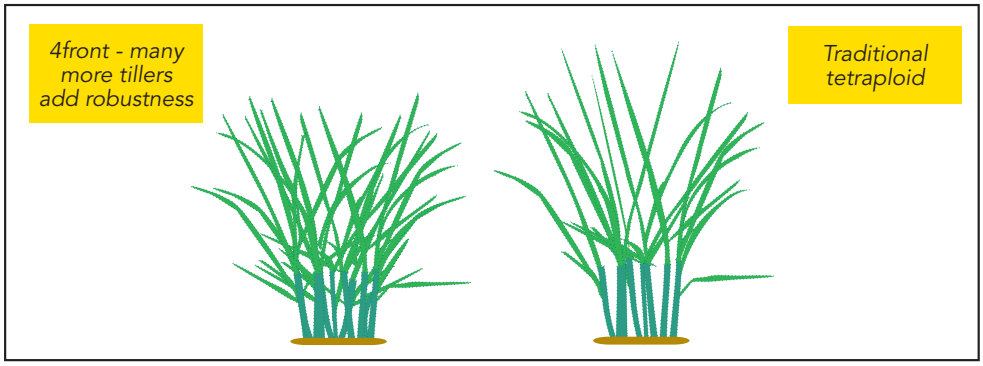
4front grows more feed than any tetraploid perennial we've bred. Equally important? It achieves this in both cool and warm conditions.

Unbeaten in NFVTs

In the 2025-26 National Forage Variety Trials (NFVT) results, no other tetraploid perennial grew more total yield across all New Zealand trials. See graph on page 6.

More tillers

The more tillers in a pasture, the more robust it is. Each tiller is an individual which can be killed by many pressures, including drought, pugging, insects and overgrazing. *4front's* enhanced tillering helps it persist when conditions are tough.



Piece of cake!

Animals love tetraploids. That simplifies grazing management. Soft, high quality, legume-friendly tetraploid pasture makes life easier for your animals, too. Every bite takes less effort, encouraging animals to eat more for higher daily intakes. The result? More milk in the vat, and faster LWG for finishing stock.

Grazing is hard work! A cow on pasture might take 25,000 bites every day; a ewe, 40,000. *4front's* soft leaves make a big difference to their quality of life.

Cattle on 4front, Manawatu.

Lose less N & GHG

With higher animal intakes and easier management, *4front* can help lighten your farm footprint. Tetraploid ryegrass-based pastures, or tetraploid/diploid mixes, allow farm system changes to reduce nitrogen leaching while improving pasture growth and animal intakes. This is the future of NZ farming.

A dramatic example of this is the Lincoln University Dairy Farm (LUDF). It has cut nitrogen leaching by 40% and greenhouse gases (GHG) by about 22%, using several system changes including:

- Capturing more photosynthesis – pre-grazing covers are 300 kg DM/ha higher with tetraploids, growing an extra 1.2 t DM/ha/year across the whole farm.
- Longer grazing round (average +4 days) meaning fewer grazings per paddock and 30% better nitrogen use efficiency.
- Higher cow production (+26 kg MS/cow) from fewer cows and better pasture intakes.
- Applying 170 kg/ha/year less nitrogen fertiliser.

LUDF couldn't have achieved this without sowing tetraploid ryegrass in all but one paddock. Download *'The 4front System'* from www.barenbrug.co.nz for more.

Mixing *4front* & *Maxsyn* or *Array*

4front can be sown alone on many farms, but when you mix it with *Maxsyn* or *Array* diploid perennial ryegrass, its benefits can be extended to a wider range of farm systems.

Some farmers struggle to avoid over grazing straight tetraploids, and don't get the persistence they want. Adding a denser, finer diploid ryegrass to the mix makes it more robust. Diploid plants protect the tetraploid.

Very low chance of staggers

For dairy cows and beef cattle, *4front* provides ryegrass staggers free pasture. For sheep and deer, ryegrass staggers grazing *NEA2* endophyte is a very low risk. In extreme situations, such as drought where animals are forced to graze close to the ground, a low level of staggers might very occasionally be seen.

Sowing *4front*

Dairy		kg/ha
Top performing tetraploid pasture, with reduced N leaching.	*4front* perennial ryegrass	25-30
	Kotuku white clover	2
	Ruru white clover	2
	Captain CS plantain	2-4
	Total	31-38
Dairy		**kg/ha**
Top performing tetraploid/ diploid mix pasture, for greater robustness & density.	*4front* perennial ryegrass	15*
	Maxsyn or *Array* perennial ryegrass	10
	Kotuku white clover	2
	Ruru white clover	2
	Total	29
Sheep, Beef, Deer		**kg/ha**
Top performing tetraploid/ legume/plantain finishing pasture.	*4front* perennial ryegrass	22-25
	Ruru white clover	3
	Morrow red clover	4
	Captain CS plantain	2-4
	Laser Persian clover	3
	Total	34-39

** Tetraploids are sown at a higher rate than diploids, because of their larger seed.*

Hogan annual ryegrass

Hogan sets the standard for tetraploid annual ryegrass, producing over 800kg DM/ha more (worth $400/ha) – and it looks fantastic too!

Profit plus

Hogan establishes rapidly and out grows 30+ year old _Tama_ by over 800kg DM/ha. If you value this cool season growth at $0.50/kg DM, _Hogan's_ advantage is $400/ha extra profit, i.e. a 8 fold return on the extra $50/ha it costs to sow _Hogan_ over _Tama_.

Fast establishment

Hogan is a tetraploid bred for rapid establishment (+21% faster than _Tama_) to provide fast feed in autumn, a critical advantage particularly following dry summers.

Reliable

Hogan has been proven to perform, year in, year out, across all types of farm systems, soils and seasons, pumping out energy-rich feed from autumn through spring.

Winter crop

It is the ideal autumn sown 6-8 month winter crop, or spring sow for 12 months. If a longer term crop is required, _Tabu+_ or hybrid ryegrasses _Shogun_ or _Forge_ are better options.

Sowing _Hogan_

Dairy, Sheep, Beef, Deer		kg/ha
Winter-spring crop	_Hogan_ annual ryegrass*	30
	Total	30
Winter-spring crop with annual clovers	_Hogan_ annual ryegrass* _Laser_ Persian clover	22 8
	Total	30

** Tetraploids are sown at a higher rate than diploids, because of their larger seed.*

NEW

Racer annual ryegrass

If you like *Hogan*, you'll love *Racer*. Our new supercharged annual establishes 8% faster, and provides unbeaten high ME winter yield.

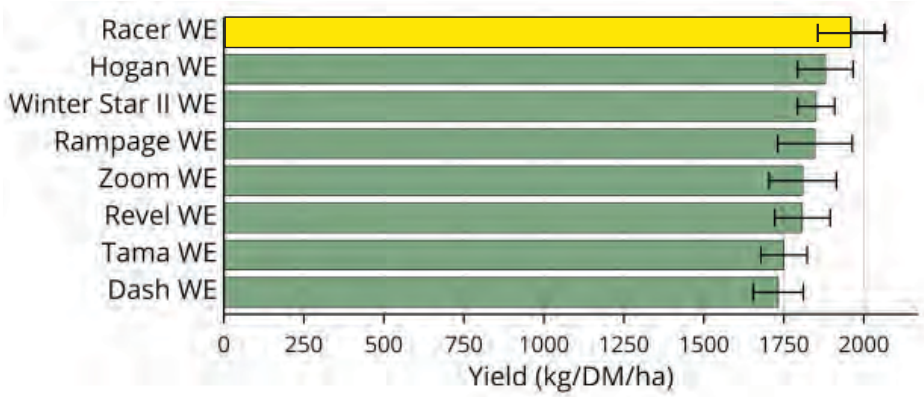
Upgrade

Hogan annual ryegrass is a farm favourite, thanks to its performance and fast, reliable growth. *Racer* is the next release from our breeding programme, an upgrade that delivers short term feed, better.

Unbeaten in winter

Racer starts fast, with 8% quicker establishment than *Hogan*. And in the National Forage Variety Trials (NFVT) *Racer* is unbeaten for winter growth.

2025-26 NFVT Annual ryegrass yields: All New Zealand trials - winter yield



Extra $95/ha

Overall *Racer* produces 4% more drymatter yield than *Hogan*, or an extra 190 kg DM/ha. Putting a $0.50 kg DM/ha value on this nutritious feed that's $95/ha return on investment (or an extra $3.15/kg of seed return!) over *Hogan*.

System fit

Racer is a late heading (+15 days) tetraploid, with very high feed quality. It does not contain endophyte, and is designed to be a fast establishing 6-12 month crop.

Sowing *Racer*

Dairy, Sheep, Beef, Deer		kg/ha
Winter-spring crop	*Racer* annual ryegrass*	30
	Total	30
Winter-spring crop with annual clovers	*Racer* annual ryegrass* *Laser* Persian clover	22 8
	Total	30

** Tetraploids are sown at a higher rate than diploids, because of their larger seed.*

Forge tetraploid hybrid ryegrass

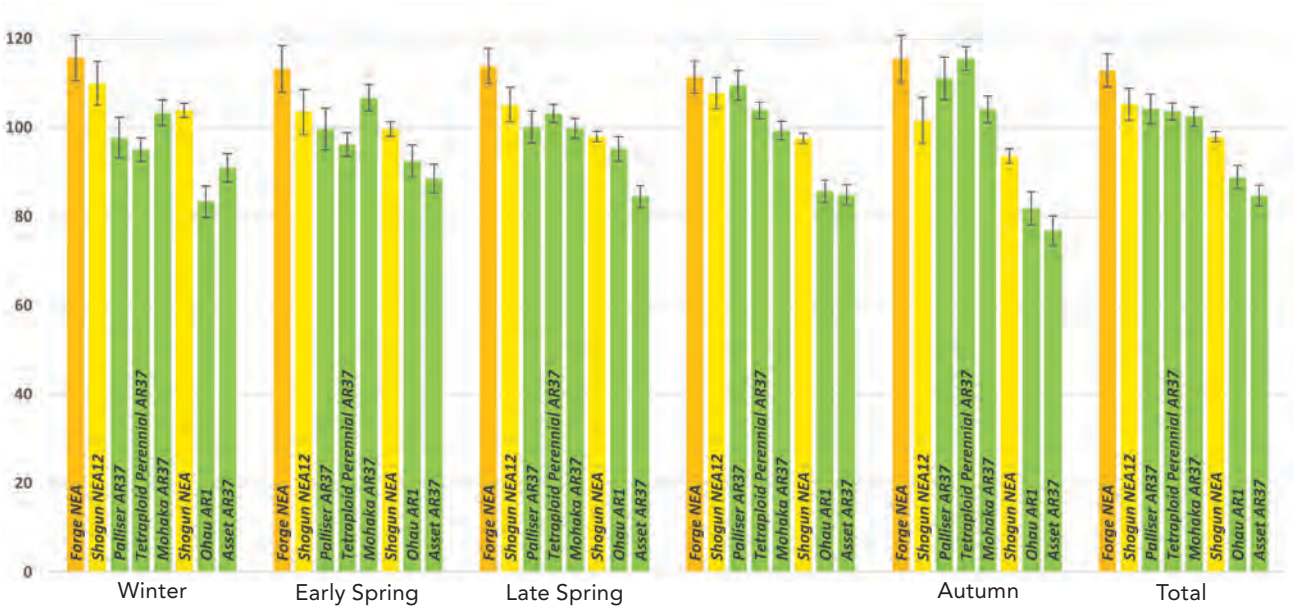
Forge NEA is the phenomenal 3-5 year pasture bred to deliver animal performance your neighbours will envy, with environmental benefits too.

Groundbreaking

Unbeaten in the National Forage Variety Trials (NFVT), *Forge* is a breakthrough in genetic gain. (Few new ryegrass cultivars ever exceed 5% yield improvement!)

Even better, *Forge* gives this extra yield and quality across every season.

2025-26 NFVT hybrid ryegrass summary: All New Zealand Trials*



** NFVT Summary September 2025. If two means differ by more than the sum of their least significant intervals (LSI), they are significantly different at 5% level. NFVT Protocol cutting times may disadvantage yield of a perennial ryegrass within a hybrid ryegrass trial.*

Feed when you need it

Growth in winter and early spring is increasingly prized in our farm systems. It provides feed when it is often most needed, and most expensive.

Nothing else compares to *Forge* when the temperature drops. In winter it grows 5 - 41% more than other hybrid ryegrasses in the NFVT system; and 7 - 28% more in early spring.

Tasty as

Animals love tetraploids – they are soft, high in sugars, legume-friendly, and easy to eat. *Forge* encourages higher intakes, optimal per head performance and improved efficiency.

Lose less N & GHG

With higher animal intakes, and extra cool season growth, *Forge* helps lighten your farm footprint.

Tetraploids can be grazed at higher covers, so you grow more pasture for the same amount of nitrogen. *Forge's* extra winter yield also better mitigates nitrogen leaching during the high-risk cool season when soils are wet. Its palatability and high feed value lifts per animal performance, which lowers both greenhouse gas emissions and animal health costs.

Extra 1.4t DM/ha

Forge NEA will grow about 1.4 t dry matter/ha a year more than a high performance perennial ryegrass. What could you do with this extra feed?

- Dairy farms: Add more home grown pasture to your winter milking or early calving system. More ME/ha year-round can increase MS production, too. Just as importantly, high quality and palatability lift efficiency through more milk/cow, rather than more cows. Alternately, use the extra feed to cut supplement costs.
- Sheep and beef: Feed ewes better through lactation, and finish more lambs off mum. Capitalise on the early schedules, and avoid the weaning check. *Forge's* high quality is also great for growing or finishing stock.
- Undersowing: Direct-drill into thin, sad pastures to lift both yield and feed quality. *Forge* establishes rapidly, with fast regrowth, so it's perfect for this.

Breeding & persistence

Forge has 75% perennial: 25% Italian ryegrass parentage, so it fits between *Shogun* (50:50% parentage), and *4front* perennial ryegrass. *Forge's* persistence is very good for a tetraploid hybrid, thanks to high tiller density and a focus on persistence in its breeding.

Endophyte & animal health

In most cases *Forge NEA* will deliver excellent animal health. We believe it is safe to use for dairy cows and cattle.

There is a risk of some ryegrass staggers in sheep or lambs if you graze into the base of the pasture in summer dry conditions. The risk of stagger is much lower than for the old *Standard* (or *High*) endophyte.

Add red clover & stand clear

We've tested several combinations of *Forge* with *Morrow* red clover, as this will provide the best quality summer feed. Mixing 30 kg/ha *Forge* with 6 kg/ha *Morrow*, or 20kg *Forge* with 10 kg *Morrow*, work best, with the latter providing a bit less winter yield and more summer yield and quality.

Sowing *Forge*

Dairy		kg/ha
High performance 3-5 year pasture	*Forge NEA* hybrid ryegrass	30
	Kotuku white clover	2
	Ruru white clover	2
	Total	34
Sheep, Beef, Deer		**kg/ha**
High performance finishing pasture	*Forge NEA* hybrid ryegrass	25-30
	Morrow MS red clover	6
	Ruru white clover	2
	Total	33-38
Undersowing		**kg/ha**
Sow into thin pasture to extend performance	*Forge NEA* hybrid ryegrass	13-20*
	Total	13-20

**Sowing rate depends on how thin pasture to be undersown is.*

Other species can be added as needed e.g. *Captain CS* plantain.

Shogun hybrid ryegrass

The rockstar hybrid you love, with *NEA* endophyte, or supercharged with *NEA12* for even more yield and animal performance.

What makes it special?

Fast, nutritious and delicious, *Shogun* is your best friend for both 1-3 year pasture, and undersowing, no matter where you farm.

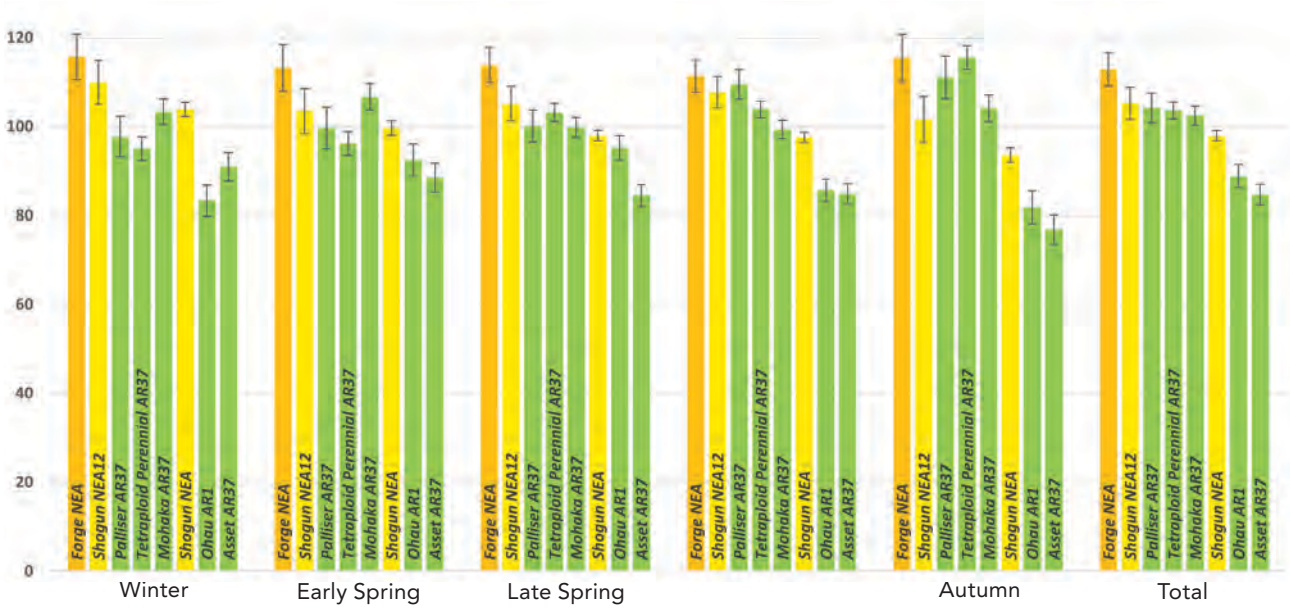
Supercharged

Shogun is now supercharged with *NEA12* endophyte, growing 7% more total yield than the *NEA* version. Normal ryegrass breeding delivers about 1% genetic gain a year, so that's 7 years' progress in one go. Imagine achieving that in your animals!

Carry more

Shogun NEA12 grows more year-round, so you can feed more animals on those paddocks. Its biggest seasonal advantage over *Shogun NEA* is during summer (growing 10% more) and autumn 8% more as shown in the industry trial results below.

2025-26 NFVT hybrid ryegrass summary: All New Zealand Trials*



** NFVT Summary September 2025. If two means differ by more than the sum of their least significant intervals (LSI), they are significantly different at 5% level. NFVT Protocol cutting times may disadvantage yield of a perennial ryegrass within a hybrid ryegrass trial.*

Shogun lifts your carrying capacity.

Better protection

NEA12 gives *Shogun* a wider range of insect control, including we believe for porina. Testing has shown *NEA12* provides good black beetle control (at the same level as *NEA* endophyte) and very good root aphid control.

Faster payback

Shogun establishes very fast, more like an Italian ryegrass, so these paddocks are ready to graze sooner than ones sown with perennial ryegrasses or some other hybrids.

Make more protein

Animals thrive on *Shogun* – it's a high energy, late heading tetraploid (+13 days), with minimal aftermath heading in summer, plus you gain that extra yield.

Easy to graze

Shogun is a super palatable tetraploid. Animals love eating it, so it's easier to manage.

Endophyte & animal health

In most cases *Shogun* will deliver excellent animal health. We believe it is safe to use for dairy cows and cattle.

There is a risk of some ryegrass staggers in sheep or lambs if you graze into the base of the pasture in summer dry conditions. In this situation the risk or staggers with *Shogun NEA12* is higher, and *NEA12* is not recommended for horses or deer. The risk of stagger in both options is much lower than for the old *Standard* (or *High*) endophyte.

In all cases ryegrass staggers is much less likely if you sow a pasture mix with high legume and herb content (see suggestion below).

Sowing *Shogun*

Dairy and cattle systems		kg/ha
High performance 1-3 year pasture	*Shogun NEA12* or *NEA* ryegrass	30
	Ruru medium leaved white clover	2
	Kotuku large leaved white clover	2
	Total	34
Lamb and beef finishing		**kg/ha**
High performance 1-3 year finishing	*Shogun NEA12* or *NEA* ryegrass	25
	Ruru medium leaved white clover	2
	Apex small leaved white clover	2
	Morrow red clover	6
	Captain CS plantain	2-4
	Total	37-39
Undersowing		**kg/ha**
Undersowing with fast establishment	*Shogun NEA12* or *NEA* ryegrass	15-20*

**Sowing rate depends on how thin pasture to be undersown is.*

Tabu+ Italian ryegrass

Tabu+ is our record-breaker, with explosive establishment speed and superior cool season growth.

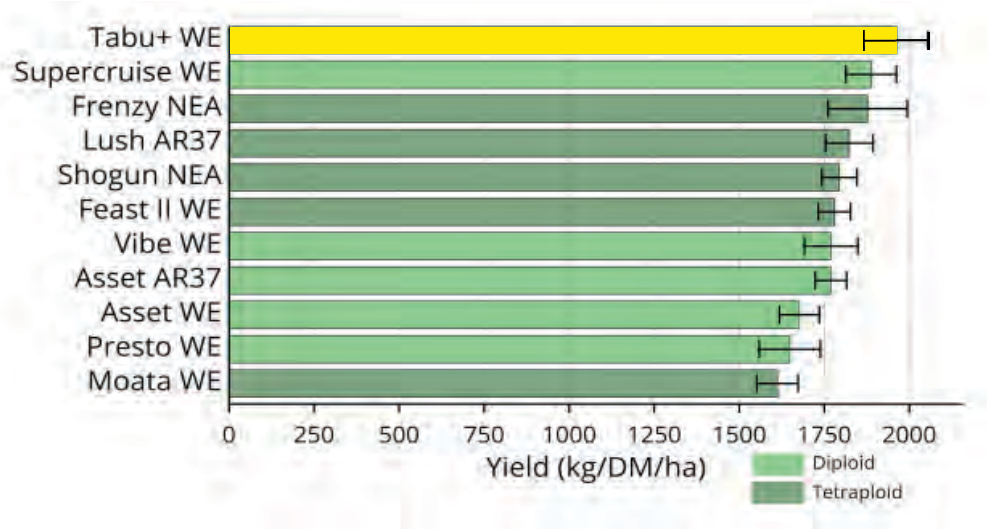
Multi-use

Tabu+ is Mr Adaptable. Sow it as an 8-12 month high performance crop; grow happy animals for 2-3 years in areas with mild summers, or undersow into run out pasture to boost winter and spring growth. For best results undersowing dense pastures, spray before drilling. Note: If you need pasture to last 2-3 years *Shogun NEA12* may be a better option.

Unstoppable in winter

Tabu+ is the top yielding Italian ryegrass in the National Forage Variety Trials (NFVT) 12 month pasture summary, for winter growth.

2025-26 NFVT Italian ryegrass yields: All New Zealand trials - winter yield



2000% ROI

Tabu+ produced an extra 4 t DM/ha over *Moata* as a 12 month crop. For an extra seed cost of about $60/ha, *Tabu+* returned over 2000% on investment! That's because this extra feed is valued at about $0.40/kg DM or +$1600/ha.

Soaks up winter N

The more winter growth on your farm, the more nitrogen you capture before it leaves the soil. *Tabu+* hits its peak in May-August, and its super-fast cool season growth pulls up more nitrogen than slower growing pastures.

Sowing *Tabu+*

Winter ryegrass crop	kg/ha
Tabu+ Italian ryegrass	20-22
Winter ryegrass crop with annual clovers	**kg/ha**
Tabu+ Italian ryegrass	16-18
Laser Persian clover	8
Total	24-26
1-2 year pasture option	**kg/ha**
Tabu+ Italian ryegrass	18-22
Morrow MS red clover	6
Kotuku or *Apex* white clover	2
Ruru white clover	2
Total	28-32
Undersowing	**kg/ha**
Tabu+ Italian ryegrass	10-15*
Kotuku or *Apex* white clover	1.5
Ruru white clover	1.5
Total	13-18

**Sowing rate varies depending on how thin pasture to be undersown is.*

Tabu+ has explosive establishment speed and winter growth.

Redefine cocksfoot

The ultimate mixer! Makes friends wherever it grows.

Well-behaved

Redefine is the cocksfoot every pasture wants. Polite, controlled and co-operative, it plays nicely with other species instead of taking over.

Who should sow it?

Anyone who wants the benefits of a cocksfoot without the clumpy, aggressive behaviour and clover suppression associated with older varieties.

Redefine adds diversity and climatic resilience to pastures in summer-dry regions. It is tougher than ryegrass with more summer growth.

Even finer

Since *Kara* was released in 1980, we have made great progress developing finer, more tillered cocksfoot cultivars. *Redefine* is a big step forward. At over 5000 tillers/m², you can clearly see the difference between it and other cocksfoots.

Progress of cocksfoot tiller density*

	Kara	*Ella*	*Greenly II*	*Safin*	***Redefine***
Tillers/m²	2381	2981	3335	4241	5095
(versus Kara = 100%)	100%	125%	140%	178%	214%

** Results from 2 grazing trials at Courtenay, Canterbury. LSD (5%) = 707 tillers/m².*

Good against grass grub

Once established cocksfoot has good tolerance of all pests. Notably, it is much more tolerant of grass grub than ryegrass.

See green

Redefine lives better with clovers, meaning there's more available nitrogen, so it's nicer to eat.

This is key, because when cocksfoot is low in crude protein (look for yellow leaves), palatability and animal performance is poor.

Old cocksfoot can become low in crude protein and less palatable.

Redefine makes friends with legumes, so it's nicer to eat.

Great team-mates

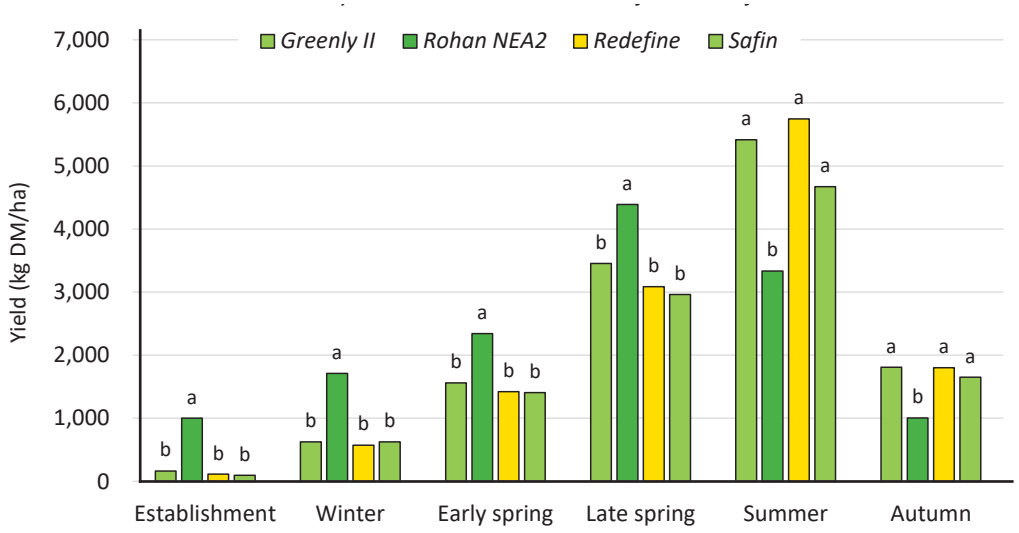
Redefine and ryegrass are ideal partners, giving more reliable pasture establishment than sowing cocksfoot as the sole grass. *Redefine* sown with ryegrass will be faster to grazing, with fewer weed issues, and will provide more feed over the first year.

Redefine will come through in the summer, and sowing rates can be adjusted to get the pasture balance you want (see below).

Value vs ryegrass

This is demonstrated by the establishment year of a dryland trial comparing cocksfoot with *Rohan* perennial ryegrass. *Rohan* established much faster, providing valuable feed through to late spring. But once the dry summer hit, the deep-rooting *Redefine* outperformed the ryegrass.

Comparative seasonal yield over first year of dryland



** Statistical significance lettering is above bars of graph at LSD 5% level. Yields with the same letter are not significantly different.*

Sowing *Redefine*

Want some contribution from *Refine* through a pasture?	Want a strong *Refine* contribution to a pasture?	For a cocksfoot-based pasture.
Redefine 3 kg/ha in pasture mix with ryegrass, white clover etc.	*Redefine* 6 kg/ha in pasture mix with ryegrass, clover etc.	*Redefine* 8-10 kg/ha with white & sub clovers etc.

Redefine strengthens pasture.

Bareno brome

Bareno thrives where perennial ryegrass fails, excelling on tough, summer dry sheep and beef country with free-draining soils.

Flexible

Bareno provides a palatable, persistent and flexible pasture for dryland farming that can tolerate both rotational grazing and set stocking. _Bareno's_ persistence may decline in the upper North Island, so it is less suited to this region.

Tasty year round

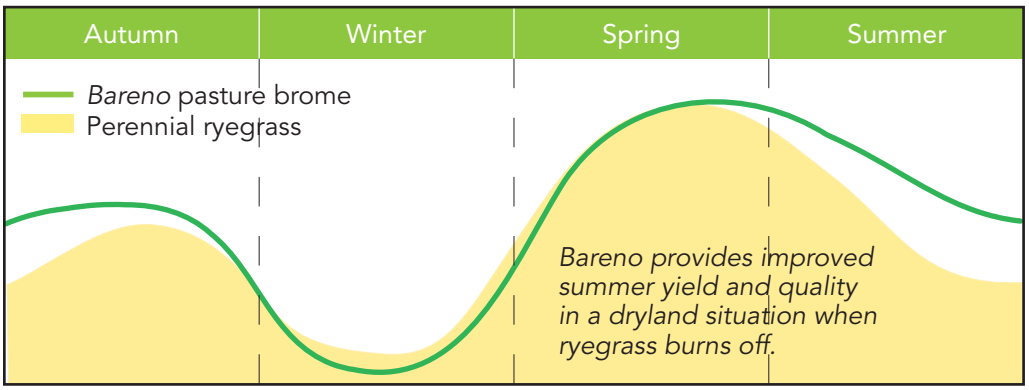
A strong feature of _Bareno_ is its palatability through all seasons:

- It remains palatable, even when seed heads are present, and stays greener and leafier than ryegrass in summer.
- _Bareno_ can support a high legume content (40% sub and white clover has been measured in spring).

High yield

On Lincoln University's Silverwood Farm, a dryland breeding property in inland Canterbury, _Bareno_ produced 12.5 t DM/ha/year, 9% more than new sowings of perennial ryegrass (11.5 t DM/ha), with excellent spring, summer and autumn growth.

Seasonal growth



Sow early

Brome grasses are slower to establish than ryegrass, particularly in cold temperatures, so always:

- Sow when warm - soil temperature 12°C+ in late summer or early autumn.
- Summer fallow before sowing in dry regions.
- Direct drill – this has proven very successful.

Sowing _Bareno_

Sheep, Beef, Deer		kg/ha
Persistent and palatable dryland pasture	_Bareno_ pasture brome	25-32*
	Can be added: _Redefine_ cocksfoot Sub clover _Apex_ white clover _Morrow_ red clover	Inclusion of species depends on situation. Seek advice if unsure.

Bareno sowing rate high because brome grasses have large seeds.

Diverse Pasture Premix

Diverse Pasture Premix

We produce a pre-mix, for sowing at 36 kg/ha. It comes in 25 kg bags to sow at 1.4 bags/ha, and is available as either treated seed or bare seed.

Background

Pastures containing many different species have become more popular with Regenerative Agriculture. There is little science behind many mixes, and under grazing they quickly lose diversity over time. Our *Diverse Pasture Premix* contains a well reasoned mix of known cultivars, for those who wish to try a diverse pasture.

What's in a bag?

The *Diverse Pasture Premix* combines high yielding *Maxsyn NEA4* perennial ryegrass with the persistence of *Rohan SPR* perennial ryegrass. *Redefine* cocksfoot, *Bareno* grazing brome and timothy add diversity, while *Tabu+* gives greater cool season production. *Captain* plantain and *501 Chicory* supply pasture herbs, a lower N footprint, and in the case of *501* a deep taproot. *Kotuku* large leaved and *Ruru* medium leaved white clovers, and *Morrow* red clover have different growth habits, high feed quality advantages, and nitrogen fixation. *Laser* Persian clover and *Coolamon* sub clover are annual clovers to improve feed quality from late spring into summer and will reseed if managed correctly.

Dairy, Sheep, Beef	kg/bag
Maxsyn NEA4 perennial ryegrass	5
Redefine superfine cocksfoot	3
Rohan NEA2 perennial ryegrass	2
Timothy	1
Bareno pasture brome	3
Tabu+ Italian ryegrass	2
Kotuku white clover	1
Ruru white clover	1
Morrow red clover	3
Laser Persian clover	1
Coolamon sub clover	1
501 Chicory	1
Captain CSP plantain	1
Total	**25kg**

**Mix may vary depending on availability of species*

Practicalities

Your herbicide options are limited with this mix, so choose your paddock carefully to be free of problem weeds. Good seed bed preparation and weed control before sowing are essential. There are no specific requirements for soil nutrient levels, but a good base nutrient status will help all species perform.

Kotuku white clover

Kotuku is a very fast establishing, nutritious, high yielding large leaved white clover with superior summer growth.

Why *Kotuku?*

White clover is critical for feed value and nitrogen fixation in pastures. It is also a key source of protein and energy for milking and growing stock, particularly in summer. *Kotuku* has excellent seasonal growth, and outperforms all other trialed cultivars over the critical summer period.

High yield

This mixed sward trial included one entry without clover. The effect of clover on nitrogen fixation and yield is clear, with *Kotuku* showing particularly good yield.

Seasonal DM yield data 2013-2016, Courtenay, Canterbury. Trial mean = 100.

Entry	Autumn	Winter	Early spring	Late spring	Summer	Total
Kotuku	117 a	107 bc	107 ab	109 a	121 a	114 a
Kopu II	114 a	115 a	112 a	109 a	110 b	111 ab
Kotare	105 bc	106 c	108 a	111 a	108 bc	106 bc
Tribute	102 bc	105 c	109 a	107 ab	102 bd	105 c
SF Quest	106 b	114 ab	111 a	105 ac	98 d	104 cd
Mainstay	110 ab	101 cd	100 c	99 bd	102 bd	102 cd
Weka	99 cd	97 de	100 bc	106 ac	101 cd	100 de
Bounty	94 de	88 f	92 d	97 cd	102 cd	97 e
Huia	88 e	91 ef	92 d	95 d	97 d	95 e
No clover	46 f	67 g	59 e	55 e	29 e	44 f
Trial mean (kg DM/ha)	1765	721	970	1659	3101	8509
Significance	***	***	***	***	***	***

**Data from Courtenay, Canterbury, 2013-2016. Statistical significance lettering is given, yields with the same letter are not significantly different at the 5% LSD level.*

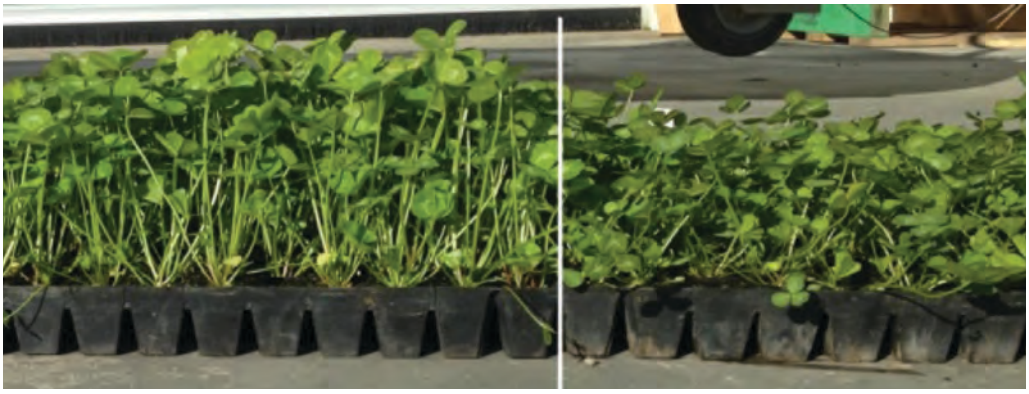
High-yielding Kotuku fuels both dairy and red meat finishing systems.

Jumps out of the ground

Kotuku jumps out of the ground quicker than many clovers. That helps it compete with fast-establishing ryegrass, and makes it easier to plan broadleaf weed control in new pasture. Weeds are best treated when small, but new clovers must have 3-4 trifoliate leaves before spraying, so the faster your young plants reach this stage, the better your herbicide results.

Oversowing advantage

Oversowing existing pastures with clover can add more clover to your system. Because it gets going so much faster than other clovers, *Kotuku* competes better with existing pasture and is perfect for oversowing.



Establishment speed of Kotuku (left) versus Mainstay.

Persistence

Kotuku has demonstrated robust persistence for a large leaved cultivar, and has a medium stolon density. This drives summer production in dairy and dry stock finishing systems.

Sowing *Kotuku*

Dairy		kg/ha
Top performing dairy pasture	*Maxsyn* or *Array* perennial ryegrass	18-22
	Kotuku white clover	2
	Ruru white clover	2
	Total	22-26
Sheep, Beef, Deer		**kg/ha**
For high palatability tetraploid finishing pasture	*4front* perennial ryegrass	30
	Kotuku white clover	2
	Ruru white clover	2
	Morrow MS red clover	6
	Total	40

Ruru white clover

Lusher, better, stronger. The new medium leaved white clover delivering more energy and protein in summer, plus extra nitrogen fixation too.

What makes it special?

Ruru is our upgraded replacement for *Weka*. It is similar in type, with more aggressive growth and higher year-round yield, particularly in summer.

System fit

All systems will benefit from *Ruru* - dairy, cattle, sheep and deer.

More free nitrogen

Higher yield means more free nitrogen for your farm, so you can save on fertiliser costs and lighten your footprint. *Ruru* grows enough extra to give you up to 14 kg nitrogen/ha/year more than some other similar clovers (based on a fixation rate of 28 kg nitrogen/ha per tonne of clover[1]).

Treat animals in summer

Plenty of clover in summer keeps animals happy and productive. *Ruru* flourishes in warm weather, guaranteeing more energy and protein when grass is not always at its best.

Spot the difference! Ruru in mid January (right) is notably ahead of Weka (left), even though both were sown in Canterbury at the same time, with the same ryegrass, and managed identically.

[1]Lucas, R. J., Smith, M., Jarvis, P., Mills, A., & Moot, D. J. (2010). Nitrogen fixation by subterranean and white clovers in dryland cocksfoot pastures. *New Zealand Grassland Association.*

Shines in summer

Combined yields over two trials at Courtenay, Canterbury*

Entry	Autumn	Winter	Early spring	Late spring	Summer	Annual
Ruru	**1584**	**648 b**	**1675**	**3286 a**	**3934 a**	**11625 a**
Weka	1586	659 b	1663	3183 b	3752 b	11479 ab
Tribute	1585	748 a	1665	3076 c	3622 b	11152 b
Mean (kg DM/ha)	1577	673	1638	3101	3739	11180
Significance	ns	***	ns	***	***	***

** Combined yields of two replicated, pure sward clover trials run 2016-19 and 2017-2018.*

Lasts in the pasture

Bred for high grazing tolerance, strong spreading growth and good tolerance of clover root weevil, *Ruru* is a stayer, not a sprinter.

Sowing *Ruru*

Dairy and cattle systems		kg/ha
Top cattle clover combination	Perennial ryegrass	18-30
	Ruru medium leaved white clover	2
	Kotuku large leaved white clover	2
	Total	22-34
Sheep and deer systems		**kg/ha**
Top sheep and deer combination	Perennial ryegrass	18-30
	Ruru medium leaved white clover	2
	Apex small leaved white clover	2
	Total	22-34

Ruru white clover spreads strongly.

Apex white clover

Apex is a robust, persistent clover, bred to withstand hard grazing, summer dry conditions, and clover root weevil.

Medium-small leaf size

Apex has a medium-small leaf, with many more stolon growing points than old cultivars like _Huia_, for improved growth, and drought and pest tolerance.

Good persistence

A key feature of _Apex_ is improved persistence. A Waikato grazing trial showed excellent persistence into its fourth year, with the highest fourth year yields.

High yield

Why grow _Huia_ when _Apex_ outyields it by 56% in winter, 39% in spring and 27% in autumn?

Yield in three Manawatu sheep grazing trials (Huia = 100)*

Cultivar	Winter	Spring	Summer	Autumn
Apex	156 a	139 a	108 a	127 a
Huia	100 b	100 b	100 a	100 b
LSD (5%)	22	18	15	18

*_Woodfield et al. NZ Grassland Association 63: 103-108_

Spreading growth

Apex spreads strongly across bare ground, boosting legume content in your pasture.

Sowing _Apex_

Sheep, Beef, Deer		kg/ha
For more clover in drier or tougher grazing systems	Perennial ryegrass (e.g. _Rohan_)	18-20
	Redefine cocksfoot	3-6
	Apex white clover	2
	Ruru white clover	2
	Total	25-30

NEW

Campeda Subterranean clover

Introduction

Campeda is ideal for most farm systems. It is a true sub clover, with high levels of hard seed, good winter-spring yields, and a medium flowering date.

Dense & leafy

Campeda is a great all rounder, with prostrate to semi-erect growth producing a leafy, dense sward. It has strong winter vigour, and produces high seed yields to help build a seed bank in the soil. Plenty of hard seed (29%) supports long term persistence.

Sub advantage

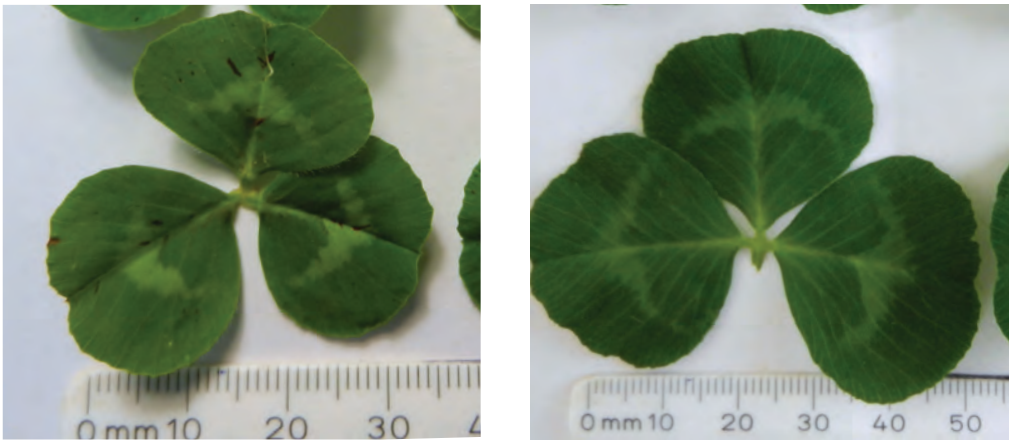
Sub clover is the most widely sown annual legume in NZ. It is normally mixed with grasses and white clover on hill country, and grows well on drier areas, slopes and soils. It grows 4-6 weeks earlier than white clover, providing valuable early quality feed, and nitrogen fixation.

Management

As an annual, *Campeda* must be allowed to set seed to survive. In year 1, lightly graze paddocks, then rest them during flowering in late spring, to allow seed set. This process needs to be repeated about every 5 years.

Equally important is managing a good establishment of re-seeded *Campeda* in subsequent autumns. It hates trash, so in early autumn graze pastures hard, to 700-1000 kg DM/ha. This creates space for new seedlings. After a good strike, spell the paddock until seedlings have developed at least four trifoliate leaves.

Sow in autumn. If drilling seed, sow shallow at a depth of ≤10 mm.



Campeda changes in size, in winter (left) and in the spring (right).

Oversowing *Campeda*

Sub clover is often oversown into hill country, and interest has recently increased with the availability of drones. For success this should be planned carefully, ensuring areas are well grazed out. Sowing once autumn rains come, and trampling seed in with stock are proven techniques.

If the paddock does not have a history of sub clover, we recommend inoculating the seed with the specific rhizobium bacteria (Group C) immediately prior to sowing.

Campeda seed is relatively large (about 10 times heavier than white clover), and has good ballistic properties if oversowing. We do not coat *Campeda*, as this would create problems in inoculating it with rhizobia.

Sowing *Campeda* stand	In a seed mix
10-12 kg/ha	6-8 kg/ha

Laser Persian clover

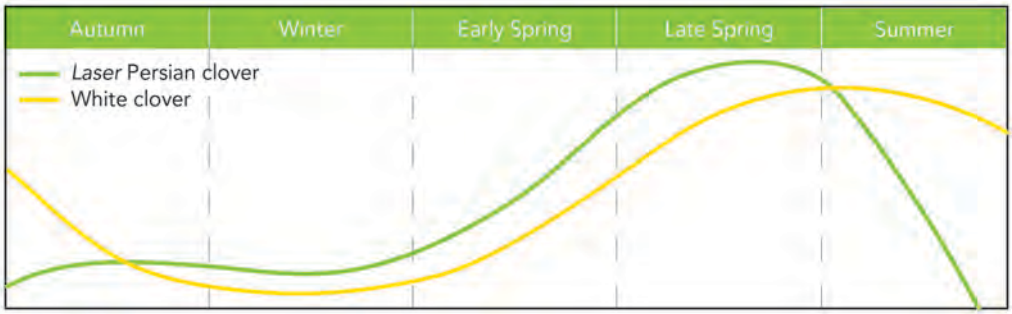
***Laser* is fast establishing, and produces high-quality feed from winter through early summer, for improved animal production and finishing, or silage/hay.**

Later growth

Laser has a different growth curve to *Zulu II*, flowering 30 days later, and extending growth into summer.

System fit

On dairy farms, add *Laser* to short-term pastures to improve feed quality, and extend feed supply and animal production first in autumn, then from early spring to early summer. For sheep and beef, use it to increase feed quality and accelerate liveweight gains. *Laser* also suits hay/silage making. It establishes faster than white clover, and yields much more over 8-10 months



Management

Graze down to residuals of 2-3 cm during winter. In spring, rotationally graze to residuals of 4-5 cm to maximise animal performance, and pasture regrowth. Avoid over grazing, which removes developing stems.

Conditions

Laser can tolerate mild salinity, cold temperatures and partially waterlogged soils. Slugs and springtails are a risk during establishment. Use treated seed, slug bait if needed, and include an insecticide at spray out. *Laser* resists clover scorch.

Sowing *Laser*

Dairy		kg/ha
12-18 month high performance crop	*Tabu+* Italian ryegrass *Laser* Persian clover *Morrow MS* red clover	16-18 4 6
	Total	26-28
6-8 month winter crop	*Hogan* annual ryegrass *Laser* Persian clover	22 4
	Total	26
Sheep, Beef, Deer		
8-10 month pure finishing sward	*Laser* Persian clover	10
Two year finishing crop	*Captain CS* plantain *Laser* Persian clover *Zulu II* arrowleaf clover *Morrow MS* red clover *Ruru* white clover	10 4 3 6 4
	Total	27

Zulu II arrowleaf clover

Zulu II **is a high energy legume for finishing animals or making silage from early spring through into summer. Where managed to reseed and regenerate, it also shows great potential to get nitrogen into hill country pastures.**

Yield + quality

Zulu II can transform low-yielding dry paddocks into palatable, productive pastures growing over 10 t DM/ha, with highest growth rates through spring and early summer. Feed value is excellent, with less risk of bloat than other annual clovers.

System fit

Sow *Zulu II* in autumn as a finishing crop, or as a persistent legume in hill country pasture where it is allowed to set seed in summer, to germinate in subsequent autumns. It has a high level of hard seed which persists in the soil for many years. *Zulu II* also partners well with spring sown chicory, feeding nitrogen into this summer crop.

Management

If sown with chicory, graze the crop according to best practice for the chicory. For persistence in hill country *Zulu II* must be managed carefully to allow reseeding in the first year. Don't graze these paddocks during flowering. After seed set, remove plant residues in late summer to open up the pasture and promote better seedling regeneration in autumn. *Zulu II* tolerates moderately acidic soils. Sow treated seed.

Sowing *Zulu II*

Dairy		kg/ha
Chicory/annual clover crop	*501 Chicory* *Zulu II* arrowleaf clover	8 8
	Total	16
Sheep, Beef, Deer		
8-10 month pure clover sward (manage to reseed & build soil N)	*Zulu II* arrowleaf clover	10
Hill country oversow mix	*Redefine* cocksfoot *Ruru* white clover *Apex* white clover Sub clover *Zulu II* arrowleaf clover	8 2 2 6 4
	Total	22

High-yielding Zulu II tastes great and yields well, with excellent feed value.

Morrow MS red clover

Grow. Graze. Repeat. *Morrow* multi-stemmed (MS) red clover brings better grazing tolerance to your farm, plus high yield in summer and autumn.

Great pedigree

Morrow comes from a tough family. Most red clovers wouldn't last long under intensive rotational dairy grazing on light upper North Island soils. But *Morrow's* parents did, growing well, even after repeated droughts.

We took plants from these pastures, and selected the best of them for high yield, persistence and flowering to create a multi-stemmed red clover with improved production and persistence under grazing.

Longevity

Red clover's biggest drawback has always been limited persistence under grazing. *Morrow's* improved grazing tolerance – helped by its high stem count and semi-prostrate form – means it keeps animals happy year on year. Like all red clovers, it persists best on free-draining soils under a longer summer grazing round.

Quality + yield when it counts

High energy and high yield together create ideal late spring and summer finishing feed, giving great quality as grass energy levels drop, and driving rapid liveweight gains for lambs and cattle.

Red clover seasonal yield in dryland Canterbury*

Entry	Early spring		Late spring		Summer		Autumn		Winter		Total yield	
Morrow	6.4	a	7.0	a	7.4	a	7.7	a	5.4	a	6.8	a
Tuscan	6.1	ab	6.7	a	5.5	b	6.0	ab	6.1	a	6.1	ab
Rossi	5.2	ac	5.7	ab	5.3	bc	6.3	ab	5.5	a	5.5	b
Relish	4.3	c	4.3	b	3.7	c	5.3	b	3.0	b	4.0	c
Trial mean	4.9		5.6		5.4		5.8		4.4		5.3	
%CV	20.1		18.0		16.5		18.4		21.3		12.8	

**Data from 2 years of pure sward trial, grazed by sheep. Trial sown 2016. Yield visually scored on 1-9 basis, where 9 = highest yield.*

Heads down - excellent summer yield and feed quality make Morrow ideal for finishing.

CRW tolerance

Red clover is less bothered than white clover by clover root weevil. Sow *Morrow* and you get more diverse pastures with strong legume content.

Free N

Red clover naturally fixes its own nitrogen. Based on its yield, *Morrow* can fix over 200 kg N/ha, or about 25 kg/N per tonne of dry matter grown.

Phyto-oestrogen levels

Morrow has low-medium phtyo-oestrogen levels. Even so, take care with ewes or hoggets 3-6 weeks either side of mating. High red clover intake at this time is best avoided.

This Manawatu farmer sowed ryegrass in strips with and without Morrow red clover - in February its yield and feed quality advantage is clearly seen.

Sowing *Morrow*

All systems		kg/ha
Productive, persistent clover combination	Perennial ryegrass	18-30
	Morrow red clover	6
	Kotuku or *Ruru* white clover	4
	Total	28-40
Sheep, Beef, Deer		**kg/ha**
Two year high LWG finishing crop	*Captain CS* plantain	10
	Laser Persian clover	4
	Morrow MS red clover	6
	Ruru white clover	4
	Total	24
Tetraploid perennial ryegrass - finishing		**kg/ha**
Fantastic feed quality and animal performance	*4front* tetraploid perennial ryegrass	24
	Ruru white clover	2
	Apex white clover	2
	Morrow MS red clover	6
	Captain CS plantain	2-4
	Total	36-38

501 Chicory

501 Chicory is a fast establishing annual, growing extra feed over the critical first two grazings. It's a high energy, 6-8 month summer crop, with excellent utilisation and reduced parasite challenge

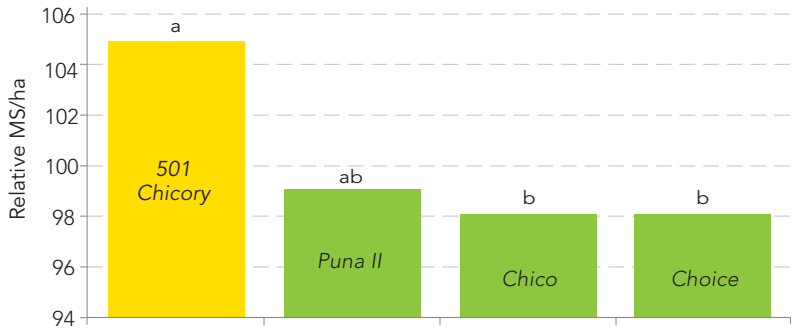
Rapid establishment

501 Chicory establishes very quickly, meaning less down time before the first grazing. In trials and on-farm across many different soil types, *501 Chicory* growth has stood out right from the start, particularly in dry conditions.

Excellent DM yield

501 Chicory's extra yield is predicted to produce an extra 7% kg MS, giving an additional income of $500/ha (based on $10/kg MS) over some other chicories.

Modelled Chicory MS production (Relative to trial mean = 100).



Data based on yield info from the combined trial analysis of Cambridge 11-12, and Canterbury 12-13. 2 trial lines have been removed from the graph. Assumptions used were: ME of chicory is 12 MJ ME/kg DM and 132 MJ ME to produce 1kg MS.

Clean feed for young animals

501 Chicory help manage parasites in young animals. Its open, upright habit greatly reduces worm numbers, and it puts weight on finishing stock faster, so you can quit them sooner. That means fewer drenches, and less exposure to parasites.

Advantage of *501 + Morrow*

The combination of *501 + Morrow* red clover or *501 + Zulu II* arrowleaf clover performs well. Like *501*, these clovers are deep rooted giving them a big advantage in dry summers. They also fix nitrogen, reducing fertiliser requirements for both the crop, and subsequent pasture.

High ME

Animals love chicory, red clover and arrowleaf clover, and they are very nutritious. Through summer they maintain an ME of around 12, whereas ryegrass pastures generally are down around 10-10.5.

Management

Sow chicory into a fine, weed-free seed bed when soil temperatures are consistently +12°C in spring. Roll before and after sowing for uniform germination. Graze when plants reach seven leaves. Targets for grazing are:

- Pre-grazing targets: 3000 kg DM/ha or 25-35 cm height.
- Post-grazing residual target: 5 cm.

Environmental gains

501 Chicory offers several valuable benefits:

- It reduces nitrogen in the urine patch the same way plantain does. Research shows cows grazing chicory have substantially lower urinary N concentrations, even more than those recorded for cows grazing plantain;
- Its deep tap root (up to 1.5 m) improves soil structure;
- It mines deep soil N and can recover excess soil N left after winter-grazed crops;
- It doesn't need insecticide sprays (unlike brassica crops);
- Facial eczema spores and worm numbers are much lower than on ryegrass pastures.

How many ha?

For dairy farms, sow 3 ha of *501 Chicory* per 100 cows to provide 3 kg DM of chicory/cow/day. Use this table to calculate how much to sow.

Chicory/cow to be fed	Area of chicory to sow	Daily area of chicory*
2 kg DM/day	2 ha/100 cows	0.1 ha/100 cows
3 kg DM/day	3 ha/100 cows	0.15 ha/100 cows
4 kg DM/day	4 ha/100 cows	0.2 ha/100 cows

**Assuming 21 day grazing rotation.*

When to resow pasture

501 Chicory will look great going into autumn. Don't be tempted to keep grazing it! Establishing your new pasture early is much more important.

Sowing *501 Chicory*

Use		kg/ha
For a chicory crop	*501 Chicory*	8-10
	Total	8-10
Chicory/red clover crop	*501 Chicory* *Morrow MS* red clover	6-8 4
	Total	10-12
Chicory/annual clover crop	*501 Chicory* *Zulu II* arrowleaf clover	8 8
	Total	16

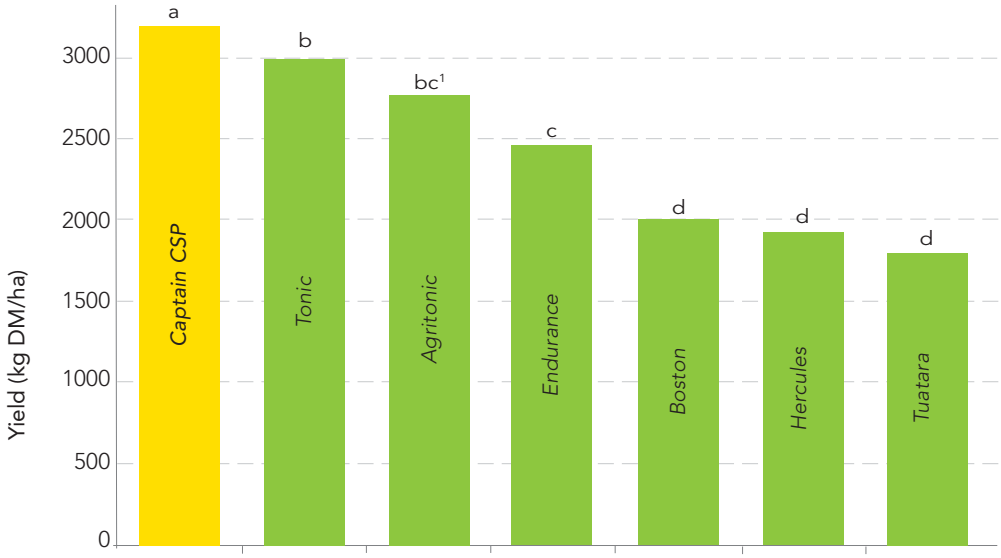
Captain CS plantain

Captain cool season plantain (CSP) grows significantly more than other plantains during the cool season, when feed is most valuable in farm systems. It also reduces nitrogen leaching compared to diploid ryegrass.

Outstanding cool season growth

Captain CSP yields significantly more during the cool season as shown in the graph below. Plantains vary hugely in winter growth, as is clearly visible in the photo at the bottom of this page.

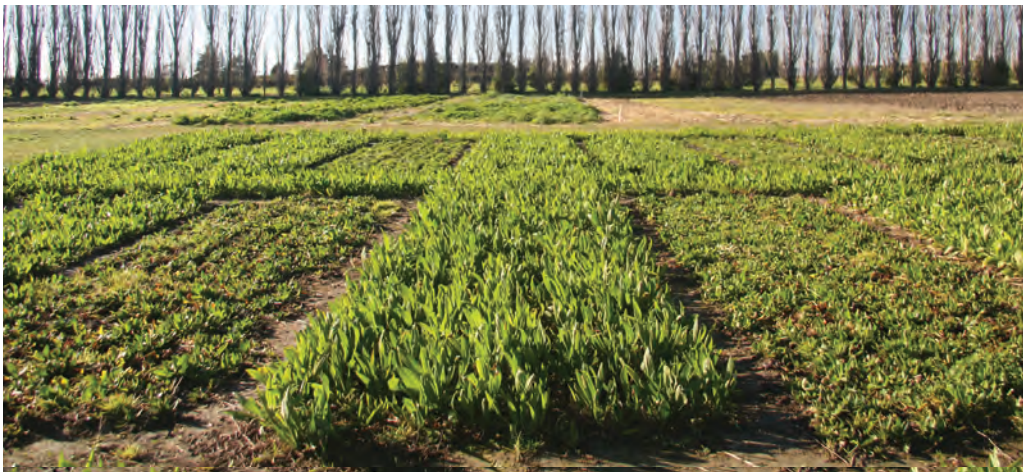
Cool season DM yield data combined from three one year dryland Canterbury trials sown between 2013 – 2018*



Cool season yield is a total of autumn, winter & early spring periods. LSD (5%) lettering given on yield bars, cultivars with the same letter are not significantly different. ¹ Provisional rating, culitvar has only been in one trial.

Reduced N leaching

Studies show plantain can mitigate nitrogen leaching compared to diploid ryegrass, primarily because its higher water content increases animal water intake, and so dilutes urine. *Captain's* superior cool season growth potentially increases N-mitigation, as nitrogen mainly leaches when soils are wet in late autumn to early spring.



Captain CSP (centre) showing its significant cool season yield advantage over other cultivars on 30 July at Courtenay 190 m ASL.

High total DM yield

Captain CSP grows strongly across the other seasons too. It's deep rooting, with high summer yield providing additional protein and feed quality over the warmer months, particularly in summer dry areas.

Animal performance

Plantain is easily digestible, improving animal appetite especially in dry summers when grass quality is low.

Plant type

Captain CSP is a distinctive narrow-leaved plant with upright growth habit for high utilisation. It has a deep, coarse root system, and good compatibility with other species. It persists well, and can last three years with good management.

Sheep, beef, deer systems

Captain CSP can be used as a high LWG finishing crop, for example mixed with red, white, and annual clovers. Here the annual clovers (Persian, arrowleaf) provide most of the legume through the first year, with red and white clovers providing it after that.

Dairy systems

Captain CSP can be used as a summer crop, or sown as part of a pasture mix to increase summer feed quality in dryland situations. *Captain* can also be used as part of a specialist high-yielding, quality 2-3 year pasture, with *Shogun NEA12* hybrid ryegrass and *Kotuku* white clover.

Sowing *Captain*

Sheep, Beef, Deer		kg/ha
Two-year high LWG finishing crop	*Captain CS* plantain	10
	Laser Persian clover	4
	Morrow MS red clover	6
	Ruru white clover	4
	Total	24
Perennial pasture mix	*Tyson* or *Rohan* SPR ryegrass	16-18
	Redefine cocksfoot	3-6
	Ruru white clover	4
	Morrow MS red clover	4
	Captain CS plantain	2-4
	Total	29-36
Dairy		**kg/ha**
Perennial pasture mix	*Maxsyn* or *Array* ryegrass	20
	Kotuku white clover	2
	Ruru white clover	2
	Captain CS plantain	2-4
	Total	26-28
Specialist 2-3 year pasture	*Shogun NEA12* hybrid ryegrass	30
	Kotuku white clover	4
	Captain CS plantain	2-4
	Total	36-38

Bombardier EG kale

Bombardier easy-graze (EG) kale means you can look after your animals, with more energy per bite and less wastage, which is better for both animals and the environment.

Winter better

Wintering systems are under the spotlight, with a focus on caring for animals well, and reducing mud in crops. *Bombardier EG* kale helps you do both, because it is palatable and easier to graze right to the base, providing high utilisation with high animal performance.

This can improve animal intake particularly in adverse weather, when grazing time may be limited. Less wastage also increases efficiency, which is better for the environment.

Ewes broke into these kale trial strips overnight, and camped on the strip of Bombardier EG, ignoring the other kales!

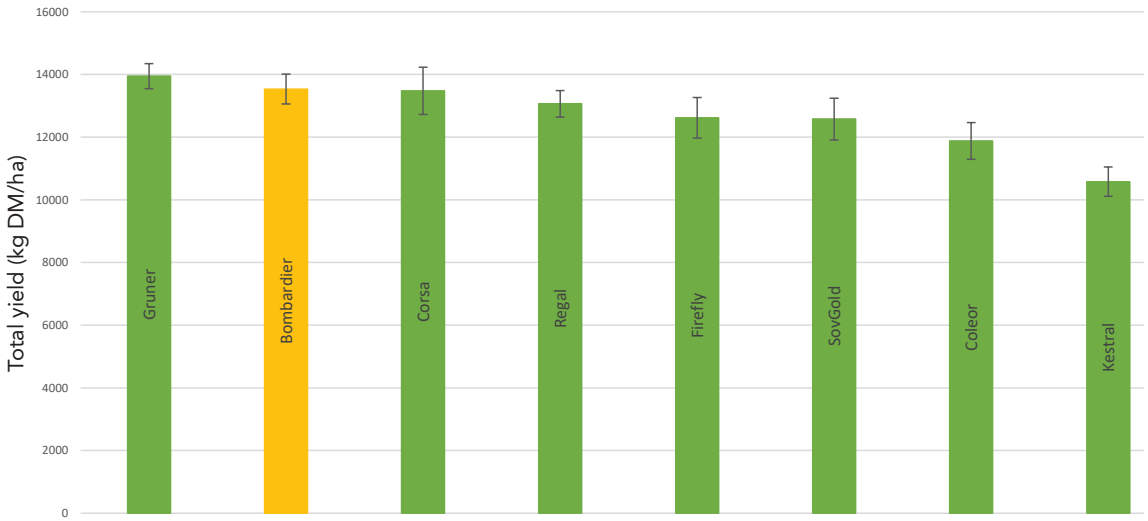
Systems fit

Bombardier EG kale suits farmers seeking higher animal intakes and performance. Examples include dairy cow grazing for increased BCS; heifer, bull and steer systems where weight gain is critical; and sheep systems for good stock performance.

Excellent yield

The total yield of *Bombardier EG* kale is very high.

Kale total DM yields 2006-2023 (combined analysis of 20 trials*)



*Combined analysis of 20 trials from 2006-2023, varieties in two or more trials are presented. If two means differ by more than the sum of their least significant internals (LSI), they are significantly different at the 5% level.

Environmentally friendly

Bombardier's superb utilisation means more efficient use of crop nutrients. High palatability and intake rates better suit on/off grazing systems to reduce mud creation. Less residual reduces the energy required for sowing the following catch crop or pasture.

More ME/bite (right to the ground!)

Bombardier has exceptional feed quality, so animals get more ME per bite. This advantage reaches right to the ground, meaning easier utilisation than other cultivars. *Bombardier* has higher ME and lower fibre in the bottom third of its stem.

Kale feed quality as metabolisable energy (ME) in MJ ME/kg DM*

Cultivar	ME whole plant	ME bottom 1/3 stem
Bombardier EG	12.4 a	11.5 a
Regal	11.9 b	10.5 b
Sovereign	11.9 b	10.2 b
Gruner	11.8 b	9.4 c
Corsa	11.3 c	9.6 bc
Trial mean	12.1	10.6
LSD (5%)	0.4	0.8

**From 5 trials run from 2006/07 to 2017/18. Cultivars were in at least two trials. Cultivars with the same statistical significance letter are not significantly different at the LSD 5% level.*

Rape alternative

With its very high stem quality, *Bombardier* can be used instead of autumn or winter-grazed rape, with several advantages.

- No ripening needed pre-grazing
- Fewer animal health problems
- More flexible grazing window.

Later sowing

Manage *Bombardier* the same as you would other kales, except we recommend a later sowing date (late November onwards). Don't sow in areas prone to high winds and crop lodging. While *Bombardier's* very soft stems are ideal for grazing they do make it more susceptible to lodging than traditional kales.

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
		Sow			Graze						

Days to graze:	100-170 days
Typical yield:	12-16t DM/ha; potentially higher in good conditions
Typical ME:	12.4 MJ/ME
Sowing rate:	5 kg/ha

Bombardier EG kale is marketed by Barenbrug

Invitation swede

Invitation is a late maturing, yellow-fleshed swede, with very high bulb and leaf yield. It gives valuable winter feed with excellent animal health for sheep, cattle and deer.

High yield & disease tolerance

Invitation has excellent total DM yields with good dry rot tolerance and resistance to club root and powdery mildew. *Invitation* is not recommended as a second crop.

Total DM yield, dry rot tolerance and club root infection level.

Cultivar	Total DM yield*	Dry rot tolerance**		Club root***
	(Trial mean =100)	% of bulbs not infected	% bulbs badly infected	% of bulbs not infected
Invitation	112 a	57 a	5 a	97 a
Aparima Gold	103 b	36 ab	11 a	100 a
Major Plus	96 c	10 bc	56 b	18 bc
Dominion	92 c	6 c	71 b	23 b
Domain ◇	74 d	NT NT	NT NT	NT NT
Trial mean	12.6 t DM/ha	21%	41%	60%

From 8 Southland trials, from 2006/07 to 2011/13. **From a Southland trial in 2008/09 under moderate to high dry rot pressure in a 2nd crop paddock. * From a Southland trial in 2010/11 under moderate to high club root pressure in a 2nd crop paddock. NT = Not tested. Statistical significance lettering given for 5% LSD level, cultivars with same letter are not significantly different.◇= Provisional results. Domain was in 2 of the 8 trials.*

Late flowering

Invitation is very late flowering, so the crop stays vegetative longer into spring than other cultivars. This minimises the risk of animal health problems associated with 'bolting' swede crops, as seen in spring 2014 in Southland. No issues were reported on *Invitation* swedes.

Swede flowering scores*

Cultivar	Lack of flowering
Invitation	7.2 a
Major Plus	6.7 ab
Domain	6.5 ab
Dominion	4.8 c
HT Swede	3.4 d
Aparima Gold	3.1 d
Trial mean	6.1

**Results from 2 trials in Southland sown 2008 and 2012. Statistical significance lettering given for 5% LSD level, cultivars with the same letter are not significantly different. Scored on a 1 - 9 basis. Where 1 = full flowering swede crop, 4 = stem elongation, green seed head appeared, 7, small degree of elongaton, 9 = no sign of stem elongation.*

Invitation swede is marketed by Barenbrug

Good leaf yield

Invitation produces high leaf yields showing a significantly higher leaf percentage than other cultivars in trials. This lifts the overall protein level of the crop and is helpful when introducing swedes into an animal's diet, particularly for younger stock.

Bulb & leaf keeping

Invitation has shown high bulb keeping ability and leaf retention in trials, helping maintain its feed quality and quantity through to the end of winter.

Using *Invitation*

Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Sow						Graze			

Maturity date:	170-250 days
Typical yield:	10-18 t DM/ha (depending on season and situation)
ME:	12-14 MJ/kg DM
Sowing rate:	Ridged 0.5-0.8 kg/ha
	Drilled 0.8-1.5 kg/ha

Invitation produces a higher proportion of leaf than other varieties, for more protein.

Invitation swede is marketed by Barenbrug

Dynamo turnip

Dynamo turnip is a high yielding summer crop for dairy cows. It grows large volumes of low cost quality feed with a high proportion of bulb, and good bulb keeping ability.

DM yield

Dynamo has very high yielding ability. This will vary depending on sowing date and season.

Replacing a poor performing pasture with a crop of *Dynamo* makes good financial sense. It can feed your cows well for around 24 c/kg DM*.

Low cost summer feed

*Turnips for 24 c/kg DM - assumptions:

- Turnip crop yield 10 t DM/ha, with 12 ME.
- Lose 5 t of old pasture growth while paddock is in crop.
- Cost of growing crop = $1200/ha (spray out plus insecticide, full cultivation, fertiliser, treated seed, slug bait, two post emergence herbicides/insecticides).
- $1200/5000 kg DM extra yield = 24 c/kg DM

High bulb percentage

Summer turnips produce their yield in different ways. *Dynamo's* bulb makes up about 48% of total yield, so it has an advantage in seasons when pest and/or leaf disease pressure are high.

Using *Dynamo*

Oct	Nov	Dec	Jan	Feb	Mar
Sow			Graze		

Maturity date:	60-90 days
Typical yield:	8-15 t DM/ha (depending on season)
ME:	12 MJ/kg DM
Sowing rate:	2-3 kg/ha

Dynamo summer turnip is marketed by Barenbrug

Interval rape

Interval is a tall, fast establishing rape ideal for summer, autumn and winter feed. Tough and dependable, it's proven to yield very well across a wide range of conditions.

Flexible sowing date

Sow *Interval* from spring through to early autumn for a bulk of high quality feed typically in 90-110 days. Spring sowings can be grazed in summer/early autumn then left to regrow for winter feed.

High yield

Interval has performed well in trials, providing excellent DM yield.

Total winter DM yield*

Cultivar	Trial mean = 100%	
Interval	126	a
Goliath	125	a
Greenland	118	a
Winfred	92	b
Titan	88	b
Trial mean (t DM/ha)	5.3	

**Results from 2 trials in Canterbury during 2008 and 2009 (February sown, June/July harvested). Statistical significance lettering given for 5% LSD level, cultivars with the same letter are not significantly different.*

Interval has excellent DM yield and utilisation.

Utilise me!

Compared to most kales (but not *Bombardier*), rape typically has higher stem feed quality, and is better utilised by stock after 90 days. *Interval* has excellent tolerance of dry conditions. It also has strong frost tolerance and resistance to powdery mildew.

Using *Interval*

Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
	Sow										
				Graze							

Maturity date:	90-110 days
Typical yield:	5-8 t DM/ha (depends on sowing time & no. of grazings)
Typical ME:	12 MJ/kg DM
Sowing rate:	4 kg/ha

Interval rape is marketed by Barenbrug

Robbos fodder beet

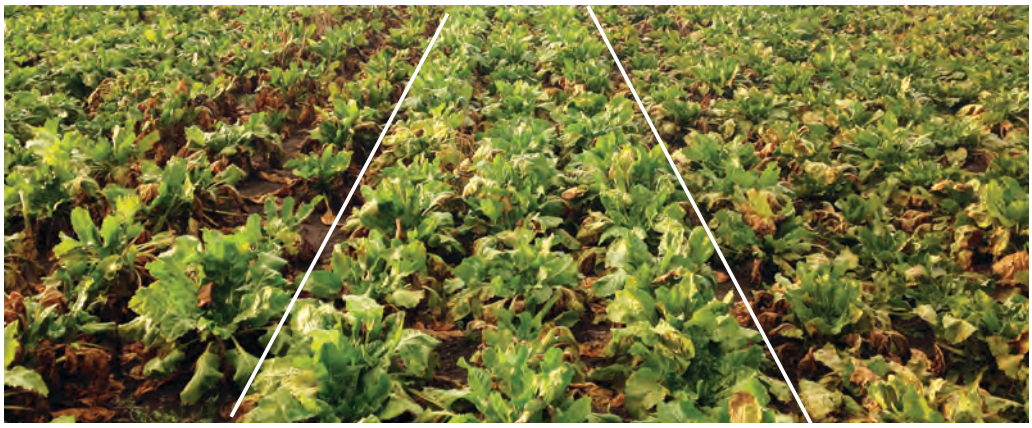
Robbos is an excellent performer with more leaf protein for a better balanced diet, coupled with consistent high DM yield.

Higher leaf protein

As fodder beet is so high in carbohydrate, *Robbos*' higher leaf protein, due to its excellent leaf quality, provides a better-balanced diet for animals.

Alternatively, this could be turned into a cost saving of around $1125/ha* by using a less expensive supplement when grazing *Robbos* crops.

Robbos leaf tested at 24.5% protein at the start of winter, versus *Feldherr, Brigadier, Monro* and *SF1505Bv* which averaged 21%.



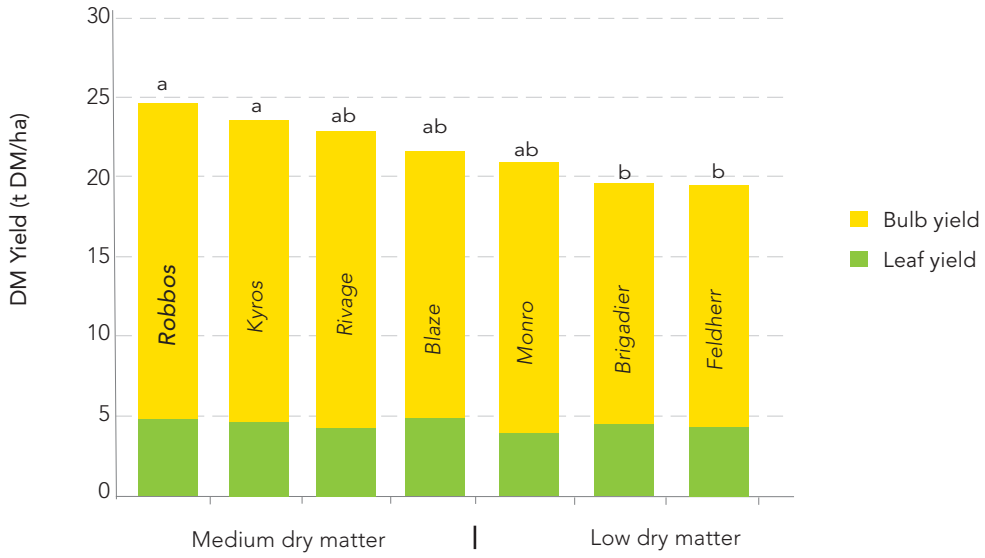
Robbos (middle 3 rows) showing excellent leaf holding ability versus Kyros (left) and Enermax (right) in Canterbury trial.

*(*Based on feeding 7.5 t DM/ha (3 kg DM/cow/day) good silage with 17% crude protein @ $0.40/kg DM, versus good hay with 15% crude protein @ $0.25/kg DM. We recommend feed testing crops & supplement before setting diet.)*

Very high DM yield

Of the grazing types, medium DM beets provide significantly more yield and stock carrying capacity than low DM beets. Among the medium DM cultivars *Robbos* has shown consistently high DM yield.

Fodder beet DM yields - medium and low dry matter (DM) cultivars



Combined analysis of 5 trials from 2014-2017, varieties in two or more trials are presented. Cultivars with the same statistical significance letter are not significantly different at the LSD 5% level.

Palatable

Robbos has relatively soft orange-yellow bulbs, which suit grazing by all stock types. Its high leaf quality can also help with transitioning animals onto beet.

Above ground %

Robbos bulbs typically sit 45-50% out of the ground, and their good palatability make them easy to graze. The high proportion of above ground DM ensures less soil ingestion and very high utilisation.

Bulb above ground %*

Cultivar	% of bulb above ground
Brigadier	53 a
Rivage	47 b
Blaze	46 bc
Robbos	**45 bc**
Kyros	44 bc
Enermax	41 c
Trial mean	44
LSD (5%)	5.2

**From 3 trials in Canterbury from 2008/09 to 2014/15. Cultivars were in at least two trials. Cultivars with the same statistical significance letter are not significantly different at the LSD 5% level.*

Robbos seed

Based on feedback, *Robbos* seed coating no longer has insecticide and comes in 90,000 seed boxes.

Using *Robbos*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Dairy	Precision sown						Extend lactation, start winter transition		Winter feed		Supplement spring pasture	
Sheep, beef & deer	Precision sown						High ME feed for liveweight gain or maintenance from autumn to spring					

Feeding method:	Multi-use. Typically grazed (can be lifted)
Typical yield:	18-24 t DM/ha average; > 25 t DM/ha with summer moisture*
Typical ME:	12-13 MJ/ME
Sowing rate:	90,000-100,000 seeds/ha

Hattrick greenfeed oats

Hattrick is an easy to manage winter crop. It is most often sown mixed with *Tabu+* Italian or *Hogan* annual ryegrass, to extend growth into spring.

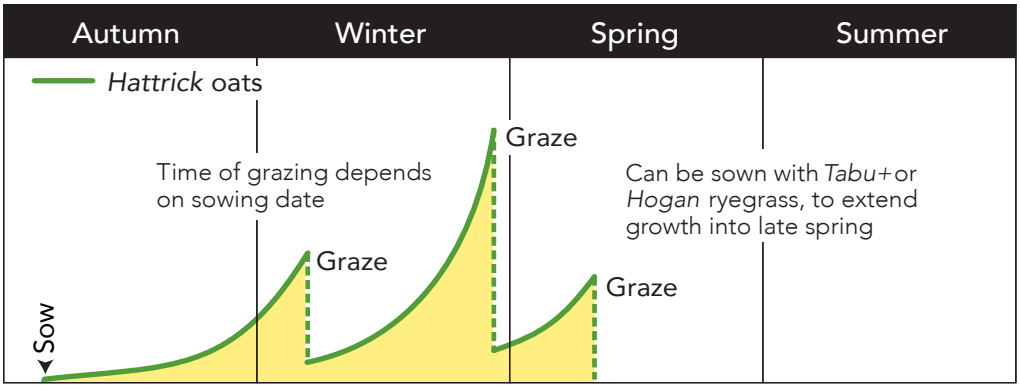
Help it thrive

Hattrick is leafy, high yielding, and more adapted to multiple grazings than some other oat cultivars. It can usually be grazed 2-3 times depending on management. For best regrowth graze at 30 cm height, leaving a 7-10 cm residual. Growth can be boosted by strategic use of nitrogen fertiliser, for example applying 30 kg N/ha after grazing.

Feed value

Leafy *Hattrick* oats have 80% digestibility (12 MJ ME/kg DM) and contain 13-15% protein. *Harrick* can be sown with *Laser* Persian clover to further improve spring feed value

Growth curve



Sow early

For maximum winter yield, sow *Hattrick* early (February/March). Protect from Argentine stem weevil with insecticide if needed.

Hattrick oats can be sown alone, but are most commonly sown with Italian or annual (e.g. *Tabu+* or *Hogan*). Mixing *Hattrick* with ryegrass gives you more bang for buck – better feed value, more growth through spring.

Environmental benefits

Sowing oats in late autumn (after feeding a crop) lightens your farm footprint. Soil nitrogen is taken up by the oats rather than being potentially lost via leaching. For best results, don't wait until a whole paddock has been grazed, but sow oats as soon as half the crop has been fed. Early sown oats grow faster and take up more nitrogen.

Sowing *Hattrick*

Dairy, Sheep, Beef, Deer		kg/ha
For a large bulk of winter feed	*Hattrick* oats	120
	Total	120
For extended feed into late spring	*Catch-crop+* *Hattrick* oat & *Tabu+* Italian ryegrass, see page 45 for more detail.	75
For increased late spring quality	*Hattrick* oats	80
	Laser Persian clover	8
	Total	88

Hattrick green feed oats are marketed by Barenbrug

Catch-crop+

This dual species catch-crop mix (*Tabu+* and *Hattrick* oats) takes up nitrogen and gives you more bang for buck than cereal alone. You get better quality feed, more flexibility and save on re-sowing costs because it is a 12-18 month pasture.

Why catch-crop?

Fast-growing species such as oats and Italian ryegrass quickly cover ground left bare after autumn or winter forage crops have been grazed. In doing so, they utilise soil nitrogen and other nutrients deposited during grazing and reduce leaching. They also protect soil quality. Benefits are both environmental, and economic, as *Catch-crop+* provides extra home grown feed.

Why oats + grass?

Our trials show *Catch-crop+* captures soil nitrogen very well, with the added gains of increased re-growth and feed quality. Rather than a 1-2 cut or graze system of straight oats, *Catch-crop+* is a high performance 12-18 month pasture, so you don't have to spend time and money resowing straight away. Yield at the first silage cut or grazing is like a straight cereal, but from the second grazing onwards, this mix has better ME and re-growth.

System fit

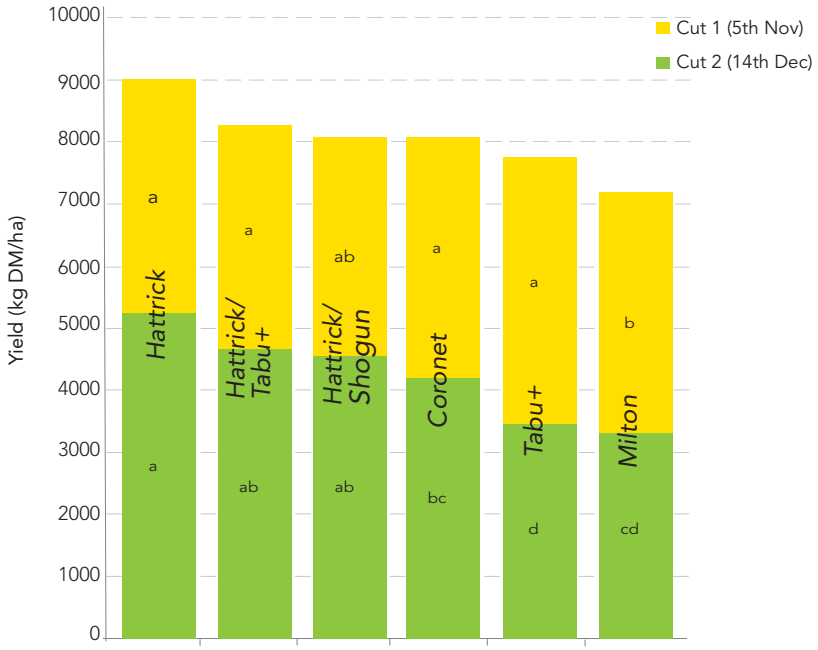
In summer-moist areas, sow *Catch-crop+* for a high yielding, high ME spring silage crop with multi-graze and/or multi-cut flexibility. Oversow *Agricote Clover* to improve feed quality and fix nitrogen.

In dryland areas, sow *Catch-crop+* for summer pasture (moisture dependent), with fast response to autumn rain for high quality winter feed.

What does the data say?

Hattrick oats outyield several other oat cultivars in the first cut. Mixing *Hattrick* with *Tabu+* Italian ryegrass doesn't significantly reduce yield at the first two cuts, and provides the flexibility of continued cutting/grazing for the next 12-18 months.

Total yield, split into first two harvests, of a late-winter/early-spring catch-crop*



** Trial sown 14 Aug 2020, with cut 1 on 5 Nov 2020 (at 83 days) and cut 2 on 14 Dec 2020 (at 122 days). Statistical significance letterings given on bars for LSD 5%, bars with the same letter are not significantly different.*

Sowing *Catch-crop+*

- Sow *Catch-crop+* at 75 kg/ha. It comes in 25 kg bags, containing 18 kg *Hattrick* and 7 kg *Tabu+*, for sowing at 3 bags/ha.

Seed treatment comparison

Summary

Seed treatment technology applies a protective coating to seeds before sowing. It reduces the risk of losing new pasture or crop at establishment. Barenbrug markets three *Agricote* seed treatments for grass, clover, and brassica.

Importance of seed treatment

By protecting newly-emerged seedlings from pests and disease, seed treatment helps prevent establishment failure. Such losses can be $3350/ha or more. Seed treatments can also reduce the need for spraying.

Grass seed treatments

Seed treatment	Insect protection			Fungal pathogens		Additives
	ASW	Black beetle	Grass grub	*Fusarium*	*Pythium*	Nutrient
Agricote Grass	✔	✔	✔	✔	✔	
Superstrike	✔	✔	✔	✔	✔	
Gaucho		✔	✔			
Poncho	✔	✔	✔			
Prillcote				✔	✔	Lime

Clover seed treatments

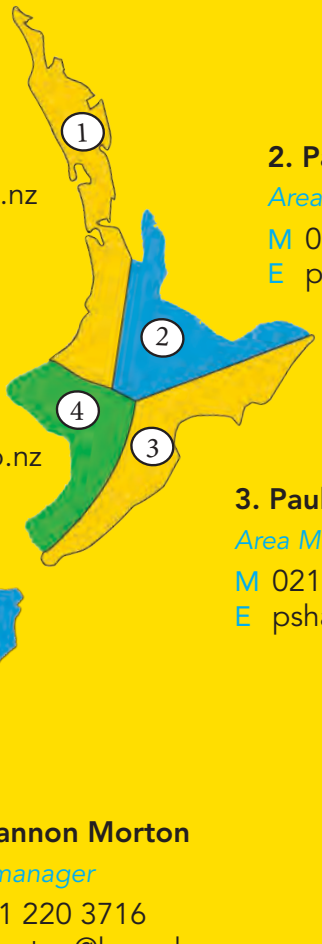
Seed treatment	Insect protection	Fungal pathogens			Additives			Weight build up
	Nematodes	*Fusarium*	*Pythium*	*Rhizoctonia*	*Rhizobia*	Nutrients		
Agricote Clover		✔	✔	✔		Lime, Mo	Phosphorous, nitrogen, zinc, manganese	75%
Superstrike	✔				✔ *	Lime, Mo		75%
Prillcote					✔ *	Lime, Mo		75%

* Presence of rhizobia after inoculation depends on many things and is not guaranteed.

Brassica seed treatments

Seed treatment	Insect protection				Fungal pathogens			Additives
	Spring-tails	ASW	Aphids	*Nysius*	*Fusarium*	*Pythium*	*Rhizoctonia*	Nutrient
Agricote Brassica	✔	✔	✔	✔	✔	✔	✔	Molybdenum
Superstrike	✔				✔	✔	✔	Molybdenum
Ultrastrike	✔	✔	✔	✔	✔	✔	✔	Molybdenum
Gaucho	✔	✔	✔	✔				Molybdenum

Contact our team



1. Julie Gaukrodger
Area Manager
M 021 775 387
E jgaukrodger@barenbrug.co.nz

2. Paul Hames
Area Manager
M 021 908 177
E phames@barenbrug.co.nz

4. Bruce Paterson
Area Manager
M 021 495 594
E bpaterson@barenbrug.co.nz

3. Paul Sharp
Area Manager
M 021 540 673
E psharp@barenbrug.co.nz

5. Craig Weir
Area manager
M 021 912 280
E cweir@barenbrug.co.nz

6. Shannon Morton
Area manager
M 021 220 3716
E smorton@barenbrug.co.nz

7. Jeremy Fraser
Area manager
M 021 948 154
E jfraser@barenbrug.co.nz

Mark Shand
Pasture Systems Manager
M 021 312 427
E mshand@barenbrug.co.nz

Graham Kerr
Pasture Systems Specialist
M 021 821 332
E gkerr@barenbrug.co.nz

Gemma Hansen *Agronomist*
Upper North Island
M 021 103 6810
E ghansen@barenbrug.co.nz

Jordan Shrimpton *Agronomist*
Upper South Island
M 021 312 764
E jshrimpton@barenbrug.co.nz

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