

PIONEER

A YATES FAMILY BUSINESS

maize

for Silage

2023-2024

Winning off and on the field

George and Kayla Whitelock's formula for success

28

hybrids to
choose from

The future and
maize silage's
role in it

How to make
your silage
even better

Stop birds
making a meal
of your crop



PIONEER
BRAND · PRODUCTS



Welcome to the latest edition of the Pioneer® Maize for Silage catalogue for the 2023-24 season. It is exciting when our latest catalogue comes off the printing press and years of product advancement and local trialling result in new higher performing hybrids being added to our line-up.

This year sees the introduction of four new silage hybrids - P8240 (82 CRM), P8711 (87 CRM), P1096 (110 CRM) and P1837 (115 CRM). These exciting new products bring agronomic, yield and silage quality benefits for silage growers from Northland to South Canterbury and most places in between.

As we release this crop of new hybrids, I take the opportunity to acknowledge the commitment of our research team and the small army of contractors and growers who support them to make our trialling program possible. The past three decades have seen significant improvements in the yield potential of New Zealand maize silage crops in traditional growing areas. The release of new shorter maturing hybrids has also made maize silage a very viable and reliable crop option for growers at higher altitude in the North Island and widely throughout the South Island.

In this year's catalogue we include technical articles covering the factors which impact maize silage quality and outline how to grow, harvest and feed more silage energy (see pages 32-37). We also consider the future of dairy farm systems and discuss how maize silage coupled with a feedpad is proving a winning combination for many dairy farmers (see pages 4-9).

Rising interest rates and input prices are adding additional operating costs and the past season has delivered unprecedented weather challenges in many regions. Our thoughts continue to be with those growers who have been adversely affected. We have recently become a principal supporter of the Rural Support Trust. Their networks have local rural people who know from experience the pressures that can mount up. To chat with someone who understands your issues, contact them on 0800 787 254.

When you purchase Pioneer® brand products you don't just get the contents of a seed bag or an inoculant bottle. A key point of difference is our experienced field team who are committed to helping farmers extract the maximum value from our products. Our company purpose is "Committed to Enhancing the Future of New Zealand Agriculture" and each one of our team are focused on ensuring your success.

Wishing you all the best for the season ahead.

With warmest regards,

William Yates
Managing Director



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PIONEER LONG LOOK

We strive to produce the best products on the market.

We deal honestly and fairly with customers, employees and business associates.

We vigorously market our products, but without misrepresentation.

We provide helpful management information to assist customers in making optimum profits from our products.



Looking to the future with maize

In the past few years there has been significant discussion around the future of New Zealand dairy farming and how systems can evolve to remain profitable and resilient in the face of changing climatic conditions and increasing regulatory requirements.

We asked the Pioneer Farm Systems Specialists – Wade Bell, Ian Williams and Matt Dalley to answer a number of questions about current challenges and potential future solutions. Here is what they said.

What are the key challenges facing the New Zealand dairy industry?

It is hard to summarise all the challenges facing local dairy farmers but some of the key ones are pasture yield, quality and persistence; rising input prices; increased environmental compliance specifically nitrogen leaching and greenhouse gas emissions and a widespread shortage of labour. Most farmers we talk to are concerned about one or more of these factors and researchers and farm systems experts are working alongside leading farmers to build future-proof systems which address these challenges.

Farm systems experts are working alongside leading farmers to build future-proof systems



around 1.9 tonnes of carbon dioxide equivalents per hectare (tCO₂e/ha). For systems where the winter crop was grazed, the greenhouse gas lifted to 3.5 tCO₂e/ha. These losses were substantially lower than the average loss from a typical dairy farm system which is estimated to be about 9.6 tCO₂e/ha. Current studies are underway to determine whether reducing stocking rate and growing supplements like maize silage on-farm, rather than feeding imported supplements, can improve the profitability and sustainability of future dairy farm systems.

But what about workload, are maize silage systems labour friendly?

Silage systems are not typically viewed as being labour friendly, but they can be if they are set up properly with well-designed feeding facilities located close to silage storage areas. Timed gate latches can be used to release cows from the paddock allowing them to make their own way to the shed and this can offer significant time savings especially early in the morning.

A large amount of maize silage can be fed out quickly and farmers often comment that feeding maize silage is easier and less risky than managing the intake of some grazed forage crops.

A stack of maize silage also delivers significant peace-of-mind. Whether you are a farm owner, sharemilker, or herd manager, it is easier to sleep at night knowing you can fully feed your cows regardless of the weather conditions or how well the pasture grows.

What role will maize silage play in future farm systems?

We believe maize silage has an important role to play in future farm systems primarily because it is a locally grown forage that has a proven track record in New Zealand dairy farm systems and globally accepted environmental benefits. Farm systems which incorporate maize silage can help farmers resolve some of the issues they face. These include:

Pasture yield, quality and persistence

For some time, there has been evidence that on-farm pasture yields are stable or even decreasing and some farmers are having challenges with pasture persistence. As the climate becomes warmer C3 grasses like perennial ryegrass become less competitive whilst C4 grasses like maize, paspalum and kikuyu are likely to perform better.

Good feed budgeting is fundamental to successful dairy farming. But even farmers who monitor pasture cover levels and run an up-to-date feed budget can run short of feed. A key reason is that feed budgets use average pasture growth rates and around 50% of the time actual pasture growth rate will be below average!

Growing a bit of extra maize (or buying it in), means you will have a stack on hand to feed when you need it.

And the good thing about maize silage is that provided it is well compacted and sealed, it will hold its quality for several seasons. So, if you don't need it, you don't have to feed it.

Rising input costs

Farm input costs continue to rise with feed (28%), labour (20%) and repairs and maintenance (20%) being the biggest ticket items for owner-operators¹. The past 12 months have seen significant increases in the 3F's – feed, fertiliser and fuel – as a consequence of the pandemic, Ukraine conflict and other global events.

The lift in global grain commodity prices has resulted in escalation and instability in the price of many imported supplementary feeds including palm kernel, soyhulls and other byproducts, grains, and protein meals such as soyabean and canola. Maize silage has become an attractive option particularly if at least a portion of farm requirements can be homegrown.

The most cost-effective option of all is to grow maize silage in a dairy shed effluent paddock without the need

for additional fertiliser. This provides a win-win in that the maize crop mines surplus nutrients, especially nitrogen which could otherwise be lost to groundwater whilst at the same time providing low cost supplementary feed which can be fed as required.

Increased environmental compliance

The proven environmental benefits of maize silage make it the crop for the future. Published New Zealand research showed the nitrogen leaching loss from maize silage followed by annual ryegrass in a cut-and-carry system, was less than 10 kg/ha/year². This is good news for dairy farmers wanting to decrease nutrient losses on their farms.

For most of the year the protein content of pasture is higher than cow requirements. Surplus dietary protein is excreted in the urine and is a major source of nitrogen in our waterways. Feeding maize, a low protein silage,

decreases the amount of nitrogen in cow urine by more than 70%³.

The agricultural sector makes up half of New Zealand's greenhouse gas emissions with methane emitted from livestock being the main contributor. A recent study⁴ showed that average annual greenhouse gas losses from maize silage followed by winter crop, which was harvested, not grazed, were





Do you need a feedpad to feed maize silage?

As Ian Williams often says in his Dairy News column “it depends”. There are many farmers who successfully feed 300-500 kgDM maize silage per cow in the paddock during drier months or on free draining soils, with minimal wastage. If your farm has heavier soils and/or you want to feed maize silage during the wetter parts of the year, a stand-off pad with feeding facilities could be a good investment.

The benefits of being able to stand cows off pasture and feed them are significant and include:

- **Less supplement wastage.** While they are hard to quantify, the losses of paddock fed supplements are likely to be 10-20% higher than if the same supplement was fed in a feed bin.
- **Less pasture damage.** One of the

biggest advantages of a stand-off pad with feeding facilities is that animals can be kept off pasture for extended periods reducing overgrazing and pugging. Everybody knows that it “takes grass to grow grass”. If you can keep average pasture cover levels above 2,000 kgDM/ha you will grow more drymatter. Pugging not only wastes feed, it reduces long term pasture yields and persistence.

- **Less milk fever.** Feeding high potassium pasture in the late dry period increases the risk of milk fever. Many farmers have been able to improve the health of their herds by limiting their access to pasture and feeding low potassium supplements like maize silage.
- **Better animal welfare.** In-shed feeding systems provide a convenient way to feed relatively small volumes of concentrates during the milking

season. Their main limitations are that they cannot be used to fill major feed deficits caused by extreme weather events and they are less suitable for dry cows and youngstock. In contrast a feedpad can be used to feed forages (like pasture or maize silage) or a mix of forages and concentrates (including soyhulls or palm kernel). They can be used to feed milkers, dry cows or youngstock and the feeding rate can be as little or as much as you want.

The Pioneer Feedpad Calculator can help determine whether building a feedpad is an economic option for you.

Scan to contact your local Farm System Specialist for a no-obligation assessment:



Do you want to hear more from our Farm Systems Specialists?

'Feed for Thought' is a regular podcast hosted by Pioneer® Farm Systems Specialists Ian Williams, Wade Bell and Matt Dalley.

In this podcast series we aim to share practical and relevant information on technical and farm systems topics. Our aim is to prompt thoughts, discussions and actions which improve the profitability and sustainability of farming. Tune in and listen to the team as well as our guests who will include researchers, agronomists and nutritionists from New Zealand and abroad.

To listen and/or subscribe scan here:



“A stack of maize silage also delivers significant peace-of-mind... it is easier to sleep at night knowing you can fully feed your cows regardless of the weather conditions or how well the pasture grows.”

Ian Williams, Pioneer Farm Systems Specialist

¹DairyNZ Economic Survey 20-21.
²Tsimba et al. 2021. Quantification and mitigation of nitrogen leaching in a maize silage cropping system. Proceedings of the NZ Grassland Association. 83:163-170.
³Ledgard. 2006. Nitrogen management – why is it important and what can we do about it? Pp 22-31. In Proceedings of the 2006 Dairy3 Conference.
⁴Densley et al, 2022. Quantifying greenhouse gas losses from typical maize cropping systems and the impact of possible mitigation strategies using OverseerFM. Proceedings of the 34th Annual FLRC Workshop.



Whitelocks continue to *rely on maize*

GEORGE AND KAYLA
WHITELOCK, LINTON



The desire to build a profitable and sustainable dairy farm system shapes management decisions for Manawātū farmers George and Kayla Whitelock.

The couple and their three children Addison (7), Maxwell (4) and Frankie (8 months), peak milk 1,100 spring calving cows on 360 ha at Linton just south of Palmerston North. The cows are milked in three herds including a once-a-day herd and average production is around 500,000 kgMS.

The farm which has been in the family for five generations, was the site of the famous “Galaxy” cheese factory established by George’s grandparents in 1916. While the factory was disbanded after World War 2, the Galaxy cheese brand is still available on supermarket shelves today. George’s parents Braeden and Caroline continued the farming tradition expanding the farm to an 800 ha dairy operation through the purchase of a number of nearby blocks over the space of 35 years.

LEFT Pioneer Area Manager Richard Templeton and Farm Systems Manager Matt Dalley with George Whitelock.



Farm walk

- 1,100 spring calving cows on 360 ha
- Average production of 500,000 kgMS
- Feeds around 1 tDM/cow/year of maize silage
- Switched from Holstein-Friesians to a crossbred cow

The family has been feeding Pioneer® brand maize silage for more than three decades with Braeden and Pioneer Managing Director Will Yates appearing in the 2013-14 Pioneer® Maize for Silage catalogue.



“Dad has grown maize silage forever” says George. “Initially it was used as a tool to help develop the new blocks and bring them into the milking area”.

George and Kayla returned to the farm in 2018 after retiring from their respective successful sporting careers. George played rugby for the All Blacks, Crusaders, and captained Canterbury whilst Kayla was captain of the Black Sticks.

The couple lease the farm from Braeden and Caroline and are working

towards farm ownership sometime in the future.

“We are driven to farm the best we can using skills learnt from our sporting careers” says George. “Every change we make on-farm is analysed to ensure it’s going to improve the bottom line for the long term”.

One of the most recent changes has been the switch from straight Holstein-Friesians to a crossbred cow which is being achieved by mating the cows to Jersey genetics.

“We are looking for a more efficient animal which has lower feed maintenance requirements and good longevity in the herd” says George. “We believe we can get that from a crossbred cow that has good hybrid vigour”.

“Fertility, feet, udder confirmation and a smaller environmental footprint are all positives with a crossbred animal”.

The first of the crossbred heifers calved last spring and while the plan was to

milk them once a day from September onwards, they are going so well that 50% are still being milked twice-a-day.

“We have just 5% empties out of 250 heifers which is a pleasing result” says George.

The farm is flat with heavy soils and significant areas of drainage as well as 60 ha of Manawatū River spillway.

“We usually get 12-24 hours’ notice that the spillway will flood, so we try to keep a quicker round length on the spillway to reduce the risk of losing good quality feed” says George. “Every flood has different results in terms of the level of damage”.

George is highly focused on pasture harvest and aims to achieve 15-16 tDM/ha eaten each year. A key to achieving this is limiting pasture damage when ground conditions are wet.

“There is nothing worse than hungry cows on wet paddocks” says George. “We use maize silage and the feedpad as a tool to protect our pastures and that helps us maximise pasture harvest”.

In recent years the bulk of the farm’s maize silage has been purchased off farm.

This spring George planted 7 ha of Pioneer® brand P7124, the shortest maturity hybrid, on the spillway because he felt there was a high chance he would run out of maize silage before the contracted crop was harvested.

“It turns out the summer was very kind, and we were able to feed out smaller volumes of supplement than we had budgeted on” says George.

The crop, which was established using strip till, yielded around 18 tDM/ha and was chopped a bit early due to the floodwaters of Cyclone Gabrielle.

“We were very happy with the amount of feed we got in a short growing period”.

Cows calve on a loafing pad and are fed a diet of maize silage, hay and grass silage. The milkers receive maize silage at 2-4 kgDM/cow per day from calving through to the end of mating.

George grows chicory and turnips to supplement the farm’s summer feed supply. Depending on the season, cows are fed 0-2 kgDM maize silage over this time.

Maize silage feeding rates are increased in the autumn to put weight on cows, build pasture cover levels and extend round length.

The maize silage is all weighed at feed-out time using scales on the tractor that loads it into the feed-out wagon.

“We learnt pretty quickly that it is no good guessing how much you are feeding your cows” says George. “We monitor pasture cover levels weekly to determine grass intakes and then use maize as a tool to fill any feed gaps. The scales allow us to be accurate in our feed-out rates to limit any potential over or under feeding”.

OPPOSITE PAGE Will Yates with George’s father, Braeden Whitelock in 2013.



Maize hybrids

Every farm is unique. Shouldn't your maize hybrids be too? Local testing and positioning of hybrids are cornerstone to Pioneer® brand maize products delivering world-class performance. Each year we conduct around 160 maize silage trials across New Zealand. Chances are there is a trial located somewhere near you. Our field team

are also based in the main maize growing regions around the country. They understand how our hybrids perform and they know the best products for your local climate, soil types, growing conditions and farm system requirements. Give one of them, your local merchant or contractor a call for advice on choosing the right product for your paddock.



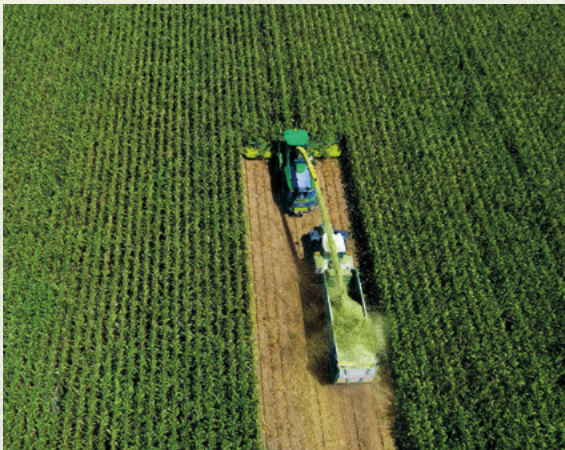
Defeat drought conditions



Get more out of every drop of water with Pioneer® brand Optimum® AQUAmax® maize hybrids. Designed to deliver both a yield advantage and strong agronomics, these hybrids offer improved performance in both water-limited and optimal growing conditions. Optimum® AQUAmax® hybrids are developed to get more out of every drop of water and deliver yield stability.

Designed to make more out of every drop

Optimum® AQUAmax® hybrids are highly resilient in challenging conditions and responsive to favourable ones. These hybrids are bred to include key traits that improve your crop's root system and silk emergence, among other agronomic characteristics, to better manage drought stress.



Superior performance year after year

Optimum® AQUAmax® hybrids reduce the risk of decreased yields in water-limited environments while they can also take advantage of more favourable growing conditions.

See how our hybrids stack up against the rest

The 2023 edition of our maize silage research publication provides comprehensive hybrid yield data to help growers make informed decisions on which hybrid to plant. It's packed

with plenty of hybrid performance comparisons plus a summary of some of our recent agronomic and farm systems research, to keep you up to speed with all things maize silage.



Scan here for more info on hybrid performance:





Meet the latest crop *from Pioneer*

They're here: exciting new products designed to deliver high yield potential and top performance in your local conditions. These hybrids have all demonstrated yield and agronomic

advantages over current Pioneer hybrids in local trials – bringing more silage yield to your farm and putting more milk in your vat. It's a whole new level of profitability.

Barry McCarter
Maize Product Manager

According to Barry

Pioneer Maize Product Manager Barry McCarter has spent a lifetime selecting and testing new higher-performing maize hybrids. He offers the following tips to growers seeking to choose the right hybrid for their farm system.

"The first step is to choose hybrids that are the right maturity to match your target planting and harvesting dates, next look for hybrids which have the right agronomic and disease ratings for your growing environment, then consider silage quality parameters" he says. "Once you have selected the right hybrid, the final part of the process is to determine the best seed treatment".

When it comes to seed treatment, Barry recommends growers consider risk factors on a by-paddock basis.

"Seedling fungal disease is always a challenge in our cool and wet spring conditions and the population of damaging insects will be high if maize is planted into a paddock that has come out of pasture or any grass species including annual ryegrass or oats" says Barry. "Birds are a growing challenge and bird repellent can be regarded as an insurance policy to reduce the risk of crop damage".



**BULK AND
ENERGY TO FILL
THE VAT.**

see page 19



**NEW LEVEL OF
PERFORMANCE FOR
NORTHERN REGIONS.**

see page 20



**SECURE PLANT
DELIVERS YIELD
STABILITY.**

see page 24

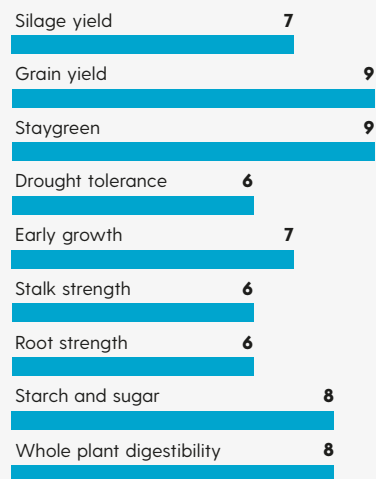


**DEFENSIVE
FULL-SEASON
GIANT.**

see page 25



CRM 71



Max 9 |

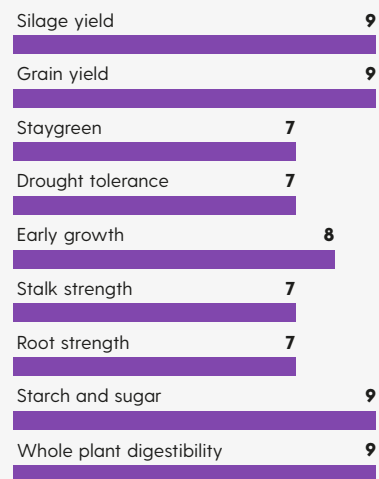
Raised the yield bar in cooler regions.

P7124 has become the go-to option for growing high-quality silage in New Zealand's cooler maize growing regions.

- Tall for maturity, bulky plant with notable grain filled ears.
- Strong standability and drought tolerance with excellent staygreen for a wide harvest window.
- Impressive silage yields with great energy and digestibility ratings.



CRM 75



Max 9 |

Stands and delivers tonnes of high energy feed.

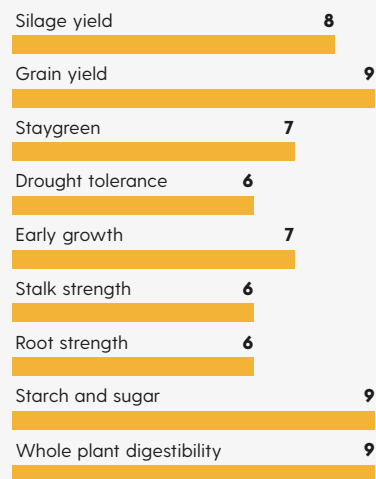
P7524 is recognised as a reliable performer producing impressive silage yields with outstanding energy and whole-plant digestibility.

- A very tall plant with superior stalks and roots which together with low ear placement deliver dependable standability.
- Combines strong drought tolerance and staygreen.

An extremely popular choice for growers who require a hybrid earlier than **P8000**.



CRM 80



Max 9 |

Versatile stalwart. Delivers high energy silage.

P8000 is tall, with low ear placement, strong roots, stalks, and foliar health for excellent eye appeal.

- Chunky cob with deep dent grain to produce top yields of high starch content silage with outstanding feed value.
- Widely grown in the South Island, while providing an excellent balance of yield and earliness in the North Island.

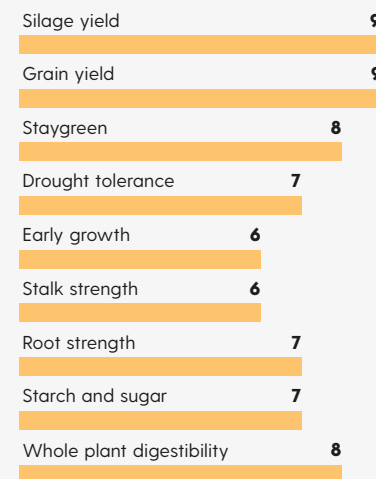
Companion with **P7524**, **P8240** or **P8333** depending on maturity requirements.



NEW



CRM 82



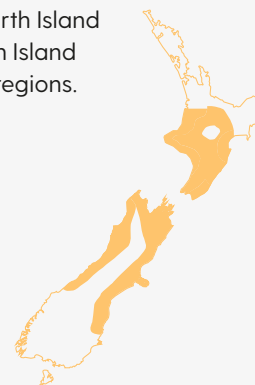
Max 9 |

Bulk and energy to fill the vat.

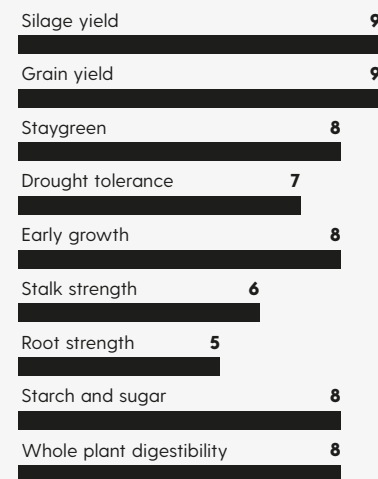
P8240 is a tall, high-yielding silage and grain hybrid backed by strong drought tolerance, staygreen and standability.

- Delivers top silage yields, with superior feed quality for optimal milk production.
- **P8240** has a balanced agronomic package while noting superior roots are a real asset in this maturity.
- Established plant populations should be matched to assessed paddock yield potential.
- Plant with **P8000** or **P8333** depending on maturity requirements.

Widely adapted to Central Plateau, Taranaki, Lower North Island and South Island growing regions.



CRM 83



Max 9 |

Highly productive mid-maturity option.

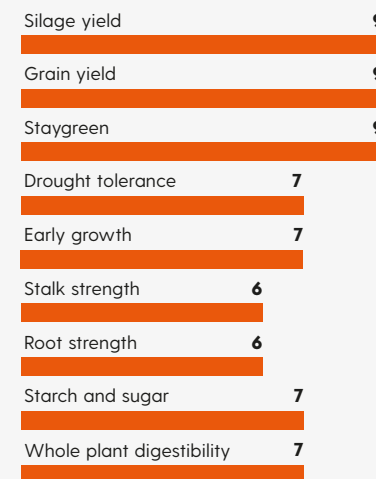
P8333 is a tall bulky plant with a long grain filled ear, supported by strong all-round agronomics, superior drought tolerance and staygreen.

- Delivers top silage yields for maturity, with impressive energy and digestibility.
- While earlier than **P8666** it has similar in-paddock appearance.
- An important mid-maturity option between **P8000** and **P8500**.
- **P8333** is a tall leafy plant, so optimum established populations should be approximately 5,000 per hectare less than applied for **P8000** and **P8500**.

Yields particularly well in the South Island and in the cooler regions of the Lower North Island where this maturity is required.



CRM 85



Max 9 |

Yield leader with looks to match.

A silage yield leader with a solid agronomic package.

- Tall, impressive plant with sound standability, drought tolerance and staygreen for a wide harvest window.
- Plant with **P8333** or **P8666** depending on maturity requirements.

Now popular in Taranaki, Lower North Island and South Island growing regions as a high yielding mid-maturity option.





CRM 86

Silage yield	9
Grain yield	9
Staygreen	8
Drought tolerance	8
Early growth	8
Stalk strength	6
Root strength	5
Starch and sugar	8
Whole plant digestibility	7

Max 9 |

Grows well, yields very well and feeds even better.

Delivers industry leading silage yields in this maturity.

- Tall bulky plant with strong all-round agronomics, superior drought tolerance, Northern Leaf Blight resistance and eye catching staygreen.
- Produces silage with high grain content and with optimal digestibility that cows will thrive on.
- Established plant populations should be approximately 5,000 per hectare less than applied for **P8500**, **P8711** and **P8805**.

Widely adapted from Ashburton to Dargaville, while delivering industry leading yields for maturity in the South Island.



NEW



CRM 87

Silage yield	9
Grain yield	9
Staygreen	8
Drought tolerance	8
Early growth	7
Stalk strength	7
Root strength	7
Starch and sugar	9
Whole plant digestibility	9

Max 9 |

New level of performance for northern regions.

Moderately tall but with low ear placement, superior roots & stalks for notable standability in this maturity.

- High ratings for drought, Northern Leaf Blight, Rust & staygreen deliver season long silage appeal, and yield stability. These all combine to support a wide harvest window.
- Produces silage with top-of-the-line energy and digestibility desired by high productivity herds.

Research results show **P8711** is most productive in northern regions from Northland to Hawke's Bay, and particularly where standability and Northern Leaf Blight are significant concerns.



CRM 91

Silage yield	9
Grain yield	9
Staygreen	7
Drought tolerance	9
Early growth	6
Stalk strength	6
Root strength	6
Starch and sugar	9
Whole plant digestibility	8

Max 9 |

Bred to defend but yields to impress.

Earliest of the Optimum® AQUAmax® hybrids offering yield stability for silage and grain.

- Tall plant with strong roots, stalks, drought tolerance and staygreen.
- Often produces a second cob resulting in deceptively high silage yields with exceptional grain content and whole plant digestibility.
- Performs best in moderate to high yield environments, while delivering yield stability in hot, dry seasons.

Plant with **P8666**, **P8711** or **P9400** particularly where Northern Leaf Blight is a seasonal concern.



CRM 94

Silage yield	8
Grain yield	9
Staygreen	6
Drought tolerance	7
Early growth	7
Stalk strength	7
Root strength	7
Starch and sugar	9
Whole plant digestibility	8

Max 9 |

Stands tall – delivers big time.

A tall, dense plant producing high grain content silage with superior digestibility.

- Strong agronomically with a sound all-round disease resistance offering.
- When planting in early spring into cold wet soils consider planting **P9127**.
- Intermediate in maturity between **P9127** and **P9721**.

High yielding early choice in Northland and Waikato, while giving stable yields in Taranaki and Lower North Island as a mid to full season hybrid.



CRM 99

Silage yield	9
Grain yield	8
Staygreen	9
Drought tolerance	9
Early growth	6
Stalk strength	5
Root strength	5
Starch and sugar	7
Whole plant digestibility	6

Max 9 |

Top yielding, drought buster.

A key maturity option in the Optimum® AQUAmax® range providing growers more yield per drop – rain or shine!

- Tall, showy hybrid delivering yield stability in this maturity.
- A widely grown, imposing all-round hybrid.
- Top agronomics for reliable yields.

Where Northern Leaf Blight is a concern consider planting **P9978** or **P0362**.



CRM 99

Silage yield	9
Grain yield	9
Staygreen	7
Drought tolerance	7
Early growth	7
Stalk strength	6
Root strength	7
Starch and sugar	9
Whole plant digestibility	9

Max 9 |

Very productive. Very stable. Very defensive.

P9978 delivers a great all-round package with superior foliar health and silage eye-appeal.

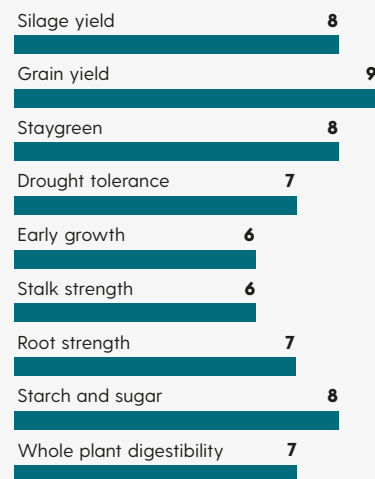
- Tall plant with low ear placement, strong roots and stalks, superior drought tolerance and staygreen.
- Provides comparable silage yields to **P9911**, however, **P9978** is slightly quicker to harvest, has better standability, Northern Leaf Blight and Rust resistances.
- Delivers silage with higher energy and digestibility than **P9911**.
- To optimise yield performance established plant populations should be adjusted to match paddock yield expectation.

Widely adapted to all North Island growing regions where this maturity is required.





CRM 103



Max 9

Robust hybrid delivering yield and energy.

Has an exceptionally robust all-round profile for silage and grain.

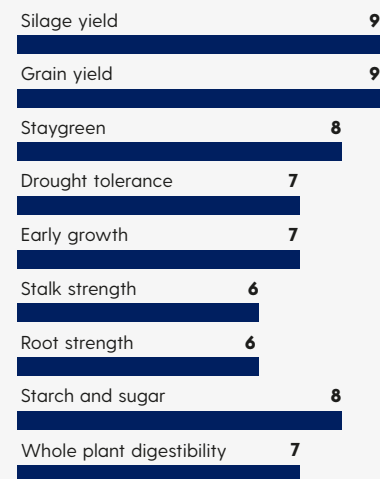
- Combines the best of yield and energy for maximum milk productivity.
- A top option where standability, Northern Leaf Blight, Rust and Eyespot are concerns.
- Superior drought tolerance, staygreen and yield stability.

Widely adapted to North Island growing regions where a hybrid of this maturity is required.

Companion with **P9978**, **P9911**, or **P0021**.



CRM 106



Max 9

Leaf disease champion delivering silage yield stability.

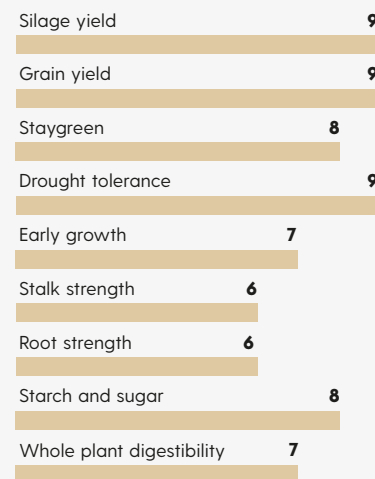
A balanced all-round hybrid with desirable leaf disease resistances

- Tall plant with sound standability, staygreen and drought tolerance.
- Superior resistances to Northern Leaf Blight and Rust for notable mid to late-season plant appeal.
- Produces silage with superior digestibility and energy content.
- Supplies yield stability in moderate to high yield environments from Northland to Waikato, Bay of Plenty and East Coast.

Plant with **P0362**, **P0900** and **P0937** depending on maturity requirements.



CRM 107



Max 9

Superior performance with extraordinary consistency.

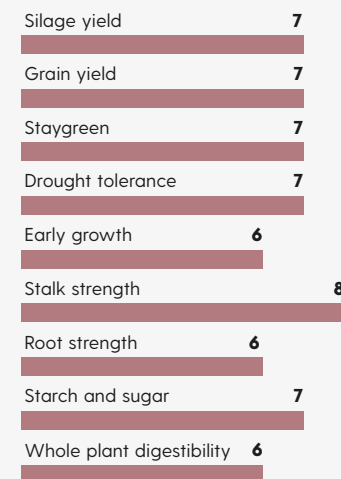
Delivers top-end silage yields in all warmer northern production regions.

- Optimum® AQUAmax® drought tolerance provides resilience when it is dry and yield responsiveness with favorable growing conditions.
- Standability and notable staygreen provide a wide harvest window that contractors will appreciate.
- Produces high grain content silage with digestibility ratings that drive milk production.

Where Northern Leaf Blight is a concern consider **P0900**, an alternative AQUAmax® option, **P0937** or **P1096**.



CRM 107



Max 9

Reliable veteran.

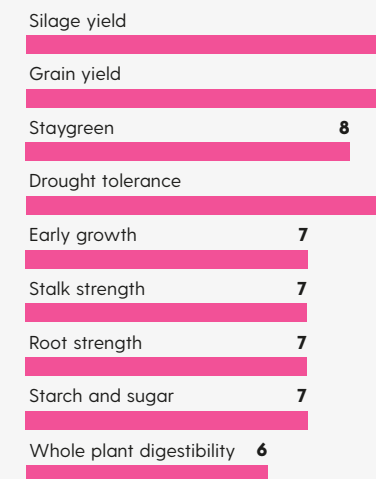
A proven all-rounder.

- Very good drought tolerance, standability and staygreen combined with sound resistance to Northern Leaf Blight.
- Best suited to moderate to high yielding paddocks.
- Adapted to high plant populations that should be adjusted to match yield expectations.
- When planting early into cold wet soils consider planting **P0900** or **P0937**.

Delivers yield stability for silage, particularly in Northland.



CRM 109



Max 9

Hard to fault, stable, all-round hybrid.

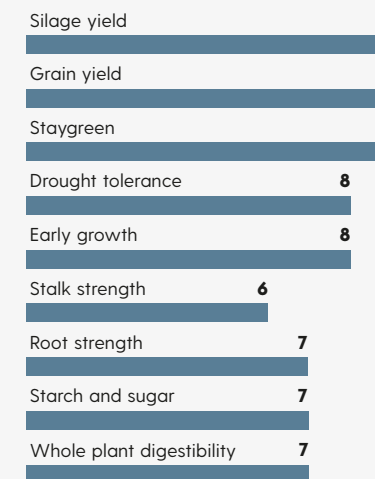
P0900 is an exceptionally balanced hybrid that delivers yield stability and a wide harvest window.

- Dependable standability, low ear placement, AQUAmax® drought tolerance, great foliar health and staygreen.
- Has similar yield potential to **P0725** but has much stronger resistance to Northern Leaf Blight.
- East Coast growers will value superior Head Smut resistance.
- A management responsive hybrid that will benefit from adjusting established plant population to match yield expectation.

Extensively planted between Kaitia and Napier alongside hybrids like **P0725** and **P0937**.



CRM 109



Max 9

Solid hybrid with great standability and foliar health.

A modern plant type with erect leaves, notable foliar health, standability and exceptional staygreen.

- Widely adapted, stable yet high yielding hybrid for silage and grain.
- Superior Northern Leaf Blight and Rust resistances will be attractive to growers in high-risk situations.
- Plant to achieve an established plant stand of 90,000 to 115,000 plants per hectare depending on paddock yield potential.
- Emerges strongly when planted early into cold wet soils.

P0937 is well adapted in moderate to high yielding situations in all regions where this maturity is required.

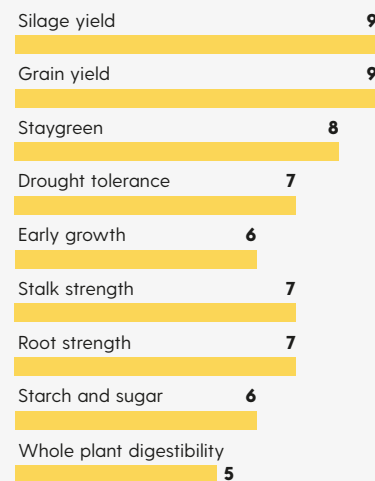




NEW



CRM 110



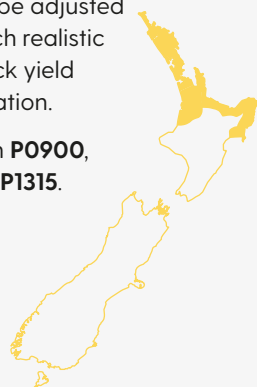
Max 9 |

Secure plant delivers yield stability.

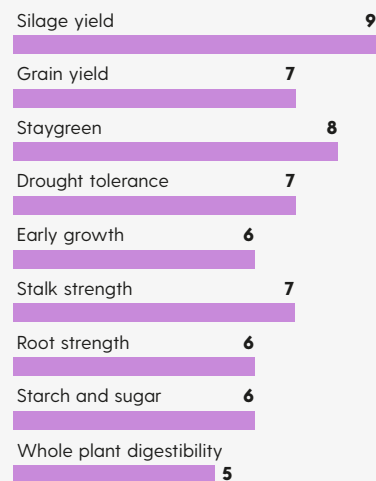
Similar in type to **P0900** and **P0937**.

- Has low ear placement, superior roots, and stalks.
- Superior Northern Leaf Blight and Rust resistances combine with dependable drought tolerance and staygreen for late season plant health, a wide harvest window and silage and grain yield stability.
- A balanced all-round hybrid well applied in situations where standability and Northern Leaf Blight are seasonal challenges.
- Widely adapted between Kaitaia and Napier where established plant populations should be adjusted to match realistic paddock yield expectation.

Plant with **P0900**, **P0937** or **P1315**.



CRM 110



Max 9 |

Desirable and defensive from Northland to Hawke's Bay.

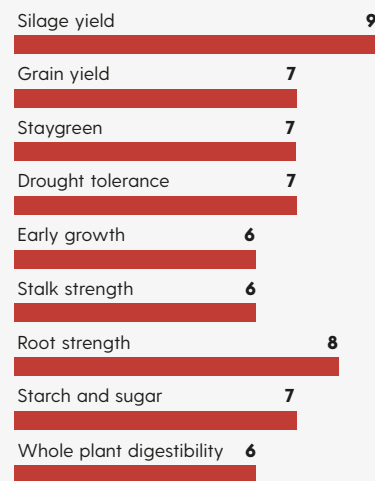
An imposing hybrid similar in stature to **P1636** while being quicker to harvest and with better foliar health.

- Season long appeal is delivered by notable drought tolerance, staygreen and superior Northern Leaf Blight and Rust resistances.
- Research trials show **P1315** delivers the same silage yield as **P1636** with harvest drymatters over 2.0% drier.
- Where Head Smut is a concern, plant **P0900**.
- **P1315** is tall with superior stalk and root strength and should be planted to establish 80,000 to 100,000 plants per hectare depending on paddock yield potential.

Companion with **P0900**, **P0937** or **P1636**.



CRM 112



Max 9 |

Enjoy the agronomics of this top yielding hybrid.

P1636 is a tall full maturity hybrid with top-end yield potential in this maturity.

- Long cob which produces high grain content, highly digestible silage.
- Combines impressive agronomics, drought tolerance and staygreen that together provide a wide harvest window.
- Plant early to maximise yields.
- In high-risk Northern Leaf Blight situations consider **P1315** or **P1477W**.

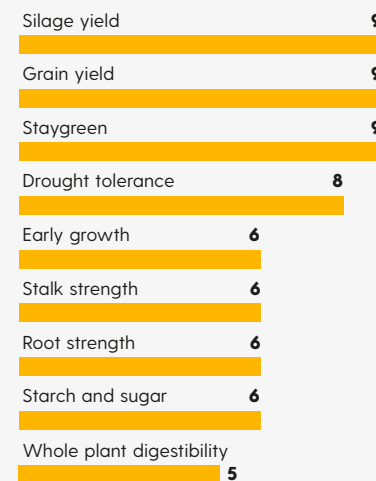
P1636 is well adapted to all warmer northern growing regions.



NEW



CRM 115



Max 9 |

Defensive full-season giant.

- Very tall, with superior standability, excellent resistance to Northern Leaf Blight and Rust.
- Also has excellent drought tolerance and staygreen which support season long "silage eye appeal".
- Has similar maturity and silage yield potential to **P1636** and **P1477W**.
- Plant to establish 80,000 to 100,000 plants per hectare depending on paddock yield potential.

A widely adapted, stable, full-season hybrid. Plant early in high potential paddocks in warm northern production areas.

Companion with **P1636** or **P1477W**.



Also available in 2023:





LumiGEN™ Seed Treatment

GIVING YOUR MAIZE SEED A HEAD START

Maximise your crops yield potential with Pioneer's exclusive LumiGEN™ seed treatment recipes which have been tested and proven for use on Pioneer® brand maize hybrids. You can plant with confidence knowing your seeds and seedlings have advanced protection against pests, disease and uncertain soil conditions during the critical early growth period.



- Polymer
- Additives
- Bird Repellent
- Insecticide
- Fungicide

LumiGEN™ seed treatments are available to:

- ### 1. Protect your maize from diseases

Our seed treatment recipes include fungicides which provide robust protection against a range of seed and soil borne diseases in maize, such as Pythium, Rhizoctonia and Fusarium.
- ### 2. Protect seedlings from insect damage

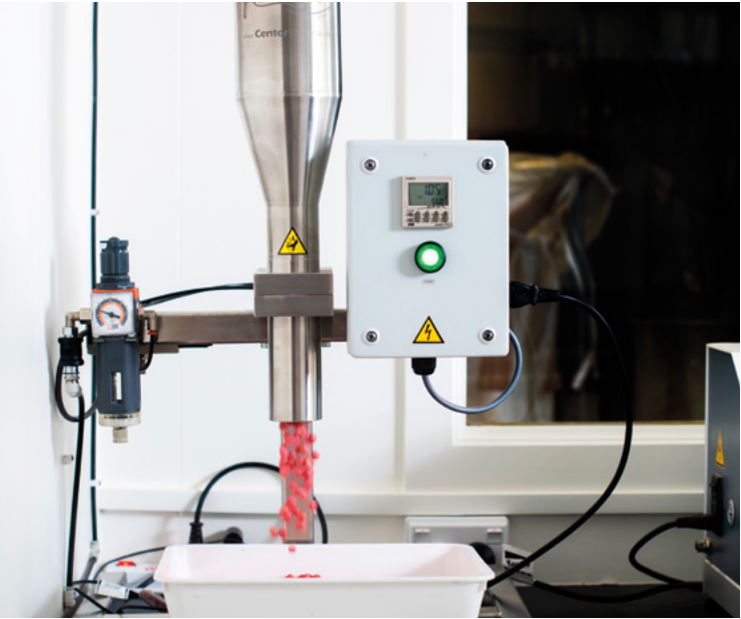
We offer several insecticide options which provide protection against common New Zealand maize pests – Argentine stem weevil, greasy cutworm and black beetle. An inbuilt biological creates a living barrier to deter a range of nematode species while encouraging healthy root development.
- ### 3. Keep birds away from your seed

A scientifically formulated non-lethal bird repellent stops birds from eating newly planted maize seed. This unique formulation is based on an organic chemical found in a number of plants, including aloe vera and rhubarb. Each kernel is surrounded with a protective coating that causes birds immediate, yet temporary, digestive discomfort.
- Talk to your local Pioneer representative, merchant or contractor to determine the best LumiGEN™ seed treatment option for your growing environment.**



	Fungicide	Insecticide				Bird Repellent
	Seed & Soil borne diseases	Black Beetle	Argentine Stem Weevil	Greasy Cutworm	Nematodes ¹	
LumiGEN™						
L-200	✓					
L-200+	✓					✓
L-300	✓	✓	✓			
L-300+	✓	✓	✓			✓
L-400	✓	✓	✓*	✓	✓	
L-400+	✓	✓	✓*	✓	✓	✓

* Research data shows the insecticide in L400 and L400+ is more effective at reducing plant loss due to Argentine Stem Weevil damage than the insecticide in L300 and L300+
¹ L400 and L400+ contains Bacillus spp which suppresses nematode damage in maize



Measuring improvements

We have recently invested in laboratory equipment to help quantify and further refine the quality of our LumiGEN™ seed treatments. The Lab FlowTEK seed flow meter provides an estimate of plantability in the field. The Heubach Dustmeter allows us to quantify dust release from treated seed.

This new equipment is helping to refine our seed treatment processes so we can deliver the highest quality seed with improved plantability, greater pest and disease protection and enhanced safety to our production staff as well as the customers and planter operators who handle our seed.

Research shows inhaling airborne dust from treated seed can have harmful effects. Our research shows that LumiGEN™ treatment formulations meet or exceed the strictest European dust-off standards.



Don't underestimate bird damage

With the increase in riparian plantings, bird numbers seem to be on the rise, and we have seen an increase in replants due to bird damage.

Pukekos, ducks, pheasants and other bird species dig or pull out small maize plants to eat the establishing seed. A reduction in plant population correlates to a decrease in maize silage yield potential.

Bird repellent works

The use of seed-applied bird repellent is proven to reduce bird damage and the potential benefit well outweighs the additional cost.

The photo to the right illustrates the potential loss of plants due to bird damage. In this paddock a strip of L400 (fungicide + insecticide) was planted in a paddock of L400+ (fungicide, insecticide, and bird repellent). The birds quickly located the area of the paddock where the maize seed didn't have bird repellent and removed virtually all of the plants.



It's cheap *insurance*

Maize silage is an important part of the feed regime for Manawātū farmers Aaron and Fiona Campbell. The couple winter milk around 380 cows and feed about 2 tDM of maize silage per cow per year. While a small amount of maize silage is purchased in, the main crop is grown on-farm. Aaron always plants a Pioneer® brand maize hybrid with L400+ seed treatment containing a bird repellent.

"We can get flocks of up to 70 pukekos on the farm and I've seen the damage they can do to the maize crops" says Aaron. "We've lost patches in the crop totalling to as much as an acre on more than one occasion".

"You don't know when the ducks or pukekos will hit your crop. Bird repellent seed treatment is cheap insurance".

Aaron has tried to repair bird damaged crops by replanting the affected areas, but he has never been pleased with the result.

"It never works well, and you always get patches of the crop which are later maturing and yield less" he says. "It's far easier to plant bird repellent treated seed and keep them out of the crop than try to repair the damage they have caused".

WE'RE PROUD TO SUPPORT THOSE WHO SUPPORT FARMERS



The Rural Support Trust network has local rural people available to support farmers through all kinds of challenges.

Contact them on 0800 787 254 or via rural-support.org.nz


RuralSupport



PIONEER®
BRAND · PRODUCTS



Five ways to get more quality from your maize silage

While yield is a key driver of profitability, maximising maize silage quality can help farmers increase drymatter intakes and per cow production.

Maize hybrid genetics set the potential for silage yield and nutritional value, but crop management, growing environment, ensiling efficiency and feed-out management determine the outcome.

This article discusses how growers can get higher quality silage from their maize crop.

Pioneer® brand maize hybrids
are evaluated right here in
New Zealand for a range of
nutritional quality parameters



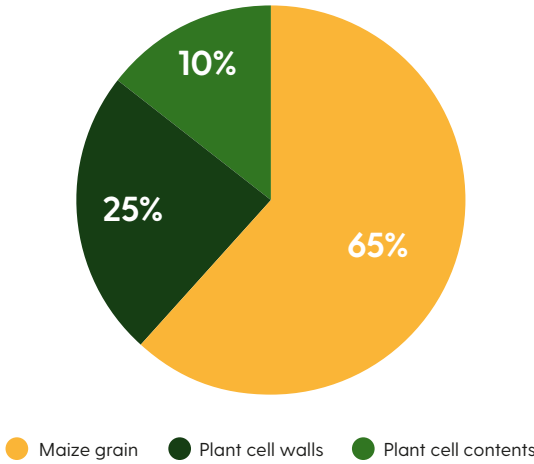
1 Plant the right hybrid

When selecting a maize silage hybrid it is important to choose the right hybrid maturity and a hybrid which has the necessary agronomic traits to stay healthy through to silage harvest point. Staygreen (a measure of late season plant health) is an important trait for silage hybrids but high drought tolerance, root and stalk strength and disease resistance ratings can also be necessary depending on your growing environment. The aim is to produce a healthy plant which will reach at least two-thirds milk-line before silage harvest point.

Maize grain yield is an important parameter for silage hybrids contributing 45-50% of silage drymatter yield. Maize kernels, which have a high starch and oil content, are also responsible for 60-70% of the plant's energy content with the remaining 25% of the energy coming from cell walls (neutral detergent fibre) and 10% from cell contents of the vegetative (or green) parts of the plant¹.

A trait of minimal importance during silage hybrid selection is fibre digestibility. Except for hybrids with the BMR trait that have inherently higher NDF digestibility, the environmental conditions for plant growth and harvest timing have a greater impact on yield and nutritional value (NDF, starch content and digestibility) than hybrid genetics¹.

Contribution of maize plant components to silage energy content¹



Pioneer® brand maize hybrids are evaluated right here in New Zealand for a range of nutritional quality parameters. The data collected from these replicated field trials is used to determine the published silage quality trait ratings (see page 58). An analysis of 6,120 nutritional samples collected from Pioneer commercial maize silage hybrids between 2017 and 2022 showed that there was a strong correlation ($R^2 = 0.80$) between starch plus sugar level and whole plant digestibility which is an indicator of total silage energy content.



2 Harvest at the optimum time

The current recommendation to harvest maize silage at 30-38% drymatter ensures that there is adequate moisture for a quality fermentation. A healthy maize crop continues to photosynthesise producing sugars and depositing them as starch right up to physiological maturity (black layer).

Research conducted by Pioneer in conjunction with the University of Illinois reported kernels could increase in starch content by over 25% from half milk-line to black layer maturity². Advances in plant breeding mean growers are not sacrificing fibre digestibility by delaying harvest to this point, providing plants are healthy.

Harvesting at the later end of the harvest window will produce higher starch maize silage. However this must be balanced with contractor workloads and the risk of weather-related harvest delays resulting in silage which is too dry to compact properly.



3 Optimise chop length and process kernels

Growers should pay attention to chop length and kernel processing.

Maize silage is normally chopped between 12-20 mm theoretical cut length although this means it will contain longer and shorter particles. There is no ideal chop length for maize, it really depends when you plan to feed it and what other feeds will be included in the ration.

If your maize silage is wet or you plan to feed it with short, leafy pasture and high starch or sugar concentrates such as grains, tapioca or molasses or by-products like palm kernel which lack effective fibre, aim for a longer chop length. Drier maize silage or crops which will be fed with higher effective fibre pasture or supplements can be chopped shorter.

Kernel processing significantly improves both ruminal and total tract starch digestibility. Ideally kernels should be broken into at least four pieces. A shorter chop length normally results in better kernel processing but other forage harvester settings including roller mill gap and the difference in speeds between the rollers are also important.

From time to time there have been discussions about the value of soft, floury endosperm in maize silage kernels. While Pioneer offers a number of softer starch hybrids, a large number of independent trials have shown there is no difference in the digestibility or milk production potential of hybrids with differing endosperm types (hard or soft starch) at silage harvest time.



4

Use a proven maize silage inoculant

The natural (epiphytic) microbial populations on a maize crop at harvest time have a major influence on the feeding value and stability of the resultant silage. Factors such as temperature, humidity, solar radiation, plant maturity and moisture affect the type and quantity of epiphytes populating the crop¹. Silage inoculants contain selected strains of lactic-acid producing bacteria which can improve fermentation quality and reduce aerobic losses when silage is exposed to the air at feed-out time.

While maize is high in sugars and low in buffering capacity it tends to have high yeast counts especially if it is stressed by drought or early frost. Yeast cells multiply at feed-out time and can have a detrimental impact on drymatter loss, heating and palatability.

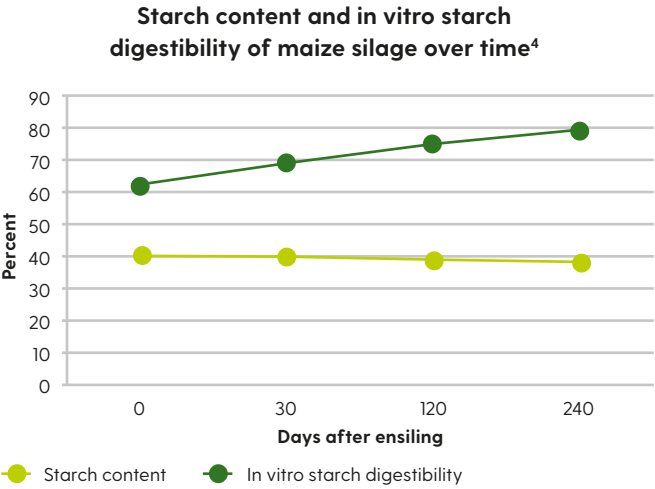
Good compaction, stack sealing and the use of proven silage inoculants like Pioneer® brand 11C33RR which contain living strains of *Lactobacillus buchneri* is always recommended for maize silage (see page 43).

5

Leave it in the stack

There are numerous feed security and cost advantages to carrying a buffer of maize silage on-farm. There is also a feed quality benefit.

The 7-hour ruminal starch digestibility of fermented new-crop maize silage drifts upwards (about two percentage units per month) for about six months before plateauing³. While maize silage which is inoculated with Pioneer® brand 11C33RR can be fed within a week of ensiling, leaving it in the stack for a minimum of four months will result in significant feed quality gains.



⁴Graph adapted from Ferraretto et al, 2015.

Finally, it is always recommended that maize silage is tested prior to feed-out time. This allows you to evaluate the success of your silage management programme and fine tune your feed ration.

There are numerous feed security and cost advantages to carrying a buffer of maize silage on-farm.



¹ Mahanna, 2020. Corn silage: Managing the manageable WCDS Advances in Dairy Technology (2020) Volume 32:61-71.
² Walker, P.; Carmack, J.M.; Brown, L.; Owens, F.N. 2010. University of Illinois Dairy Report.
³ Mahanna, B.; 2007. Watch for changing starch digestibility. Feedstuffs 79, No. 24.
⁴ Peterson, L. 2018. Your corn silage is changing. Hay and Forage Grower Jan 16, 2018 <https://hayandforage.com/article-1743-your-corn-silage-is-changing.html>



Less cows, more homegrown feed

SHAUN AND
JULIA BRIGHOUSE,
KAIPAKI



Maximising milk production from homegrown feed is the goal for Waikato dairy farmers Shaun and Julia Brighthouse.

The couple who have three children, Emma, Will and Katherine, milk 450 cows on 158 ha (effective) at Kaipaki near Hamilton. In the 2021-22 season their split calving Friesian herd produced 226,000 kgMS (1,430 kgMS/ha and 502 kgMS/cow).

This season the target has been set lower at 210,000 kgMS as the farm transitions to 100% autumn calving and moves the calving date forward from 25 to 1 March.

“We are trying to change the system so that we don’t rely on imported feed” says Shaun. “The farm’s sand-based soils mean we grow more grass in June/July than we do in Jan/Feb so autumn calving to take advantage of the Synlait winter milk premium just makes sense”.

Initially the farm was reliant on palm kernel but rising prices and quality concerns led to a switch away from this byproduct seven years ago. Since then, the couple have tried other feeds including soyhulls and tapioca.





Farm walk

- 450 cows 158 ha (eff.)
- 1,430 kgMS/ha (502 kgMS/cow) in 2021/22
- Produced 226,000 kgMS in 2021/22
- Planted 56 ha of maize in 2022/23 season

“At current prices palm kernel, tapioca and soyhulls are not financially sound for our business” says Shaun. “Also, we are trying to front foot impending government regulations and changing global market trends”.

“What we do on-farm is important - if we can produce milk from homegrown feeds it’s more profitable and it’s a cool story to sell to the consumers of the milk we produce”.

This year the couple have planted 56 ha of maize on the milking platform and nearby support land. Of this 30 ha will be harvested as earlage, a high energy silage made from maize and the remaining 26 ha will be harvested for silage. They have also contracted 10 ha of maize silage from a neighbouring farm and have planted 17 ha of Pioneer® brand 54V09 lucerne which is harvested as silage.

“Lucerne is a great winter protein source which we can grow ourselves” says Shaun. “We don’t need expensive imported supplements like soymeal or canola”.

The maize is predominantly Pioneer® brand P8666 and P9127 which are short maturity hybrids chosen for their good vigour and high wind standability.

“We have historically grown higher CRM hybrids, but dry summers can really impact the grain yield” says Shaun. “If I can reliably get 20 tDM/ha of high quality maize silage off a shorter maturity hybrid, I’m happy with that”.

All the maize is direct drilled which is part of the couples plan to help protect the farms fragile sandy soils. Effluent is utilised as a major nutrient source for the maize crops which helps reduce growing costs and cut synthetic nitrogen inputs.

Maize silage is harvested in late February and the earlage comes off somewhere between the 7th and 14th of March.

“Because we are winter milking it is really important to get the maize off and the annual ryegrass planted and back into the grazing round as soon as possible” says Shaun.

While the maize silage is stored in a bunker, the earlage is bagged to minimise wastage.

Cows start calving in March and normally peak at around 2.3 kgMS/cow/day. They are fed up to 6 kgDM/cow/day maize silage, 2 kgDM/cow/day lucerne silage and 2-3 kgDM/cow/day earlage through a mixer wagon on a feedpad.



“We aim to keep the pasture residuals longer over the winter to protect the soils” says Shaun. “If we need to feed a lot of supplements to achieve this, that’s fine by us”.

Once the pasture starts to grow in the spring an aggressive pre-grazing topping regime commences, and the volume of supplements fed drops to 3-4 kgDM/cow.

“We aim to reset the residuals to maintain pasture growth rates and quality over the spring and into the summer”.

Shaun believes another advantage of the move to homegrown feed is the diet consistency it allows him to achieve.

“Years ago we were feeding up to nine products in the mixer wagon but feeds started to become harder and harder to source which meant we were constantly changing the ration” says Shaun. “Cows milk better when you can provide them with a more consistent diet”.

“Maize ticks all of the boxes for us because it is easy to grow, store and feed. The yields are reliable, and it produces high quality starch products which complements the high protein pasture we can grow”.

So what does the future farm system look like for the Brighouses?

“We are trying to build a farm system that is robust, profitable, environmentally sustainable and not too complex for staff to run” says Shaun. “We think we can achieve this by milking less cows and feeding them more homegrown feed”.

“Maize ticks all of the boxes for us because it is easy to grow, store and feed. The yields are reliable, and it produces high quality starch products which complements the high protein pasture we can grow.”

Shaun Brighouse



Improving silage quality *is in your hands*



When it comes to silage inoculants not all products are created equal. Using a quality Pioneer inoculant will help ensure you get the best out of your silage. With most of the hard work completed in growing and harvesting your crop; it makes sense to invest in a high-quality inoculant to complete the silage making process. Only a proven inoculant will allow you to realise the benefits of higher quality silage, improved fermentation efficiency, reduced shrinkage, decreased heating at feed-out time and/or increased fibre digestibility.

Silage making and nutritional advice

With a range of product options suitable for use on a range of different forages, and a local Field Team to help maximise your silage-making success, Pioneer inoculants deliver better silage for your farm. There are many reasons why you should always ask for Pioneer® brand inoculants:

- Patented bacterial strains
- Crop specific inoculant products

- Comprehensive New Zealand and overseas product research¹
- Quality assured with an ISO 9001:2000 accredited quality control system
- Guaranteed bacteria levels on the label of every bottle
- Exclusive, patented Appli-Pro® inoculant applicator technology, meaning more consistent and precise application
- A Field Team with silage making expertise located throughout New Zealand

Appli-Pro® inoculant applicators

Pioneer's patented Appli-Pro® inoculant application system is designed and calibrated specifically for Pioneer® inoculants. This unique design uses air from a compressor and a small amount of water to deliver the inoculant solution accurately to fresh forage, reducing water requirements and offering a higher level of application precision and convenience.

Appli-Pro® inoculant applicators are maintained and serviced by a network of Pioneer Field Technicians located across New Zealand. They also provide a breakdown callout service to ensure reliable inoculant application throughout the entire harvest season. It's all part of our commitment to ensure farmers get the best return from their investment in Pioneer® brand products.

New Rapid React® aerobic stability technology

Pioneer first introduced aerobic stability inoculants containing *Lactobacillus buchneri* to the New Zealand market in 2005. At that time, the need to minimise heating was evident in the stack and feed-out losses that were being experienced on-farm. Over nearly two decades, New Zealand farmers have come to know and trust Pioneer® brand 11C33 as the reliable way to help keep their maize silage cool.

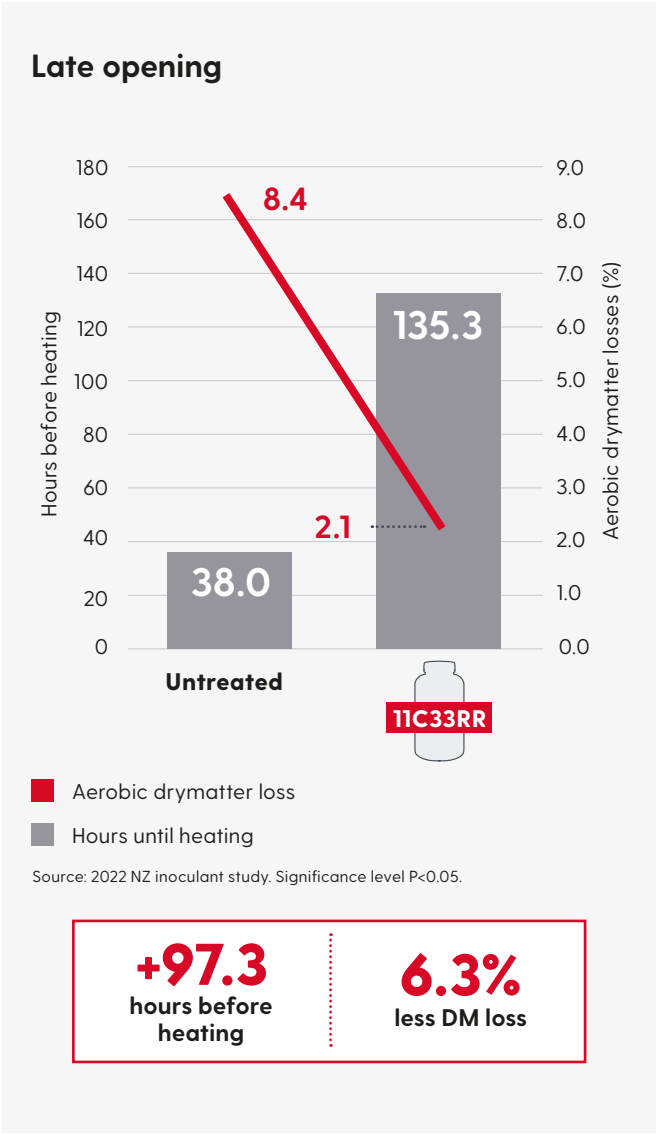
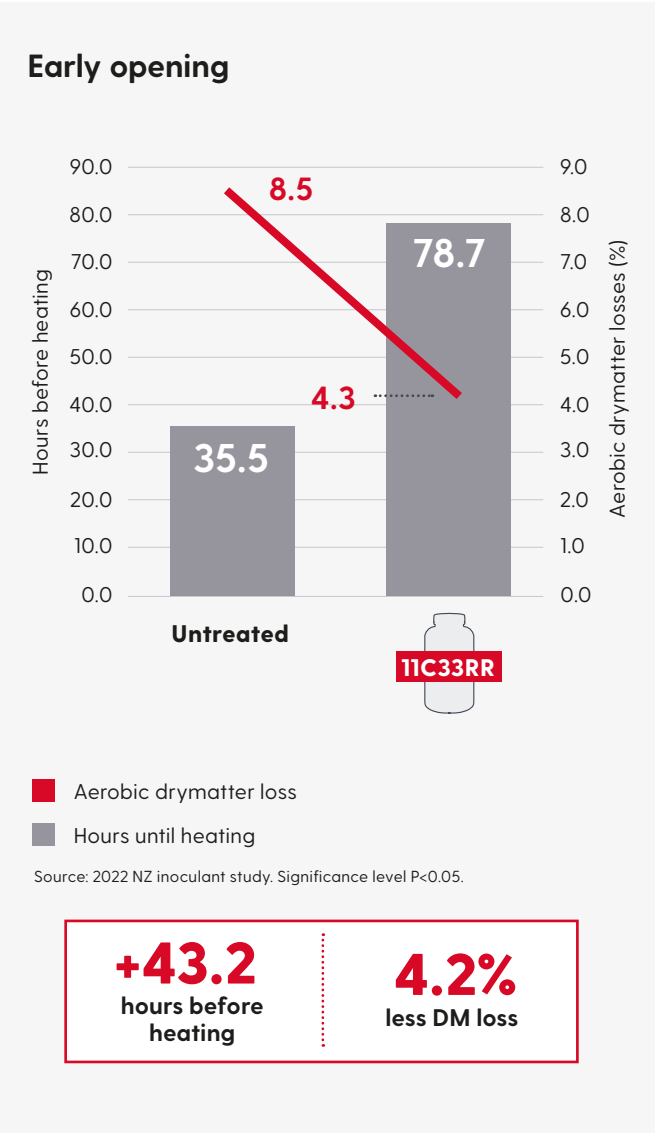
However, one of the key limitations of traditional strains of *L. buchneri* is that they are slow growing. It typically takes 30 days after harvest to realise the full yeast-inhibiting and aerobic stability benefits *L. buchneri* delivers. This is a challenge for farmers who want to open their stacks soon after harvest whilst still ensuring the delivery of cool, palatable silage.

Knowing this, Pioneer's research microbiologists began the search for new *L. buchneri* strains that would deliver aerobic stability benefits faster. The results of their efforts eventually resulted in the commercial release of Pioneer® brand 11C33RR inoculant which contains Rapid React® aerobic stability

technology which can deliver stable silage in just 7 days².

While 11C33RR is supported by overseas data, New Zealand's warm, humid growing conditions can result in silage which is more prone to heating. For this reason we tested four local maize silages which had been inoculated with 11C33RR which were opened early (day 9-11) or late (day 60) and compared them to an untreated control³.

The results showed that 11C33RR improved aerobic stability by 43.2 hours for early opening and 97.3 hours for late opening.



Maize inoculants



Pioneer® brand
11C33RR

Maize silage specific inoculant with next-generation L. buchneri designed to reduce heating and improve silage quality. Rapid React aerobic stability technology provides less heating and stable feed in 7 days².



Pioneer® brand
1132

Produces top quality maize silage with enhanced fermentation for high producing dairy cows and specialised beef production.



Pioneer® brand
11CFT

Revolutionary maize specific inoculant for high producing herds. Reduces silage heating and improves fibre digestibility, meaning reduced losses and more milk per kgDM eaten⁴.



Pioneer® brand
1174

Improves drymatter recovery and silage quality of all forage crops.



Spring inoculants



Pioneer® brand
1127

Produces top quality pasture silage with enhanced fermentation for high producing dairy cows and specialised beef production¹.



Pioneer® brand
11H50

Lucerne specific silage inoculant selected to best use plant available sugars, maximising fermentation quality, silage digestibility and animal performance.



Pioneer® brand
11G22

Pasture specific inoculant that delivers an improved fermentation and a fermentation acid profile that minimises heating and aerobic drymatter losses⁴ to lock in the nutrients.



Pioneer® brand
1174

Improves drymatter recovery and silage quality of all forage crops.



¹Trial results available on request.
²Improved aerobic stability and reduced heating is relative to untreated silage. Actual results may vary. The effect of any silage inoculant is dependent upon management at harvest, storage and feed-out. Factors such as moisture, maturity, chop length and compaction will determine inoculant efficacy.
³2022 NZ inoculant study; using the Honig method to determine heating and drymatter losses.
⁴While silage can be fed out immediately after harvest, maximum aerobic stability benefits will be made when it is fermented 30 days prior to feeding

Pioneer® brand Lucerne

Pioneer® lucerne offers high yield potential, outstanding quality and improved pest and disease resistance. With the exclusive LumiGEN™ seed treatment and excellent seed quality you can be sure of improved stand establishment.

Get your copy

For everything you need to know about growing, grazing, harvesting and feeding lucerne in New Zealand. The recently updated Pioneer® brand Lucerne Manual also contains a growing and harvesting calendar to help you schedule key crop management steps.



Forage yield	9
Field appearance	9
Relative forage quality	7

Max 9 |

Proven performer.

54V09 is a proven performer that combines excellent yield potential with proven stand life.

Key features:

- Industry-leading disease resistance profile delivers high resistance to Phytophthora Root Rot, Verticillium Wilt, Bacterial Wilt and Stem Nematode.
- Superior relative feed value for improved animal performance.



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view this
manual.



	Phytophthora Root Rot	Verticillium Wilt	Bacterial Wilt	Fusarium Wilt	Stem Nematode	Spotted Alfalfa Aphid	Pea Aphid	Blue Green Aphid
54V09	HR	HR	HR	R	HR	R	HR	-
Kaituna ¹	R	MR	-	-	R	R	-	R
Torlesse ¹	R	MR	-	-	R	R	-	R
Force 4 ²	HR	HR	R	HR	R	-	-	MR

Disease resistance profiles

HR = Highly resistant (more than 50% resistant plants)
R = Resistant (31% to 50% resistant plants)
MR = Moderately resistant (16% to 30% resistant plants)

- = Denotes rating is not available or not published.

References:

- ¹ Torlesse Agrinote (<https://www.wagricom.co.nz/Files/Files/Public/Agricom/Agrinote/Torlesse-agrinote.pdf>)
² SF Force 4 product brochure (<https://www.seedforce.co.nz/product/sf-force-4/>)

Important:

Ratings based on both Pioneer Agronomists and Research Scientists field observations.

LR = Low resistant (6% to 15% resistant plants)
S = Susceptible (up to 5% resistant plants)

Key
1 = Poor, 9 = Excellent.
Ratings based on
Pioneer research
comparisons with other
Pioneer® brand
lucerne hybrids.



Pioneer® brand Summer feed

Pioneer® brand SSS and Bettagraze are high yielding and drought tolerant summer feed options that deliver great yields of moderate quality feed quickly. They thrive in the warmer parts of the country delivering feed that can be grazed, ensiled, or made into hay.



Fast feed	9
Silage making	9
Hay making	9
Sheep grazing	9
Beef grazing	9
Dairy grazing	9

Max 9 |

The next generation hybrid.

Ideal for grazing, Super Sweet Sudan (SSS) has superfine stems and a prolific tillering habit. This leafy hybrid is super sweet making it an excellent choice for silage or hay and suitable for use in dairy, beef and sheep farm systems.

Key features:

- Sudan x sudan grass
- High quality small seed means you plant more hectares with less kilograms
- Very fast growth and regrowth
- Highly palatable at all stages of maturity and growth

Bag size: 15 kg

Recommended planting rate:
15-25 kg/ha

Planting depth: 2.5-3.5 cm



Fast feed	9
Silage making	9
Hay making	8
Sheep grazing	7
Beef grazing	8
Dairy grazing	9

Max 9 |

First to plant, first to feed.

Rapid early growth, quick recovery after grazing or cutting along with delayed flowering, means Bettagraze is a versatile, easy to manage summer feed. It has a high sugar content, fine stems and a high leaf-to-stem ratio for excellent palatability and good feed value.

Key features:

- Sorghum x sudan grass
- Fine stems and disease-free leaves
- Larger seed size for better establishment in dry conditions.
- Suitable for grazing with dairy or beef cattle.

Bag size: 25 kg

Recommended planting rate:
25-45 kg/ha

Planting depth: 3-5 cm

Scan for more
information
regarding Pioneer
summer forage
hybrids:



Key
1 = Poor, 9 = Excellent.
Ratings based on
Pioneer research
comparisons with
other Pioneer® brand
sorghum/sudan hybrids.



Timaru farmers *move to maize*

STU AND
ANDREA WEIR,
TIMARU

Stu and Andrea Weir started feeding maize silage three seasons ago and it's now an integral part of their farm system.

The Weirs milk around 300 Friesian cows on an 80 ha (effective) milking platform in a split calving system. The milking area, which is located on the Timaru town boundary, is supported by three 25 ha run-offs. The furthest is used to rear youngstock, the second grows supplements, and the closest grazes dry and calving cows. Milk is sold both to Fonterra and locally under the farm's unique Real Milk Timaru brand.

Grass growth is virtually nil during the winter months, and this makes meeting the Fonterra June-July winter milk contract challenging. The couple started growing and grazing fodder beet, but they didn't like the environmental issues associated with the crop.

"Fodder beet is in the ground for a long time, it requires a lot of sprays and grazing was problematic for us particularly as we are farming in a 'fishbowl' on the outskirts of town" says Stu. "We moved to lifted beet but three years ago we couldn't get any, so we tried maize silage for the first time".

The maize silage was a success requiring less labour to feed than beet and the cows milked well on it. Stu and Andrea planted 3 ha of maize on the run-off the following season.



ABOVE Pioneer Area Manager Daryl Moore and Stu Weir.



“We harvested the crop and started feeding maize silage from April till the end of July” says Stu. “When the stack was finished the cows dropped despite the fact we were feeding them plenty of lucerne silage, grass silage and brewers grain”.

To allow for longer feeding the couple have planted a total of 7 ha of Pioneer® brand P8333 maize silage this season – 3 ha on the milking platform and the balance on a run-off.

“We were looking for a maize hybrid that would produce high and reliable yields in a cold environment” says Stu. “Pioneer was the obvious choice”.

Stu has been particularly impressed with the crop on the home farm which was grown on an effluent paddock

with minimal fertiliser inputs. “It exploded out of the ground and was one and a half times the height of the fence by Christmas” says Stu who notes that “the crop on the run-off is looking equally as good”.

All of the maize silage is inoculated with Pioneer® brand IIC33.

“The maize silage quality was great and there was no spoilage or wastage” says Stu. “We will always use an inoculant”.

The maize silage is combined with pasture silage and brewers grain from a local brewery, and fed in troughs in a feed barn. Cows are offered a fresh break of pasture in the afternoons and also have the option of staying indoors in a converted hay barn which has a layer of shavings over the top of a concrete floor.

“We leave the gate open, and the cows can choose if they want to come back to the barn from the paddock” says Stu. “We get no feed wastage with the maize silage fed in bins, and

we grow more grass because the cows don’t wreck the paddocks”.

The farm’s venture into selling fresh, unpasteurised whole milk began in 2014 to meet growing local demand for fresh milk. In order to qualify for the Real Milk Timaru herd, cows are tested and proven to be free of a range of pathogens. Ideal candidates also have a low somatic cell count and are modest producers.

“We are milking the Real Milk herd once a day, so we don’t want the highest volume cows” says Andrea. “A cow that produces about 18 litres a day is ideal”.

Currently about 60 cows in the main herd meet the Real Milk Timaru criteria and from these around 15 are kept in a separate herd and run through the shed in the afternoon before the main herd.

Andrea and an assistant hand wash and dry the udders and spray them with iodine teat spray prior to milking. The milk is tested weekly for consistency and bacteria count.

“The parallel parlour shed is unique in that it has a pan that runs the length of the pit for the effluent, so nothing goes on the floor. It is also a rapid exit shed so the head bail lifts up and the cows walk forwards and out”.

Real Milk Timaru is sold in glass bottles through a vending machine in the on-farm shop. The couple also have a driver who delivers their product four days a week to the Timaru urban area, Waimate to Fairlie/Tekapo to the west and Pleasant Point, Temuka and Geraldine to the east.

“Shop sales are relatively static but the demand for delivered milk is slowly creeping up” says Andrea. “People like the reusable glass bottles and they find it is very convenient to have milk delivered”.

OPPOSITE Farm Systems Manager Matt Dalley, Pioneer Area Manager Daryl Moore and Stu Weir. **RIGHT:** Stu and Andrea Weir and their Real Milk Timaru vending machine.



Farm walk

- 300 Friesian cows on 80 ha (eff.)
- 7 ha maize planted this season
- Uses Pioneer® brand IIC33 inoculant
- Milk sold locally under own brand





Maize silage

Growing and Harvest Cost Guide

The costs to grow, harvest and store maize silage are estimates only based on a sample of contractor rates, typical industry charges and product costs. All costs exclude GST and are indicative as at 28 February 2023. Given the volatility of farm input prices over the last few months, we encourage you to complete your own budget prior to the start of the growing season.

To use this cost guide, enter your own growing and harvesting costs in the “My costs” column. For help and notes on this table refer to the assumptions on the next page.

2023-24 Average Estimated Cost (exclusive of GST)

Growing Costs

		Average estimated costs* (\$/ha)	
		Typical fertility	High fertility
Pre-planting	Cost of leased land ¹	?	?
	Soil test, other	10	10
	Spraying out pasture including glyphosate	100	100
	Lime including cartage and application ²	140	0
	Base fertiliser cost including application	675	0
Planting	Cultivation: to planting specifications ³	440	440
	Pioneer® brand P9978 maize seed @ 1.30* or 1.35** bags/ha	630	655
	FAR maize seed levy (\$8/80,000 kernels @ 1.30* or 1.35** bags/ha)	10	10
	LumiGEN™ System L-400 seed treatment @ 1.30* or 1.35** bags/ha	160	170
	Starter fertiliser cost including application ²	355	0
Post-planting	Planting	210	210
	Pre emergence weed control (herbicide + application)	140	140
	Post emergence weed control (herbicide + application)	145	145
	Sidedress nitrogen cost including application ²	395	0
	Interest on maize expenditure (7 months @ 8%)	160	90
Total growing cost		\$3,570	\$1,970

Harvest Costs

Harvesting	Harvesting and stacking	1365	1365
	Covering	260	260
	Pioneer® brand 11C33RR maize specific inoculant ⁴	345	345
Total harvest cost		\$1,970	\$1,970

Total Growing & Harvest Costs

		\$5,540	\$3,940
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*Rounded to the nearest five dollars # Typical fertility ** High fertility

Maize silage drymatter cost

Research has shown that maize can be grown in high fertility dairy farm paddocks, including those with a history of effluent application, without the need for additional fertiliser.

The table below gives indicative drymatter costings for both high and typical fertility maize growing environments. High fertility environments include dairy paddocks coming out of long-term pasture as well as paddocks with a history of effluent application. Typical fertility environments include run-out pasture paddocks and repeat cropping blocks. Very low fertility paddocks including repeat cropping blocks are likely to require additional fertiliser nutrients depending on a number of factors including maize crop yield and winter management system. Always soil test maize paddocks and apply nutrients according to the results.

Drymatter yield per hectare and cost per kg drymatter and per megajoule of metabolisable energy

		Maize silage drymatter costs			
		Typical fertility paddock		High fertility paddock	
	tDM/ha	Maize silage cost per kgDM in the stack (c/kgDM)	Maize silage cost per MJME (c/MJME) ⁵	Maize silage cost per kgDM in the stack (c/kgDM)	Maize silage cost per MJME (c/MJME) ⁵
Maize silage yield (tDM) in the stack	16	34.6	3.21	-	-
	18	30.8	2.85	21.9	2.03
	20	27.7	2.56	19.7	1.82
	22	25.2	2.33	17.9	1.66
	24	23.1	2.14	16.4	1.52
	26	21.3	1.97	15.2	1.40
	28	19.8	1.83	14.1	1.30
	30	-	-	13.1	1.22

Assumptions

1. Average land rentals have not been included because of large regional variation. Provision to consider land rental has been included in the My Costs column.
2. Fertiliser and lime application rates vary according to soil pH and nutrient status and crop yield targets. Always soil test maize paddocks and seek professional advice to develop a nutrient application plan.
3. Cultivation costs will vary depending on soil types, land class and cropping history.
4. Costs for Pioneer® brand 11C33RR are based on inoculating a 22 tDM/ha crop.
5. Maize silage cost per MJME assumes a maize silage energy content of 10.8 MJME/kgDM.
6. Farmers growing maize silage for sale are usually responsible for costs up to and including the sidedress nitrogen application.
7. The amount of pasture lost during the maize growing season will vary between paddocks, farms and districts. The value of pasture lost during the maize growing season has not been considered in the calculation of the maize silage drymatter cost.
8. The costs and benefits of regrassing have not been included.

Notes

The information in this cost guide is general in nature and is not intended to be representative of actual costs. We do not accept any responsibility or liability (whether as a result of negligence or otherwise) for any loss of any kind that may arise from actions based on the contents of this cost guide or otherwise in connection with the use of this cost guide.



Trait characteristic notes (for table on page 58).

- ¹ Silage comparative relative maturity (CRM):**
Pioneer silage CRM ratings provide a comparison between Pioneer hybrids indicating the relative rates at which hybrids reach harvestable whole plant drymatter. They do **not** represent actual calendar days from planting to harvest.

² Yield for maturity:
Pioneer hybrid trait comparisons should only be made within a range of + or – 4 CRM. Analysis of differences in harvest drymatter percentages between hybrids measured in our New Zealand silage research programme show products compared within + or – 4 CRM will reach ideal silage harvest maturity (defined as 30% – 38% DM) within about seven days of each other.

³ Adaptability to high population:
A measure of the mix of genetic factors that permit a maize plant to withstand the stresses of high population and still give good standability and high yields.

⁴ Adaptability to low population:
An indicator of a hybrid's ability to compensate (flex) cob size for stand loss from insect damage or poor emergence.

⁵ Stress emergence
These ratings are based on data collected from local replicated small plot trials planted early and at depth into wet and cold conditions and vigour ratings on New Zealand commercial seed provided by Pioneer's regional seed laboratory. All seed supplied to the market is expected to establish excellent plant stands if planted well and under normal germination conditions. Ratings of 7-9 indicate very good potential to establish normal stands under stressful environmental conditions of cold, wet soils. A 5-6 rating indicates good potential to establish normal stands under moderate stress conditions; and ratings of 1-4 indicate the hybrid has below average potential to establish normal stands under stress and should not be used if severe wet and cold conditions are expected after planting. Hybrids with high ratings are best adapted to early planting but due care to apply best agronomic practices is still required.

⁶ Early growth:
Ratings are taken when two leaf collars are visible.

⁷ Plant height:
9 = Tall. 1 = Short.

⁸ Staygreen:
A measure of late season plant health. A lower score means that the plant stover loses colour and dries down more rapidly at maturity.

⁹ Whole plant digestibility:
Based on estimated 24 hour in vitro, whole plant digestibility percentage (DM basis) as predicted by Near Infrared Reflectance Spectroscopy (NIRS). A 1 rating point difference reflects one percent difference in digestibility.

¹⁰ Starch and sugar:
Based on total starch and sugar content of hybrids harvested at silage maturity. Use this score as a relative comparison of the whole plant concentration of readily available energy (primarily grain) among individual hybrids. A 1 rating point difference reflects one percent difference in starch and sugar.

¹¹ Northern Leaf Blight (NLB) and Eyespot:
In conditions where NLB and Eyespot risks are high, growers should consider planting hybrids with resistance ratings of 6 or higher for these diseases.

- ¹² Hybrid disease resistance ratings:**
8 to 9 = Highly resistant. 6 to 7 = Resistant.
4 to 5 = Moderately resistant. 1 to 3 = Susceptible.
- = Insufficient data. Common Rust, Eyespot and NLB ratings are based on overseas data together with New Zealand observations. Scores are based on visual assessment only and not on yield reduction data.

¹³ Cool environments:
In cool environments, including high altitude sites greater than approximately 150 m / 500 ft above sea level, select your yield environment using the descriptions in note 16, then increase established plant populations to the next level i.e. for P9911 in a medium yield environment at high altitude, plant to achieve 115,000 established plants per hectare.

¹⁴ Established plant populations:
These assume good seed establishment conditions. If you are planting very early or into a less than ideal seedbed or where insect pressure may be high (e.g. a shorter than optimum fallow period), seeding rates may need to be increased to compensate for reduced establishment due to field losses.

¹⁵ Plant populations:
The tabulated established populations are recommendations only. Work with your local Pioneer or merchant seed representative to determine the appropriate plant populations for your specific growing environment.

¹⁶ Growing environment definitions:
May include some or all of the following characteristics:

- **Challenging yield environments (CYE)**

 - Typically light, sandy or shallow soils of low fertility, low moisture retention, and predictably low summer rainfall (drought-prone environments).
 - High cob or leaf disease pressure.

• **Medium yield environments (MYE)**

 - Average fertility soils with predictably adequate summer rainfall and good moisture retention.
 - Continuously cropped soils.
 - Medium to low cob or leaf disease pressure.

• **High yield environments (HYE)**

 - Typically deeper, highly fertile and well structured soils with good moisture retention.
 - Predictably good summer rainfall, shelter from high wind run.
 - Good soils straight out of long term pasture.
 - Low or no cob or leaf disease pressure.

Publication abbreviations

DM = drymatter	t/ha = tonnes per hectare
bags/ha = bags per hectare	tDM = tonnes of drymatter
kgDM = kilograms of drymatter	tDM/cow = tonnes of drymatter per cow
kgDM/ha = kilograms of drymatter per hectare	tDM/ha = tonnes of drymatter per hectare
kgMS = kilograms of milksolids	c/kgDM = cents per kilogram of drymatter
kgMS/cow = kilograms of milksolids per cow	ai = active ingredient
\$/ha = NZ dollars per hectare	tCO₂e/ha = tonnes of carbon dioxide equivalents per hectare
MJME = megajoules of metabolisable energy	
MJME/kgDM = megajoules of metabolisable energy per kilogram of drymatter	

Step by step guide

Choosing the right Pioneer hybrid for your farm

Complete the following four steps to determine the right hybrid for your paddock.

1

Calculate your days from planting to harvest

Use the chart below to calculate. Line up your planned planting date **column** with your target harvest date **row** to find the actual number of days.

/

2023

planting date

/

2024

harvest date

days

Days from planting to harvest

GO TO STEP 2 >

			Planned planting date 2023														
			September		October						November						
					1	6	11	16	21	26	31	5	10	15	20	25	30
Target harvest date 2024	February	5	137	132	127	122	117										
		10	142	137	132	127	122	117									
		15	147	142	137	132	127	122	117								
		20	152	147	142	137	132	127	122	117							
		25	157	152	147	142	137	132	127	122	117						
	March	1	162	157	152	147	142	137	132	127	122	117					
		6	167	162	157	152	147	142	137	132	127	122	117				
		11	172	167	162	157	152	147	142	137	132	127	122	117			
		16	177	172	167	162	157	152	147	142	137	132	127	122	117		
		21		177	172	167	162	157	152	147	142	137	132	127	122	117	
		26			177	172	167	162	157	152	147	142	137	132	127	122	117
	31				177	172	167	162	157	152	147	142	137	132	127	122	
	April	5					177	172	167	162	157	152	147	142	137	132	127
		10						177	172	167	162	157	152	147	142	137	132
		15							177	172	167	162	157	152	147	142	137
		20								177	172	167	162	157	152	147	142
		25									177	172	167	162	157	152	147

Notes

It is possible to plant from mid September through to mid December in most areas, however, remember to consider planting date needs of the following grass crop. Please contact your local Pioneer Area Manager or phone 0800 PIONEER (746 633) for advice on hybrid selections for earlier or later plantings.



2 Hybrid options for your region

Hybrid 1

Hybrid 2

Hybrid 3

Use the tables below to choose your region then identify hybrid options by matching your number of days from planting to harvest.

Region 1

Northland, Auckland North, Coastal BOP, Gisborne & Northern Hawke’s Bay



Hybrids	Estimated days from planting to harvest	Hybrids	Estimated days from planting to harvest
P8000	110–125	P0640	135–149
P8666	117–131	P0725	135–156
NEW P8711	119–133	P0891	135–151
P8805	120–134	P0900	140–155
P9127	123–137	P0937	140–155
P9400	126–140	NEW P1096	140–155
P9721	129–143	P1315	140–155
P9911	130–150	P1613	142–156
P9978	130–148	P1636	144–158
P0021	130–144	P1477W	145–160
P0362	132–147	NEW P1837	146–161

Region 2

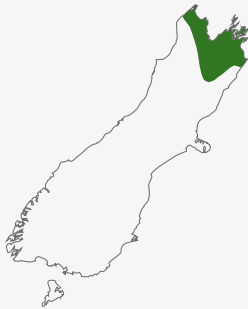
North & Central Waikato



Hybrids	Estimated days from planting to harvest	Hybrids	Estimated days from planting to harvest
P8000	115–129	P0640	140–156
P8666	121–134	P0725	144–161
NEW P8711	123–136	P0891	139–156
P8805	124–137	P0900	143–161
P9127	128–142	P0937	143–162
P9400	131–145	NEW P1096	143–162
P9721	133–147	P1315	144–162
P9911	134–154	P1636	147–165
P9978	134–151	P1477W	147–165
P0021	134–148	NEW P1837	148–166
P0362	136–151		

Region 5

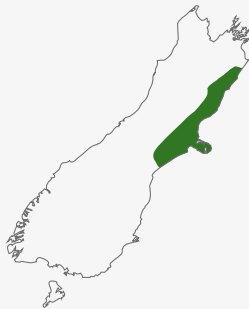
Nelson & Marlborough



Hybrids	Estimated days from planting to harvest	Hybrids	Estimated days from planting to harvest
P7524	130–145	P9127	146–161
P8000	132–146	P9400	150–164
NEW P8240	133–147	P9721	154–166
P8333	134–148	P9911	155–175
P8500	137–151	P9978	155–170
P8666	142–156	P0021	155–169
P8805	142–156		

Region 6

North & Mid Canterbury



Hybrids	Estimated days from planting to harvest	Hybrids	Estimated days from planting to harvest
P7124	140–155	P8500	150–165
P7524	144–157	P8666	153–168
P8000	146–160	P8805	153–168
NEW P8240	147–161	38V12	158–173
P8333	148–162	P9127	158–173

Region 3

South Waikato, King Country, Coastal Taranaki, Rangitikei, Manawatū, Southern Wairarapa & Central Hawke’s Bay



Hybrids	Estimated days from planting to harvest	Hybrids	Estimated days from planting to harvest
P7124	115–130	P8805	132–146
P7524	120–135	P9127	136–151
P8000	122–136	P9400	140–154
NEW P8240	124–138	P9721	144–156
P8333	125–139	P9911	145–165
P8500	127–141	P9978	145–161
P8666	129–143	P0021	145–159
NEW P8711	131–145	P0362	147–162

Region 4

Rotorua, Reporoa, Taupo, Central Taranaki, Southern Hawke’s Bay, Northern Wairarapa & Horowhenua



Hybrids	Estimated days from planting to harvest	Hybrids	Estimated days from planting to harvest
P7124	125–140	P8805	140–155
P7524	128–143	P9127	145–160
P8000	130–145	P9400	149–163
NEW P8240	132–147	P9721	150–165
P8333	133–148	P9911	153–173
P8500	135–150	P9978	153–169
P8666	137–152	P0021	153–168

Region 7

South Canterbury & West Coast



Hybrids	Estimated days from planting to harvest	Hybrids	Estimated days from planting to harvest
P7124	145–159	P8333	153–168
P7524	148–162	P8500	155–170
P8000	152–166	P8666	157–172
NEW P8240	152–167	P8805	157–172

Region 8

North Otago & Southland



Hybrids	Estimated days from planting to harvest
P7124	150–165
P7524	153–168
P8000	156–170

Notes

Hybrid maturity is based on heat unit accumulation through the season. Hybrids will therefore be quicker to harvest in warmer regions or warmer seasons. For example, a hybrid planted in coastal Nelson will be ready for harvesting much earlier than the same hybrid planted on the same day in mid Canterbury due to the faster accumulation of heat units in the Nelson environment. This has important implications for hybrid selection. The table below is a guide as to the estimated days from planting to harvest for Pioneer® brand hybrids in the regions for which they are recommended for silage. This information is generated from silage hybrid trials carried out in these regions over several seasons.

Hybrid	Yield and maturity						Plant traits						Silage quality traits		Hybrid disease ratings ¹²			Recommended established plant populations (000's/ha) ^{13, 14, 15, 16}		
	Silage CRM ¹	Grain yield for maturity ²	Silage yield for maturity ²	Adaptability to high population ³	Adaptability to low population ⁴	Drought tolerance	Stalk strength	Root strength	Stress emergence ⁵	Early growth ⁶	Plant height ⁷	Staygreen ⁸	Whole plant digestibility ⁹	Starch and sugar ¹⁰	Northern Leaf Blight ¹¹	Common Rust	Eyespot ¹¹	Challenging yield environments	Medium yield environments	High yield environments
P7124	71	9	7	9	6	6	6	6	7	7	7	9	8	8	6	6	-	110	120	130
P7524	75	9	9	9	8	7	7	7	6	8	8	7	9	9	4	-	-	110	115	120
P8000	80	9	8	7	7	6	6	6	6	7	8	7	9	9	6	6	6	108	115	120
P8240	82	9	9	7	9	7	6	7	6	6	8	8	8	7	5	5	7	105	115	120
P8333	83	9	9	5	9	7	6	5	6	8	8	8	8	8	5	6	7	100	110	115
P8500	85	9	9	6	8	7	6	6	6	7	8	9	7	7	5	5	-	105	115	120
P8666	86	9	9	5	9	8	6	5	6	8	8	8	7	8	6	6	7	100	110	115
P8711	87	9	9	9	9	8	7	7	6	7	7	8	9	9	7	7	6	100	110	120
P8805	88	9	5	9	5	8	6	5	6	6	5	7	9	9	6	7	6	108	115	120
38V12	91	6	5	8	6	7	6	8	7	7	7	7	6	7	6	6	-	104	108	115
P9127	91	9	9	7	9	9	6	6	6	6	7	7	8	9	5	6	7	95	108	115
P9400	94	9	8	6	9	7	7	7	4	7	8	6	8	9	7	6	6	100	108	115
P9721	97	9	6	8	6	8	6	5	7	6	7	7	9	9	6	7	7	104	108	115
P9911	99	8	9	7	9	9	5	5	7	6	8	9	6	7	5	5	6	100	108	115
P9978	99	9	9	9	7	7	6	7	6	7	7	7	9	9	7	7	6	95	110	120
P0021	100	7	6	9	6	7	6	7	7	9	6	7	6	7	7	6	5	100	108	115
P0362	103	9	8	9	6	7	6	7	6	6	7	8	7	8	6	7	7	95	105	115
P0640	106	9	9	7	9	7	6	6	6	7	8	8	7	8	7	7	6	95	105	110
P0725	107	9	9	7	8	9	6	6	6	7	7	8	7	8	5	7	7	95	104	108
P0891	107	7	7	9	6	7	8	6	4	6	7	7	6	7	6	6	6	95	105	110
P0900	109	9	9	9	9	9	7	7	7	7	7	8	6	7	7	7	6	85	95	115
P0937	109	9	9	9	7	8	6	7	7	8	6	9	7	7	7	6	6	90	100	115
P1096	110	9	9	9	7	7	7	7	7	6	6	8	5	6	7	6	6	90	100	115
P1315	110	7	9	5	9	7	7	6	6	6	8	8	5	6	7	7	6	80	90	100
P1613	111	7	7	8	6	7	7	6	5	6	8	8	5	6	6	7	-	90	105	110
P1636	112	7	9	8	7	7	6	8	6	6	8	7	6	7	5	6	-	95	105	110
P1477W	114	9	9	9	6	7	8	8	5	6	7	8	6	7	7	6	7	90	105	110
P1837	115	9	9	5	0	8	6	6	6	6	9	9	5	6	7	7	-	80	90	100

Ratings 9 = Outstanding 1 = Poor - = Insufficient data available **NEW** = New hybrid
CRM = Comparative Relative Maturity For trait notes see page 54

Choose key traits that are important to you

Use trait table on page 58. Enter the hybrid trait ratings (right) for the hybrids you selected in Step 2.

[illegible]

- Silage yield rating²
- Grain yield rating²
- Drought tolerance rating
- Staygreen rating⁸
- Early growth rating⁶
- Leaf disease rating¹¹
- Whole plant digestibility⁹
- Starch and sugar¹⁰

Bag calculator

Obtain planting populations from page 58. Determine the number of bags required for each paddock on your farm by completing the table below.

Paddock name			
Planting population (000's)	A		
Hectares	B	X	X
		÷ 80	÷ 80
Bags required	C	=	=

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