Not all seed is created equal. All Pioneer® brand maize seed sold in New Zealand is grown in New Zealand*. Producing top performing seed requires an ongoing commitment and investment in world class facilities, procedures and standards.

*Except for very small quantities of experimental seed.

Abbreviations

- t = tonne
- ha = hectare
- km = kilometre
- kg/ha = kilograms per hectare
- kgDM = kilograms of drymatter
- kg/MS = kilograms of milksolids
- kg/HL = kilograms per hectolitre
- kg urea/ha = kilograms of urea per hectare
- $/ha = NZ dollars per hectare
- $/tonne = NZ dollars per tonne
- MJME/kgDM = megajoules of metabolisable energy per kilogram of drymatter
- t/ha = tonnes per hectare
- tDM = tonnes of drymatter
Dear valued customer

Pioneer® brand seeds continues to invest in advanced hybrid research programmes such as Accelerated Yield Technology (AYT™) and IMPACT™ (see page 2). New technologies are making Pioneer’s commitment to increasing maize yields a reality on farms all around the world.

New elite maize hybrid performers such as P0021, P0537, P0891 and P1253 are making a contribution to improving yields and profitability for New Zealand grain growers. It’s exciting to know that as Pioneer breeders double the incremental rate of maize genetic gain, reduce yield variability and improve performance predictability, even better hybrids are in the pipeline.

While top genetics and seed quality are a primary focus, quality seed treatment maximises crop yield and protects the investment growers make in maize seed. This season sees the launch of Pioneer Premium Seed Treatment™ which is a stamp of approval guaranteeing growers that precision application technology and the greatest care has been used to apply their seed treatment. By specifying Pioneer Premium Seed Treatment growers can be confident their Pioneer® brand maize seed has the best possible chance of achieving its full yield potential.

Identifying and developing new markets for grain will offer growers more options and serve to sustain the industry into the future. New Zealand’s large national dairy herd represents a significant growth opportunity. Maize grain is the perfect concentrate feed, providing high levels of energy in the form of starch. Starch feeds drive milk protein production giving higher returns for every kilogram of milk solids produced.

To help maximise farmers’ profits, this season as always the Pioneer team in New Zealand looks forward to working closely and supportively alongside growers’ chosen seed merchant, grain company representative and contractor.

With best wishes.

Sincerely,

William Yates
Managing Director

Pioneer Long Look Philosophy (as adopted by Genetic Technologies Limited in New Zealand) has four simple statements of business policy.

1 We strive to **produce the best products** in the market.
2 We deal **honestly and fairly** with customers, employees and business associates.
3 We **vigorously market** our products, but without misrepresentation.
4 We provide **helpful management information** to assist customers in making optimum profits from our products.
MORE RESEARCH, MORE PRODUCT CHOICES, MORE GROWER PROFIT

The Pioneer® brand seeds continuing investment in hybrid research and development together with advanced programmes such as Accelerated Yield Technology (AYT™) and Intensively Managed Product Advancement, Characterisation and Training (IMPACT™) trials are making Pioneer’s commitment to increase maize yields a reality on farms all around the world.

AYT integrates a proprietary matrix of breeding technologies allowing researchers to more rapidly and accurately identify superior maize hybrids.

“AYT is driving a tenfold increase in the number of inbreds Pioneer Research scientists evaluate”, says Barry McCarter, Maize Product Manager for Pioneer® brand seeds in New Zealand. “It is enabling Pioneer to double the incremental rate of maize genetic gain, reduce yield variability and improve performance predictability.”

Each year more than 4,000 Pioneer researchers in 25 countries develop around 130,000 new hybrids and rigorously test them for grain and silage yield, pest and disease resistance and their ability to produce reliable yields under a range of good through to challenging growing conditions. From this vast pool of new hybrids, a group of experiment hybrids which have already been proven to perform in similar growing environments are selected for testing in New Zealand.

IMPACT trials are the first step of the New Zealand trialling process. This programme is an advanced method for evaluating maize hybrids in over 150 replicated research trials across the key maize growing areas in this country.

“The IMPACT programme allows us to test up to 100 potential products at a single location”, says McCarter. “It is a quantum leap in trialling methodology allowing us to gather more data on more hybrids, to accurately deliver...”

“Providing the best maize hybrids to New Zealand farmers is not all about the numbers, but also about the quality of the experimental hybrids and the depth of the research programme used to evaluate them.”

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Pioneer Hi-Bred International Global Breeding Programme

130,000 new hybrids evaluated each year

The New Zealand Maize Grain Hybrid Evaluation Programme

Selected experimental and commercial hybrids tested and compared in 260 on-farm grain trials

New Zealand Maize Grain Grower

18 proven, high yielding maize grain hybrids available to local growers in spring 2012

Right product. Right paddock.”
the highest performing hybrids to New Zealand growers sooner.

IMPACT trials are planted in a range of environments with different soil types and disease pressures. Plots are planted using specialised research planters including a pneumatic 4-row plot planter with GPS guidance giving increased accuracy and precision. A research combine collects yield, moisture and test weight data as the plots are harvested.

As the name implies, IMPACT trials benefit from intensive management, close observation and evaluation throughout the growing season by specialist IMPACT teams, led by research agronomist Michael Henderson. The best performing maize hybrids from the IMPACT programme are identified and advanced to the Product Advancement Trial (PAT) or farmer strip trial programme.

“The significant investment Pioneer has made in IMPACT together with PAT trials has increased the total annual number of New Zealand trial plots to 15,000”, says McCarter. “This allows us to confidently release new higher performing hybrids while also providing the Pioneer sales team, in conjunction with merchant and grain company representatives and contractors, the information they need to help growers plant the right product in the right paddock.”

Plant scientist, Dr Rowland Tsimba analyses, interprets and reports on data gathered from Pioneer’s New Zealand Research Programme.

“Providing the best maize hybrids to New Zealand farmers is not only about the numbers, but also the quality of the experimental hybrids and the depth of the research programme used to evaluate them”, says Tsimba. “Statistical analysis of the data ensures the yield differences we report are repeatable because they are due to genetic differences and not just chance.”

Twenty five years ago the Pioneer Research Programme was established in New Zealand to ensure maize growers have access to the very best performing hybrids identified from Pioneer’s global breeding pool. Twenty five years on, that same commitment continues. However, with IMPACT, growers now have faster access to the most advanced global genetics and Pioneer’s hybrid advantage.

**The right quality seed**

Delivering the **right** quality seed to you is a key goal. All Pioneer® brand maize seed grown and sold in New Zealand is rigorously tested for genetic purity and vigour.

If it is not **right**, it is not sold. Growers can see the difference in their yield monitors at harvest.
Maize for grain provides additional income whilst spreading the workload for Hawke’s Bay grower and contractor Stuart Mawley. Stuart runs Te Mata Contractors Ltd which plants and harvests maize for local growers as well as process crops including tomatoes, sweetcorn and beetroot for Heinz Wattie’s Ltd. Each year he grows 80-150 ha of maize grain on lease and share-crop land.

“We utilise our staff and equipment to get the maize in the ground before we get busy with the process sector work and the maize grain is harvested after the process crops so it is a great fit”, says Stuart. “Maize is relatively easy to grow and is a low risk crop.”

Preparation for the next maize crop starts immediately after grain harvest. A mulching head on the combine shreds the stubble and the paddock is disc ripped. All paddocks are soil tested to ensure appropriate levels of fertiliser can be applied in the spring.

“Each paddock is unique so a soil test allows us to fine-tune our nutrient inputs.”

Cultivation starts as soon as soil conditions are suitable and Stuart places a lot of emphasis on creating a good seed bed for the maize crop. Poncho® treated maize seed is planted from mid-September to the end of October.

“We can’t afford to take any risks and by using Poncho® we ensure we get a good crop established.”

Stuart runs a double fertiliser box system on the planter. Starter fertiliser is drilled alongside the seed and sidedress nitrogen from the second box is drilled further out from the seed. Weed control is carried out post-emergence and crops are monitored throughout the early part of the growing season to determine the most appropriate herbicide and the best time to spray. Harvest normally starts when the grain moisture is below 20%, although “sometimes the weather doesn’t allow that to happen.”

In the 2010-11 growing season, which was dry in Hawke’s Bay, Stuart’s crop of Pioneer® brand 34K77 yielded 13 t (dry) per ha. The previous year the average yield was 15 t (dry) per ha. For the 2011-2012 season Stuart planted a mix
of Pioneer® brand 34K77 and 34B97 and the first crops off the paddock yielded 16-17 t wet at 19-20% grain moisture.

“The contracting operation allows me to see other hybrids and the yield map generated by the combine gives me a rough idea of how they perform”, says Stuart. “I’ve always planted Pioneer because I know it is reliable.”

Fluctuating weather conditions mean that Stuart is also looking for a range of agronomic strengths in the maize hybrids he plants.

“It gets dry in Hawke’s Bay but it can also get wet in some seasons, so I’m looking for maize hybrids that have good drought tolerance, as well as good standability. In the end I want to plant the crop, spray the weeds, shut the gate and not come back until harvest time.”

It is only right - replant risk policy*

The Pioneer® brand seeds team believe it is only right to share some of your farming risk. So if within two months of planting, your maize crop needs replanting for whatever reason, we will provide replacement seed at half price regardless of which brand you initially planted. Simply advise your merchant representative or Pioneer Area Manager of the problem.

*This policy is for planting within the same season and applies to any brand of hybrid maize.
Key benefits of treated seed

New Zealand research has shown that establishing a high maize plant population is critical for achieving maximum yields. Choosing the right insecticide and fungicide seed treatment is the most important step in reducing the risk of insect and fungal damage to seedling plants, thereby increasing crop yields and grower profitability.

Vitaflo® fungicide treatment

Vitaflo® is the industry standard fungicide treatment for the control of major seed and soil-borne seedling diseases in maize.

The key benefits of fungicide treated maize seed are:

- Stimulates early seedling growth, increasing coleoptile length, resulting in faster emergence and better crop establishment.
- Thiram controls diseases borne on the outside of the seed by providing a protective barrier around the seed.

1. Quality control

Compliance with Pioneer’s global ISO 9001:2008 accredited quality control standards is at the forefront of all conditioning, grading and seed treating operations at our Gisborne production plant, ensuring you receive the best quality seed every time.

2. Precision application

Precision treating technology administers the precise required dose of seed treatment to each and every seed. Treatments are accurately and evenly applied using multiple applications, giving consistent chemical loading on every seed.
3. Advanced film coatings

The use of film coatings and advanced drying processes ensures all components of the treatment ingredients adhere to every seed, significantly reducing dust and improving planter operator safety.

4. Pioneer warranty

For your protection every bag of Pioneer® brand seed is mechanically stitched closed with green and white bi-colour tamper proof string. This ‘locks-in’ the Pioneer warranty, the Pioneer replant risk policy and guarantees the amount (80,000 kernels) and quality of seed in each and every bag.

Poncho® insecticide treatment

Poncho® is the standard seed insecticide treatment for maize. It controls all three major maize insect pests (Argentine Stem Weevil, Black Beetle and Greasy Cutworm) in a single treatment.

The key benefits of insecticide treated maize seed are:

- Precise amount of insecticide applied to every seed.
- Proven insecticide that reliably performs and protects your maize crop from insect attack.
- Low insecticide dose rate for minimal impact on the environment.
- Maximum safety for the planting contractor/operator.

By specifying Pioneer Premium Seed Treatment you can be 100% confident your Pioneer® brand maize seed has the best possible chance to achieve its full yield potential.

1Registered Trademark of Uniroyal Chemical Company Inc., USA.
2Registered trademark of Bayer.
3Trial data supplied by Bayer CropScience.
MAIZE GRAIN FOR DAIRY COWS

Increasing interest and demand for maize grain from dairy farmers offers maize growers new market opportunities. Packed with high energy starch, maize grain can lift milk yields and milk protein content, increasing production and profit. Key reasons why maize is the concentrate supplement of choice include:

**High energy content**

Maize has a higher energy content than other grains and many other commonly available concentrates. It can be used to increase cow energy intakes, delivering more milk or faster condition score gains.

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**More milk protein**

Recent information published by DairyNZ shows that milk production is determined by the amount of energy a cow eats, but the composition of the milksolids she produces is affected by the type of supplement fed.

When cows are fed a starch or sugar-based supplement, they produce more milk protein. When cows are fed a fibre based supplement, they produce more milk fat. Since milk protein is worth two to three times more than milk fat, starch and sugar based supplements will deliver more milk revenue than fibre-based supplements.

Estimated milk revenue ($ in bold) from feeding 1 tDM of different supplements fed through an in-shed feeding system.

<table>
<thead>
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<th>Feed</th>
<th>Percentage of extra milksolids as:</th>
<th>Estimated milk return at $6.50/kgMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fat</td>
<td>Protein</td>
</tr>
<tr>
<td>PKE</td>
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<td>25</td>
</tr>
<tr>
<td>Barley</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>Maize grain</td>
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<td>80</td>
</tr>
</tbody>
</table>

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**Convenient and easy to feed**

Processed maize grain can be ordered as and when required and fed either mixed with silage in bins or through a meal feeding system.

For more information on feeding maize grain to dairy cows call 0800 PIONEER (0800 746 633) or visit www.pioneer.co.nz to request a complimentary copy of the Pioneer® brand maize grain – the high performance feed brochure.

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1Holmes et al. 2003 Milk Production from pasture, Massey University, NZ.
3Adapted from Roche and Hedley, 2011. Supplements – the facts to help improve your bottom line. DairyNZ Technical Series July, 2011 p 6-10. Assumes grazing residuals of 1,500-1,600 kgDM (7-8 clicks on RPM). Responses decline when residuals are higher than 1,600 kgDM (i.e. cows are better fed). For a full list of assumptions see http://www.dairynz.co.nz/file/filename/37671.
Maize Grain for Dairy Cows

Tom and Amanda Newman and sons George (9) and Charlie (7) farm 400 ha at Waipaoa, 25 km north of Gisborne. The farm operates as a family partnership in conjunction with Tom’s parents Bill and Lee Newman. Tom is the third generation of the Newman family to farm the land since his grandfather purchased it in 1937.

In the 2011-12 growing season the Newman’s planted 80 ha of maize for grain, a maize seed crop and 26 ha of barley. They leased 13.5 ha to a local squash grower and grew 8 ha of lemons and mandarins. The balance of the farm is in pasture which is used for a range of livestock enterprises, including breeding ewes and fattening lambs and steers.

Bill started growing maize grain and crib drying it more than 35 years ago. Today Bill manages the livestock while Tom runs the cropping side of the business. Tom also contract harvests around 300 ha of maize grain.

The maize harvest normally starts towards the end of February and finishes by early June. Crop stubble is ploughed in after the combine has been through and the paddock is then cultivated using discs and power harrows prior to planting in early October. Tom applies 300 kg/ha of Crop 20 (20:10:10) as a starter fertiliser and sidedresses with 300 kg urea/ha.

Tom believes the secret to a high yielding crop is good weed control and planting the right hybrid at the right time. In Spring 2011 he planted a mix of Pioneer® brand 37Y12, 34B97, P9400, P0021 and 35Y33.

Tom believes that maize grain has a long-term future on the farm. “You don’t have to harvest when the ground is wet and you return all the stubble to the ground, so the whole system is sustainable from a soil perspective” he says. “….and if you do it right, you always make money from maize.”

“I’m looking for hybrids that give me the most money per hectare”, says Tom. “I harvest a lot of maize around the district and the Pioneer hybrids generally outstrip the competitors.”
Evenly spaced plants are the foundation for higher yields. Even plant spacing reduces competition between plants and maximises grain yield.

The seed planter meter has the potential to impact both seeding rate and the number of double drops. Factors like speed, seed size and wear can reduce meter accuracy by 5-20%. Planting too many, unevenly spaced seeds cause competition between plants. Planting too few seeds and falling short of the optimum population limits yield potential.

To help growers maximise the return from their investment in Pioneer genetics and seed quality, the Pioneer team has for many years offered growers and planting contractors a test planter service for finger metering units. Last season the seedPlanterCheck™ service was expanded with new additional equipment. This now enables calibration of Case IH, John Deere, Kinze and Monosem vacuum metering units.

The service was so popular last season we have invested in a second unit to help more growers and contractors have their planters functioning correctly for the coming spring.

The seedPlanterCheck™ is simple to undertake. Planting meters are mounted onto the test stand and filled with seed. The stand uses advanced sensor technology to calibrate the planting meter units, resulting in consistent plant spacing of single seeds, regardless of seed size or field conditions. To improve and optimise planting meter efficiency, appropriate adjustments are made followed by retesting and further adjustment to ensure optimum performance. On completion a print-out of the test results is provided.

To request a seedPlanterCheck™ service for your planter, contact your local Pioneer® brand seeds representative today.
Diversifying their farming business has helped provide income stability for Northland farmers Shawn and Tracey Nichols. The couple run a 404 ha livestock and cropping property at Waihue 6 km north of Dargaville. Each season they contract winter graze around 300 dairy cows and 200 in-calf dairy heifers, as well as 300 of their own cross-bred steers. They also run a hay and silage contracting business.

The Nichols started growing maize for grain five years ago and it is now an integral part of their farm system. “We used to do bull finishing, but there was no money in that and we got to the stage where we wanted to do something different”, says Shawn. “Diversifying our business has given us a more stable income because we don’t have all our eggs in one basket.”

Shawn believes the secrets to growing a good maize crop are excellent ground preparation, timely planting and good weed control. Paddocks are sprayed out in September and cultivated and planted as soon as soil conditions are suitable.

In the 2010-11 growing season the Nichols planted a mix of Pioneer® brand 34P88, P0537 and 37Y12. Their crop yielded 12 t dry grain per ha and they won the Auckland Province and North regional yield cup in the Pioneer Maize for Grain Yield Competition with a trial plot of Pioneer® brand 37Y12 that yielded 16.94 tonnes per ha. In the 2011-12 growing season the Nichols planted 46 ha of Pioneer® brand 37Y12 and P0021.

“Our soils are heavy and prone to waterlogging”, says Shawn. “We are looking for hybrids that provide consistent yields, have good early growth, and can be harvested early. We like 37Y12 because it produces large cobs on strong plants and the grain dries down quickly.”

Shawn believes Pioneer® brand maize for grain will be a long-term part of their farming system.

“Pioneer maize hybrids produce excellent yields and the Pioneer® brand seeds field team look after me well”, says Shawn. “…I don’t see any need to change what we do.”

“MAIZE IS NOT DIFFICULT TO GROW”, SAYS SHAWN. “ONCE IT IS IN THE GROUND IT PRETTY WELL LOOKS AFTER ITSELF.”
MAIZE FOR GRAIN YIELD COMPETITION

The Pioneer® brand seeds Maize for Grain Yield Competition recognises grain growers achieving the highest yields with Pioneer® brand maize hybrids in their on-farm trials.

The competition covers five regions: Waikato, Bay of Plenty, Gisborne/Hawke’s Bay, Manawatu/Rangitikei and Auckland Province & North.

All on-farm trial co-operators are automatically entered into the Competition. Each regional competition includes early, mid and late maturity groups. The regional winner is the grower with the highest yield from a commercial Pioneer hybrid. The National Yield Cup is awarded to the highest yielding regional winner.

National Yield Cup Winners 1998-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Winner</th>
<th>Hybrid</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Allister Bennett</td>
<td>3522</td>
<td>Waikato</td>
</tr>
<tr>
<td>1999</td>
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<td>Waikato</td>
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<tr>
<td>2000</td>
<td>Mo Paratene</td>
<td>33G26</td>
<td>Gisborne/Hawke’s Bay</td>
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<td>Jeff &amp; Todd Crabb</td>
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<td>34V56</td>
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<td>2003</td>
<td>Mike &amp; Karen Insley</td>
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Regional Yield Cup Winners 1998-2012

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<td>Geoff MacGregor</td>
<td>37Y12</td>
<td>Richard Redmayne</td>
<td>35Y33</td>
</tr>
<tr>
<td>2012</td>
<td>Gavin Woolsey</td>
<td>P0537</td>
<td>Graeme Bateup</td>
<td>34P88</td>
<td>Joe Rua</td>
<td>34P88</td>
<td>Brian Amor</td>
<td>P0537</td>
<td>Stewart Glasgow</td>
<td>37Y12</td>
</tr>
</tbody>
</table>

1Pioneer® brand seeds annual maize industry get-together guest speakers.
2The competition was expanded in 2004 to include Auckland Province & North.
Maize hybrid yield performance summary for grain

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.

Maize hybrid performance comparison chart

<table>
<thead>
<tr>
<th>Pioneer® brand</th>
<th>Other brand</th>
<th>Number of comparisons</th>
<th>Harvest moisture difference (%)&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Test weight difference (kg/ha)</th>
<th>Yield advantage (kg/ha)</th>
<th>Statistical significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>34B97</td>
<td>N5901</td>
<td>18</td>
<td>-0.62</td>
<td>0.76</td>
<td>1248</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>34H31</td>
<td>N5901</td>
<td>22</td>
<td>-0.61</td>
<td>1.21</td>
<td>1158</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>34P88</td>
<td>DKC57-83</td>
<td>93</td>
<td>-2.14</td>
<td>-0.37</td>
<td>450</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>34P88</td>
<td>N51-N4</td>
<td>125</td>
<td>-2.66</td>
<td>0.36</td>
<td>458</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>34P88</td>
<td>N59-09</td>
<td>249</td>
<td>-1.63</td>
<td>0.37</td>
<td>1031</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>34P88</td>
<td>NZ6121</td>
<td>66</td>
<td>-0.70</td>
<td>-1.89</td>
<td>1004</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>35Y33</td>
<td>NZ6121</td>
<td>55</td>
<td>0.69</td>
<td>2.32</td>
<td>442</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>37Y12</td>
<td>Delitop</td>
<td>36</td>
<td>0.49</td>
<td>-5.39</td>
<td>2195</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>37Y12</td>
<td>DK477</td>
<td>155</td>
<td>-0.37</td>
<td>0.63</td>
<td>793</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>37Y12</td>
<td>DK43-72</td>
<td>94</td>
<td>-1.07</td>
<td>2.20</td>
<td>822</td>
<td>✭</td>
</tr>
<tr>
<td>37Y12</td>
<td>PAC504</td>
<td>183</td>
<td>0.66</td>
<td>1.43</td>
<td>894</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P0021</td>
<td>DK477</td>
<td>41</td>
<td>-1.33</td>
<td>-0.35</td>
<td>1763</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P0021</td>
<td>N48-K2</td>
<td>76</td>
<td>-0.19</td>
<td>-1.51</td>
<td>1123</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P0021</td>
<td>PAC504</td>
<td>74</td>
<td>-0.17</td>
<td>0.54</td>
<td>1980</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P0537</td>
<td>N48-K2</td>
<td>131</td>
<td>-1.15</td>
<td>1.80</td>
<td>866</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P0891</td>
<td>N59-09</td>
<td>77</td>
<td>-0.13</td>
<td>3.63</td>
<td>502</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P0891</td>
<td>NZ6121</td>
<td>57</td>
<td>0.86</td>
<td>1.72</td>
<td>490</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P1253</td>
<td>DKC57-83</td>
<td>57</td>
<td>-1.73</td>
<td>3.13</td>
<td>793</td>
<td>✭</td>
</tr>
<tr>
<td>P1253</td>
<td>N51-N4</td>
<td>62</td>
<td>-2.30</td>
<td>3.80</td>
<td>597</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P1253</td>
<td>N59-09</td>
<td>39</td>
<td>-0.70</td>
<td>3.83</td>
<td>1325</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P1253</td>
<td>NZ6121</td>
<td>47</td>
<td>-0.16</td>
<td>1.60</td>
<td>1391</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P9400</td>
<td>DK43-72</td>
<td>86</td>
<td>-0.87</td>
<td>3.41</td>
<td>926</td>
<td>✭✭✭✭</td>
</tr>
<tr>
<td>P9400</td>
<td>PAC504</td>
<td>114</td>
<td>0.97</td>
<td>2.70</td>
<td>657</td>
<td>✭✭✭✭</td>
</tr>
</tbody>
</table>

Maize hybrid comparisons

Comparison Results

Scientific designation

✭✭✭✭ = very highly significant yield advantage to Pioneer
✭✭✭ = highly significant yield advantage to Pioneer
✭ = significant yield advantage to Pioneer

<sup>1</sup>Positive drymatter differences indicate that the Pioneer hybrid had a higher average harvest moisture percentage at harvest. Such hybrids are usually earlier in maturity or faster to dry down than the comparison. Negative moisture differences indicate that the Pioneer hybrid had a higher average harvest moisture percentage at harvest. Such hybrids are usually longer in maturity or slower to dry down than the comparison hybrid.

Source: Pioneer® Brand Products New Zealand Research Programme.
Maize for grain economics

Estimated gross margin analysis for growing maize for grain 2012/2013

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Indicative costs ($/ha)</th>
<th>My costs ($/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-planting</td>
<td></td>
<td>My farm</td>
</tr>
<tr>
<td>Soil testing</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Base; Lime @ 1 t/ha</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Base fertiliser: 300 kg/ha + application</td>
<td>290</td>
<td></td>
</tr>
<tr>
<td>Cultivation: To planting specifications</td>
<td>360</td>
<td></td>
</tr>
<tr>
<td>Planting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pioneer® brand maize seed 34P88 @ 94,000/ha</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>FAR levy ($0.90 /10,000 kernels @ 94,000/ha)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Seed insecticide treatment (Poncho®)</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Starter fertiliser: 250 kg/ha DAP + application</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td>Planting</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Planting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-emergence weed control</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Post-emergence weed control</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Sidedressing: 250 kg/ha urea + application</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>Spraying: Two applications</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Harvest: Combine</td>
<td>380</td>
<td></td>
</tr>
<tr>
<td><strong>Total input costs per hectare</strong></td>
<td><strong>$ 2,485</strong></td>
<td></td>
</tr>
</tbody>
</table>

Interest on input costs excluding harvest

Interest on $2,095 @ 10% for 8 months

| Total costs (inputs & interest) | $ 2,625 |

Yield

<table>
<thead>
<tr>
<th>Tonnes per hectare: WET</th>
<th>12.14</th>
<th>13.29</th>
<th>14.45</th>
<th>15.61</th>
<th>16.76</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonnes per hectare: DRY (@ 14% moisture)</td>
<td>10.50</td>
<td>11.50</td>
<td>12.50</td>
<td>13.50</td>
<td>14.50</td>
</tr>
</tbody>
</table>

Cartage and drying costs

| Cartage: 50 km @ $18 per wet tonne | 219 | 239 | 260 | 281 | 302 |
| Drying: (from 24% - 14%) @ $46 per wet tonne | 558 | 611 | 665 | 718 | 771 |
| **Total drying costs per hectare** | **777** | **851** | **925** | **999** | **1,073** |

Cost summary

| Input costs | 2,485 | 2,485 | 2,485 | 2,485 | 2,485 |
| Interest on input costs | 140 | 140 | 140 | 140 | 140 |
| Drying costs / cartage costs | 777 | 851 | 925 | 999 | 1,073 |
| **Total costs** | **3,402** | **3,476** | **3,550** | **3,624** | **3,698** |

Maize for grain gross return per hectare sensitivity analysis

Gross margin per hectare (revenue minus costs)

<table>
<thead>
<tr>
<th>Maize for grain price ($/tonne)</th>
<th>10.5 t/ha DRY</th>
<th>11.5 t/ha DRY</th>
<th>12.5 t/ha DRY</th>
<th>13.5 t/ha DRY</th>
<th>14.5 t/ha DRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>$370</td>
<td>$483</td>
<td>$779</td>
<td>$1,075</td>
<td>$1,371</td>
<td>$1,667</td>
</tr>
<tr>
<td>$385</td>
<td>$492</td>
<td>$792</td>
<td>$1,175</td>
<td>$1,473</td>
<td>$1,769</td>
</tr>
<tr>
<td>$400</td>
<td>$798</td>
<td>$1,124</td>
<td>$1,450</td>
<td>$1,776</td>
<td>$2,102</td>
</tr>
<tr>
<td>$415</td>
<td>$956</td>
<td>$1,297</td>
<td>$1,638</td>
<td>$1,978</td>
<td>$2,320</td>
</tr>
<tr>
<td>$430</td>
<td>$1,113</td>
<td>$1,469</td>
<td>$1,825</td>
<td>$2,181</td>
<td>$2,537</td>
</tr>
</tbody>
</table>

Assumptions

1. All costs exclude GST and were indicative at 1 June 2012. Please go to www.pioneer.co.nz to input your current estimate of costs and to calculate indicative gross returns.
2. Medium yield growing environment where 94,000 seeds of hybrid 34P88 are planted per hectare.
3. Wet (harvest) moisture content of 24%.

* Registered trademark of Bayer.
The Pioneer® brand seeds team and your local merchant team are committed to helping grain growers improve their productivity and profit. Together we offer a number of in-field services to help you achieve the most out of your investment in Pioneer® brand maize seed.

**Crop Nutrition Check℠**
The Crop Nutrition Check starts with the results of a soil test sample collected by your local merchant or fertiliser company representative. Your local Pioneer Area Manager can assist with determining the appropriate type, rate and timing of fertiliser application given individual paddock soil test results and crop yield targets.

**Key benefits**
- Type and amount of fertiliser required
- Method and timing of fertiliser inputs
- Green manure crop and organic fertiliser options

**Weed Control Check℠**
At the start of the season, we can work with your local merchant, contractor or herbicide company representative, to determine an appropriate weed control programme.

Crop checks prior to row cover can identify any weed problems and determine an appropriate post-emergence weed control programme if necessary.

**Key benefits**
- Comprehensive pre-emergence weed control programme
- Comprehensive post-emergence weed control programme

**Crop Performance Check℠**
The Crop Performance Check takes place anytime between crop emergence and harvest. Your local Pioneer® brand seeds representative will inspect your crop and complete a detailed Crop Performance Check which assesses a range of important factors that impact crop yield including plant population, plant spacing, weeds, insects, maize diseases and crop nutrient status. If the Crop Performance Check occurs near grain harvest, the assessment will include grain quality and a recommendation as to the ideal timing for grain harvest.

**Key benefits**
- Identifies factors that may negatively impact maize yield
- Provides information and recommendations on ways to increase crop yields
- Determines when a crop is ready to harvest

---

**We think it’s only right - industry support & partnership**

Like you, the rural community is very important to us. That is why we partner and support like-minded organisations that work to create value and security for New Zealand farmers.

Pioneer® brand seeds are a principal supporter of the **Rural Communities Trust**, which gives financial assistance to groups, families and individuals in need, in rural areas.
Pioneer maize breeding: The pursuit of yield excellence

To deliver yield gains, Pioneer breeders across the world are making breeding advancements without using genetic modifications. Some areas of specific breeding research include:

Superior products for grain end-use
Pioneer delivers more hybrid choices that target specific end-uses than any other seed company in the industry - high yielding agronomically sound hybrids that growers want to plant producing grain that end-users value. All Pioneer food-grade hybrids are characterised for traits that food processors demand, such as kernel texture, colour, size, and ear rot resistance. Hybrids available in New Zealand that produce food grade quality grain include 34B97, 34H31 and P0891.

Optimum AQUAmax® hybrids
Optimum AQUAmax® hybrids help minimise the risk of decreased yields due to drought stress, delivering yield stability even in dry seasons. The first Optimum AQUAmax hybrid available in New Zealand is P0791 which is grown for silage.

Brown mid-rib (BMR) hybrids
BMR silage hybrids have been available in the USA for many years. While they have more digestible fibre, previously available BMR hybrids have not been popular with growers because they produce lower drymatter yields and generally have poorer agronomic performance. Pioneer have developed BMR silage hybrids that combine the BMR fibre digestibility advantage with excellent yields, high starch content, strong drought tolerance and a robust disease resistance package.

Nitrogen-use efficient hybrids
Hybrids with improved nitrogen use efficiency are being developed to produce more yield per unit of available nitrogen. Decreasing the amount of nitrogen needed per tonne of grain produced improves farmer profitability while reducing the environmental impact of nitrogen.

By planting Pioneer® brand maize seed in New Zealand, growers can be confident they are accessing the latest genetics and technologies enjoyed by many farmers around the world.

Pioneer® brand hybrids for maize grain
Our goal is simple yet complex: Help farmers plant the right product in the right paddock.

Pioneer® brand hybrid maize products offer the broadest range and combination of plant attributes to meet specific needs. They are not ‘one-size-fits-all’ products.

Introducing more choice.
Two ranges of maize hybrids: Elite Performers and Proven Performers.

Pioneer® brand
Elite Performers
The Elite Performer range includes the latest and leading edge hybrids most recently released from the New Zealand Research Programme.

Incorporating Pioneer’s latest germplasm, these products have dominated New Zealand trials. The Elite range offers farmers industry leading yields, improved stability, productivity and flexibility.

Pioneer® brand
Proven Performers
The Proven Performer range includes hybrids that have been trusted and have delivered yield stability and peace-of-mind to farmers over a number of seasons.

Superior products for grain end-use
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Pioneer® brand maize hybrids for grain

**39G12 (Max 9)**

Top yields of hard textured grain and silage for maturity, with outstanding early growth, superior drought tolerance and very fast grain drydown.

Suitable for use in situations where early grain is required, where late plantings are unavoidable, or for use at higher altitudes or in the far south.

 Widely established in Taranaki, Lower North Island and the South Island.

An early companion to **38V12**.

**38V12 (Max 9)**

Exceptionally well balanced dual purpose option for grain or silage.

Strong early emergence, excellent roots, sound stalks and impressive drought tolerance combined with superior staygreen and grain drydown.

**38V12** has both high yields and exceptional yield stability across a wide range of environments.

**38V12** has a broad area of adaptation across the Lower North Island and into the warmer growing regions of Canterbury.

Recommended as a companion to **38P05** and **P9400**.

**38P05 (Max 9)**

Widely adapted long time grain favourite from Northland to Rangitikei.

Has dominated the Pioneer Maize for Grain Yield Competition for early maturity hybrids in recent seasons.

Combines strong resistance to Northern Leaf Blight and Head Smut with superior drought tolerance, fast grain drydown and dependable husk cover.

**38P05** is used in northern regions to satisfy contracts for early grain.

Particularly suitable for high wind run, dry coastal production and challenging yield environments.

Companion with **P9400** and **37Y12**.
A tall imposing plant producing top grain yields with impressive test weights.

Has an excellent all round agronomic profile including superior early growth, drought tolerance, standability coupled with sound staygreen and drydown.

Sound all round disease resistance package.

Widely adapted and performs best in moderate to high yield environments from Waikato to the Lower North Island.

Intermediate in maturity between 38V12 and 37Y12.

Exceptional hybrid with top grain yields and drydown. Acclaimed here and around the world.

Has impressive drought tolerance, superior husk cover and Northern Leaf Blight resistance. Very fast grain drydown is a significant economic benefit, but timely harvest is important.

Well adapted to both high yielding environments and variable or light soils.

37Y12 sets the performance standard in the Lower North Island as a mid to late maturity option. However, it is also well positioned in Northland and Waikato as a stable, defensive and fast-drying early hybrid.

Companion to 38P05 and P9400.

Mid maturity but definitely top of the class!

A relatively short plant with excellent grain yields.

Produces an eye-catching ear on plants with sound standability and staygreen, bundled together with top disease resistance. An excellent option in moderate to high yield environments.

P0021 presents an important maturity option being mid-maturity in the north and an excellent full-maturity option in the Lower North Island. Will be widely planted from Dargaville to Bulls!

Intermediate in maturity between P0537 and 37Y12.

IMPORTANT NOTE:
The descriptions on the above pages mainly feature product strengths. When choosing hybrids, it is important to review the full table of trait ratings found on pages 26 & 27. Hybrid comparisons are only valid within a range of + or - 4 CRM (Comparative Relative Maturity). Contact your local Pioneer® brand seeds Area Manager or merchant representative for further advice.
Pioneer® brand maize hybrids for grain

**Widely grown in the 2011-12 season and growers loved it!**

**A moderately tall plant with low ear placement that combines dependable staygreen with strong drought tolerance, Northern Leaf Blight, Common Rust and ear rot resistance.**

Strong agronomics and top-end yields enable this broadly adapted hybrid to be used in a wide range of environments including Northland, Waikato, Bay of Plenty and south to Hawke’s Bay.

Companion to **36B08** and **36Y84**.

---

**New generation genetics deliver yields with excellent test weights.**

**High yield - stable performance.**

A respected medium maturity hybrid similar in type and appearance to **36B08**.

A champion for growers looking for strong early growth, sound root lodging resistance, drought tolerance, husk cover and great all round agronomics.

Growers will appreciate the superior resistance to Common Rust and Head Smut.

Companion with **36B08** or **P0537**.

---

**Long time proven and consistent grain producer.**

Notable assets include sound early growth, stalk and root strength, staygreen, husk cover, excellent drought tolerance and very good plant health.

A great choice from challenging to high yield situations.

Adapted from Northland to Waikato, Bay of Plenty, Poverty Bay, Hawke’s Bay and if planted early, the warmer microclimates of Manawatu, Rangitikei and Nelson/Marlborough.

Companion with **P0537** or **P0021** and **37Y12** which are earlier.

---

**New generation genetics deliver yields with excellent test weights.**

**Stalk strength**

**Staygreen**

**Drought tolerance**

**Grain drydown**

**Root strength**

**Grain yield for maturity**

**Max**

---

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---

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---

**New generation genetics deliver yields with excellent test weights.**

**Stalk strength**

**Staygreen**

**Drought tolerance**

**Grain drydown**

**Root strength**

**Grain yield for maturity**

**Max**

---

**Right product. Right paddock.”**
Moderate plant height with relatively low ear placement. Sound standability, outstanding drought tolerance, staygreen and drydown, superior husk cover and Northern Leaf Blight resistance.

Produces grain with large kernels, excellent visual appeal and very high test weights.

Best positioned in environments with challenging or moderate yield potential.

35Y33 has performed consistently well from Northland, Waikato, Bay of Plenty, Poverty Bay to Hawke’s Bay.

Companion with P0537, 34B97, or P0891.

Professional grain growers love it! Impressive yields of quality grain.

Has superior ratings for stalk strength, staygreen and husk cover.

Particularly suited for planting into paddocks continuously cropped in maize, due to its strong resistance to Northern Leaf Blight.

Gives exceptional performance in moderate to high yield environments.

34D71 is widely grown for grain and silage production in the Bay of Plenty through to Hawke’s Bay and all areas north of Otorohanga.

Companion with P0537, 35Y33, or P0891.

The Northern Leaf Blight resistant option.

Has sound agronomics to produce consistent yields of high quality grain.

Combines strong drought tolerance and grain drydown with excellent husk cover and superior resistance to Common Rust, Fusarium Ear Rot, Eyespot and Head Smut.

34K77 is most competitive in drought prone soils and challenging yield environments throughout Bay of Plenty, Poverty Bay and Hawke’s Bay.

In early planted higher yielding environments consider 34D71 and P0891 or 34P88 and P1253.

Tough to take the drought. Proven consistent performer.

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The descriptions on the above pages mainly feature product strengths. When choosing hybrids, it is important to review the full table of trait ratings found on pages 26 & 27. Hybrid comparisons are only valid within a range of + or - 4 CRM (Comparative Relative Maturity). Contact your local Pioneer® brand seeds Area Manager or merchant representative for further advice.
Pioneer® brand maize hybrids for grain

**P0891** has shown excellent grain and silage performance in all northern production regions in New Zealand. Noted to combine very high test weights and excellent grain appearance.

**P0891** is well adapted to moderate to high yielding environments and with sound root and stalk ratings is well adapted to high plant populations that should be adjusted to match growing conditions and yield expectations.

Adequate resistance to Diplodia and Gibberella Ear Rots. Dependable drought tolerance, staygreen and husk cover and favourable grain drydown are combined with sound resistance to Northern Leaf Blight.

Companion with **P0537**, **P1253** or **34P88**.

**34B97** combines excellent yield and superior test weight to produce grain with food grade quality desirable for the alkaline cooking process.

Has strong resistance to Northern Leaf Blight, superior drought tolerance, staygreen and husk cover.

Well adapted to the Bay of Plenty, Gisborne, Northern Hawke’s Bay and warmer regions of Waikato. Performs best in paddocks of moderate to high yield expectation.

Companion with **34D71** or **P0891**.

**34H31** has impressive drought tolerance, dependable staygreen, husk cover and grain drydown.

Produces an attractive long ear of superb test weight grain with favourable gritting qualities.

Performs well in the Gisborne and Northern Hawke’s Bay regions and is most competitive in moderate to high yielding situations.

**EliTE** **PErfOrmEr**

**CRM 107**

**CRM 108**

**CRM 109**

Exciting hybrid with a well-balanced agronomic profile.

Excellent yields of very attractive food grade quality grain.

Gisborne and Hawke’s Bay winner for quality grain.
A tall hybrid with balanced agronomics that raises “the competitive yield bar” to new heights.

Consistent, quality grain is produced on large ears that have significant capacity to “flex”. Combine this with dependable drought tolerance, stalks, staygreen and husk cover.

**34P88** produces exceptional grain and silage yields in Waikato and Bay of Plenty, through to North Hawke’s Bay.

**34F95** is similar in maturity to **34P88** but slightly shorter with lower ear placement.

**P1253** is well adapted in moderate to higher potential situations and should be planted early to optimise its impressive performance opportunity.

Has excellent staygreen and a strong agronomic package.

Produces impressive yields of grain with high test weight and notable quality.

**P1253** also performs for silage and as a result is an excellent companion for **34P88**.

**34F95** has very good Northern Leaf Blight, Common Rust and Head Smut resistance.

**34F95** is tall, very similar in type and appearance to **34P88** but is one trait rating higher for Northern Leaf Blight resistance.

Provides strong agronomic stability through superior drought tolerance, staygreen, grain drydown and dependable stalk strength and husk cover.

**34F95** has very good Northern Leaf Blight, Common Rust and Head Smut resistance.

**34F95** produces exceptional grain yields from Northland, Waikato and Bay of Plenty through to North Hawke’s Bay.

**Companion with 34P88 or P1253.**

**34P88** is an excellent partner. **EliTE PERFORMER CRM 109**

**34F95** is tall, very similar in type and appearance to **34P88** but is one trait rating higher for Northern Leaf Blight resistance.

Provides strong agronomic stability through superior drought tolerance, staygreen, grain drydown and dependable stalk strength and husk cover.

Combines good agronomics, leaf disease resistances and impressive full season yields.

**34P88** is an excellent partner. **EliTE PERFORMER CRM 109**

**P1253** is well adapted in moderate to higher potential situations and should be planted early to optimise its impressive performance opportunity.
Hybrid recommendations for grain by region

<table>
<thead>
<tr>
<th>Northland &amp; South Auckland</th>
<th>North &amp; Central Waikato &amp; King Country</th>
<th>Coastal BOP, Gisborne &amp; Northern Hawke’s Bay</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hybrids</strong></td>
<td><strong>CRM</strong></td>
<td><strong>Maturity</strong></td>
</tr>
<tr>
<td>38V12</td>
<td>91</td>
<td>Very Early Maturity</td>
</tr>
<tr>
<td>38P05</td>
<td>93</td>
<td>Very Early Maturity</td>
</tr>
<tr>
<td>P9400</td>
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<tr>
<td>37V12</td>
<td>97</td>
<td>Early Maturity</td>
</tr>
<tr>
<td>P0021</td>
<td>100</td>
<td>Mid Maturity</td>
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<tr>
<td>36B08</td>
<td>103</td>
<td>Mid Maturity</td>
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<tr>
<td>P0537</td>
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</tr>
<tr>
<td>35Y33</td>
<td>107</td>
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<td>34P88</td>
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<tr>
<td>P1253</td>
<td>109</td>
<td>Full Maturity</td>
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</tbody>
</table>

**Very Early Maturity**

**Early Maturity**

**Mid Maturity**

**Full Maturity**
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.

Hybrid comparisons are only valid within a range of + or - 4 CRM (Comparative Relative Maturity). Contact your local Pioneer® brand seeds Area Manager or merchant representative for further advice.
### Pioneer® brand maize for grain hybrid trait characteristics for 2012-2013

Pioneer sets tough yet honest standards when rating maize hybrids. These ratings are based on comparisons with other Pioneer® brand hybrids, **NOT** competitor hybrids and on average performance across areas of adaptation under normal conditions. The ratings are based on both customer ‘side-by-side’ paddock experience and research comparison data. Individual seasons and paddock ratings may show a variation from these average comparative ratings. Extreme conditions may adversely affect performance. Comparisons between hybrids for yield and plant height are only valid within a similar maturity group (+ or – 4 CRM). Notes on performance traits can be found on page 28.

**Disease precaution**

Growers should balance hybrid yield potential, hybrid maturity and cultural practices (especially stubble management) against their anticipated risk of specific diseases and need for resistance. In high disease risk situations, consider planting hybrids with at least moderate resistance ratings of 5 or higher to help reduce risk. When susceptible hybrids with disease ratings of 1 to 3 are planted in conditions of high disease pressure, the grower assumes a higher level of risk. If conditions are severe, even hybrids rated as resistant can be adversely affected. Independent of yield reduction, diseases can predispose plants to secondary diseases such as stalk rots. This requires individual field and hybrid monitoring for stalk stability and earlier harvest if necessary.

<table>
<thead>
<tr>
<th>Hybrid</th>
<th>CRM to grain harvest (24%)</th>
<th>CRM to silking</th>
<th>CRM to black layer</th>
<th>Grain yield for maturity</th>
<th>Adaptation to high population</th>
<th>Adaptation to low population</th>
<th>Early growth</th>
<th>Plant height</th>
<th>Ear height</th>
<th>Staygreen</th>
<th>Husk cover</th>
<th>Grain drydown</th>
<th>Grain appearance</th>
<th>Grain crude protein</th>
<th>Grain oil content</th>
<th>Starch total</th>
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</tbody>
</table>

**NEW** = New hybrid  
**= Elite Performer  
**= Proven Performer  
CRM = Comparative Relative Maturity  
RATINGS:  9 = Outstanding
### Food grade characteristics

<table>
<thead>
<tr>
<th>Trait</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food grade characteristics</td>
<td>Disease resistance ratings</td>
</tr>
<tr>
<td>Processing density</td>
<td>Kernel density</td>
</tr>
<tr>
<td>Kernel crown</td>
<td>Retarder removal</td>
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<tr>
<td>Kernel red</td>
<td>Kernel size</td>
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<tr>
<td>Kernel end</td>
<td>Kernel length</td>
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<td>Kernel width</td>
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<td>Food grade characteristics</td>
<td>Disease resistance ratings</td>
</tr>
<tr>
<td>Disease resistance ratings</td>
<td>Recommended established plant populations</td>
</tr>
<tr>
<td>Common Rust</td>
<td>Fusarium Ear Rot</td>
</tr>
<tr>
<td>Head Smut</td>
<td>Diplodia Ear Rot</td>
</tr>
<tr>
<td>Gibberella Ear Rot</td>
<td>Anthracnose</td>
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<tr>
<td>Stalk Rot</td>
<td>Challenging yield environments</td>
</tr>
<tr>
<td>Northern Leaf Blight</td>
<td>Medium yield environments</td>
</tr>
<tr>
<td>Common Rust</td>
<td>High yield environments</td>
</tr>
</tbody>
</table>

### Trait ratings

<table>
<thead>
<tr>
<th>Word and numeric alignment for yield &amp; agronomic traits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9 Excellent, exceptional, outstanding, superb, impressive, industry-leading.</td>
</tr>
<tr>
<td>7 Superior, very good, strong, sound, reliable, stable, dependable, consistent.</td>
</tr>
<tr>
<td>6 Good, above average, sound, reliable, stable, dependable, consistent.</td>
</tr>
<tr>
<td>5 Average, acceptable, adequate, moderate.</td>
</tr>
<tr>
<td>4 Acceptable, slightly below average.</td>
</tr>
<tr>
<td>1-3 Marginal, susceptible, below average.</td>
</tr>
</tbody>
</table>

### Disease resistance ratings

<table>
<thead>
<tr>
<th>Trait ratings</th>
<th>Word and numeric alignment for disease and entomology traits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9 Highly resistant, excellent, exceptional, outstanding, impressive.</td>
<td></td>
</tr>
<tr>
<td>6-7 Resistant, superior, strong, very good.</td>
<td></td>
</tr>
<tr>
<td>4-5 Intermediate, moderate, adequate, acceptable.</td>
<td></td>
</tr>
<tr>
<td>1-3 Susceptible (caution on use if disease is prevalent).</td>
<td></td>
</tr>
</tbody>
</table>

The product descriptions in all New Zealand Pioneer® brand seeds publications conform to strict word usage protocols approved and used by Pioneer around the world. We do not use descriptive adjectives randomly or loosely. We have a policy of avoiding exaggerated superlatives in product descriptions or product discussions. The following words are those approved for use in the product performance descriptions listed on pages 18 to 23 of this catalogue.
Trait characteristics notes

1 **CRM to harvest moisture:**
   Based on the grain moisture content at harvest, relative to other Pioneer® brand hybrids. The higher the rating, the longer the growing season required for the hybrid. It serves as a relative guide to compare the maturity difference between Pioneer® brand hybrids to the grain harvest moisture stage, stated as 24% moisture.

2 **CRM to silking:**
   Based on the Growing Degree Units (GDUs) required for a hybrid to reach silking (flower) relative to other Pioneer® brand hybrids. It gives an indication of whether a hybrid flowers early or late relative to its CRM to Harvest Moisture rating. Hybrids with an early flowering CRM compared with black layer CRM will generally be better adapted to cool seasons within their area of adaptation.

3 **CRM to black layer:**
   Based on the GDUs required for a hybrid to reach black layer (physiological maturity) relative to other Pioneer® brand hybrids. It gives an indication of whether a hybrid reaches black layer early or late relative to its CRM to Harvest Moisture rating. Black layer refers to the stage of grain fill when the plant is physiologically mature and no further grain filling or weight increment will take place. Important: To help decide if a new hybrid fits your area’s growing season, compare its black layer rating to a hybrid that you have planted previously, or one that is successfully used in your area.

4 **Grain yield for maturity:**
   Valid only to compare hybrids of approximately the same maturity (+ or – 4 CRM).

5 **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 a high yielding ear of fine quality grain on every plant.

6 **Adaptability to low population:**
   An indicator of a hybrid’s ability to compensate (flex) ear size for low planting rates or stand loss from poor emergence or insect attack. Fertility levels and moisture must be adequate for ‘flex’ to be effective.

7 **Early growth ratings:**
   Taken when two leaf collars are visible.

8 **Plant height:**
   9 = Tall. 1 = Short.

9 **Ear height:**
   9 = High. 1 = Low.

10 **Staygreen:**
   A measure of a hybrid’s ability to stay as a green growing plant leading up to black layer (physiological maturity). It is a measure of late season plant health which may affect plant standability and suitability for silage. A high rating indicates a wider silage “harvest window” providing a greater degree of harvest timing flexibility.

11 **Husk cover:**
   Measures the length of the husk leaves extending past the end of the cob, with a loose husk cover scoring one point lower for the same length of husk cover.

12 **Grain drydown:**
   Scores represent the rate of moisture loss after physiological maturity. Since hybrids with high scores are usually wetter early in the harvest season and then dry faster, they are not recommended for early harvest where planted as a full season hybrid.

13 **Grain appearance:**
   In the bin scored down for mould, cracks, red streak, etc.

14 **Grain crude protein:**
   Ratings indicate the relative amount of protein in the grain compared with hybrids of similar maturity. A one score difference represents approximately 0.4% change in grain crude protein.

15 **Grain oil:**
   Ratings indicate the relative amount of oil in the grain. A one score difference corresponds approximately 0.5% difference in grain oil content.

16 **Grain starch:**
   Ratings indicate the relative amount of starch in the grain. A one score difference represents approximately 1.5% difference in grain starch content.

17 **Processing use:**
   AC = Hybrids suitable for alkaline products.
   HT = Hybrids with hard texture, suitable for dry milling of hard textured grain such as grits.

18 **Kernel density:**
   Relative rating of absolute density of kernels determined by a pycnometer.
   1 = Soft (low density).
   2 - 4 = Average.
   5 - 7 = Hard.
   8 - 9 = Very hard.

19 **Kernel crown:**
   Indicates size of dent with a higher score indicating smoother (flintier) crown on the kernel.

20 **Pericarp removal:**
   Indicates ease of removing pericarp with a higher score indicating better pericarp removal.

21 **Kernel red streak:**
   Indicates the tendency of the kernels to red streak with a higher score indicating less tendency.

22 **Kernel size:**
   Indicates relative percentage of kernels that are smaller than medium flats. A higher score indicates greater percentage of larger kernels.

23 **Horny endosperm:**
   Score determined from visual observation of cross sectioned kernels. Score indicates that portion of the kernel with hard translucent starch suitable for dry milling into maize grits. Higher scores indicate higher percentage of hard endosperm.

24 **Kernel colour (yellow):**
   Higher score indicates a pale coloured kernel. Lower score indicates a darker colour. Scores in the 5 – 7 range indicate a more desirable yellow coloured grain.

25 **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.

26 **Disease resistance ratings:**
   8 - 9 = Highly resistant.
   6 - 7 = Resistant.
   4 - 5 = Moderately resistant.
   3 - 1 = Susceptible.
   - = Insufficient data available.

   Disease resistance ratings are mostly based on United States and European data as the New Zealand database is usually too small to give a statistically valid rating (except for Eyespot, NLB and Common Rust ratings which are based on overseas data and New Zealand observations where available). Scores are based on visual assessment only and not on yield reduction data.

27 **Cool environments:**
   In cool environments including high altitude sites greater than approximately 150 m/500 ft above sea level, select your growing environment using the definitions below, then increase populations to the next level e.g. for 37Y12 in a medium yield environment at high altitude, plant to achieve 102,000 plants per hectare.

28 **Established plant populations:**
   The planting populations shown in the Pioneer® brand maize for grain hybrid trait characteristics chart (on page 27) 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. shorter than optimum fallow periods), planting populations may need to be increased to compensate for reduced establishment due to the higher risk of early seedling mortality.

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

   **Challenging yield environments (CYE):**
   • Light, sandy or shallow soils of low fertility, predictably low summer rainfall (drought-prone) environments.
   • Exposed sites with very high wind run.
   • High cob, leaf or stalk disease pressure.

   **Medium yield environments (MYE):**
   • Average fertility soils with predictably adequate summer rainfall.
   • Continuously cropped soils.
   • Medium to low cob, leaf or stalk disease pressure.
   • Planting at these populations are recommended for new maize growers and food grade grain production.

   **High yield environments (HYE):**
   • Deeper, highly fertile and well structured soils.
   • Predictably good summer rainfall, shelter from high wind run.
   • Good soils straight out of long term pasture.
   • Low or no cob, leaf or stalk disease pressure.
Hybrid-herbicide management guide

Under certain environmental conditions, any hybrid can be injured by any herbicide. This table can assist in selecting and managing herbicide programmes. The guide is based on replicated research trials and field observations. For more information on herbicide/hybrid combinations which require additional management, please contact your local Pioneer Area Manager, merchant representative or herbicide company representative.

Herbicide tolerance

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<tr>
<th>Hybrid</th>
<th>CRM</th>
<th>Amide¹</th>
<th>Benzoic Acid²</th>
<th>SU³</th>
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</table>

**Symbol Key:**
- = Adequate tolerance: The herbicide/hybrid combination has acceptable tolerance. Available research and field observations suggest injury is unlikely to occur under normal growing conditions when label recommendations are followed.
▲ = Requires careful management: The herbicide/hybrid combination may require additional management under challenging environments, such as sandy soils, low organic matter soils, high pH soils, cool wet conditions, or hot and humid growing conditions.
- = Insufficient data. Additional testing is needed to evaluate herbicide activity and hybrid tolerance.

**Note:** Before applying herbicides, always read and strictly adhere to the manufacturer's recommendations.

**Chemical group**

1Amide (Chloroacetamide) tested was Roustabout. This herbicide family includes Metalachlor, Alachlor and Acetachlor products.

2Benzoic Acid tested was Banvel. This herbicide family includes 2,4-D and Dicamba.

3SU (Sulfonylurea) tested was DuPont™ Accent®. **Caution:** Some sulfonylurea products have label restrictions on hybrids less than 88 CRM. Review the herbicide label before applying any sulfonylurea product to hybrids less than 88 CRM.

All herbicides are trademarks of their manufacturers.
For more information go online or phone the Pioneer Advice Line toll-free

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