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Plant for Success

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# Nutritious pasture that enables livestock to thrive

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Aber HSG

Revised September 2025

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# Aber High Sugar Grass that’s bred to perform

Pictured: AberGreen AR1

# Contents



# Reference Guide

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# Benefits of Aber High Sugar Grass

All farmers want their stock to thrive. Fundamental to that is palatable and nutritious pasture that can recover strongly between grazings, persist well, tolerate heavy traffic when wet underfoot and lift animal production.

**Aber High Sugar Grasses (HSG) have been developed to consistently offer:**

- ✓ Improved digestibility
- ✓ Better nutrition
- ✓ Greater animal productivity
- ✓ Enduring persistence
- ✓ Environmental benefits

**Benefits of Aber High Sugar Grass over standard ryegrass:**

- ✓ 5% gain in digestibility3
- ✓ An extra 1.4L of milk per day4
- ✓ 100g extra of liveweight per lamp per day4
- ✓ 200g extra liveweight per cow per day4

Aber HSG

# Improved digestibility

IMPROVED DIGESTIBILITY

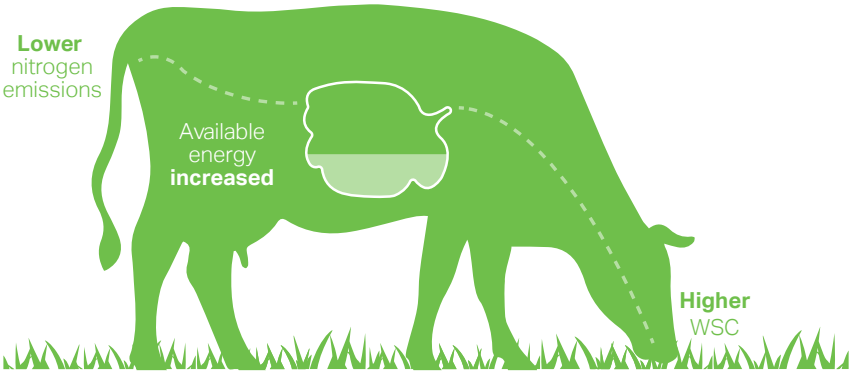
## Aber HSG varieties are more digestible because they contain lower levels of fibre and more water-soluble carbohydrates (WSC)[1].

Digestibility is a measure of how much of the feed eaten can be used by the animal for metabolic functions, including maintenance, growth, milk production and reproduction. Digestibility is measured in the laboratory using synthetic enzymes, which simulate the digestion process that occurs within an animal. The results are used to estimate the Digestible Organic Matter in the Drymatter % (DOMD) which is commonly referred to as digestibility. Higher digestibility values are beneficial because they drive higher feed energy values and higher intakes.

Metabolisable Energy (ME) is the amount of energy an animal can derive from a feed. It is measured in megajoules of energy per kilogram of forage drymatter (MJ/kgDM). There is a direct relationship between digestibility and metabolisable energy. One percentage increase in digestibility (DOMD) equates to an additional 0.15 MJ/kgDM of ME[2].

The perennial diploid AberGreen has been shown to have a digestibility of 5.5%, higher than another commercially available perennial ryegrass[3]. This difference is calculated to produce an extra 1.4 –1.5 litres of milk per day from a dairy cow[4].

**Aber HSG** helps capture **more plant protein** in the rumen



Aber HSG

# Greater animal productivity

**GREATER ANIMAL PRODUCTIVITY**

## Farmers have seen Aber HSG pasture grazed 'like a mower', the lambs stay clean and the bulls are more content.

An AgResearch trial showed cows fed Aber HSG produced 10% more autumn milksolids than cows fed a standard ryegrass[6]. Lambs grazing Aber HSG in a New Zealand trial finished 17% faster and 19% heavier than lambs grazing a standard NZ perennial ryegrass[7].

**Why the increase in production?**

- Aber HSG's improved digestibility increases the supply of readily available energy to assist in building more microbial protein in the rumen
- Aber HSG's enhanced palatability encourages increased intake of dry matter

Scientists calculate a digestibility gain of 1% enables a dairy cow to produce an extra 0.28 litres per day, a beef animal to produce an extra 40 grams of meat per day and a lamb to gain an extra 20 grams of meat per day[4]. AberGreen, being 5.5% higher in digestibility when compared with a standard ryegrass[3], offer the potential for dairy cows, beef cattle and lambs to significantly increase milk or meat production.

# Better nutrition

**BETTER NUTRITION**

## Aber HSG varieties are bred to produce more water-soluble carbohydrates (WSC) or sugar energy – delivering up to 17% more WSC than a standard diploid perennial ryegrass[5].

Aber HSG

# Enduring persistence

ENDURING PERSISTENCE

## Pasture persistence is absolutely essential but is the easiest trait to lose when plant breeders strive to improve a plant's forage value.

Aber HSG plant breeders are well aware of this and make strong and dense root and tiller growth a priority.

A trial near Ashburton conducted by Plant Research (NZ) Ltd showed AberGreen outperformed a popular standard variety for yield in that trial's third and final year, when yields commonly start to diminish3.

Aber HSG pastures are reported to persist and perform on farms throughout New Zealand for over ten years, providing good ground cover and quicker recovery after grazing and dry spells.

# Environmental benefits

ENVIRONMENTAL BENEFITS

## Cattle, sheep and deer are poor converters of herbage protein, using only 20% for production with the rest wasted in faeces and urine.

The high level of WSC in Aber HSG varieties provides a more readily fermentable energy. Research at IBERS shows this increases the capture of rumen degradable protein into microbial protein and reduces the amount of N lost in urine[8].

New Zealand research shows rumen ammonia to be significantly lower in cows grazing Aber HSG[9]. The improved use of ruminal protein suggested by this data could provide environmental advantages in reducing nitrogen excretion[9].

The release of methane gas from sheep and cattle amounts to almost one third of New Zealand's greenhouse gas emissions, and it is the largest contributor. Methane also accounts for over 40% of all emissions in terms of global warming potential. The extra water-soluble sugars in Aber HSG can change rumen fermentation patterns, reducing methane emissions. An AgResearch trial showed 9% lower methane emissions from sheep fed AberMagic compared with a conventional diploid variety[5].

AberGreen

# AberGreen AR1

## AberGreen is a deep rooting ryegrass with very fine and dense tillers, making it a robust plant under all farm types.

AberGreen is the first perennial ryegrass to offer the closest to optimum energy:protein ratio.

Quality of grass is just as important as total yield. A digestibility gain of 1% can improve animal performance by up to 5%. Animals have a higher voluntary intake with high digestibility and can absorb more energy from the feed, meaning animals fed good quality grass will yield more. An increase of 1% in digestibility has been measured to increase grass dry matter intake by 0.2 kg per cow per day. AberGreen is 5.5% higher in digestibility when compared to a standard ryegrass.

- Vigorous ground cover
- Optimum energy-to-protein balance
- Excellent digestibility under grazing and silage management
- Bred for enduring persistence
- Superior late spring yields

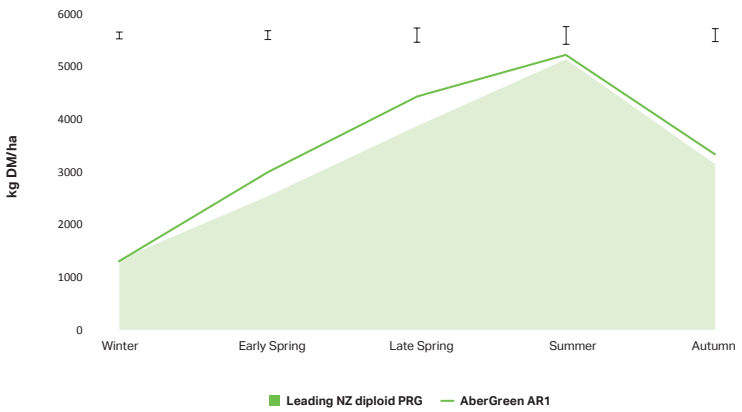
| | |
|---|---|
| Type | Perennial Ryegrass |
| Ploidy | Diploid |
| Sowing Rate | 20 - 25Kg/ha |
| Heading Date | Late +17 days |
| Endophyte | AR1 |

AberGreen

Standard NZ Ryegrass

The increased tiller density of AberGreen (left) compared with a standard NZ ryegrass (right), provides superior ground cover, meaning less room for weeds, greater tolerance to puggingand more light captured for grass growth.

### Seasonal growth curve (kg DM/ha) of AberGreen AR1 perennial ryegrass compared with a leading NZ diploid ryegrass*




*Data taken from combined perennial ryegrass trials (partially irrigated) in Canterbury, New Zealand. Error bars show the LSD value when significant differences occurred (P<0.05).



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# Nutritive value data

## Table 1.

Water-soluble carbohydrate concentration (% DM) of perennial ryegrass cultivars in year one of a Waikato NFVT trial (N215WAI).

*Note: this trial included a total of 31 cultivars on which the statistical analysis was conducted, however six non-commercial lines have been removed from this presentation as requested by the NZPBRA.*

| Entry | Winter | | Early Spring | | Late Spring | | Summer | | Autumn | | Year | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AberGreen AR1** | **28.8** | **ch** | **31.4** | **ab** | **20.7** | **ab** | **20.4** | **a** | **18.1** | **a** | **23.1** | **a** |
| **AberMagic AR1** | **31.8** | **a** | **30.8** | **ae** | **21.7** | **a** | **18.4** | **b** | **16.4** | **b** | **22.7** | **ab** |
| Bealey NEA2 | 31.6 | ab | 32.0 | a | 18.9 | bi | 16.3 | df | 16.1 | bc | 21.9 | bc |
| Jeta AR1 | 29.3 | cf | 31.2 | ac | 20.6 | ac | 16.6 | ce | 15.8 | bd | 21.6 | cd |
| Platform AR37 | 29.7 | ac | 29.6 | bh | 19.9 | ad | 17.0 | cd | 14.6 | eh | 21.1 | ce |
| Viscount NEA4 | 29.3 | cf | 30.6 | af | 19.0 | bh | 15.2 | fk | 15.3 | be | 20.8 | df |
| Base AR37 | 29.4 | ce | 30.6 | af | 19.6 | bf | 15.3 | ek | 14.6 | ei | 20.7 | df |
| Hustle AR1 | 27.9 | ck | 30.0 | ah | 19.2 | bg | 16.0 | dh | 15.2 | cf | 20.7 | eg |
| Trojan NEA2 | 29.0 | cg | 29.0 | ci | 18.7 | cj | 16.2 | dg | 14.8 | dg | 20.5 | eh |
| Stellar AR1 | 25.9 | kn | 27.9 | hj | 18.8 | bi | 17.8 | bc | 15.5 | be | 20.4 | eh |
| Halo AR37 | 28.4 | ci | 30.1 | ah | 18.4 | dn | 15.5 | ej | 14.7 | eh | 20.4 | ei |
| Alto AR37 | 27.8 | ck | 30.2 | ag | 19.8 | be | 15.5 | ej | 13.9 | gl | 20.3 | ei |
| Ansa AR1 | 29.7 | cd | 29.2 | dh | 18.6 | dk | 15.2 | fl | 14.2 | gj | 20.3 | fj |
| 24Seven Happe | 29.5 | be | 30.2 | ag | 16.9 | jn | 14.5 | im | 13.5 | in | 19.8 | gl |
| Prospect AR37 | 27.6 | el | 28.5 | fj | 19.3 | bg | 15.4 | ej | 13.5 | io | 19.8 | gl |
| Expo AR37 | 26.5 | in | 28.5 | fj | 18.5 | dl | 15.7 | di | 14.1 | fk | 19.7 | gm |
| Bronsyn SE | 27.0 | gm | 29.9 | ah | 18.5 | dl | 15.0 | gm | 13.2 | jo | 19.6 | hm |
| Matrix SE | 26.9 | hm | 29.6 | bh | 18.7 | cj | 15.1 | fm | 12.7 | mo | 19.5 | im |
| Request AR37 | 26.1 | kn | 28.6 | ej | 18.4 | dm | 15.2 | fm | 13.3 | jo | 19.3 | kn |
| One50 AR37 | 27.3 | fm | 29.0 | di | 16.8 | ln | 14.9 | gm | 13.4 | jo | 19.2 | kn |
| Rely AR37 | 27.0 | gm | 28.5 | fj | 16.6 | mn | 14.8 | hm | 13.6 | hm | 19.1 | kn |
| Excess AR37 | 26.0 | kn | 28.3 | gj | 17.8 | fn | 14.9 | gm | 13.1 | ko | 19.0 | ln |
| Moxie AR1 | 25.4 | mo | 27.2 | ik | 17.2 | hn | 14.9 | gm | 13.6 | hm | 18.8 | mo |
| Bronte Happe | 25.6 | lo | 27.2 | ik | 17.6 | gn | 14.0 | km | 12.5 | no | 18.3 | no |
| Ultra AR1 | 23.5 | o | 25.5 | k | 16.9 | jn | 14.7 | hm | 12.9 | lo | 17.9 | o |

| | | | | | | |
|---|---|---|---|---|---|---|
| F Test | *** | *** | *** | *** | *** | *** |
| CV% | 5.4 | 5.4 | 7.3 | 6 | 5.7 | 3.4 |
| LSD 5% level | 2.1 | 2.2 | 1.9 | 1.3 | 1.1 | 0.9 |
| Trial Mean (kgDM/ha) | 27.7 | 29.2 | 18.4 | 15.6 | 14.2 | 20 |

## Table 2.

Metabolisable energy concentration (MJME/kg DM) of perennial ryegrass cultivars in year one of a Waikato NFVT trial (N215WAI).

*Note: this trial included a total of 31 cultivars on which the statistical analysis was conducted, however six non-commercial lines have been removed from this presentation as requested by the NZPBRA.*

| Entry | Winter | | Early Spring | | Late Spring | | Summer | | Autumn | | Year | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bealey NEA2 | 13.3 | a | 13.4 | a | 12.3 | bc | 12.0 | bc | 12.5 | ac | 12.6 | a |
| **AberGreen AR1** | **12.6** | **bi** | **13.2** | **bd** | **12.3** | **bc** | **12.4** | **a** | **12.6** | **ab** | **12.6** | **ab** |
| **AberMagic AR1** | **12.4** | **di** | **13.1** | **bf** | **12.5** | **a** | **12.3** | **a** | **12.6** | **a** | **12.6** | **ac** |
| Jeta AR1 | 13.2 | ab | 13.2 | ab | 12.3 | bc | 11.9 | ej | 12.4 | cd | 12.5 | ad |
| Halo AR37 | 12.8 | ag | 13.2 | bd | 12.3 | bd | 11.9 | cf | 12.4 | bd | 12.5 | bd |
| Platform AR37 | 13.0 | ad | 13.1 | bf | 12.2 | bf | 12.0 | ce | 12.3 | fk | 12.4 | ce |
| Base AR37 | 12.9 | af | 13.2 | ab | 12.2 | bf | 11.9 | cg | 12.3 | ei | 12.4 | ce |
| Viscount NEA4 | 12.6 | bi | 13.1 | bf | 12.3 | b | 12.0 | ce | 12.4 | df | 12.4 | df |
| Matrix SE | 12.7 | ag | 13.1 | be | 12.3 | bc | 11.9 | cf | 12.2 | hl | 12.4 | dg |
| Stellar AR1 | 12.5 | bi | 12.9 | ek | 12.1 | el | 12.1 | b | 12.4 | ce | 12.4 | dg |
| Ansa AR1 | 12.7 | bh | 13.0 | ci | 12.2 | di | 11.8 | fj | 12.3 | fi | 12.3 | eh |
| Alto AR37 | 12.7 | ag | 13.1 | bg | 12.1 | el | 11.8 | fk | 12.2 | in | 12.3 | ei |
| Trojan NEA2 | 12.8 | ag | 13.0 | ek | 12.1 | el | 11.7 | hn | 12.2 | fk | 12.3 | ej |
| 24Seven Happe | 12.5 | ci | 13.1 | bh | 12.1 | dj | 11.8 | hm | 12.2 | in | 12.3 | hl |
| Prospect AR37 | 12.5 | bi | 13.0 | ek | 12.2 | ch | 11.7 | lo | 12.2 | gk | 12.3 | hm |
| Expo AR37 | 12.2 | gj | 12.9 | hl | 12.2 | bf | 11.9 | cg | 12.2 | hm | 12.2 | hm |
| Request AR37 | 12.6 | bi | 12.9 | hl | 12.1 | el | 11.8 | gl | 12.1 | mo | 12.2 | im |
| Ultra AR1 | 12.4 | di | 12.7 | l | 12.2 | cg | 11.8 | hm | 12.2 | ko | 12.2 | in |
| One50 AR37 | 12.7 | ag | 13.0 | dj | 11.8 | m | 11.6 | no | 12.1 | lo | 12.2 | in |
| Hustle AR1 | 12.3 | ei | 12.8 | jl | 12.1 | fl | 11.8 | hn | 12.2 | im | 12.2 | in |
| Excess AR37 | 12.3 | di | 12.9 | hl | 12.2 | cg | 11.7 | io | 12.1 | mo | 12.2 | jn |
| Bronte Happe | 12.2 | gj | 12.8 | kl | 12.1 | dk | 11.8 | fk | 12.2 | jn | 12.2 | jn |
| Rely AR37 | 12.6 | bi | 12.9 | gl | 11.9 | m | 11.7 | ho | 12.1 | no | 12.2 | jn |
| Moxie AR1 | 12.7 | bi | 12.8 | kl | 11.9 | m | 11.6 | o | 12.0 | op | 12.1 | mn |
| Bronsyn SE | 12.2 | fj | 12.8 | jl | 12.0 | km | 11.6 | mo | 11.9 | p | 12.1 | n |

| | | | | | | |
|---|---|---|---|---|---|---|
| F Test | *** | *** | *** | *** | *** | *** |
| CV% | 3.7 | 1.1 | 1 | 0.9 | 0.7 | 0.8 |
| LSD 5% level | 0.6 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| Trial Mean (kgDM/ha) | 12.6 | 13 | 12.1 | 11.9 | 12.3 | 12.3 |

# AberGain AR1

## AberGain is a tetraploid high sugar ryegrass, meaning it has been bred to contain a higher level of water-soluble carbohydrates, or sugars, than traditional perennial ryegrass.

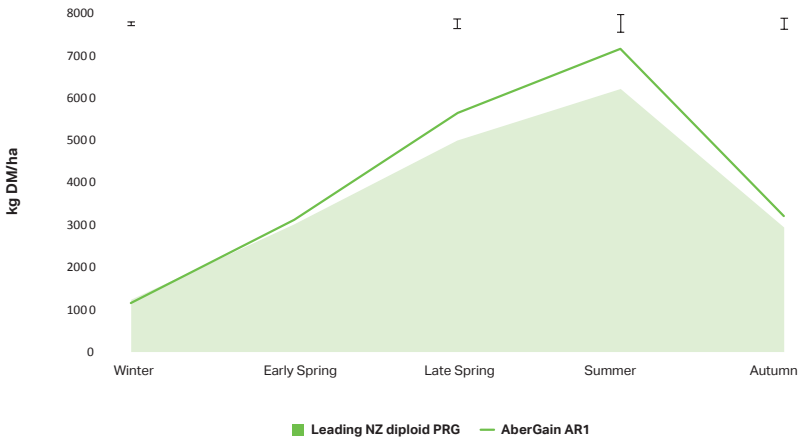
Tetraploid perennial ryegrasses provide higher utilisation and increased production per hectare compared with diploid perennial ryegrasses, due to increased palatability and greater animal preference. AberGain provides all these benefits, and combined with its densely tillered nature, offers farmers real potential to lift animal production.

- The only tetraploid High Sugar Grass available in Australia currently
- Densely tillered for improved grazing tolerance compared with conventional tetraploid ryegrasses

| | |
|---|---|
| Type | Perennial Ryegrass |
| Ploidy | Tetraploid |
| Sowing Rate | 25 - 30Kg/ha |
| Heading Date | Very Late +24 days |
| Endophyte | AR1 |

Superior tiller density of AberGain (left) is demonstrated compared with a standard NZ tetraploid perennial ryegrass (right), providing improved recovery following grazing and greater tolerance to severe grazing events.

Seasonal growth curve (kg DM/ha) of AberGain AR1 perennial ryegrass compared with a leading NZ tetraploid ryegrass*




*Data taken from combined perennial ryegrass trials (partially irrigated) in Canterbury, New Zealand. Error bars show the LSD value when significant differences occurred (P<0.05).

Pictured: AberGain AR1

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