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PIONEER LONG LOOK

As adopted by Genetic Technologies Limited.

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.
Every season delivers a challenge or two and this past season has been no exception. Dry conditions had a major impact on pasture growth. The combined impact of higher feed costs and increased bank loan repayment requirements has tightened cashflows. There are also more stringent environmental compliance requirements at both regional and national level.

Farmers continue to adapt and develop resilient systems to meet the challenges that come their way. Top farmers like Craig and Kim Lynskey (page 3), Keith and Jeanette Trotter (page 5), Richard and Kirby Van Der Heyden (page 7), and many others are using maize silage to secure their feed supply and maintain or increase production, whilst at the same time controlling production costs.

Maize doesn't just have a positive impact on production and profit, it also brings significant environmental benefits. A maize crop can be used to soak up surplus nutrients (especially nitrogen and potassium) from high fertility dairy paddocks. Feeding maize silage dilutes dietary protein resulting in lowered urinary nitrogen output and less nitrogen leaching.

In the past 12 months, greenhouse gas emissions have come under the spotlight. While there is no silver bullet, fewer cows producing more milk per cow, lower replacement rates and a greater reliance on home-grown feed will all help to reduce agricultural losses. Maize can help by filling feed deficits, extending lactation and improving production as well as reproductive performance.

In March our longstanding, highly regarded Seed Production Manager Phil Evans retired after more than 30 years in that role. Phil is succeeded by Andrew Powell who has held other key positions since joining the business in 2007. We have every confidence Andrew and the Gisborne team will continue to produce the high-quality Pioneer seed New Zealand growers have come to expect.

We also recently welcomed Richard Weightman to the position of National Sales Manager. From a family who have farmed in Northland since 1864 (his Mum still lives on the family farm at Wharehine), and following a 28 years sales career with PGG Wrightson, Richie brings much experience to the Pioneer team as we seek to constantly improve our customer service and quality of product delivery.

We are pleased to launch two new shorter maturity hybrids for planting in spring 2020. P8666 is an 86 CRM hybrid with sound all-round agronomics and excellent digestibility. At 98 CRM and new to our AQUAmax® range, P9874 delivers exceptional yield stability in dry conditions. These hybrids join P1613 and P0937 which were first commercialised last season, to deliver ever-improving genetics to New Zealand maize growers.

We take your business very seriously. Our philosophy is to be “with you from the word go”. That is why we are focused on not only delivering industry-leading hybrids, but also working closely with our merchant partners and contractors to help ensure your farming success.

With best wishes for the 2020-21 growing season.

Sincerely,

William Yates
Managing Director
The 500-strong herd is on track to achieve 280,000 kgMS this season, due to the extended lactation that can be achieved with maize silage. “We can achieve more days in milk despite the summer dry,” Craig says. “We milk until the end of May or the start of June; we’re targeting a 300-day lactation.”

“Maize silage has also improved our animal health and cow condition scores.”

The Lynskeys have split-calved for the past five years, calving 370 cows in spring and 100 in the autumn, with 50 carryovers. Autumn calving begins on March 15 (five weeks mating), and spring calving kicks off on August 1 (five weeks mating).

“We aim to get 75% cows in calf within the five-week mating period; the other 25% will be carried over and will end up doing an 18-month lactation,” Craig says.

“Autumn calving-cows are mated to Hereford beef bulls, which enables diversity in income streams. It also simplifies the system by moderating the number of calves reared on farm; autumn calves are sold as four-day-olds or at 100 kg, dependent on the market.”

Craig says the primary reason for split-calving is to follow the grass. “It can get quite dry on farm, so drying
The feedpad also captures effluent, which is applied to next season’s maize ground

And when the grass is struggling, the Lynskeys are producing maize silage at a low cost while maintaining the highest yield possible. “Having maize silage on hand takes away the risks associated with summer drought,” Craig says.

“We can maintain a consistent cost throughout the year ($3.94/kgMS farm working expenses), because we aren’t so vulnerable to the weather. Also, we have found that as we produced more milk, our actual cost of production per kgMS fell due to the fact that we were able to spread some of our fixed costs across more milk solids.”

The Lynskeys have invested in a concrete feedpad and pits in recent years, allowing them to virtually eliminate supplementary feed wastage. They feed palm kernel and maize silage via mixer wagon onto the feed pad, and dried distiller’s grain (DDG) through in-shed feeders.

“Having a feedpad also captures effluent, which is applied to next season’s maize ground, reducing the amount of fertiliser required and making the whole process cheaper,” Craig says.

“It’s a big circle - ryegrass, maize and effluent.”

As former agricultural contractors, the Lynskeys do their own regrassing, cultivation and spraying, and by doing that can identify their own maize paddocks a year in advance.

“Doing these tasks ourselves makes maize an even cheaper feed for us,” Craig says. “It has been a big learning curve all the way and we are now achieving higher yields at a lower cost.”

Using Pioneer maize has also provided the Lynskeys with opportunities to meet and learn from like-minded farmers; they have visited a number of top-operating farmers growing and feeding maize in the Manawatu and the Waikato, and started their own Pioneer discussion group.

“Between working with Kim and attending those groups, it keeps farming pretty exciting,” Craig says. “It has been great to meet other like-minded farmers and provide a forum to bounce ideas off each other with the goal of constantly improving our on-farm results while caring for our stock.”
MAIZE DELIVERS OVER AND ABOVE EXPECTATION

KEITH & JEANETTE TROTTER, MATAKANA, AUCKLAND.

Pioneer Area Manager Corey Thorn and Keith Trotter in his crop of Pioneer® brand P1613
Growing maize on farm has evolved into an activity that has far exceeded its original intended purpose, says Matakana dairy farmer Keith Trotter.

Keith and Jeanette have farmed their 140 ha effective farm for 26 years, Keith first started growing maize 14 years ago as part of his pasture renewal programme. “I bought a block that was all kikuyu which I wanted to spray and regrass, and maize fitted the bill for that purpose,” Keith says.

“It soon became apparent that the maize block was growing a lot of additional feed. Maize is still part of the regrassing programme, but it’s far more than that now; it’s an integral part of my farm system.”

Keith currently grows 14 ha of maize on farm, and an additional 6 ha of maize on a lease block. Average yields are an impressive 24 tDM/ha.

“We feed maize almost all year round, but particularly in the spring and autumn to extend lactation,” Keith says. “The only time the herd of 400 cows isn’t fed maize silage is when they’re dry.”

Going forward the herd, which produces around 180,000 kgMS, will be fed maize silage in the winter too as the farm transitions to winter milking.

“The move to winter milking was a result of wanting a change, and a challenge,” Keith says. “We’ve got all the infrastructure set up – the feedpad, the bunker – and I like the idea of calving in autumn and feeding them clean grass.”

The herd milked until the end of December 2019, before drying off over January and February.

“It’s wonderful to have a new approach and see all the various aspects of dairy farming in a quite different way,” Keith says. “It’s not a hard transition – it just gets you thinking and planning differently. And so far, so good.”

Keith has witnessed many benefits to the herd since maize silage became part of the farm feed regime. “Cow condition has improved markedly, and so has milk production and fertility. The cows are generally healthier. Having happy, well-fed cows makes a huge difference.”

The majority of the maize crop is planted on the farm’s rolling country with just 4 ha planted on the flat, which goes in the ground a week later than the rest.

Keith has been working with Pioneer Area Manager Corey Thorn for several years and is happy to follow his recommendations and advice.

“We soil test the maize paddocks in autumn to ensure we get the right amount of lime on, so the ground is ready for planting in spring.

“Maize is a very rewarding crop to grow; it grows so quickly. It’s also easy to grow, when you have the right advice.”

Cow condition has improved markedly, and so has milk production and fertility

FARM WALK

- 400 cows on 140 effective ha
- 180,000 kgMS per season produced
- Recently moved to winter milking
- Herd fed maize all year except when dry
- 14 ha maize on farm, 6 ha on lease block
- Average maize yields of 24 tDM/ha
Resilience is arguably the most critical component to success in business and in life – and one Tirau dairy farming family is ensuring they cover both bases.

Richard and Kirby Van Der Heyden, who farm 380 cows on 100 ha at Tirau, moved to a System 5 to build resilience into their farm business and better withstand the region’s dry summers.

The couple has lived and worked on the Tirau farm for 12 years, progressing from contract milkers to sharemilkers and now farm owners. Over that time, they have developed their pasture-based system to a System 5, high input system with maize silage as a key component.

“I had grown maize on another farm when I worked for my father, and it was always a high-yielding and low-cost feed,” Richard says. “We didn’t grow maize when we started on this farm but planted our first crop during the 2008 drought.”

“Maize is a crop that is summer safe and the hybrids we grow – P9400 and P0640 – perform well in the dry summers that Tirau can experience.”

Over time they have planted more and more maize, with the current area of 20 ha on the dairy platform and 16 ha on the runoff.

The total cropping area yields approximately 20-22 tDM/ha. Together with an additional 100 tDM of bought-in maize silage, the maize is fed out on a feedpad throughout the year.

“My main goals are to fully feed the herd and maximise their production potential,” Richard says. “Maize silage extends lactation and improves body condition score, and we’ve also seen a tighter calving spread.”
The couple has further increased the long-term resilience of their farm system by moving to split calving, to increase $/kgMS through winter milking without having to raise cow numbers.

“We started split calving four years ago – calving 150 in autumn and 250 in spring – which has improved our bottom line by increasing winter milk income,” Richard says.

Richard and Kirby have been working with Pioneer Area Manager Logan Scott for some time, with Logan supporting them with hybrid selection, planting advice and increasing the maize area on farm.

“If I have any concerns at all about our maize crop, I ring Logan and he’ll come by the next time he’s over my way,” Richard says. “Logan offers advice on hybrid and paddock selection and checks the crop during the growing season.”

The couple is not only working towards a more resilient farm system, but also helping build more resilient farming communities.

With Richard’s support, Kirby helps run Shining Light on the Dark – South Waikato, an organisation that provides support and raises awareness to both the precursors and the finality of suicide.

For the past two years they have held the Shining Light Relay in Putaruru, a six-hour Exercise for Awareness team event that raises awareness of the cause.

“The organisation’s vision is to help teach our communities, and mainly our younger generations, to learn, acknowledge and find coping mechanisms that can help aid living with mental illness and depression, leading towards a future free of suicide,” Kirby says. “We want to encourage people to talk about this taboo topic.”

Richard says they have no immediate plans to increase the area of maize grown on farm, with 36 ha providing plenty of supplementary feed.

“In our first season we did 88,000 kgMS in a drought, and last season the herd produced 248,000 kgMS,” Richard says.

“We are very happy with where we are now.”

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**FARM WALK**

- 380 cows (peak milked) on 100 ha
- 248,000 kgMS produced last season
- Split calving: 250 spring, 150 autumn
- Fully feeding herd to maximise potential
- 20-22 tDM/ha maize from 36 ha
- Additional 100 tDM bought in

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**P9400 and P0640 perform well in the dry summers that Tirau can experience**

Richard and Kirby Van Der Heyden with their daughter Harper
Many farmers throughout New Zealand have been using maize silage as part of their system for a few years now. Farmer reports are backed up by proven science telling us the same thing... maize silage, when added to a farm system can result in significant financial, environmental and animal welfare benefits. Simply put, maize silage works.

### FINANCIAL

**Extend lactation**

Some early work incorporating maize silage within farm systems was conducted at the Waimate West Demonstration Farm in the late 1990s. The trial showed using maize silage to increase days in milk was profitable. In fact net profit per hectare increased by 23 and 28 percent when maize silage was fed in the spring and autumn respectively (see table below).

### MAINTAIN MILK QUALITY

Fonterra introduced a Fat Evaluation Index (FEI) Grading System in 2018. It was designed to indicate the suitability of the milk fat composition for processing into a variety of products. Farmers are required to keep the FEI in the A and B zones and out of the C and D zones to avoid penalties. The main driver of FEI is the amount of PKE fed and the PKE fat content.

Maize silage can be fed at high levels without having any significant impact on the FEI. This means that during periods of extended dry, maize silage is the perfect alternative to PKE.

### THE BENEFITS OF ADDING MAIZE SILAGE TO YOUR SYSTEM

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Spring</th>
<th>Summer</th>
<th>Autumn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocking rate (cows / ha)</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Maize silage (kgDM / cow)</td>
<td>0</td>
<td>300</td>
<td>293</td>
<td>290</td>
</tr>
<tr>
<td>Milksolids per cow (kgMS / cow)</td>
<td>285</td>
<td>332</td>
<td>309</td>
<td>337</td>
</tr>
<tr>
<td>Milksolids per hectare (kgMS / ha)</td>
<td>1,083</td>
<td>1,262</td>
<td>1,174</td>
<td>1,281</td>
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<tr>
<td>Days in milk</td>
<td>228</td>
<td>268</td>
<td>256</td>
<td>259</td>
</tr>
<tr>
<td>EFS ($ / ha calculated at a $3.50 payout)</td>
<td>1,489</td>
<td>1,824</td>
<td>1,532</td>
<td>1,904</td>
</tr>
<tr>
<td>Increase in EFS over control (%)</td>
<td>-</td>
<td>23%</td>
<td>3%</td>
<td>28%</td>
</tr>
<tr>
<td>Milksolids response (kgMS / kgDM maize silage fed)</td>
<td>-</td>
<td>157</td>
<td>82</td>
<td>179</td>
</tr>
</tbody>
</table>

*Note: Payout was $3.50/kgMS and cost of maize silage was 18c/kgDM when the trial was undertaken at Waimate West Demonstration farm 1997/98 season.*
ENVIRONMENTAL

Reduce the risk of nitrogen leaching
Every tonne of drymatter of maize silage harvested removes 12.8 kg of nitrogen from the paddock. A 25 tDM maize crop will remove around 300 kg nitrogen per hectare. This means that maize silage can be used to extract a lot of excess nitrogen out of the soil, reducing the risk of leaching. For much of the year pasture contains more protein than is required by a dairy cow. Surplus dietary protein is excreted in the urine and this is a major contributor to nitrogen leaching. As a low protein feed, maize silage can be used to dilute dietary protein levels thereby reducing urinary nitrogen levels.

High water use efficiency
Maize is highly efficient at using water. Water use efficiency (WUE) is a measure of how much water it takes to produce a tonne of drymatter. Maize has up to twice the WUE of perennial ryegrass on an annual basis and up to three times greater on a summer seasonal basis.

ANIMAL WELFARE

Put condition on cows
Maize silage is one of the best feeds for putting condition on cows. Work conducted by DairyNZ showed that maize silage is approximately 20% more efficient at putting weight on cows than autumn saved pasture.

Feed cows properly regardless of the weather
Maize silage is an excellent farm systems feed, as it can be stored for long periods and fed when it is needed. The combination of maize silage and a feed-out pad allows farmers to stand animals off pasture but still feed them well even when wet soil conditions mean lots of mud. It means that on a cold wet night, no-one needs to go out and move cows.
Over the last 30 years, New Zealand maize silage trial yields have increased by about 250 kgDM/ha per year as a consequence of improved hybrid genetics and better management practices. Whether this additional yield potential is realised in your paddock will be determined by seasonal growing conditions (rainfall, heat, sunlight hours etc) as well as how your crop is managed.

Agronomic practices including seed bed preparation, planting rate and accuracy, crop nutrient management, insect and weed control, and harvest timing can all impact silage yield and quality. Though growers cannot influence weather, choosing the right hybrid and crop management practices will significantly influence how the crop responds to the growing environment, and consequently, how well it will yield. For instance, a crop established on a poor seedbed with average weed control and poor nutrient balance will not have as much resilience to stress as a crop on good soil with uniform emergence, no weed pressure, and adequate nutrients.

There are several important steps in formulating the optimum nutrient management plan for your crop.
Take an annual soil test for each paddock

Cropping paddocks should be tested to a depth of 150 mm as many paddocks are cultivated to this depth. Maize will easily access nutrients beyond 75 mm which is the standard soil sampling depth for pastures. Conducting a deep nitrogen soil test (600 mm) prior to side dressing will provide an improved assessment of nitrogen status of a paddock.

Engage a reputable nutrient advisor to help interpret the results

A good understanding of crop nutrition and soil-nutrient interactions is important. Some soils have an inherent ability to retain and supply more nutrients than others, which will influence how much fertiliser is required for optimal yields.

Avoid applying excessive nutrients

Providing more nutrients than your crop can use is costly and increases the chance of nutrient loss to waterways. When formulating a nutrient plan, set realistic yield expectations and take into consideration what nutrients the soil can supply. Research has shown that maize silage crops grown in high fertility dairy paddocks, including those with a history of effluent application, require no additional fertiliser. In short, soil test and then apply only those nutrients you need.

Consider soil pH

Soil pH, which is the measure of the soil’s acidity or alkalinity, has a direct impact on nutrient availability. Maize yields are often optimised when soil pH is between 6.2 and 6.5. At this pH level, almost all soil nutrients are readily available to the crop. If soil pH drops below 6, plant uptake of some essential nutrients can be negatively impacted. So, monitor the pH of your paddocks and adjust (lime) when pH is below 6.0 to ensure optimum nutrient availability.

Consider rate, type and timing of nitrogen applications

The maize crop takes up 60–65% of its total nitrogen in the period from emergence through tasselling. Modern hybrids take up more nitrogen after tasselling than those we planted 20 years ago. Take a soil nitrogen test to determine how much fertiliser nitrogen your crop requires, then match the timing of application as close as possible to the period of maximum crop demand. Protected or coated nitrogen products may be a good option if fertiliser is not incorporated or if rain is not expected shortly after application.

Avoid applying too much phosphorus (P)

A maize silage crop removes approximately 12.8 kg nitrogen, 12.0 kg potassium but only 2.6 kg phosphorus per tonne of dry matter harvested. For many dairy farmers who have high soil Olsen P’s, phosphorus application should not exceed the amount of P removed by the crop.

Think about micronutrients not just macronutrients

Plants require 16 nutrients in varying amounts for optimum growth. If any one of these nutrients, is limiting, yield can be impacted. For instance, maize requires almost 400 times more nitrogen (N) than zinc (Zn). A 20 IDM/ha maize silage crop may only require 0.6 kg Zn/ha compared to 250 kg N/ha, but if soil Zn supply is inadequate, yield will be significantly affected. Again, soil testing is the best way to determine the nutrient status of your paddocks.

To achieve maximum economic maize yields without compromising on the environmental footprint of your crop, it is vital to set realistic yield goals, determine soil nutrient status, consider other potential sources of nutrients (effluent, soil organic matter etc), then determine nutrient application rates and timing.
Over the past 40 years, the team at Pioneer® has been working with New Zealand farmers to help them derive maximum value from the Pioneer maize hybrids they plant. During this time, our hybrid line-up has broadened and performance has improved significantly. We see this continuing in the future and are pleased to introduce two new hybrids to the range - P8666 and P9874 bringing the total number of silage hybrids to 23 for the coming 2020-21 season.

With around 160 silage trials planted every season, chances are there is a Pioneer trial close to you. This extensive testing allows the Pioneer team to understand product performance across environments and growing conditions. With this knowledge they can help position the right hybrid(s) to suit your specific situation, so you can plant with confidence.

Our team in the field is dedicated to knowing the hybrids that work best in your area. Please contact one of them, or your local merchant or contractor, for advice on choosing the right hybrid to best fit your farming situation.

www.pioneer.nz/contact-us
Positive drymatter differences indicate that the bolded Pioneer hybrid had a higher average drymatter percentage at harvest. Such hybrids are usually shorter in maturity than the comparison hybrid. Negative drymatter differences indicate that the bolded Pioneer hybrid had a lower average drymatter content at harvest. Such hybrids are usually longer in maturity than the comparison hybrid. Includes all data to the end of the 2019 harvest.

Milksolids income calculated @ $6.00 / kgMS based on industry reports available on 14th April 2020.

Source: Pioneer® brand products New Zealand Research Programme.

### MAIZE HYBRID PERFORMANCE COMPARISONS

Good crop management practices certainly help achieve high yields, but the most important decision at the start of the season is to select and plant the highest yielding hybrid suited to the growing situation being considered. The product performance and positioning information below will assist farmers to make informed hybrid selection decisions this spring.

<table>
<thead>
<tr>
<th>Pioneer hybrid</th>
<th>Comparison hybrid</th>
<th>Number of trials</th>
<th>Drymatter difference (%)</th>
<th>Yield advantage (kgDM/ha)</th>
<th>Statistical significance</th>
<th>Milksolids income ($/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northland and South Auckland</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P0640 P0640</td>
<td>P1253</td>
<td>22</td>
<td>0.02</td>
<td>760</td>
<td>NS</td>
<td>456</td>
</tr>
<tr>
<td>P0891 P0640</td>
<td>P0640</td>
<td>26</td>
<td>3.03</td>
<td>343</td>
<td>NS</td>
<td>206</td>
</tr>
<tr>
<td>P0891 P0791</td>
<td>P0791</td>
<td>44</td>
<td>1.37</td>
<td>318</td>
<td>NS</td>
<td>191</td>
</tr>
<tr>
<td>P0891 P9911</td>
<td>P9911</td>
<td>13</td>
<td>-0.98</td>
<td>733</td>
<td>NS</td>
<td>440</td>
</tr>
<tr>
<td>P0837 P1253</td>
<td>P1253</td>
<td>11</td>
<td>-3.63</td>
<td>690</td>
<td>NS</td>
<td>414</td>
</tr>
<tr>
<td>P1477V P1636</td>
<td>P1636</td>
<td>19</td>
<td>-0.64</td>
<td>1410</td>
<td>CA</td>
<td>846</td>
</tr>
<tr>
<td>P1613 P1636</td>
<td>P1636</td>
<td>13</td>
<td>1.05</td>
<td>3299</td>
<td>★★★</td>
<td>1979</td>
</tr>
<tr>
<td>P1636 Z71-F1</td>
<td>Z71-F1</td>
<td>15</td>
<td>-0.69</td>
<td>1659</td>
<td>★</td>
<td>995</td>
</tr>
</tbody>
</table>

| **Waikato** | | | | | | |
| P0866 P8500 | P8500 | 13 | -0.56 | 1595 | ★★★ | 957 |
| P9127 P9400 | P9400 | 56 | -0.04 | 211 | NS | 127 |
| P9811 G49-T9 | G49-T9 | 66 | 0.05 | 2420 | ★★★★★ | 1452 |
| P9911 PAC432 | PAC432 | 26 | 2.47 | 987 | ★ | 592 |
| P0640 PAC343 | PAC343 | 16 | 0.12 | 1952 | ★ | 1171 |
| P0837 P1253 | P1253 | 17 | -1.03 | 902 | NS | 541 |
| P1636 PAC624 | PAC624 | 32 | 3.90 | 1693 | ★ | 1016 |
| P1636 Z71-F1 | Z71-F1 | 50 | 0.72 | 1884 | ★★★ | 1130 |

| **Bay of Plenty, Gisborne and Hawke’s Bay** | | | | | | |
| P0791 Z71-F1 | Z71-F1 | 19 | 3.79 | 1555 | ★ | 933 |
| P0891 P0725 | P0725 | 43 | 2.14 | 131 | NS | 79 |
| P0891 P0791 | P0791 | 54 | 1.19 | 344 | NS | 206 |
| P1253 P0725 | P0725 | 29 | -0.30 | 859 | NS | 515 |
| P1253 P0891 | P0891 | 55 | -1.79 | 285 | NS | 171 |
| P1253 P1636 | P1636 | 22 | 1.83 | 756 | NS | 454 |
| P1477W P1636 | P1636 | 13 | -1.07 | 1842 | ★★★ | 1105 |
| P1613 P1636 | P1636 | 12 | 1.03 | 1019 | NS | 611 |

| **Lower North Island and Taranaki** | | | | | | |
| P7524 P7124 | P7124 | 20 | -0.96 | 973 | NS | 584 |
| P8000 P7524 | P7524 | 59 | -0.11 | 874 | ★ | 524 |
| P8000 Titus | Titus | 13 | 0.27 | 1729 | ★★★ | 1037 |
| P8500 P8000 | P8000 | 32 | -2.22 | 2497 | ★★★★★ | 1498 |
| P8500 P8805 | P8805 | 34 | 1.40 | 1403 | ★★★ | 842 |
| P9127 C29-A1 | C29-A1 | 12 | 1.05 | 1453 | ★ | 872 |
| P9127 P9400 | P9400 | 29 | -0.77 | 868 | CA | 521 |
| P9127 PAC249 | PAC249 | 11 | 2.11 | 2309 | ★★★ | 1385 |

*Positive drymatter differences indicate that the bolded Pioneer hybrid had a higher average drymatter percentage at harvest. Such hybrids are usually shorter in maturity than the comparison hybrid. Negative drymatter differences indicate that the bolded Pioneer hybrid had a lower average drymatter content at harvest. Such hybrids are usually longer in maturity than the comparison hybrid. Includes all data to the end of the 2019 harvest.

Milksolids income calculated @ $6.00 / kgMS based on industry reports available on 14th April 2020.

Source: Pioneer® brand products New Zealand Research Programme.

### Scientific Designation

- ★★★★★ = very highly significant yield advantage
- ★★★★ = highly significant yield advantage
- ★★★ = significant yield advantage
- ★★ = commercially acceptable yield advantage
- ★ = no statistical yield advantage
- NS = no statistical yield advantage
Optimum AQUAmax® hybrids are revolutionary products that offer growers additional choices to help minimise risk and maximise crop productivity under drought stress.

Developed and tested utilising Pioneer’s extensive drought technology research and proprietary Accelerated Yield Technology (AYT™) system, Optimum AQUAmax® hybrids help deliver a yield advantage in water-limited environments.

**Optimum AQUAmax® hybrid benefits:**

- Maximise water access through an extended rooting system.
- Help minimise the risk of decreased yields due to drought stress.
- Deliver yield stability even in dry seasons.

**Optimum AQUAmax® hybrid range for the 2020-2021 season**

[Images of corn plants and drought susceptibility charts]

**IMPORTANT NOTE:** Hybrid comparisons are only valid within a range of ± 4 CRM. These descriptions mainly feature product strengths. When choosing hybrids, also review carefully the trait ratings found in the table on page 32. Contact your local Pioneer Area Manager or Merchant for further advice.
Raising the yield bar in cooler regions.

New option for New Zealand’s cooler maize growing regions. P7124 is tall for maturity, uniform, bulky plant with notable grain filled ears. P7124 also has strong standability, drought tolerance and staygreen. Delivers notable silage yields with great energy and digestibility ratings.

Best grown in cooler growing regions where P7524 and P8000 are considered too late in maturity including high-altitude Central North Island, Taranaki, Lower North Island and South Island growing regions.

Stands and delivers tonnes of high energy feed.

Growers recognise P7524 as a reliable hybrid producing impressive silage yields with high levels of starch and outstanding whole-plant digestibility. P7524 combines strong drought tolerance and staygreen for a wide harvest window. It has striking appearance, being a very tall plant with low ear placement and great standability. Intermediate in maturity between P7124 and P8000. P7524 provides an exciting option for growers in New Zealand’s cooler growing environments.

Versatile stunner. Delivers top yields of high energy silage.

P8000 is tall, with low ear placement, strong roots and stalks for excellent eye appeal and improved standability in this maturity. Growers will also note superior staygreen and Northern Leaf Blight resistance. P8000 has a chunky cob with deep dent grain to produce top yields of high starch content silage with great feed value. Now widely grown in Taranaki, Lower North Island and South Island, while providing an excellent balance of yield and earliness in northern growing regions.

Companion with P7524, P8500 or P8666.
Yield leader with looks to match.

This silage yield leader has a solid agronomic package with great standability, drought tolerance and staygreen for a wide harvest window.

Where Northern Leaf Blight is a concern, plant P8000, P8666 or P8805 depending on maturity requirements.

A tall imposing mid-maturity hybrid now well established in Taranaki, Lower North Island and South Island growing regions.

Grows well, yields very well and feeds even better.

A tall bulky plant with balanced all-round agronomics, superior drought tolerance, Northern Leaf Blight resistance and staygreen.

Delivers top silage yields, with impressive grain content and with optimal digestibility that cows will thrive on.

Is widely adapted from Ashburton to Dargaville where a hybrid of this maturity is required.

P8666 is intermediate in maturity between P8500 and P8805. However, to optimise performance established plant populations should be approximately 5,000 per hectare less than applied for P8500 and P8805.

Hefty yields rain or shine – makes the most of every drop.

Tough hybrid providing growers with silage production stability. P8805 performs where water may be limited as well as under ideal conditions. A relatively short hybrid delivering high grain content silage with exceptional digestibility characteristics. Has excellent all-round agronomics and a balanced disease resistance profile.

Now a popular, widely adapted hybrid from Northland, as a very early option, through the Lower North Island and into Canterbury as a fuller season product. Best used for the production of top quality silage or where standability and Northern Leaf blight are concerns.

P8805 is intermediate in maturity between P8500 and P9127.
**Bred to yield, destined to impress.**

Early maturity Optimum AQUAmax® offering yield stability for silage and grain.

A tall plant with strong roots, stalks, drought tolerance and staygreen combined with superior Northern Leaf Blight, Eyespot and Rust resistances which together deliver striking late season eye appeal.

Often produces a second cob!

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

Companion with P8500, P8666 and P9400.

---

**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.

Performs best in moderate to high yield environments, but also delivers in hot dry seasons.

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

Intermediate in maturity between P9127 and P9721.

---

**Productive and stable AQUAmax® hybrid**

Great new addition to the AQUAmax® range in this maturity. Handles drought and heat to deliver exceptional yield stability. Modern erect leafed hybrid, modest in height but with low ear insertion and sound stalks and roots. Has strong all-round agronomics and a balanced disease resistance profile.

Established plant populations should be carefully adjusted to match paddock yield expectation.

Delivers impressive yields of high energy silage with outstanding whole plant digestibility.

Widely adapted in the North Island. Where Northern Leaf Blight is a concern consider planting P9400, P9721, P0021 or P0362 depending on maturity requirements.

---

See page 30-31 for days to harvest and growing regions.
**Top yielding, drought buster.**

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

A tall showy hybrid delivering yield stability and unmatched silage yields in this maturity.

A widely grown, imposing all-round hybrid, with top agronomics.

If Northern Leaf Blight is a concern plant P0021 or P0362.

**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. These strengths are complemented by superior drought tolerance, staygreen and yield stability.

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

Companion with P9911, P0021 or P0640 depending on maturity and disease resistance requirements.

**Leaf disease champion delivering silage yield stability.**

Combines excellent all-round agronomics with desirable leaf and ear rot disease resistances.

A tall plant with sound standability, staygreen and drought tolerance producing silage with superior energy content.

Provides yield stability in moderate to high yield environments from Northland to Waikato, Bay of Plenty and East Coast.

Plant with P0362, P0725 and P0891 depending on maturity requirements.

---

**IMPORTANT NOTE:** Hybrid comparisons are only valid within a range of + or - 4 CRM. These descriptions mainly feature product strengths. When choosing hybrids, also review carefully the trait ratings found in the table on page 32. Contact your local Pioneer Area Manager or Merchant for further advice.
Northern star – well known drought warrior.

Optimum AQUAmax® delivers top of the line drought tolerance. Produces a tall plant with a chunky cob delivering consistent yields of soft textured grain. Excellent silage appeal is enhanced by superior drought tolerance and staygreen which contribute to yield stability and a wide harvest window.

Plant in northern production areas through to Bay of Plenty and East Coast.

Companion with P0640, P0725 or P0891.

Great performance with extraordinary consistency.

Delivers exceptional yield stability in all warmer northern production regions. Produces high grain content silage with digestibility ratings that drive milk production. Optimum AQUAmax® drought tolerance provides resilience when it’s dry and yield responsiveness with favorable growing conditions. Standability and notable staygreen provide a wide harvest window that contractors will appreciate.

Companion with P0640 and P0891.

Pack your paddock – then the bunker.

Delivers exceptional yield stability for silage and grain in all northern production regions. Produces high starch content silage.

The popular all-rounder with very good drought tolerance, standability and staygreen combined with sound resistance to Northern Leaf Blight. Best suited to moderate to high yielding paddocks.

Well adapted to high plant populations that should be adjusted to match yield expectations.

Other hybrids to consider include P0640, P0725 and P0937.
NEW

CRM 109

**P0937**

Solid hybrid with great standability and foliar health.

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

A widely adapted 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.

**P0937** is well adapted in moderate to high yielding situations in Northland, Waikato, Bay of Plenty, Gisborne and Hawke’s Bay growing regions.

**NEW**

CRM 109

**P1253**

Impressive yield. Impressive energy. Impressive hybrid.

Moderately tall, with low ear placement, sound standability and excellent staygreen.

**P1253** is well adapted in moderate to high yield situations and should be planted early to optimise its performance opportunity.

Produces impressive yields of high grain content silage.

Plant with **P0891** and **P0937**.

**NEW**

CRM 111

**P1613**

Great full season option for the north.

A tall uniform hybrid with low ear placement, excellent standability, foliar health, drought tolerance and staygreen for season long eye appeal and a wide harvest window.

Produces a long ear with notable kernel depth to produce high energy silage.

Delivers impressive silage yields in northern growing regions but is particularly productive in Northland where sound Northern Leaf Blight and Rust ratings will be of value.

Plant alongside **P1636**.

---

**IMPORTANT NOTE:** Hybrid comparisons are only valid within a range of + or - 4 CRM. These descriptions mainly feature product strengths. When choosing hybrids, also review carefully the trait ratings found in the table on page 32. Contact your local Pioneer Area Manager or Merchant for further advice.
CRM 112

Here at last! A top all round full maturity hybrid.

P1636 is a tall full maturity hybrid with top standability. Has a long cob to produce high grain content silage.

Combines strong all-round agronomics, drought tolerance and staygreen that together provide a wide harvest window. Plant early to maximise yields.

P1636 is well adapted to all warmer northern growing regions.

---

CRM 114

Here at last! A top all round full maturity hybrid.

P1477W

A tall white-grained hybrid producing attractive well-filled cobs for high starch content silage for maximum milk production.

Tall, erect leaf, modern plant type with excellent roots, stalks, drought tolerance and staygreen. All bundled together with superior Northern Leaf Blight, Common Rust and Eyespot resistances.

Plant before 20th October into high yielding paddocks in Northland, Bay of Plenty, Poverty Bay and Hawke’s Bay to deliver on the yield potential of this compelling hybrid.

A great option where leaf diseases, lodging or yield stability are considerations.

Outstanding companion for P1636.

---

Enjoy the agronomics of this top yielding hybrid.

P1636 is a tall full maturity hybrid with top standability. Has a long cob to produce high grain content silage.

Combines strong all-round agronomics, drought tolerance and staygreen that together provide a wide harvest window. Plant early to maximise yields.

P1636 is well adapted to all warmer northern growing regions.
Pioneer® brand crop-specific inoculants contain unique bacterial strains which are tested and proven to improve the quality of your silage. They increase fermentation efficiency, reduce shrinkage, decrease heating at feed-out time and increase fibre digestibility. The end result is more nutrients available to your livestock and More Milk™ or More Meat™ for every tonne of pasture or crop ensiled.

MORE CHOICES, MORE BENEFITS
Pioneer® brand inoculants provide multiple inoculant choices to maximise ensiling benefits for a range of crops:

- Crop specific inoculant products
- Patented bacteria strains
- Comprehensive, product specific research
- Quality assured with an ISO 9001:2000 accredited quality control system
- Guaranteed bacteria levels on the label of every bottle
- Exclusive Appli-Pro® inoculant applicator technology, allowing more consistent and precise inoculant application
- Extensive local technical back-up throughout New Zealand
THE PIONEER® BRAND MAIZE INOCULANT RANGE

Pioneer® brand
11C33
Maize specific inoculant that helps keep silage cooler for longer, reducing energy losses and enabling it to be fed out up to a day in advance.²

Pioneer® brand
1132
Produces top quality maize silage with enhanced fermentation for high producing dairy cows and specialised beef production.

Pioneer® brand
1174
Improves drymatter recovery and silage quality of all forage crops.

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 eaten.²

WHICH MAIZE SILAGE INOCULANT SHOULD I USE?

Do you want to feed out in less than 30 days?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you need a maize inoculant that maximises return on investment?</td>
<td>Is heating* at feed-out likely to be an issue?</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td><strong>1132</strong> Fermentation enhancer. Higher cost but higher return on investment.</td>
<td><strong>1174</strong> Fermentation enhancer. Low-cost option for cost conscious farmers.</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Heating could be an issue. Do you need extra fibre digestibility?</td>
<td>Heating won’t be an issue. Do you need to maximise ROI?</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td><strong>11CFT</strong> Reduces heating, improves fermentation. Greater fibre digestibility.</td>
<td><strong>11C33</strong> Reduces heating, improves fermentation.</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td><strong>11CFT</strong> Higher cost but higher return on investment.</td>
<td><strong>1174</strong> Low-cost option for cost conscious farmers.</td>
</tr>
</tbody>
</table>

*Heating may occur if:
1. The crop was dry at harvest
2. The feed out rate is slow
3. Face management was poor
4. The feed-out wagon is loaded the night before feeding

¹ Trial data available on request.
² While 11CFT and 11C33 inoculated maize silage can be fed out immediately after harvest, it will stay cooler for longer when it has been fermented for 30 days prior to feeding.
SELECTED FROM THE BEST
Seed treatment active ingredients evaluated and selected to best address New Zealand’s unique combination of pests and diseases.

PROVEN PERFORMANCE
Extensively tested across multiple growing regions and the Pioneer maize hybrid range.

ACCURATELY APPLIED
Industry-leading precision seed treating equipment to safeguard seed germination and seedling vigour.

ENHANCED PLANTABILITY
A new, high-quality polymer coating to keep the active ingredients well-attached to the seed for smooth, accurate planting.
New Bird Repellent

A new bird repellent Anthraquinone is now being applied to Pioneer® brand seed. It delivers improved germination and seedling vigour compared to the previously applied bird repellent product. It also has an improved toxicity profile, which is safer for those handling seed and has no crop withholding period requirement.

Anthraquinone has been used as a bird repellent in New Zealand and overseas markets for a number of years. It is a naturally occurring substance found in several plants, including aloe vera, rhubarb, and plantain.

It limits birds eating newly planted maize seed by causing immediate but temporary digestive unease, resulting in birds looking elsewhere for food.

New Polymer Seed Coating

A newly introduced polymer delivers improved seed flowability and plantability, and uniform stand establishment in the paddock.

Both new products have been extensively tested and trialed by a rigorous evaluation process measuring seed germination and vigour. Thorough and comprehensive laboratory experiments and field trial observations have demonstrated and proven the seed safety, enhanced plantability and efficacy of all treatment combinations.

Our extensive seed treatment evaluation programme includes both laboratory and in-field evaluation of germination and seedling vigour across the full range of Pioneer genetics. As a result, there are two changes to note for spring 2020.

### LumiGEN™ SEED TREATMENT OPTIONS FOR 2020

<table>
<thead>
<tr>
<th>LumiGEN™</th>
<th>Fungicide</th>
<th>Insecticide</th>
<th>Bird Repellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-200</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-200+</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>L-300</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>L-300+</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>L-400</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>L-400+</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### 2020-21 Average Estimated Cost
(exclusive of GST)

#### Growing Costs

<table>
<thead>
<tr>
<th>Stages</th>
<th>Low fertility</th>
<th>High fertility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre planting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of leased land</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Soil test, other</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Spraying out pasture including glyphosate</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Lime @ 1.25 t/ha including cartage and application</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Base fertiliser cost including application</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>Cultivation: to planting specifications</td>
<td>380</td>
<td>380</td>
</tr>
<tr>
<td><strong>Planting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pioneer® brand P9911 maize seed @130^1 or 135^2 bags/ha</td>
<td>530</td>
<td>550</td>
</tr>
<tr>
<td>FAR maize seed levy ($8.00/80,000 kernels @ 130^1 or 135^2 bags/ha)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>LumiGEN® System L-400 seed treatment @ 130^1 or 135^2 bags/ha</td>
<td>155</td>
<td>160</td>
</tr>
<tr>
<td>Starter fertiliser cost including application</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td><strong>Planting</strong></td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td><strong>Post planting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre emergence weed control (herbicide + application)</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Post emergence weed control (herbicide + application)</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Sidedress application</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Sidedress nitrogen</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Interest on maize expenditure (7 months @ 6%)</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total growing cost</strong></td>
<td><strong>$2,485</strong></td>
<td><strong>$1,630</strong></td>
</tr>
</tbody>
</table>

#### Harvest Costs

<table>
<thead>
<tr>
<th>Stages</th>
<th>My Costs ($/ha)</th>
<th>My farm ($/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvesting and stacking</td>
<td>1060</td>
<td></td>
</tr>
<tr>
<td>Covering</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td><strong>Total harvest cost</strong></td>
<td><strong>$1,590</strong></td>
<td><strong>$1,590</strong></td>
</tr>
</tbody>
</table>

#### Total Growing & Harvest Costs

<table>
<thead>
<tr>
<th>Stages</th>
<th>My Costs ($/ha)</th>
<th>My farm ($/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total growing &amp; harvest costs</strong></td>
<td><strong>$4,075</strong></td>
<td><strong>$3,220</strong></td>
</tr>
</tbody>
</table>

---

1. ^1 Cultivation costs will vary depending on soil types and land class.
2. ^2 Low fertility
3. ^3 High fertility

---

*Rounded to nearest $10
Maize silage drymatter cost

Research has shown that high fertility dairy farm paddocks including those with a history of effluent application may not require any additional fertiliser to be applied. Different yield environments also influence the recommended planting rate for Pioneer® brand maize silage hybrids (see page 32).

The table below gives indicative maize silage costings for both high and low fertility maize silage growing environments. High fertility environments include dairy paddocks coming out of long-term ryegrass-clover pasture, as well as paddocks with a history of effluent application. Low fertility environments include run-out pasture paddocks and repeat cropping blocks. 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

<table>
<thead>
<tr>
<th>Maize silage drymatter costs</th>
<th>Low fertility paddock</th>
<th>High fertility paddock</th>
</tr>
</thead>
<tbody>
<tr>
<td>tDM/ha</td>
<td>Maize silage cost per kgDM in the stack (c/kgDM)</td>
<td>Maize silage cost per MJME (c/MJME)</td>
</tr>
<tr>
<td>16</td>
<td>25.5</td>
<td>2.36</td>
</tr>
<tr>
<td>18</td>
<td>22.6</td>
<td>2.10</td>
</tr>
<tr>
<td>20</td>
<td>20.4</td>
<td>1.89</td>
</tr>
<tr>
<td>22</td>
<td>18.5</td>
<td>1.72</td>
</tr>
<tr>
<td>24</td>
<td>17.0</td>
<td>1.57</td>
</tr>
<tr>
<td>26</td>
<td>15.7</td>
<td>1.45</td>
</tr>
<tr>
<td>28</td>
<td>14.6</td>
<td>1.35</td>
</tr>
<tr>
<td>30</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Assumptions

1. Cost to grow, harvest and store the crop are estimates only.
2. Average land rentals have not been included because of large regional variations (provision has been made for you to consider land rental in your own costing column).
3. The cost and benefits of regrassing have not been included.
4. Cost for Pioneer® brand 11C33 is based on inoculating a 22 tDM/ha crop.
5. Farmers growing Pioneer® brand maize for silage for sale are usually responsible for costs up to and including the nitrogen sidedressing application.
6. Maize silage cost per MJME assumes a maize silage energy content of 10.8 MJME/kgDM.
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. Costs are estimates based on a sample of contractor rates, other typical industry charges and product costs. All costs exclude GST and are indicative at 28 February 2020. See www.pioneer.nz for updated costs.

Notes

The information in this tool is general in nature and is not intended to be a representation 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 tool or otherwise in connection with the use of this tool.
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.

<table>
<thead>
<tr>
<th>Planned planting date 2020</th>
<th>October</th>
<th>November</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>October</td>
<td>November</td>
</tr>
<tr>
<td>21</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>21</td>
<td>137</td>
<td>132</td>
</tr>
<tr>
<td>20</td>
<td>152</td>
<td>147</td>
</tr>
<tr>
<td>25</td>
<td>157</td>
<td>152</td>
</tr>
<tr>
<td>2</td>
<td>162</td>
<td>157</td>
</tr>
<tr>
<td>17</td>
<td>177</td>
<td>172</td>
</tr>
<tr>
<td>2</td>
<td>162</td>
<td>157</td>
</tr>
<tr>
<td>17</td>
<td>177</td>
<td>172</td>
</tr>
<tr>
<td>27</td>
<td>177</td>
<td>172</td>
</tr>
<tr>
<td>11</td>
<td>177</td>
<td>172</td>
</tr>
<tr>
<td>21</td>
<td>177</td>
<td>172</td>
</tr>
<tr>
<td>26</td>
<td>177</td>
<td>172</td>
</tr>
</tbody>
</table>

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.
Choose your region then identify hybrid options by matching your number of days from planting to harvest.
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 Bay of Plenty will be ready for harvesting much earlier than the same hybrid planted on the same day in Central Taranaki due to the faster accumulation of heat units in the Bay of Plenty 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.

Region 3
South Waikato / King Country / Coastal Taranaki / Rangitikei / Manawatu / Southern Wairarapa / Central Hawke’s Bay

<table>
<thead>
<tr>
<th>Hybrids</th>
<th>Estimated days from planting to harvest</th>
<th>Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>P7124</td>
<td>115 - 130</td>
<td>VS</td>
</tr>
<tr>
<td>P7524</td>
<td>120 - 135</td>
<td>S</td>
</tr>
<tr>
<td>P8000</td>
<td>122 - 136</td>
<td>M</td>
</tr>
<tr>
<td>P8500</td>
<td>127 - 141</td>
<td>F</td>
</tr>
<tr>
<td>P8666</td>
<td>129 - 143</td>
<td></td>
</tr>
<tr>
<td>P8805</td>
<td>132 - 146</td>
<td></td>
</tr>
<tr>
<td>P9127</td>
<td>136 - 151</td>
<td></td>
</tr>
<tr>
<td>P9400</td>
<td>140 - 154</td>
<td></td>
</tr>
<tr>
<td>P9721</td>
<td>144 - 156</td>
<td></td>
</tr>
<tr>
<td>P9874</td>
<td>145 - 159</td>
<td></td>
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Region 4
Rotorua / Reporoa / Taupo / Central Taranaki / Southern Hawke’s Bay / Northern Wairarapa / Horowhenua

<table>
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<tr>
<th>Hybrids</th>
<th>Estimated days from planting to harvest</th>
<th>Maturity</th>
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Maturity key
US = Ultra short
M = Mid
VS = Very short
F = Full
S = Short
VL = Very long
### Pioneer® brand Maize Silage hybrid trait characteristics for 2020-2021

<table>
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<tr>
<th>Hybrid</th>
<th><strong>Silage CRM</strong></th>
<th><strong>Grain yield for maturity</strong></th>
<th><strong>Silage yield for maturity</strong></th>
<th><strong>Adaptability to high population</strong></th>
<th><strong>Adaptability to low population</strong> (ear flex)</th>
<th><strong>Drought tolerance</strong></th>
<th><strong>Stalk strength</strong></th>
<th><strong>Root strength</strong></th>
<th><strong>Early growth</strong></th>
<th><strong>Plant height</strong></th>
<th><strong>Staygreen</strong></th>
<th><strong>Whole plant digestibility</strong></th>
<th><strong>Starch and sugar</strong></th>
<th><strong>Northern Leaf Blight</strong></th>
<th><strong>Common Rust</strong></th>
<th><strong>Eyespot</strong></th>
<th><strong>Challenging yield environments</strong></th>
<th><strong>Medium yield environments</strong></th>
<th><strong>High yield environments</strong></th>
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Ratings: 9 = Outstanding, 1 = Poor, - = Insufficient data available

For footnotes please refer to page 34

**Plant Populations**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Recommended established plant populations (000'S/HA)</th>
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</thead>
<tbody>
<tr>
<td>Challenging yield environments</td>
<td>110 110 108 105 100 108 104 95 100 104 95 100 95 95 90 95 90 90 95 90</td>
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<tr>
<td>High yield environments</td>
<td>130 120 120 120 115 120 115 115 115 115 115 115 110 108 110 110 110 110 110</td>
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</tbody>
</table>

New = New hybrid, NR = Not recommended
Choose key traits that are important to you

Use trait table

Silage yield rating
Grain yield rating
Drought tolerance rating
Staygreen rating
Early growth rating
Leaf disease rating
Whole plant digestibility
Starch and sugar

Enter the hybrid trait ratings above for the hybrids you selected in Step 2

Bag calculator

Paddock name
Planting population (000's)
Hectares

Bags required

Determine the number of bags required for each paddock on your farm

Notes:
Trait characteristic notes (See page 32).

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

6  Plant height: 9 = Tall. 1 = Short.

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

8  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.

9  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 more readily available energy (primarily grain) among individual hybrids. A 1 rating point difference reflects one percent difference in starch and sugar.

10  Northern Leaf Blight (NLB) and Eyespot: Caution: In conditions where NLB and Eyespot risks are high, growers should only consider planting hybrids with at least moderate resistance ratings of 5 or higher for these diseases.

11  Hybrid disease resistance ratings: 8 to 9 = Highly resistant. 6 to 7 = Resistant. 4 to 5 = Moderately resistant. 1 to 3 = Susceptible.

12  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 15, then increase established plant populations to the next level i.e. for P0791 in a medium yield environment at high altitude, plant to achieve 108,000 established plants per hectare.

13  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.

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

15  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**
- % = percent
g = gram
m = metre
cm = centimetre
kg = kilogram
ha = hectare
DM = drymatter
bags/ha = bags per hectare
kgDM = kilograms of drymatter
kgCM/ha = kilograms of drymatter per hectare
kgMS = kilograms of milksolids
kgMS/cow = kilograms of milksolids per cow
$/ha = NZ dollars per hectare
MJME = megajoules of metabolisable energy
MJME/kgDM = megajoules of metabolisable energy per kilogram of drymatter
t/ha = tonnes per hectare
tDM = tonnes of drymatter
tDM/cow = tonnes of drymatter per cow
tDM/ha = tonnes of drymatter per hectare
c/kgDM = cents per kilogram of drymatter
ai = active ingredient