




**BARENBRUG**  
**agriseeds**

# **THE NATURAL ADVANTAGE**

*Sustainable, profitable pasture.*

**SEED OPTIONS  
AUTUMN  
2020**



***“GRAZING PASTURE IS NATURAL – ANIMALS  
HAVE DONE IT FOR MILLIONS OF YEARS. AND  
WHILE ARTIFICIALLY ‘BUILT’ FOODS COME AND  
GO, NATURAL FOOD WILL ALWAYS BE THE MOST  
SOUGHT-AFTER.”***

Grazing comes naturally to cows – after all, they’ve done it for thousands of years. Our systems have evolved to maximise this natural advantage, and are continuing to evolve as consumers and society set new benchmarks and expectations.

We’re often asked: Can we keep our low-cost base, maintain or increase profitability and still reduce our environmental footprint, using pasture? We believe the answer is most definitely yes. You’ll find out why we are so positive about this – and how to use our products to help achieve it – in this booklet.

# MANAGE & MITIGATE

Every farm is unique, and that means every N loss mitigation plan is unique, too. Strategies that work for your system may not work for your neighbour, and vice versa. When it comes to pastures, however, science has shown us even small changes can make a big difference.

- **Grow in winter.** The wet winter-spring period is the main risk time for N leaching, so the more winter growth in your system, the more soil N you take up. Modern plant breeding has helped greatly in this - today's perennial ryegrasses grow 20-30% more winter DM than their 20-year-old predecessors. If you really want to soak up even more N in winter, sow the highest yielding Italian ryegrass.

- **Graze higher.** When ryegrass tillers have 3 leaves, water soluble carbohydrate goes up and protein (i.e. N) goes down. Grazing at 3 leaf stage means less N comes out of your cows. Mixed diploid/tetraploid pastures are easiest to manage this way.



High yielding Italian soaks up N.



Cool season plantain reduces N leaching.

- **Min till.** It means more careful weed and pest control, but establishing new pasture (and crops) through minimum tillage releases less N than cultivation. Long term it is better for your soil structure too.

- **Mix it up.** Deep rooted plantain is known to mitigate N leaching. Cool-season active plantain is even better – more growth when the risk of N loss is highest and more feed when you need it most.

• **Break later.** Use 24 hour grazing to give the cows a new paddock in the afternoon. Ryegrass carbohydrate levels are highest and protein levels are lowest in the late afternoon, so there's less N going in to the cows. 24 hour grazing has no effect on cow production over 12 hour grazing (and is easier with half as many stock shifting decisions too!)



24 hour grazing's better for the environment.

• **Fix for free.** Legume-rich pastures need less artificial N fertiliser. Use high performance red and white clovers, as they fix 25-30 kg atmospheric N/ha for every tonne of DM grown. Annual clovers (such as Persian or balansa) can be added to improve early spring growth.

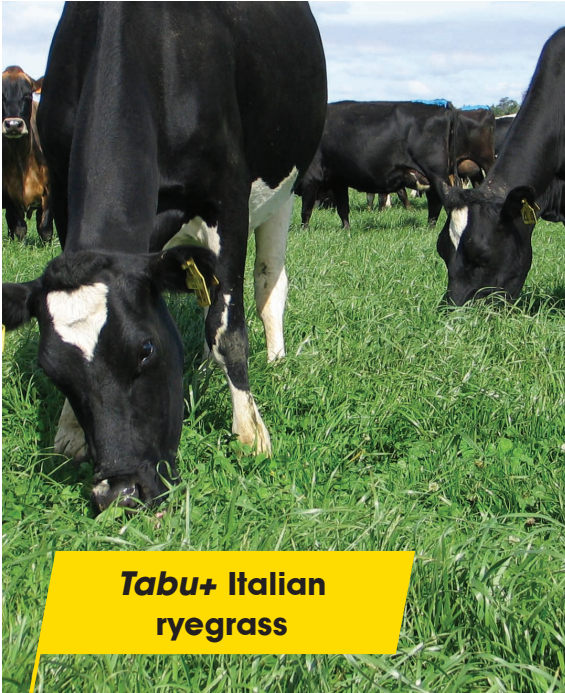


Clover fixes 25-30 kg N per tonne DM.

• **Utilise more.** Raising per cow intake and MS production with pasture containing tetraploid ryegrass (most often a tetraploid/diploid mix) and optimal grazing management can give the same total MS yield from fewer cows. This means more feed going into milk, less into cow maintenance, and a lighter environmental footprint. An added benefit is that fewer heifers are needed.

# PASTURES FIT FOR PURPOSE

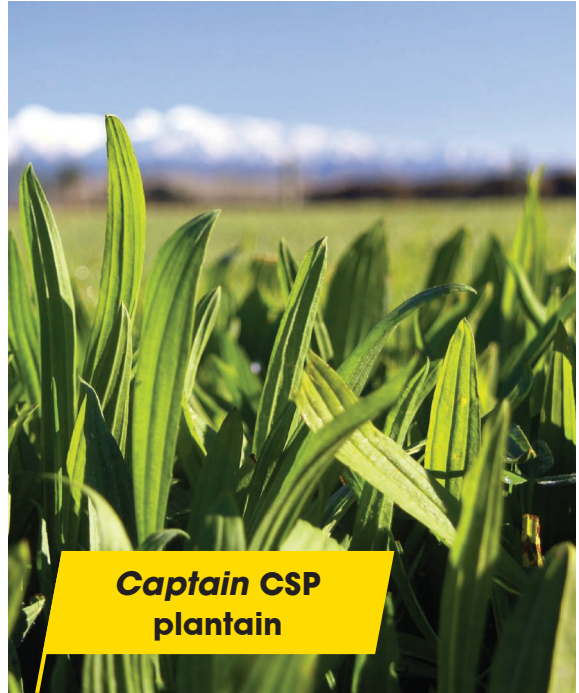
Our most recent cultivars are purpose-bred for new and emerging pasture systems that balance productivity with sustainability.



**Tabu+ Italian  
ryegrass**

*More winter growth = more N capture. Tabu+ is the only 5 Star cultivar in DairyNZ FVI Winter Feed list.*

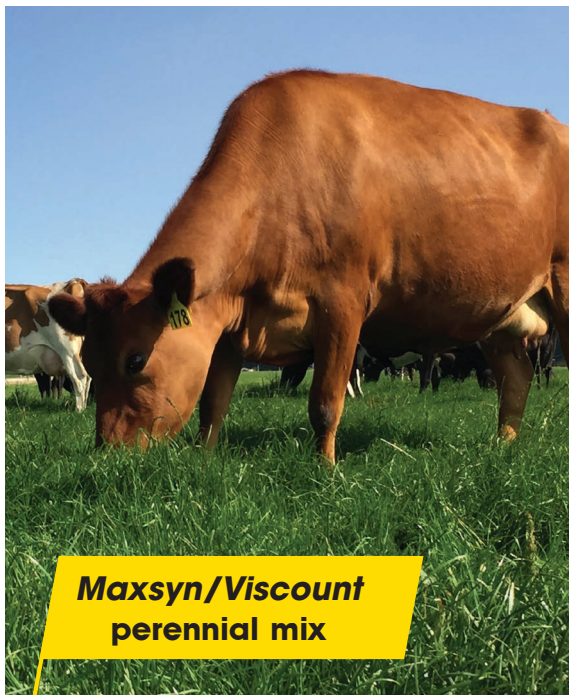
The more winter growth in your system, the more N you capture before it leaves the soil. *Tabu+* hits its peak when the risk of N leaching is highest, typically from May to August. Its super-fast cool season growth pulls up more N than slow growing plants. As the only 5 Star cultivar in the DairyNZ FVI Winter Feed category, *Tabu+* is in a class of its own.



**Captain CSP  
plantain**

*We bred this cool season plantain for when most N is lost, through winter.*

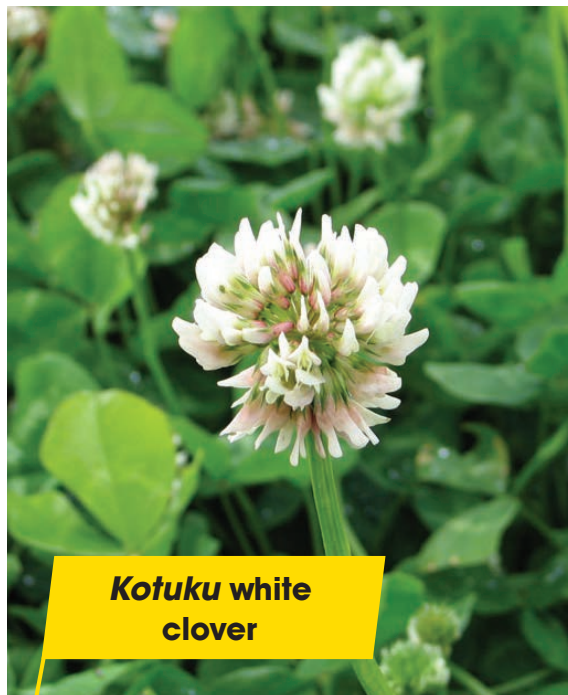
*Captain CSP* (cool season plantain) was bred for high cool season growth, providing more kg DM/ha when feed is needed most, and utilising soil N in winter, the highest risk time for N leaching. Deep and extensively rooted, it's high in minerals, with good yield and ME through summer. *Captain CSP* suits all dairy farms.



**Maxsyn/Viscount  
perennial mix**

*High palatability = higher pre-grazing covers, reducing cow N intake.*

Maxsyn is a great perennial ryegrass, but when you add tetraploid Viscount, palatability lifts, and you can run higher pre-grazing covers. This reduces N leaching, because tillers with 3 leaves contain less crude protein than those with 2. This mix can also raise cow intakes, allowing you to reduce stocking rate, with associated environmental benefits.



**Kotuku white  
clover**

*More efficient N fertiliser use means greater reliance on legumes, and Kotuku is a star performer.*

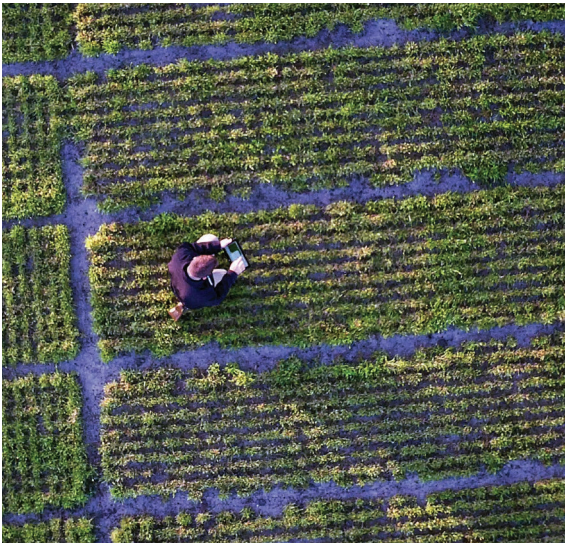
Kotuku is a new high performance, large leaved white clover for dairy and heifer systems. It is very high yielding, with superior summer growth which means greater N fixation into pastures. It also has good persistence, and is an important source of ME. Per kg DM white clover produces 30% more milksolids than grass.

# FUTURE PROOFING

It's an exciting time to be a plant breeder. Our team is using new techniques to develop pastures that will fuel NZ's farm systems through to 2030 and beyond. But we're also sticking to tried and true processes that have served us well for many years.

• **Pressure testing.** Every year we cross different lines of ryegrass to create hundreds of potential new pasture cultivars. People often assume we look after these in the field. We don't. Second generation crosses are planted close together, grazed and left to fend for themselves with minimal inputs.

We don't water unless absolutely necessary. And critically, N fertiliser is applied at minimal levels. Only plants that thrive under this stress go through to the next stage of development. All plants look great when the conditions are good - we breed for when the pressure is on so they can handle what they may need to on-farm.



• **DNA markers.** Genomic selection tools have already improved dairy breeding in NZ. Now the same technology is being introduced to plant breeding. Using genomics for more efficient plant selection is expected to accelerate the current rate of genetic gain in ryegrass DM yield, from about 0.7% per year to 2%. And increased confidence provided by genomics could eliminate some of the many cross-breeding and selection cycles currently required to achieve improved plant performance, allowing us to bring new cultivars to market sooner.

• **More for less H<sub>2</sub>O.** Research is showing large variations in water use efficiency between ryegrass plants. Some simply grow more DM, using less water to do it. These elite plants are coming through the Barenbrug Agriseeds breeding programme with the goal of helping farm systems become more efficient, and enabling them to grow more during periods of moisture stress.



• **Lower protein, reduced N loss.** Genomic selection allows us to economically assess large numbers of plants for traits that previously have been cost prohibitive to identify. Plants which contain lower crude protein (CP) and have a better improved protein:carbohydrate balance, are a



great example. While CP feed requirements are typically >18% for lactating animals, >15% for growing animals or >12% for maintenance fed animals, for most of the year NZ pastures often contain well over 20%. The N in this excess CP (above animal requirements) can be excreted in urine, into concentrated patches on the soil, which increases the risk of N leaching. More balanced pasture, with lower CP, will better match stock requirements, and reduce the amount of excess CP and N in our farm systems.



# FUTURE RYEGRASSES

There is no one perfect ryegrass. Picking the right cultivars is about finding the best fit for your farm system, balancing fast growth with robustness.



*The 2-3 year hybrid, with amazing yield and palatability.*

*Shogun* tetraploid hybrid provides top productivity for a 2-3 year pasture. Very fast establishing it's ideal for min till options, e.g. undersowing or spray drilling. NZ's top selling hybrid ryegrass, *Shogun* has outstanding year-round yield, and is available with *NEA* endophyte. See page 15 for seed mixes.



*Turn your cows into pigs – the very palatable grass animals love to graze.*

*Viscount* is a top performing tetraploid perennial ryegrass, improving cow intakes and residual management. If straight tetraploids aren't for you, mix *Viscount* with *Maxsyn* for a near perfect balance of yield and palatability. Available with *NEA4* endophyte. See page 14 for seed mixes.



*Next Gen perennial ryegrass – persistent, robust, densely tillered, with the highest yield.*

*Maxsyn sets a new standard – persistent; densely tillered; with the highest total DM yield we've seen in a perennial that we have released. Superior summer and autumn growth and tillering helps it persist through summer-dry conditions. Feed quality is high; rust resistance is very good. Available with NEA4 endophyte. See page 14 for seed mixes.*

*Dense, reliable, tough all-rounder bred to provide persistence.*

*Governor is a very persistent perennial ryegrass, finer and denser than Trojan. Outstanding survival and excellent yield on the shoulders of the season in spring and autumn. Late heading, and available with AR37 or AR1 endophyte options. See page 15 for seed mixes.*

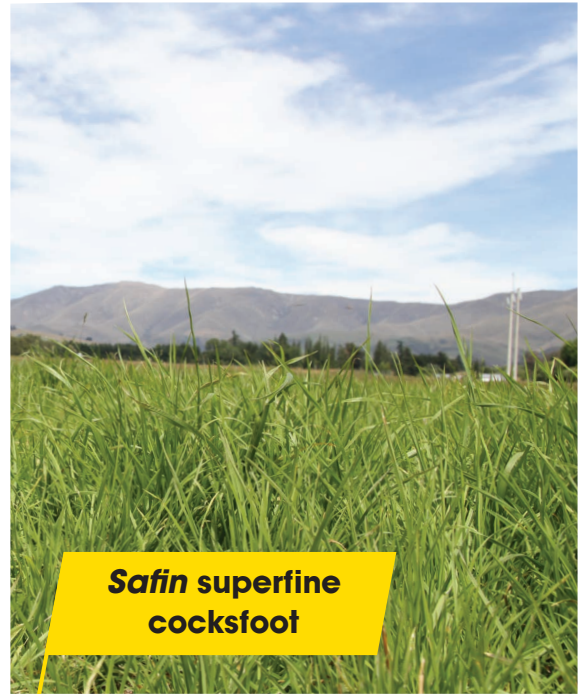
# SOWING OTHER OPTIONS

Other recent cultivars that can be used in new and emerging farm systems. Legumes will be particularly important in these systems.



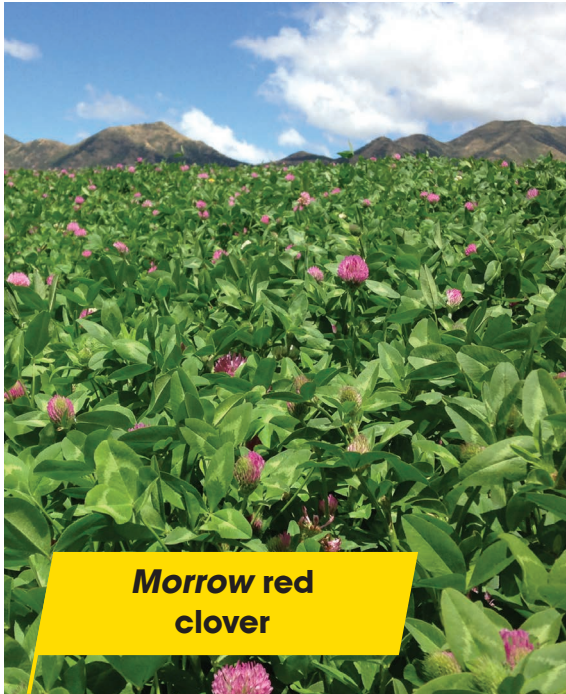
*Proven performance - unmatched in the Forage Value Index.*

*Trojan* has now achieved the top rating for diploid perennial ryegrass in DairyNZ's FVI for 5 years running – a unmatched feat. It provides very high DM yield across all seasons and very good persistence, with *NEA2* endophyte for good animal health and insect control. See page 14 for seed mixes.



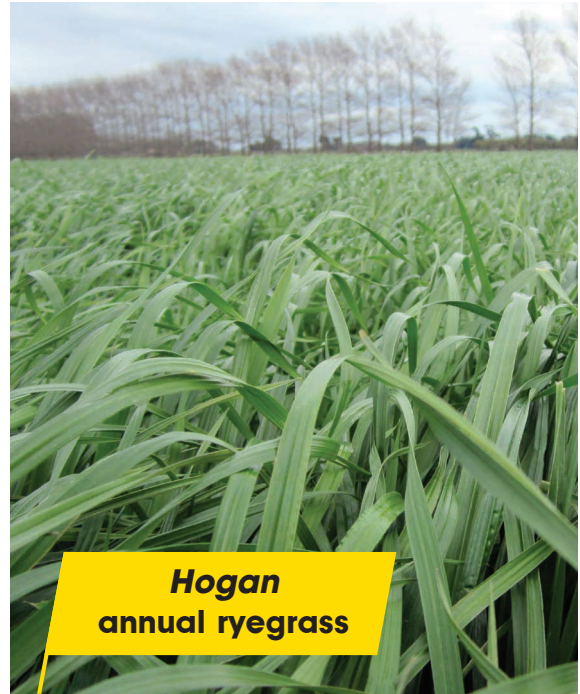
*Innovative superfine cocksfoot.*

*Safin* is changing the way farmers use cocksfoot. Traditional cultivars are known for becoming clumpy and unpalatable. *Safin* is almost as fine as ryegrass, an exciting development. *Safin* is very persistent in summer dry situations. See page 15 for seed mixes.



*Multi-stemmed red clover with better grazing tolerance.*

Resistant to clover root weevil, *Morrow* offers outstanding feed quality from late spring through autumn, particularly in dry conditions, thanks to its deep tap root. While *Morrow* has improved persistence, it lasts best under longer summer grazing rounds. See page 15 and 16 for seed mixes.



*Sets the standard for annual ryegrass.*

*Hogan* is ideal for a 6-8 month winter crop. Establishes very fast and out-yields *Tama* by 1 t DM/ha. *Hogan's* extra DM is valued by the 2019 DairyNZ Forage Value Index at \$380/ha extra profit, i.e. a 10 fold return on the extra \$35-\$45/ha it costs to sow *Hogan* over *Tama*. See page 16 for seed mixes.

# PASTURE MIX OPTIONS

Pasture, like farming, is ever evolving. Below we have listed some pasture mixes for different systems, along with additional pasture options that can lift their value, both financially through increased yield and quality, and environmentally.

STANDARD

## Perennial ryegrass - Proven high performance

### Standard mix

Cultivars	kg/ha
<i>Trojan</i> perennial ryegrass	20-22
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<b>Total</b>	<b>24-26</b>

- *Trojan* with top performance in DairyNZ FVI for 5 years running
- Robust pasture for high MS production
- *NEA2* endophyte ryegrass to maximise animal performance

## Perennial ryegrass - Next generation performance

### Standard mix

Cultivars	kg/ha
<i>Maxsyn</i> perennial ryegrass	20-22
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<b>Total</b>	<b>24-26</b>

- *Maxsyn* for persistent, robust, densely tillered pasture, & the highest total DM yield we've seen
- *NEA4* endophyte ryegrass to maximise animal performance

ENHANCED

### Enhanced mix

Cultivars	kg/ha
<i>Trojan</i> perennial ryegrass	10
<i>Viscount</i> perennial ryegrass	15
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<i>Captain CSP</i> plantain	2
<b>Total</b>	<b>31</b>

- *Viscount* improves palatability, for easier grazing
- Diploid: tetraploid ryegrass combination more robust than pure tetraploid
- *Captain* reduces N leaching & increases mineral content

### Enhanced mix

Cultivars	kg/ha
<i>Maxsyn</i> perennial ryegrass	20
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<i>Captain CSP</i> plantain	2
<b>Total</b>	<b>26</b>

- *Captain* reduces N leaching & increases mineral content

## Perennial ryegrass - Persistent all-rounder

### Standard mix

Cultivars	kg/ha
<i>Governor</i> perennial ryegrass	18-22
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<b>Total</b>	<b>22-26</b>

- *Governor* for densely tillered, very persistent pasture
- High ground cover gives an advantage against pests & treading damage
- *AR37* or *AR1* endophyte options

## Hybrid ryegrass - Exceptional 2-3 year pasture

### Standard mix

Cultivars	kg/ha
<i>Shogun</i> hybrid ryegrass	30
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<b>Total</b>	<b>34</b>

- Extremely high yield & ME across all seasons
- *NEA* endophyte ryegrass to maximise animal performance

### Enhanced mix

Cultivars	kg/ha
<i>Governor</i> perennial ryegrass	18-20
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<i>Safin</i> superfine cocksfoot	4-6
<b>Total</b>	<b>26-30</b>

- *Safin* provides extra tolerance of pests and drought
- *Safin* is easier to graze & more clover-friendly than traditional cocksfoot

### Enhanced mix

Cultivars	kg/ha
<i>Shogun</i> hybrid ryegrass	28
<i>Kotuku</i> white clover	2
<i>Weka</i> white clover	2
<i>Morrow MS</i> red clover (coated)	6
<b>Total</b>	<b>38</b>

- *Morrow* adds feed quality late spring to autumn
- Extra N fixation from all clovers

## Italian ryegrass - High performance 12-18 month pasture

### Standard mix

Cultivars	kg/ha
<i>Tabu</i> + Italian ryegrass	20
<b>Total</b>	<b>20</b>

- Very fast establishing, with rapid regrowth
- *Tabu*+ top rated winter feed in DairyNZ Forage Value Index

## Annual ryegrass - 6-8 month crop

### Standard mix

Cultivars	kg/ha
<i>Hogan</i> perennial ryegrass	30
<b>Total</b>	<b>30</b>

- Fast establishing tetraploid annual, with fast regrowth

### Enhanced mix

Cultivars	kg/ha
<i>Tabu</i> + Italian ryegrass	20
<i>Morrow MS</i> red clover (coated)	6
<i>Laser</i> Persian clover	4
<b>Total</b>	<b>30</b>

- *Morrow* adds late spring to autumn feed quality
- *Laser* provides extra cool season clover in first 8 months

### Enhanced mix

Cultivars	kg/ha
<i>Hogan</i> annual ryegrass	25
<i>Laser</i> Persian clover	4
<i>Vista</i> balansa clover	4
<b>Total</b>	<b>33</b>

- *Laser* & *Vista* provide extra cool season clover growth & N fixation
- Higher forage quality mid-late spring

