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FAR HYBRID EVALUATION



FOUNDATION FOR ARABLE RESEARCH



maize hybrids
2016/2017

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Welcome to the third edition of the Maize Hybrid Performance Trials results booklet.

This edition is the first to include results from multiple sites and multiple years. This means that some hybrid results are given as averages from three different seasons, and from up to eight separate trials. Data from multiple seasons for a maize hybrid's performance is more valuable than results from a single season as they show the hybrid's ability to perform over seasons with different weather patterns. Ultimately the most consistent performers will rise to the top of multiple year results. The more trials a cultivar has been in, the more confidence can be taken from its reported performance.

For the 2017/18 season, the number of sites will increase to eight, with two of the maize seed

companies in the programme hosting, managing and harvesting MPT trials. The MPT system relies on companies collaborating and including their cultivars for the overall good of the industry. We encourage you to use the information in this booklet to help you make sound hybrid selection decisions.

We welcome any queries or suggestions on how we might further improve these booklets. Please contact us if you have ideas, or if you require any additional information not included in this booklet.

Tom Bruynel
President
New Zealand Plant Breeders Association

July 2017

For a number of years maize growers were asking for an independent maize hybrid-testing scheme. FAR convened a discussion group comprising members of the maize industry in 2014, which ultimately led to the establishment of the Maize Hybrid Performance Trials, similar to the Cereal Performance Testing (CPT) programme that has been operating successfully for over 30 years.

A pilot testing programme for maize grain and silage hybrids was undertaken at three sites in the 2014/15 maize season, in the Waikato, Bay of Plenty and Canterbury. The trial design was a fully replicated, small plot design that includes agreed standard hybrids for comparison.

Following the success of this first season, the Maize Trials Committee increased the number of sites to six, with an additional site in the Waikato, on peat ground, and two trials in the Rangitikei and Manawatu regions. The development of an independent maize hybrid testing programme is a considerable investment for the industry

collectively, but a well-operated scheme should reduce individual company investment, and as a consequence, grower investment, in developing hybrids. Seed companies will invest in the programme by paying to have their hybrids included in the scheme. Maize levy money is invested in the governance of the programme, analysis of the results and reporting. We deliberately started with a pilot scheme in 2014, and now present the results from six trials in the 2016/17 season.

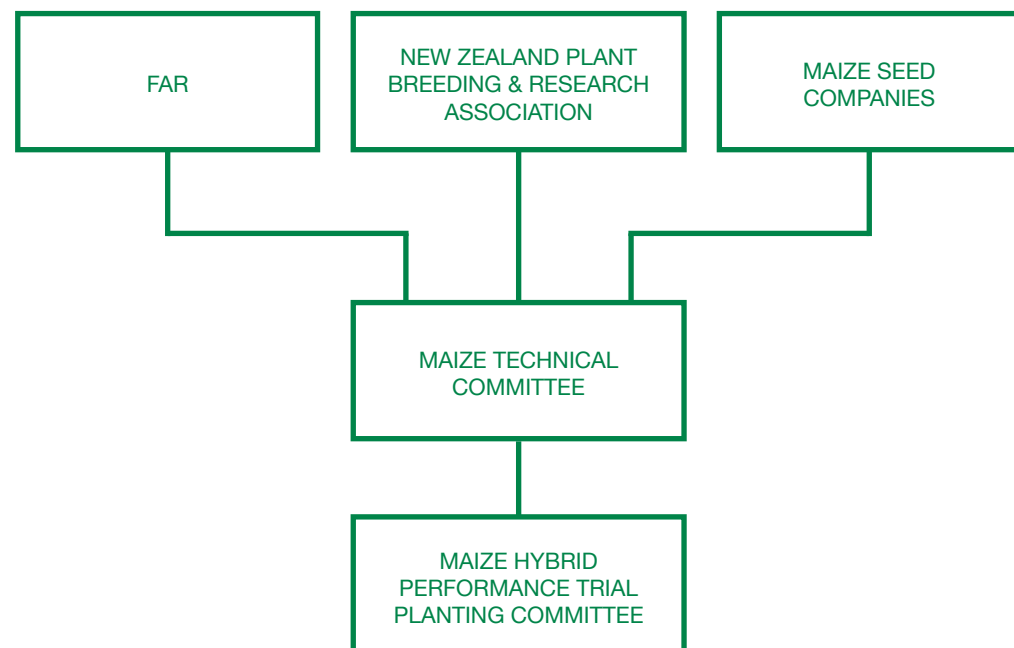
The results from previous seasons of the MPT trials are available on the FAR website.

FAR welcomes any queries or suggestions on the MPT system. If you require any additional information, please contact us.

Allister Holmes
Maize Hybrid Performance Trials Project Manager

July 2017

STRUCTURE OF THE MAIZE HYBRID PERFORMANCE TRIALS



MPT STRUCTURE

The Maize Hybrid Performance Trials (MPT) are organised and funded through the Maize Hybrid Performance Trial Committee with representatives from FAR, NZ Plant Breeding & Research Association (NZPBRA) and the participating seed companies.

Any organisation or company may join the committee if they agree to pay an appropriate share of the operating costs, participate in the running of the trials or contribute a service to the scheme.

Secretarial services are provided by NZPBRA.

Parties who are not members of the committee are welcome to participate as observers in appropriate meetings where their hybrids are under discussion. If their involvement becomes long-term, they will be invited to join the committee.

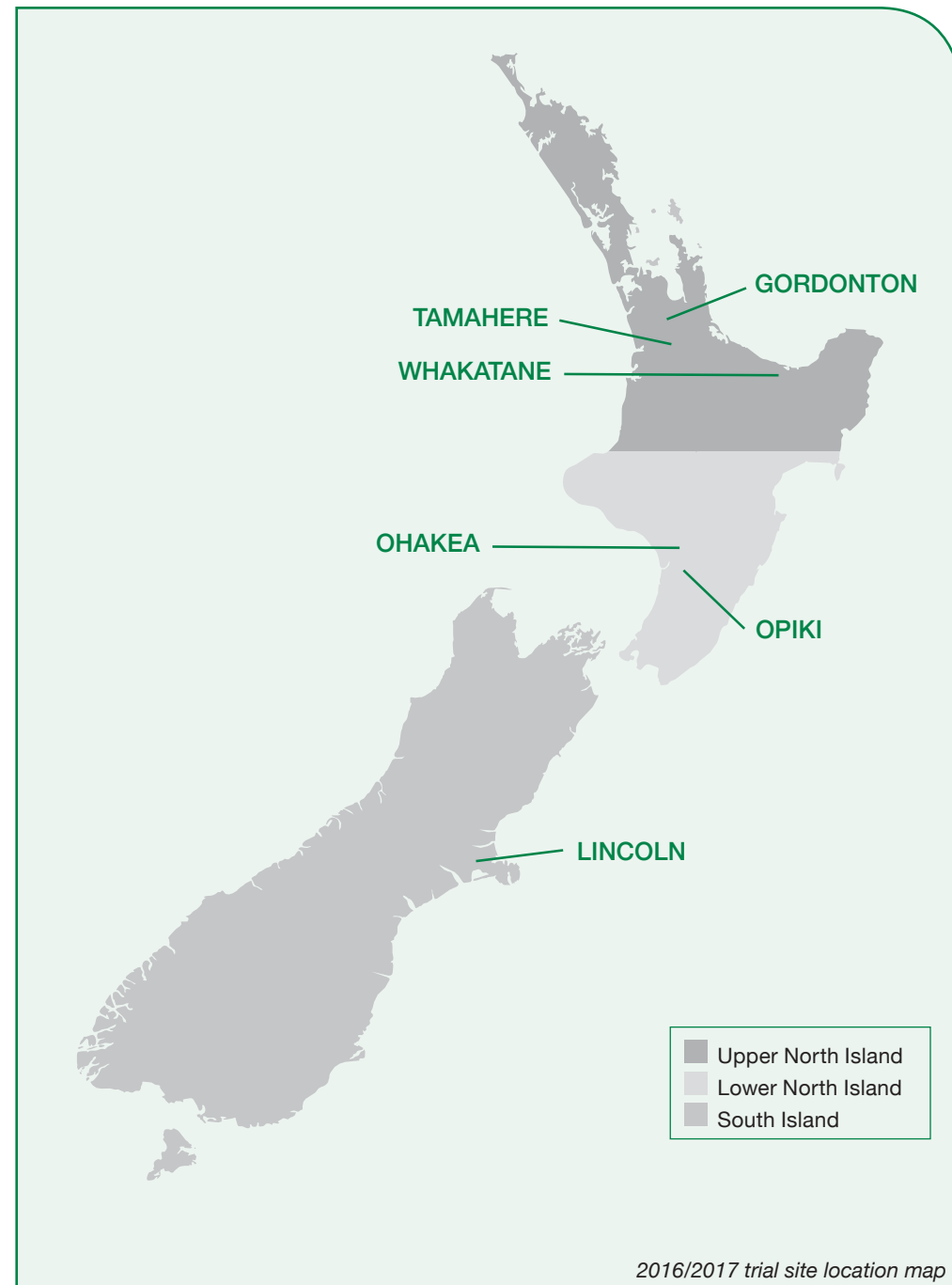
The committee will meet at least once a year to review the trial results, and at any other time that a meeting is required. The committee will view the field trial sites prior to harvest.

COMMERCIAL HYBRIDS

HYBRID	Seed supplier	CRM*	Website
Delitop	Corson Maize Seed	78	corsonmaize.co.nz
Titus	HSR	82	nutritech.co.nz
PAC 064**	Pacific Seeds	85	www.pacificseeds.co.nz
N23-K3	Corson Maize Seed	87	corsonmaize.co.nz
PAC ME039	Pacific Seeds	89	pacificseeds.co.nz
PAC065	Pacific Seeds	89	pacificseeds.co.nz
PAC123	Pacific Seeds	91	pacificseeds.co.nz
CMS Comet	Corson Maize Seed	92	corsonmaize.co.nz
PAC249	Pacific Seeds	95	pacificseeds.co.nz
C29-A1	Corson Maize Seed	96	corsonmaize.co.nz
N39-Q1	Corson Maize Seed	97	corsonmaize.co.nz
PAC230	Pacific Seeds	98	pacificseeds.co.nz
Afinity	Corson Maize Seed	100	corsonmaize.co.nz
Maximus	HSR	102	nutritech.co.nz
N51-N4	Corson Maize Seed	104	corsonmaize.co.nz
PAC343	Pacific Seeds	104	pacificseeds.co.nz
Brutus	HSR	105	nutritech.co.nz
C56-C4	Corson Maize Seed	106	corsonmaize.co.nz
Plenitude	Corson Maize Seed	107	corsonmaize.co.nz
PAC432	Pacific Seeds	107	pacificseeds.co.nz
PAC456	Pacific Seeds	108	pacificseeds.co.nz
Z71-F1	Corson Maize Seed	111	corsonmaize.co.nz
Olympiad	HSR	112	nutritech.co.nz
C78-S8	Corson Maize Seed	114	corsonmaize.co.nz

* CRM = Comparative relative maturity

** Pre-commercial hybrid 2016/17



2016/2017 trial site location map

This issue of the MPT Results Booklet is the first to present multi-year, multi-site data. This is a big step forward for the MPT programme because it shows how the hybrids perform over multiple seasons, and locations.

To analyse this data, the trials have been separated into three zones:

- Upper North Island (includes Waikato and Bay of Plenty).
- Lower North Island (includes Manawatu and Rangitikei).
- South Island.

The combined trial analysis is undertaken so as to avoid an advantage to an entry being in a high yielding trial versus another being in a low yielding trial. The variations from the trial means are then averaged using a weighted average, where more weight is given to trials with higher precision (less variability).

For example, if Trial A had twice the precision of Trial B, the weighted average would be $(2 \times \text{Trial A result} + \text{Trial B result})/3$, and so the result would be closer to the Trial A mean than the Trial B mean. This applies to both yield and harvest moisture.

Data from multiple seasons for a maize hybrid's performance is more valuable than results from a single season as they show the hybrid's ability to perform over different seasons with different weather patterns. Ultimately, the most consistent performers will rise to the top of multiple year results. The more trials a cultivar has been in, the more confidence can be taken from its reported performance.

These results provide an independent and objective evaluation of the performance of the hybrids in the trials. In order to make good use of the results of these and other trials please consider the following:

1. Use the multi-year data, rather than the single site, single year data. Consider single location results with extreme caution.

2. Evaluate the consistency of hybrid performance. Look for hybrids that are consistently in the top group, and beware of hybrids that have widely varying performance across various sites and seasons.

3. Look at other reliable, unbiased, independent trial results focusing on consistency.

4. Test new hybrids on your farm before planting large areas.

Upper North Island

HYBRID	CRM	Number of trials	Number of years	Yield (t DM/ha)*
C78-S8	114	7	3	28.2
P0791	106	8	3	26.8
Plenitude	107	6	2	26.7
PAC456	108	7	3	26.3
34P88	109	5	2	26.3
Z71-F1	111	7	3	26.3
PAC432	107	7	3	26.2
Olympiad	112	6	2	25.9
C56-C4	106	8	3	25.9
N51-N4	104	6	2	25.5
C29-A1	96	6	3	25.3
PAC343	104	8	3	25.2
Afinity	100	4	2	25.1
N39-Q1	97	6	3	24.6
37Y12	95	5	2	24.5
PAC230	98	8	3	24.5
Maximus	102	6	2	24.4
P0021	100	5	2	24.4
G49-T9	104	5	2	23.3
PAC249	95	7	3	22.9
Titus	82	6	2	21.4
Mean				25.0
LSD 5%				1.5

* Refer to page 6 to see how multi-year yield is calculated.

Lower North Island

HYBRID	CRM	Number of trials	Number of years	Yield (t DM/ha)*
N39-Q1	97	4	2	24.1
Maximus	102	4	2	23.8
Afinity	100	4	2	23.8
37Y12	95	4	2	23.3
38V12	91	4	2	23.2
P0021	100	4	2	23.1
PAC123	91	4	2	22.9
PAC230	98	4	2	22.8
PAC249	95	4	2	22.8
P9400	94	4	2	22.8
CMS Comet	92	4	2	22.7
N23-K3	87	4	2	22.2
PAC065	89	4	2	21.6
PAC064	85	4	2	21.1
39G12	78	4	2	20.8
Titus	82	4	2	20.3
Delitop	78	4	2	20.1
Mean				22.4
LSD 5%				1.4

* Refer to page 6 to see how multi-year yield is calculated.

South Island

HYBRID	CRM	Number of trials	Number of years	Yield (t DM/ha)*
CMS Comet	92	2	2	23.1
P9400	94	3	3	22.9
PAC065	89	3	3	22.6
38V12	91	3	3	22.3
PAC064	85	2	2	21.6
PAC123	91	3	3	20.9
Delitop	78	3	3	20.9
N23-K3	87	3	3	20.8
PAC040	80	2	2	20.6
Titus	82	2	2	20.4
39G12	78	3	3	19.0
39V43	70	3	3	16.4
Mean				20.8
LSD 5%				2.5

* Refer to page 6 to see how multi-year yield is calculated.

Upper North Island

HYBRID	CRM	Number of trials	Number of years	Harvest moisture (%)*	Yield (t/ha @ 14% moisture)*
PAC432	107	7	3	21.6	14.6
PAC230	98	7	3	19.5	14.1
Plenitude	107	5	2	21.5	14.0
N51-N4	104	7	3	20.7	14.0
Afinity	100	3	2	20.0	14.0
C29-A1	96	5	3	19.6	14.0
34P88	109	5	2	23.4	14.0
37Y12	95	5	2	19.6	14.0
PAC343	104	7	3	21.2	13.9
P0021	100	5	2	20.5	13.8
PAC249	95	6	3	20.1	13.2
Olympiad	112	5	2	23.0	13.1
N39-Q1	97	5	3	19.9	12.8
Maximus	102	5	2	23.2	12.7
Titus	82	5	2	19.6	10.9
Mean				21.3	13.2
LSD 5%				0.6	1.0

* Refer to page 6 to see how multi-year yield and harvest moisture are calculated.

Lower North Island

HYBRID	CRM	Number of trials	Number of years	Harvest moisture (%)*	Yield (t/ha @ 14% moisture)*
Afinity	100	4	2	21.2	14.5
P0021	100	4	2	20.2	14.0
PAC123	91	4	2	18.6	14.0
37Y12	95	4	2	19.8	13.9
PAC249	95	4	2	20.3	13.7
N39-Q1	97	4	2	20.6	13.6
PAC230	98	4	2	20.2	13.5
CMS Comet	92	4	2	19.1	13.4
PAC065	89	4	2	18.5	12.6
P9400	94	4	2	19.4	12.6
Maximus	102	4	2	25.0	12.3
Delitop	78	4	2	19.1	11.6
PAC064	85	4	2	21.1	11.6
39G12	78	4	2	19.0	11.3
Titus	82	4	2	19.7	11.2
Mean				20.3	12.8
LSD 5%				0.7	1.0

* Refer to page 6 to see how multi-year yield and harvest moisture are calculated.

DATA FORMAT

The performance data for each trial site is reported in a single table. Hybrids in each table are listed by yield in descending order. Comparisons can be made only between hybrids within a table. Comparing two hybrids from different tables (i.e. different environments and/or production levels) would likely lead to a mistaken conclusion.

DAYS TO 50% SILK EMERGENCE

Please note the mean, LSD and CV given are for all the hybrids in the trial, not just those shown in the grain or silage results table.

THE LEAST SIGNIFICANT DIFFERENCE

The least significant difference (LSD) listed at the bottom of each table for each column of data should be used to determine if the difference between hybrids is due to performance differences or random chance.

This booklet presents data with an LSD of 10%. If the difference between two hybrids were equal to or greater than the LSD, the difference would be attributable to hybrid differences in 90% of instances when the two hybrids are evaluated under conditions like those of the test.

Hybrids with the same letter beside them are not significantly different for the characteristic listed. When no significant difference for a given parameter is found among hybrids, “ns” (non-significant) replaces an LSD value.

A difference which is less than the LSD is likely due to chance.

For example, on page 14 the hybrids Plenitude, P0791 (ab), N51-N4 (abc) and C56-C4 (abcd) all include the letter ‘a’ beside them in the yield column. This indicates that while their yields in this trial varied, this variation is not statistically significant. Likewise, any hybrid with another letter beside it, will not be significantly different from any other hybrid which includes that same letter.

The “Coefficient of Variation”, or CV%, is another measure of the variability in a trial. If the differences between cultivars are similar across all replicates, the trial CV% is low (below 10%). Where there is a high level of unexplained variation the CV% is high, and the trial results are less accurate.

LODGING

If no lodging data is presented, it is because there was no significant lodging present in the trial.

SILAGE HARVEST PROTOCOLS

The aim was to harvest hybrids at approximately 35% dry matter.

The decision to harvest was made based on leaf and stalk state, and milk line in grain.

The hybrids within the trial represent a broad range of maturities and it is important to note that typically the longer maturity hybrids should have the greater yield potential as they are receiving sunlight energy, growing, and accumulating yield for a longer period of time than the shorter maturity hybrids.

While the data for the trials presented are sorted from highest yield to lowest yield, it must be remembered that the highest yielding hybrids are not necessarily the best option for planting on your farm. The first consideration for selecting maize hybrids should be the maturity so that the hybrid selected fits the planting and harvesting time frame in the environment in which you are growing.

The difference in maturity of the hybrids in the trial can be assessed by comparing the days to harvest and the DM content at harvest (DM%) for silage and the harvest moisture for grain. Wherever possible hybrids were harvested at the same DM content with a target of 35%.

Silage yields are given as tonnes of dry matter per hectare (t DM/ha).

GRAIN HARVEST

Lodging counts will be undertaken on the day of harvest, with stalk lodging defined as plants that have broken stalk below the ear; and root lodging defined as plants that are touching the adjacent row or equivalent angle if lodged along the row. All of the cobs (primary or secondary) of all of the plants in one of the plot centre rows will be harvested, then shelled. Grain will then be weighed and grain moisture and test weight (bulk density) of each grain sample will be measured using a Dickey-John GAC 2100 Agri-meter.

Waikato (Tamahere) Planted 17 October 2016

HYBRID	CRM	Days to 50% silk emergence	Plants per hectare	Days to harvest	Harvest dry matter (%)	Yield	
						t DM/ha	Significance
C56-C4	106	88	93859	140.0	33.6	27.6	a
Afinity	100	90	94029	140.0	35.4	26.0	ab
C78-S8	114	93	89669	164.0	31.7	25.8	abc
P0791	106	88	95229	140.0	31.1	25.2	abcd
PAC343	104	88	92569	156.0	39.6	24.6	abcd
C29-A1	96	84	92179	137.0	32.8	24.5	abcd
PAC456	108	88	90602	151.0	32.0	24.5	abcd
PAC432	107	94	89571	158.0	40.0	23.8	abcde
PAC230	98	83	89033	137.0	32.3	23.1	bcdef
Z71-F1	111	95	95490	158.0	34.5	22.9	bcdef
Olympiad	112	95	95818	161.0	39.9	22.5	bcdef
Plenitude	107	88	94140	148.0	32.2	22.4	cdef
N51-N4	104	-	97589	137.0	33.9	22.2	cdef
N39-Q1	97	84	94084	133.0	31.5	22.0	def
Maximus	102	87	96120	137.0	29.2	21.7	def
Titus	82	77	93011	128.0	34.4	20.7	ef
PAC249	95	84	92330	137.0	31.3	20.4	ef
Brutus	105	88	95495	156.0	42.0	19.5	f
Mean		88	93379	145.0	34.3	23.3	
LSD 10%		0.2	7229		1.9	3.5	
CV%		0.2	5.0		3.2	10.4	

silage 2016/17 data

HYBRID	CRM	Plants per hectare	Days to harvest	Harvest dry matter (%)	Yield	
					t DM/ha	Significance
Plenitude	107	93185	148.0	35.6	26.5	a
P0791	106	93326	148.0	36.9	25.9	ab
N51-N4	104	92651	148.0	46.2	24.8	abc
C56-C4	106	89482	145.0	41.9	24.2	bcd
Brutus	105	90986	145.0	50.9	23.8	bcd
Olympiad	112	93690	148.0	39.1	23.7	cd
PAC230	98	93683	145.0	43.0	23.6	cd
Maximus	102	93420	148.0	38.0	23.6	cd
PAC343	104	91498	148.0	40.3	23.0	cde
Afinity	100	94133	145.0	48.7	22.6	de
C29-A1	96	92502	143.0	40.6	22.6	de
N39-Q1	97	94881	143.0	43.1	22.1	def
PAC249	95	88350	139.0	35.9	21.1	ef
Titus	82	93320	127.0	30.3	20.0	f
Mean		92508	144.0	40.7	23.4	
LSD 10%		4285		2.8	2.1	
CV%		3.9		5.8	7.7	

HYBRID	CRM	Plants per hectare	Days to harvest	Root lodging (%)	Harvest dry matter (%)	Yield	
						t DM/ha	Significance
Olympiad	112	100184	158	8	42.7	33.5	a
C78-S8	114	91223	158	7	35.8	33.5	ab
Plenitude	107	96718	148	13	34.2	32.8	abc
PAC432	107	101203	148	3	34.6	32.7	abc
P0791	106	99138	148	5	32.3	32.6	abc
PAC456	108	96580	148	4	31.3	30.7	abcd
C56-C4	106	95675	148	7	33.4	30.4	bcd
N51-N4	104	97836	142	1	34.6	30.3	cd
PAC230	98	97037	135	0	34.2	29.4	de
Maximus	102	95843	142	5	34.4	29.0	de
Brutus	105	93610	142	4	36.9	28.3	de
PAC343	104	92183	142	2	34.0	28.2	de
Z71-F1	111	96981	158	19	36.2	27.5	e
Titus	82	98098	130	0	38.6	24.3	f
Mean		96593	146	5.0	35.2	30.2	
LSD 10%		6237		5.6	1.4	2.4	
CV%		6.0		68.6	3.1	6.3	

silage 2016/17 data

HYBRID	CRM	Plants per hectare	Days to harvest	Harvest dry matter (%)	Yield	
					t DM/ha	Significance
Maximus	102	101940	184.0	33.5	25.0	a
C29-A1	96	100460	178.0	36.6	24.2	a
N39-Q1	97	105528	184.0	35.6	23.9	ab
PAC123	91	95968	170.0	37.2	22.5	bc
37Y12	95	103248	174.0	39.9	22.3	cd
PAC343	104	93442	184.1	33.4	22.0	cde
38V12	91	98792	167.0	37.1	22.0	cde
P9400	94	97147	178.0	39.5	21.5	cdef
N23-K3	87	97113	162.0	35.9	21.1	cdefg
PAC230	98	94547	170.0	36.8	21.0	cdefg
CMS Comet	92	100500	167.0	37.8	20.7	efg
P0021	100	95783	174.0	36.9	20.6	efgh
PAC249	95	94849	174.0	35.1	20.5	fgh
PAC065	89	93937	167.0	37.6	20.4	fgh
PAC ME064	85	94189	162.0	33.9	20.3	fgh
Afinity	100	104365	178.0	37.1	20.1	fghi
39G12	78	95230	163.3	36.5	19.9	ghi
Delitop	78	98700	162.0	35.9	19.9	ghi
PAC ME039	89	91680	174.0	40.0	19.2	hi
Titus	82	94733	162.0	34.6	18.7	i
Mean		97607	171.7	36.5	21.3	
LSD 10%		6337	0.7	1.5	1.4	
CV%		5.3	0.3	3.3	5.5	

HYBRID	CRM	Plants per hectare	Days to harvest	Root lodging (%)	Harvest dry matter (%)	Yield	
						t DM/ha	Significance
CMS Comet	92	107054	162.0	3	35.4	22.2	a
PAC343	104	102698	170.0	7	32.3	21.0	ab
38V12	91	100201	170.0	16	39.8	20.8	abc
PAC249	95	96096	169.0	11	34.2	20.3	bcd
C29-A1	96	101553	162.0	2	31.0	20.2	bcde
P0021	100	97463	168.8	11	35.4	20.1	bcde
PAC065	89	100771	159.0	1	35.4	20.0	bcde
PAC123	91	101578	169.0	3	36.9	20.0	bcde
37Y12	95	105037	170.0	9	38.1	19.8	bcde
N23-K3	87	100675	159.0	0	35.9	19.7	bcdef
Afinity	100	101743	170.0	15	38.0	19.6	bcdef
Maximus	102	95600	172.0	6	38.0	19.3	bcdef
N39-Q1	97	111005	169.0	4	35.5	19.2	cdef
PAC230	98	99883	169.0	3	37.5	19.2	cdefg
PAC ME039	89	94513	169.0	1	40.5	19.1	defg
P9400	94	95758	170.0	11	36.6	18.5	efgh
Delitop	78	102616	159.0	2	37.0	18.1	fgh
39G12	78	96897	159.0	9	36.0	18.0	fgh
Titus	82	101956	154.0	1	31.9	17.5	gh
PAC ME064	85	96938	154.0	5	31.1	17.0	h
Mean		100502	165.2	6.0	35.8	19.5	
LSD 10%		6332	0.1	5.3	1.8	1.7	
CV%		3.9		203.3	5.8	7.7	

silage 2016/17 data

HYBRID	CRM	Days to 50% silk emergence	Plants per hectare	Days to harvest	Harvest dry matter (%)	Yield	
						t DM/ha	Significance
P9400	94	110.8	102594	171.0	31.3	23.8	a
PAC065	89	106.3	105407	171.0	32.7	23.4	a
CMS Comet	92	108.5	109985	171.0	27.5	21.3	b
PAC ME064	85	105.1	109474	171.0	31.2	21.2	b
38V12	91	104.6	104454	156.0	28.4	20.7	bc
Delitop	78	104.0	106633	156.0	31.2	20.6	bc
PAC123	91	107.1	107079	156.0	26.8	20.3	bc
Titus	82	102.5	106120	156.0	31.5	19.8	bc
N23-K3	87	104.2	106003	156.0	28.5	19.7	bc
PAC ME039	89	105.3	103192	156.0	27.9	19.0	cd
39G12	78	104.1	107499	156.0	27.9	17.5	de
39V43	70	99.3	106639	150.0	30.3	15.6	e
Mean		105.2	106257	160.5	29.6	20.2	
LSD 10%		3.0	8613		2.9	2.0	
CV%		3.8	2.4		5.8	7.7	

grain 2016/17 data

HYBRID	CRM	Days to 50% silk emergence	Plants per hectare	Test weight (kg/hl)	Harvest moisture (%)	Yield	
						t/ha @ 14% moisture	Significance
PAC432	107	94	94193	67.4	25.0	14.7	a
PAC343	104	88	93915	70.7	21.6	13.1	b
Afinity	100	90	92756	72.1	20.8	12.6	bc
PAC456	108	88	85557	70.8	24.2	12.5	bc
PAC230	98	83	92200	72.4	20.5	12.4	bc
C29-A1	96	83	93477	71.9	19.1	12.1	bc
PAC249	95	84	90899	71.6	20.5	12.0	bcd
N51-N4	104	90	98408	71.5	21.8	11.7	cde
Olympiad	112	95	95822	66.0	24.2	11.6	cdef
Brutus	105	88	91993	72.9	25.4	10.7	defg
N39-Q1	97	84	99631	70.5	21.0	10.4	efg
Plenitude	107	88	98411	69.3	21.9	10.2	fg
Maximus	102	87	93787	68.0	24.7	10.0	gh
Titus	82	77	97398	77.2	19.9	8.8	h
Mean		87	94315	70.9	22.2	11.6	
LSD 10%			5506	1.2	1.5	1.41	
CV%			5.8	1.2	4.8	30.9	

grain 2016/17 data

HYBRID	CRM	Plants per hectare	Harvest moisture (%)	Test weight (kg/hl)	Root lodging (%)	Stem lodging (%)	Yield	
							t/ha @ 14% moisture	Significance
N51-N4	104	99064	20.9	74.3	21	10	16.6	a
Plenitude	107	98699	22.7	72.3	9	20	16.5	a
PAC432	107	100381	22.3	72.2	21	15	16.4	a
PAC230	98	98158	20.1	74.3	18	15	16.1	a
PAC343	104	96323	21.8	73.5	17	16	15.6	a
Olympiad	112	99250	23.6	69.7	32	5	15.5	a
PAC456	108	102146	23.4	72.6	29	5	15.4	a
Maximus	102	97572	24.1	69.3	11	15	15.3	a
Brutus	105	97836	24.5	73.3	18	13	13.3	b
Titus	82	101679	20.0	77.9	15	17	11.8	b
Mean		99111	22.3	72.9	19	13.0	15.2	
LSD 10%		6384	0.6	1.2	11.3	10.6	1.3	
CV%		5.3	2.3	1.3	47.8	65.9	6.9	

HYBRID	CRM	Plants per hectare	Harvest moisture (%)	Test weight (kg/hl)	Yield	Significance
					t/ha @ 14% moisture	
Maximus	102	96384	27.5	67.3	13.0	a
PAC343	104	94666	24.1	68.5	12.9	ab
PAC123	91	95311	19.1	75.6	12.9	ab
37Y12	95	101288	20.1	73.8	12.8	ab
C29-A1	96	102449	22.1	68.8	12.8	ab
N39-Q1	97	98237	23.0	68.6	12.8	ab
P0021	100	98338	20.8	73.1	12.5	abc
CMS Comet	92	108218	20.2	68.2	12.3	bcd
PAC249	95	89283	20.2	72.5	12.2	bcd
PAC ME039	89	90605	19.9	74.4	11.9	cdef
P9400	94	93064	20.2	74.3	11.7	def
PAC065	89	93754	18.5	76.5	11.6	def
38V12	91	96255	19.5	73.6	11.6	def
PAC230	98	96673	19.2	73.4	11.5	ef
Afinity	100	97229	20.9	72.1	11.4	fg
Delitop	78	96972	19.5	78.9	11.3	fg
39G12	78	94955	18.7	77.8	10.8	g
PAC ME064	85	86628	22.3	72.7	10.7	g
Titus	82	87909	20.5	77.3	9.4	h
Mean		95696	20.8	73.0	11.9	
LSD 10%		6469	0.7	1.0	0.7	
CV%		5.6	2.7	1.1	4.8	

Manawatu (Opiki) Planted 20 October 2016, harvested 16 May 2017

HYBRID	CRM	Plants per hectare	Harvest moisture (%)	Test weight (kg/hl)	Root lodging (%)	Yield	
						t/ha @ 14% moisture	Significance
P0021	100	97706	23.2	69.9	13	12.0	a
37Y12	95	101248	22.6	69.9	10	12.0	a
PAC123	91	97510	20.7	71.3	0	12.0	a
PAC249	95	97118	22.9	68.7	9	11.9	a
38V12	91	95882	21.8	69.3	5	11.4	ab
PAC343	104	99204	25.1	66.7	4	11.4	ab
Delitop	78	98886	21.2	75.8	11	11.2	ab
Afinity	100	95874	22.4	66.9	11	11.1	ab
PAC ME039	89	94277	21.1	70.8	4	11.0	ab
39G12	78	98156	20.7	74.9	13	11.0	ab
P9400	94	94621	22.5	70.9	9	10.9	abc
PAC065	89	98067	20.1	73.5	8	10.7	abcd
C29-A1	96	100194	24.2	64.9	14	10.2	abcde
PAC230	98	96154	21.5	68.5	1	9.9	abcde
PAC ME064	85	94823	21.7	72.3	9	9.9	abcde
Titus	82	96477.7	21.6	74.6	12	8.8	bcde
CMS Comet	92	105942	26.4	63.3	23	8.3	cde
N39-Q1	97	111112	23.4	65.7	12	8.1	de
Maximus	102	98565	29.4	63.9	10	7.8	e
Mean		98517	22.8	69.6	9.0	10.5	
LSD 10%		5511	0.5	1.2	7.2	2.6	
CV%		4.8	2.3	1.5	67.5	21.1	

PURPOSE

- To provide objective measurement of the agronomic and quality performance of commercial maize hybrids available to the New Zealand arable industry across appropriate production regions.
- To foster industry adoption of proven hybrids to maximise industry efficiency and profitability.

The Maize Performance Trials (MPT) are organised and funded through the Maize Hybrid Performance Trial Committee with representatives from the FAR, NZ Plant Breeding & Research Association (NZPBRA), independent researchers and the participating seed companies. Secretarial services are provided by NZPBRA.

Any organisation or company may join the Committee if they agree to pay an appropriate share of the operating costs, participate in the running of the trials or contribute a service to the scheme.

Parties who are not members of the Committee are welcome to participate as observers in appropriate meetings where their hybrids are under discussion. If their involvement becomes long-term, they will be invited to join the Committee.

The Committee meets at least once a year to review the trial results, and at any other time, a meeting is required. The Committee views the field trial sites prior to harvest.

METHODOLOGY

The MPT comprises a single stage of hybrid testing administered through a single management committee. The committee recognises the purpose of the hybrid testing, and will not compromise the stakeholder requirements of the programme.

The trial programme focuses on the agronomic and quality characteristics of close-to-market pre-commercial and commercial maize hybrids. It is not intended to provide extra evaluation data for commercialisation decisions; the seed

companies must make these independently before the hybrids are entered into the MPT programme. The trial programme will evaluate silage and grain hybrids.

Harvest assessments are made at an agreed maturity value for the individual hybrids entered into the programme. These maturity values will be determined on a year-by-year basis by the Committee and an agreed harvest schedule is developed at the start of the season.

At each trial site, plots consisted of four rows, approximately 5 metres long, planted at 76 cm spacing. Each hybrid is replicated four times within a randomized complete block design. All data is collected from the middle two rows of the plot. Participating companies supplied relative maturity data for placement in trials. The plots are planted from pre-counted packets of seed using an air plot planter and harvested by hand.

In-season assessments include plant count, lodging and disease score; and harvest assessments include an assessment of ear rots, bird damage and yield. At silage harvest, a sample is taken from each plot to determine dry matter content. For grain hybrids, grain moisture and test weights are measured using a Dickey John GAC 2100 Agri moisture meter.

All information published by any party from the MPT programme must be clearly acknowledged as MPT data. The following statement must accompany any such publication.

This information has been generated by the Maize Performance Trial (MPT) operating procedures.

MPT represents the collaboration of the Foundation for Arable Research, the New Zealand Plant Breeding & Research Association and individual seed companies.

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