

# Nasionale Mielies Kultivarproewe National Maize Cultivar Trials

**Kort groeiseisoen / Short growing season**



2017/2018

Eenjarig/Annual

Meerjarig/Multi-seasonal

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*Landbounavorsingsraad/Agricultural Research Council*

## TABLE OF CONTENTS

TABLE OF CONTENTS .....	ii
LIST OF TABLES.....	iii, iv
BELANGRIK.....	v
DANKBETUIGINGS .....	vi
Medewerkende Instansies .....	vi
LNR - Navorsingsinstituut vir Graangewasse .....	vi
IMPORTANT .....	vii
ACKNOWLEDGEMENTS .....	viii
Co-workers .....	viii
ARC - Grain Crops .....	viii
KULTIVAREVALUERING .....	ix
KULTIVARINLIGTING .....	ix
DIAGNOSTIESE PARAMETERS .....	x
KULTIVARS VOLGENS MIELIE PRODUKSIESTREKE.....	xi
VRYWARING.....	xii
CULTIVAR EVALUATION .....	xii
CULTIVAR INFORMATION .....	xiii
DIAGNOSTIC PARAMETERS .....	xiv
CULTIVAR GROUPING ACCORDING TO MAIZE PRODUCTION REGIONS .....	xv
INDEMNITY .....	xvi

**LYS VAN TABELLE/TABLE OF TABLES**

<b>Table 1:</b> Gemiddelde graanopbrengs (t ha <sup>-1</sup> ) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Koel en warm streke) gedurende die 2017/18 seisoen .....	1
<b>Table 1:</b> Mean yield (t ha <sup>-1</sup> ) for maize genotypes under different irrigated environments (Cool and warm regions) for the 2017/2018 season .....	1
<b>Tabel 2:</b> Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2017/2018 seisoen (Koel en warm streke).....	2
<b>Table 2:</b> Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2017/2018 season (Cool and warm regions) .....	2
<b>Tabel 3:</b> Opbrengswaarskynlikheid (%) bo y=x lyn vir 2017/2018 seisoen (Koel en warm streke) .....	3
<b>Table 3:</b> Probability (%) above y = x line for 2017/2018 season (Cool and warm regions).....	3
<b>Tabel 4:</b> Gemiddelde graanopbrengs (t ha <sup>-1</sup> ) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Warm streek) gedurende die 2016/2017 en 2017/2018 seisoene .....	4
<b>Table 4:</b> Mean yield (t ha <sup>-1</sup> ) for different short growing maize genotypes under different irrigated environments (warm region) during the 2016/2017 and 2017/2018 seasons .....	4
<b>Tabel 5:</b> Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2016/2017 & 2017/2018 seisoene (warm streek).....	5
<b>Table 5:</b> Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2016/2017 & 2017/2018 season (warm region) .....	5
<b>Tabel 6:</b> Opbrengswaarskynlikheid (%) Bo y=x lyn vir 2016/2017 en 2017/2018 seisoene (Warm streek).....	5
<b>Table 6:</b> Probability (%) above y = x line for 2016/2017 and 2017/2018 seasons (Warm region).....	5
<b>Tabel 7:</b> Gemiddelde graanopbrengs (t ha <sup>-1</sup> ) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (warm streke) gedurende die 2016/2017 en 2017/2018 seisoene .....	6
<b>Table 7:</b> Mean yield (t ha <sup>-1</sup> ) for different short growing maize genotypes under different irrigated environments (Warm regions) during the 2016/2017 and 2017/2018 seasons .....	6
<b>Tabel 8:</b> Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2016/2017 & 2017/2018 seisoene (Koel streek).....	7
<b>Table 8:</b> Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2016/2017 & 2017/2018 seasons (Cool region).....	7
<b>Tabel 9:</b> Opbrengswaarskynlikheid (%) bo y=x lyn vir 2016/2017 en 2017/2018 seisoene koel streek .....	7
<b>Table 9:</b> Probability (%) above y = x line for 2016/2017 and 2017/2018 seasons (Cool region).....	7
<b>Tabel 10:</b> Gemiddelde graanopbrengs (t ha <sup>-1</sup> ) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Warm streek) gedurende die 2015/2016, 2016/2017 & 2017/2018 seisoene .....	8
<b>Table 10:</b> Mean yield (t ha <sup>-1</sup> ) for different short growing maize genotypes under different irrigated environments (Warm region) during the 2015/2016 & 2016/2017 and 2017/2018 seasons .....	8
<b>Tabel 11:</b> Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2015/2016, 2016/2017 & 2017/2018 seisoene (warm streek) .....	8
<b>Table 11:</b> Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2014/2015, 2015/2016, 2016/2017 & 2017/2018 seasons ( warm region) 8	8
<b>Tabel 12:</b> Opbrengswaarskynlikheid (%) bo y=x lyn vir 2015/2016, 2016/2017 & 2017/2018 seisoene (Warm streek).....	9
<b>Table 12:</b> Probability (%) above y = x line for 2015/2016, 2016/2017 & 2017/2018 seasons (Warm region).....	9

<b>Tabel 13:</b> Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2015/2016 & 2016/2017 & 2017/2018 seisoene (Koel streek).....	10
<b>Table 13:</b> Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2015/2016, 2016/2017 & 2017/2018 seasons (Cool region).....	10
<b>Tabel 14:</b> Gemiddelde graanopbrengs (t ha <sup>-1</sup> ) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (koel streek) gedurende die 2015/2016, 2016/2017 & 2017/2018 seisoene .....	11
<b>Table 14:</b> Mean yield (t ha <sup>-1</sup> ) for different short growing maize genotypes under different irrigated environments (Cool region) during the 2015/2016, 2016/2017 & 2017/2018 seasons .....	11
<b>Tabel 15:</b> Opbrengswaarskynlikheid (%) bo y=x lyn vir 2015/2016, 2016/2017 & 2017/2018 seisoene (Koel streek).....	12
<b>Table 15:</b> Probability (%) above y = x line for the 2015/2016, 2016/2017 & 2017/2018 seasons (Cool region) .....	12
<b>Tabel 16:</b> Opsomming van gemiddelde waardes vir alle agronomiese parameters vir die 2017/2018 seisoen (Koel en Warm streke) .....	13
<b>Table 16:</b> Summary of mean values for all agronomic parameters for the 2017/2018 season (Cool and Warm regions) .	13
<b>Tabel 17:</b> Opsomming van gemiddelde waardes vir alle agronomiese parameters vir kultivars waarvan inligting vir die 2017/2018 seisoen (Warm streek).....	14
<b>Table 17:</b> Summary of mean values for all agronomic parameters for cultivars of which the information is available the 2017/2018 season (Warm region) .....	14
<b>Tabel 18:</b> Opsomming van gemiddelde waardes vir alle agronomiese parameters vir kultivars waarvan inligting vir die 2015/2016, 2016/2017 & 2017/2018 seisoene (Warm streek) .....	14
<b>Table 18:</b> Summary of mean values for all agronomic parameters for cultivars of which the information is available the 2015/2016, 2016/2017 & 2017/2018 seasons (Warm region).....	14

## **BELANGRIK**

Resultate van 'n kultivarproef by 'n enkele lokaliteit in enige jaar, of selfs 'n beperkte aantal lokaliteite in 'n enkele jaar, kan as gevolg van die kenmerkende seisoenale variasie in die Republiek van Suid Afrika (RSA) hoogs misleidend wees en kan sodoende onregverdiglik teen die beste genotipes vir daardie omgewing diskrimineer. **'N ERNSTIGE BEROEP WORD OP ALLE BETROKKNES GEDOEN OM NIE HUL GENOTIPEADVIES OP SO 'N HOOGS ONBETROUBARE METODE TE BASEER NIE.** Produsente word veral versoek om nougeset daarteen te waak dat hulle nie ook foutiewe genotipe uitsprake op dieselfde wyse doen nie, of op hierdie wyse mislei word nie.

Resultate van hierdie nasionale kultivarproewe, wat deur die LNR- Instituut vir Graangewasse uitgevoer is en gepubliseer word, geskied in belang van produsente, adviesdienste en die teeltbedryf. Die resultate mag derhalwe vryelik gebruik word, mits dit wetenskaplik korrek gedoen word deur die totale spektrum van lokaliteite en waarnemings in berekening te bring. Vrye gebruik van die resultate word ook met 'n verdere voorwaarde toegelaat, naamlik dat die nodige erkenning aan die bron van die inligting verleen word.

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## DANKBETUIGINGS

Die sukses van hierdie navorsingsprojek is toe te skryf aan die goeie samewerking en medewerking tussen die private en openbare sektore asook boere by wie genotipeproewe geplant is. Die verantwoordelike navorsers betuig hiermee hul grootste waardering vir die besondere samewerking en ondersteuning wat hulle van al die betrokkenes ontvang het.

### **Medewerkende Instansies**

Medewerkers vir die 2017/2018 proefreeks word onder aangedui. **Hul getroue ondersteuning en uitstekende samewerking verdien vermelding en word erken.**

Agricol Saad (Edms) Bpk

Departement Landbou

Link Saad (Edms) Bpk

Klein Karoo

Monsanto SA (Edms) Bpk

Pannar Saad (Edms) Bpk

DuPont Pioneer RSA (Edms) Bpk

Seed-Co

DMS

### **LNR - Navorsingsinstituut vir Graangewasse**

Hierdie verslag se samestelling, voorbereiding en vermeerdering het bydraes deur verskeie kollegas en beamptes geverg. Spesiale vermelding moet egter gemaak word aan laat Mnr. D De V Bruwer vir sy beplanning en bestuur van die proewe. Me T. Mathobisa-Manyokole vir data voorbereiding en Joseph Ramoroka vir redigering.

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## IMPORTANT

Due to typical seasonal variations in the Republic of South Africa (RSA), results of a Cultivar trial at a single locality in any year, or even at a limited amount of localities in a single year can be highly misleading and can discriminate unfairly against genotypes which may in reality be the best for certain areas. **ALL THOSE INVOLVED, ARE STRONGLY URGED NOT TO BASE THEIR GENOTYPE RECOMMENDATIONS ON A HIGHLY UNRELIABLE METHOD SUCH AS THIS.** Producers, especially, are requested to avoid being misled in this way and against making incorrect genotype judgements.

The Agricultural Research Council (ARC) - Grain Crops (GC) in the interest of producers, advisory services and the breeding industry publishes results of these national Cultivar trials. These results may be used freely, as long as they are used in a scientifically correct manner, incorporating the whole spectrum of localities and observations. The source of the information should also be awarded the necessary recognition when using these results.

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The success of this research project is a result of the good co-operation between the private, co-operative, and public sectors as well as farmers on whose farms cultivar trials were planted. The researchers wish to express their utmost appreciation for the exceptional co-operation and support received from all those involved.

### **Co-workers**

The 2017/2018 trial series co-workers are listed below. **Their loyal support and excellent co-operation deserves mentioning and is acknowledged.**

Agricol Seed (Pty) Ltd

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Link Seed (Pty) Ltd

Klein Karoo

Monsanto SA (Pty) Ltd

Pannar Seed (Pty) Ltd

DuPont Pioneer RSA (Pty) Ltd

Seed-Co

DMS

### **ARC - Grain Crops**

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**The ARC-GC would like to thank the Maize Trust for their financial support that made these trials possible.**



## **KULTIVAREVALUERING**

Inligting rondom kultivars wat deur die produsent aangeplant word, is van kardinale belang. Dit beïnvloed 'n groot deel van die produsent se beplanning vir die seisoen. Betroubare en indien moontlik, onafhanklike inligting rakende kultivars moet aan elke produsent beskikbaar wees. Die LNR - Graangewasse (LNR-GG), in samewerking met landboubesighede en die saadbedryf, poog om in hierdie belangrike behoefte van die produsent te voldoen. Die onus rus op die produsent om nuwe of onbekende kultivars eers op sy plaas te toets, voordat daar op groot skaal van beproefde kultivars afgesien word.

## **KULTIVARINLIGTING**

Die boer moet aan die einde van elke seisoen 'n baie belangrike besluit neem naamlik: Watter kultivars gaan die volgende jaar geplant word? 'n Korrek beplande kultivarkeuse kan beslis 'n belangrike bydrae lewer om risiko te verminder en moet 'n belangrike onderdeel uitmaak van 'n produsent se produksiebeplanning.

Kultivars verskil van mekaar in een of meer van 'n verskeidenheid eienskappe en elkeen het dus 'n eiesoortige aanpasbaarheid en opbrengspotensiaal. Hierdie kultivar-verskeidenheid stel alternatiewes beskikbaar wat goed benut kan word en die volgende is belangrike riglyne vir kultivarbeplanning wat oorweeg moet word:

- Moet nooit 'n staatmaker-kultivar binne een seisoen met 'n nuwe of onbekende kultivar vervang nie.
- Kultivarverskeidenheid versprei risiko. Plant 'n reeks kultivars wat verskil in groeiseisoenlengte en eienskappe.
- Kultivars moet aanpas by 'n spesifieke opbrengs-potensiaal, maar moet in staat wees om hoër potensiaaltoestande te benut en 'n aanvaarbare opbrengs by laer potensiaaltoestande te lewer. Kultivars met 'n wye aanpassingsvermoë kan hier 'n rol speel.
- Hersien Kultivarkeuse jaarliks.

## DIAGNOSTIESE PARAMETERS

- KV** Die Koëffisient van Variasie verwys na die fout van enkel persele en gee 'n aanduiding van die grootte van die variasie tussen perseelwaardes wat vanaf verskeie bronne afkomstig is. Die KV gee dus 'n aanduiding van die akkuraatheid van die perseelwaardes (grootte van die waarde). Bronne van variasie is byvoorbeeld grondvariasie (vrugbaarheid, diepte, grondvog, kleipersentasie, ongelykheid, ens) en plantvariasie (bevolkingsgrootte, oneweredige groei ens). Stremmingstoestande (vog, temperatuur, siektes, ens) het so dikwels tot gevolg dat normaalweg aanvaarbare grond- en plantvariasie baie sterker in die proefdata tot uiting kan kom en die KV vergroot. 'n Relatief hoë KV, wat aan hand van bekende bronne van variasie verklaar kan word, kan nie as die enigste parameter gebruik word om onbetroubare proefdata te identifiseer nie.
- GKV** Die Genetiese Koëffisient van Variasie verwys na die verskille in genotipe-opbrengs. Die GKV is dus 'n aanduiding van die variasiegrootte wat aan verskille in genetiese samestelling tussen genotipeinskrywings toegeskryf kan word. Hoë waardes kan die gevolg wees van siektevatbaarheid, groot verskille in rypwordingstadium, temperatuurgevoeligheid en soortgelyke afwykings. Dit word ook gebruik om uitskieterproewe te identifiseer.
- tn** Genotipeherhaalbaarheid verwys na die herhaalbaarheid van genotipe gemiddeldes en kan gedefinieer word as die verwantskap tussen die genotipe variansie en die totale variansie. Hierdie parameter is eintlik van waarde vir proewe waarvan die aantal herhalings nie dieselfde is nie.
- t** Die Intraklas Korrelasie verwys na die herhaalbaarheid van perseelwaardes oor herhalings. Hoe groter die ooreenstemming tussen perseelwaardes oor herhalings vir elke genotipeinskrywing is, hoe nader sal "t" na 1.0 neig.
- SF(t)** Die Standaard Fout van die Intraklas Korrelasie (t) gee 'n aanduiding van hoe akkuraat die skatting van "t" is.
- t/SF(t)** Hierdie verhouding word as 'n belangrike parameter beskou daar die Intraklas Korrelasie (t) moet verkieslik minstens drie keer groter as sy foutterm moet wees. 'n Verhouding van kleiner as 3.0 dui aan dat die betrokke stel proefdata as minder betroubaar beskou kan word.

## **KULTIVARS VOLGENS MIELIE PRODUKSIESTREKE**

Vir die doel van hierdie publikasie is die kultivarproewe ingedeel in streke volgens hitte eenhede, reënval en produksie en verder verwerk tot opbrengs waarskynlikheid. Waar voldoende inligting oor 'n betrokke kultivar beskikbaar is, is die inligting van twee en drie seisoene saamgevoeg. Andersins is die inligting van die nuwer kultivars bekom uit die eenjarige en tweejarige data van die onderskeie groter westelike streke. Om voldoende betroubare inligting te verskaf, is van die produksiegebiede saamgevoeg. Proewe wat in die besproeiingsproduksiegebied gedoen is, is saamgevoeg as warm en Koel streke.

Hierdie inligtingstuk poog nie om die enigste bron van inligting te wees nie. Kultivarinligting is ook by koöperasies en die saadmaatskappye beskikbaar.

## **VRYWARING**

Die opsteller van die dokument en enige ander bron/instansie/persoon verantwoordelik vir enige inligting genoem in hierdie dokument is na die beste wete van die opstellers korrek met druktyd. Die inligting is ontwikkel deur wetenskaplike prosesse en word in goeder trou aangebied. Enige persoon/instansie wat hierdie inligting gebruik doen dit op eie risiko en die opstellers of enige ander party sal onder geen omstandighede verantwoordelik gehou kan word vir enige verliese gelei deur enige persoon/instansie wat die inligting in hierdie dokument gebruik nie.

## **CULTIVAR EVALUATION**

Information on cultivars planted by producers is of utmost importance. It affects seasonal planning by producers to a large extent. Reliable and if possible independent information regarding cultivars should be available to every producer. The ARC- Grain Crops (ARC-GC) in co-operation with agricultural businesses and the seed industry attempt to satisfy the producers` requirements. The responsibility is with the producer to test new or unknown cultivars first before dispensing with the known cultivars on a large scale.

## CULTIVAR INFORMATION

At the end of each season the farmer has to decide which cultivars are to be planted during the following season. A correctly planned cultivar choice can contribute greatly to reduce risk and constitutes an important part of the producer's production planning.

Cultivars differ in one or more of a number of characteristics. Each cultivar has a particular adaptability and yield potential. Variability of cultivars provides alternatives, which can be utilized effectively. The following are important guidelines in cultivar planning which can be considered:

- Never replace a reliable cultivar with a new or unknown cultivar in a single season.
- Cultivar variability divides the risk factor. Use a series of cultivars, which differ in length of growing season and other characteristics.
- Cultivars must be adapted to a specific yield potential but should be able to utilize increased potential conditions and still deliver an acceptable yield at reduced yield potential. Cultivars with a wide adaptability can play a role under these conditions.
- Cultivar choice should be revised annually.

## DIAGNOSTIC PARAMETERS

- CV- The coefficient of variation - relates to the error of a single plot, and as such relates to the variability as induced by soil variation or plant population i.e. the larger the variation the larger the CV. Stress conditions (moisture, temperature, diseases, etc.) result in acceptable soil variation to be more pronounced in trials and a higher CV is recorded. The CV on its own cannot be used as a parameter to discard trials.
- GCV- The genetic coefficient of variation - relates to the yield differential between the highest and lowest entry yield, relative to the trial mean i.e. the greater the difference between the extreme values, the larger the GCV. High values are indicative of disease sensitivity, differences in maturity stage, temperature sensitivity and like problems.
- tn - Repeatability of genotype mean yield - relates to the repeatability of entry means, and can be defined as the relationship of genetic variance of observed means. In genotype trials this parameter is useful only when the number of replications between trials varies, otherwise the t-value is sufficient.
- t - The repeatability of plot yield or intra class correlation coefficient - relates to the repeatability of plot means over replications, and is interpreted as is the normal correlation coefficient, i.e. the greater the concurrence of plot values per entry over replications the closer "t" will strive towards unity. The standard error calculated for a particular t-value indicates the accuracy of the estimate of "t"
- SE (t) - Standard Error of the Intra-class Correlation (t) denotes how accurate the estimation of "t" is.
- t/ SE (t) - This relationship is considered an important parameter as the Inter Class Correlation  
(t) - Should be at least three times greater than its error term. A relationship of less than 3.0 denotes low reliability.

### **CULTIVAR GROUPING ACCORDING TO MAIZE PRODUCTION REGIONS**

For the purpose of this publication the cultivar trials were divided into regions according to heat unit, precipitation and production for which yield reliability values were calculated. Information pertaining to three seasons was combined where sufficient information on a particular cultivar was available. Information on the newer cultivars was obtained from data of the annual and bi-annual reports of the greater eastern and western regions. Data for certain production regions have been combined in order to obtain more reliable information. Trials conducted in the irrigation areas (warm and cold regions) were combined.

Note that this brochure is not the only source of information. Cultivar information is also available at co-operatives and seed companies.

## **INDEMNITY**

The composer of this document and any other source/institution/person responsible for any information contained in this document is to the best knowledge of the composers correct at printing. The information was developed using sound scientific procedures and is presented in good faith. Institutions or people use this information at own risk and the composers or any other party will under no circumstances be under any legal obligation regarding any losses occurring by using the information contained in this document.



**Table 1:** Gemiddelde graanopbrengs (t ha<sup>-1</sup>) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Koel en warm streke) gedurende die 2017/2018 seisoen  
**Table 1:** Mean yield (t ha<sup>-1</sup>) for maize genotypes under different irrigated environments (Cool and warm regions) for the 2017/2018 season

Genotipe Genotype	Lokaliteit/ Locality												Gemiddeld (t/ha)
	Bapsfontein <sup>(7)</sup>	Douglas <sup>(3)</sup>	Grootpan <sup>(4)</sup>	Hope town <sup>(2)</sup>	Jacobsdal <sup>(4)</sup>	Orania <sup>(3)</sup>	Potchefstroom D1 <sup>(5)</sup>	Potchefstroom D2 <sup>(5)</sup>	Potchefstroom <sup>(1)</sup>	Potchefstroom <sup>(4)</sup>	Swartruggens <sup>(1)</sup>	Ventersdorp <sup>(7)</sup>	
BG 3292 <sup>⊗</sup>	14,05	13,27	15,94	13,21	13,78	14,74	15,43	7,19	14,27	9,20	14,25	14,25	13,30
BG 3492 B <sup>⊗</sup>	15,65	13,54	13,19	13,64	12,71	15,29	14,72	10,04	14,71	10,89	13,28	15,63	13,61
BG 3792 BR <sup>⊗</sup>	14,37	14,07	13,89	12,82	13,66	15,26	16,90	6,07	13,75	11,54	15,43	16,24	13,67
DKC 64-54 BR <sup>⊗</sup>	15,08	15,05	14,98	14,00	11,20	16,48	14,84	10,84	14,14	9,36	12,22	14,68	13,57
DKC 65-52 BR <sup>⊗</sup>	14,32	14,49	13,65	13,45	11,26	14,07	14,05	10,14	13,02	11,05	9,54	11,27	12,53
DKC 65-60 BR* <sup>⊗</sup>	14,15	14,70	13,48	13,71	13,90	15,30	13,92	12,37	14,10	11,05	11,34	13,15	13,43
IMP 50-10 BR <sup>⊗</sup>	14,43	14,18	12,06	12,49	11,48	14,06	12,22	11,97	12,59	9,67	11,97	10,57	12,31
IMP 50-10 R <sup>⊗</sup>	12,41	11,78	13,23	12,06	12,80	14,11	13,49	12,49	15,45	11,00	11,47	10,67	12,58
LG 31.642 R* <sup>⊗</sup>	13,57	13,47	12,56	12,69	10,81	14,13	12,51	12,59	13,04	10,84	13,49	13,34	12,75
LG 31.644 R* <sup>⊗</sup>	12,35	13,60	13,39	12,07	12,02	15,70	13,39	11,51	13,75	11,39	12,76	14,11	13,00
LG 3607 Y <sup>⊗</sup>	13,66	16,16	13,04	12,92	12,74	15,65	14,08	13,54	13,79	11,39	13,80	13,89	13,72
LS 8542 <sup>⊗</sup>	14,87	14,26	13,71	11,47	13,13	16,00	11,70	11,43	13,25	11,17	14,13	13,80	13,24
P 1184 YR* <sup>⊗</sup>	14,56	15,42	12,44	11,61	11,14	15,84	14,27	11,43	14,16	10,85	12,59	11,16	12,96
P 1517 W <sup>⊗</sup>	16,91	15,23	14,30	14,85	11,25	14,70	15,91	7,15	13,52	10,99	14,77	15,02	13,72
P 1690 R <sup>⊗</sup>	14,37	13,94	14,22	13,57	12,14	14,11	13,26	11,52	14,05	10,90	12,86	13,32	13,19
P 1745 R <sup>⊗</sup>	15,91	13,52	14,74	13,69	13,48	15,23	14,15	12,05	15,15	10,65	14,62	14,48	13,97
P 1814 R <sup>⊗</sup>	14,84	14,02	14,09	12,03	11,89	15,17	14,33	9,44	14,06	12,01	13,82	12,91	13,22
PAN 3P-502 R <sup>⊗</sup>	15,01	11,95	15,07	15,05	13,75	12,31	12,95	6,72	15,25	11,24	12,72	13,65	12,97
PAN 3Q-740 BR <sup>⊗</sup>	14,23	12,71	13,21	13,73	13,39	14,05	14,78	9,00	16,64	10,23	14,54	15,60	13,51
PAN 6126 <sup>⊗</sup>	13,09	13,65	12,47	13,64	12,96	14,68	12,35	12,31	14,16	10,71	10,82	13,13	12,83
PHB 32D22 YR <sup>⊗</sup>	14,47	15,25	15,58	12,73	15,48	15,19	13,77	12,04	14,19	10,40	14,54	12,87	13,88
VP 8208* <sup>⊗</sup>	14,97	13,88	12,79	12,33	12,69	14,56	13,85	12,43	14,92	11,83	9,49	11,87	12,97
VP 8208 BR* <sup>⊗</sup>	13,89	12,52	13,29	12,08	12,72	15,52	12,93	9,25	13,77	10,14	10,62	12,86	12,47
VP 8208 R* <sup>⊗</sup>	14,05	12,04	12,75	14,18	14,12	14,05	13,72	13,28	15,24	11,41	12,85	12,97	13,39
<b>Gemiddeld (t/ha)</b>	14,38	13,86	13,67	13,08	12,69	14,84	13,90	10,70	14,21	10,83	12,83	13,39	13,20
KBV	1,56	2,16	2,01	1,58	2,79	2,53	2,32	2,64	2,38	1,64	1,41	2,97	
KV%	6,60	9,50	8,90	7,40	13,40	10,40	10,20	15,00	10,20	9,20	6,70	13,50	

**Tabel 2:** Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2017/2018 seisoen (koel en warm streke)

**Table 2:** Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2017/2018 season ((Cool and warm regions)

Lokaliteit Locality	Gemiddelde Mean (t ha <sup>-1</sup> )	SF SE	KV% CV(%)	GKV GCV	t t	SF (t) SE(t)	tn
Bapsfontein <sup>(7)</sup>	14,38	0,55	6,60	5,90	0,45	0,13	0,71
Douglas <sup>(3)</sup>	13,86	0,76	9,50	6,10	0,29	0,14	0,55
Grootpan <sup>(4)</sup>	13,67	0,71	8,90	5,50	0,27	0,14	0,53
Hopetown <sup>(2)</sup>	13,06	0,55	7,20	6,40	0,44	0,13	0,70
Jacobsdal <sup>(4)</sup>	12,70	0,98	13,30	5,10	0,13	0,13	0,31
Orania <sup>(3)</sup>	14,84	0,89	10,40	0,70	0,00	0,12	0,00
Potchefstroom D1 <sup>(5)</sup>	13,90	0,82	10,20	6,30	0,28	0,14	0,54
Potchefstroom D2 <sup>(5)</sup>	10,70	0,93	15,00	18,20	0,60	0,11	0,82
Potchefstroom <sup>(1)</sup>	14,21	0,84	10,20	2,50	0,06	0,13	0,16
Potchefstroom <sup>(4)</sup>	10,83	0,57	9,20	3,80	0,15	0,13	0,35
Swartruggens <sup>(1)</sup>	12,75	0,57	7,80	12,90	0,73	0,08	0,89
Ventersdorp <sup>(7)</sup>	13,39	1,04	13,50	8,30	0,28	0,14	0,54

(1) =ARC (2) = Pannar, (3) = Monsanto, (4) = Pioneer, (5) = Agricol, (6) = Linkseed, (7) = Klein Karoo

**Tabel 3:** Opbrengstwaarskynlikheid (%) bo  $y=x$  lyn vir 2017/2018 seisoen (Koel en warm streke)

**Table 3:** Probability (%) above  $y = x$  line for 2017/2018 season (Cool and warm regions)

Genotype Genotipe	Yield potential (t ha <sup>-1</sup> ) Opbrengspotensiaal (t ha <sup>-1</sup> )				
	10	12	14	16	18
P1184YR <sup>2</sup>	33,27	38,69	45,00	51,18	56,45
LG3607Y <sup>2</sup>	56,41	59,89	62,88	65,07	66,44
BG3792BR <sup>2</sup>	60,73	61,83	62,41	62,41	62,01
VP8208 <sup>2</sup>	50,91	44,68	38,72	33,87	30,37
PHB32D22YR <sup>2</sup>	75,26	72,53	68,59	63,93	59,29
PAN3Q-740BR <sup>2</sup>	52,32	57,17	61,67	65,23	67,73
DKC64-54BR <sup>2</sup>	45,02	58,28	70,53	79,48	85,08
P1690R <sup>2</sup>	94,20	75,25	39,93	13,22	3,47
PAN6126 <sup>2</sup>	43,78	39,12	35,03	31,98	29,98
IMP50-10R <sup>2</sup>	43,97	34,76	26,84	21,19	17,60
P1745R <sup>2</sup>	93,59	90,49	84,89	76,72	67,16
LS8542 <sup>2</sup>	48,96	50,36	51,77	52,99	53,95
DKC65-52BR <sup>2</sup>	42,67	35,12	28,63	23,91	20,89
PAN3P-502R <sup>2</sup>	43,25	45,71	48,44	51,05	53,26
VP8208R <sup>2</sup>	52,71	52,18	51,53	50,87	50,26
LG31.644R <sup>2</sup>	37,02	36,61	36,79	37,53	38,57
IMP50-10BR <sup>2</sup>	38,04	24,93	15,30	9,66	6,72
P1814R <sup>2</sup>	80,42	65,92	47,46	30,80	19,45
DKC65-60BR <sup>2</sup>	59,53	61,66	63,26	64,19	64,51
BG3292 <sup>2</sup>	43,42	50,49	57,64	63,76	68,35
VP8208BR <sup>2</sup>	4,40	11,01	24,85	44,34	62,74
LG31.642R <sup>2</sup>	21,84	26,53	32,87	39,99	46,74
BG3492B <sup>2</sup>	77,54	76,85	75,03	72,29	69,15
P1517W <sup>2</sup>	46,58	58,66	69,80	78,06	83,37

**Tabel 4:** Gemiddelde graanopbrengs (t ha<sup>-1</sup>) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Warm streek) gedurende die 2016/2017 & 2017/2018 seisoene

**Table 4:** Mean yield (t ha<sup>-1</sup>) for different short growing maize genotypes under different irrigated environments (Warm region) during the 2016/2017 & 2017/2018 seasons

Localiteit Locality	Genotipe Genotype				Gemiddelde t ha <sup>-1</sup> mean t ha <sup>-1</sup>	KV% CV%
	LS8542	P1690R	P1814R	PHB32D22YR		
<b>2016-2017 season</b>						
Bapsfontein <sup>(7)</sup>	11,41	13,18	14,99	13,25	13,21	7,30
Bethlehem <sup>(1)</sup>	10,38	12,51	12,37	11,25	11,63	12,60
Douglas <sup>(3)</sup>	9,32	14,08	11,67	13,30	12,09	12,50
Grootpan <sup>(5)</sup>	13,57	16,22	14,16	12,23	14,05	6,80
Hoogekraal <sup>(2)</sup>	7,65	6,30	6,80	4,18	6,23	14,70
Hopetown <sup>(2)</sup>	12,29	15,03	10,52	16,29	13,53	18,90
Jacobsdal <sup>(4)</sup>	17,74	15,79	16,16	18,28	16,99	9,00
Orania <sup>(3)</sup>	14,01	13,62	14,83	13,83	14,07	9,00
Potchefstroom <sup>(5)</sup>	14,26	15,07	14,75	12,80	14,22	9,80
Potchefstroom <sup>(1)</sup>	14,77	12,49	15,84	15,39	14,62	16,20
Potchefstroom <sup>(6)</sup>	10,08	8,48	9,95	6,99	8,87	11,70
Prieska <sup>(3)</sup>	16,67	15,10	15,96	15,80	15,88	8,10
Swartruggens <sup>(1)</sup>	9,35	8,87	10,18	7,12	8,88	7,90
<b>2017-2018 season</b>						
Bapsfontein <sup>(7)</sup>	14,87	14,37	14,84	14,47	14,64	3,00
Douglas <sup>(3)</sup>	14,26	13,94	14,02	15,25	14,37	11,30
Grootpan <sup>(4)</sup>	13,71	12,11	14,09	15,58	13,87	17,70
Hopetown <sup>(2)</sup>	11,47	14,04	12,03	12,73	12,57	6,70
Jacobsdal <sup>(4)</sup>	13,13	12,14	11,89	15,48	13,16	17,30
Orania <sup>(3)</sup>	16,00	14,11	15,17	15,19	15,12	10,10
Potchefstroom <sup>(5)</sup> D1	11,70	13,26	14,33	13,77	13,27	12,90
Potchefstroom <sup>(5)</sup> D2	11,43	11,52	9,44	12,04	11,11	17,00
Potchefstroom <sup>(1)</sup>	13,25	14,05	14,06	14,19	13,89	12,90
Potchefstroom <sup>(4)</sup>	11,51	10,90	12,01	10,40	11,20	2,50
Swartruggens <sup>(1)</sup>	14,13	12,86	13,82	14,54	13,84	6,10
Ventersdorp <sup>(7)</sup>	13,80	13,32	12,91	12,87	13,23	14,80

(1) =ARC (2) = Pannar, (3) = Monsanto, (4) = Pioneer, (5) = Agricol, (6) = Linkseed, (7) = Klein Karoo

**Tabel 5:** Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2016/2017 & 2017/2018 seisoene (streek)

**Table 5:** Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2016/2017 & 2017/2018 seasons (warm region)

Lokaliiteit Locality	Gemiddelde Mean (t ha <sup>-1</sup> )	SF	SE	KV% CV(%)	GKV GCV	t t	SF (t) SE(t)	tn
<b>2016-2017 season</b>								
Bapsfontein <sup>(7)</sup>	13,21	0,56		7,30	10,20	0,66	0,26	0,85
Bethlehem <sup>(1)</sup>	11,63	0,85		12,60	4,60	0,12	0,36	0,29
Douglas <sup>(3)</sup>	12,09	0,87		12,50	15,80	0,62	0,28	0,83
Grootpan <sup>(5)</sup>	14,05	0,55		6,80	11,10	0,73	0,22	0,89
Hoogekraal <sup>(2)</sup>	6,23	0,53		14,70	22,20	0,69	0,25	0,87
Hopetown <sup>(2)</sup>	13,53	1,47		18,90	15,90	0,42	0,36	0,68
Jacobsdal <sup>(4)</sup>	16,99	0,88		9,00	4,80	0,22	0,37	0,46
Orania <sup>(3)</sup>	14,07	0,73		9,00	.	-0,19	0,25	-0,92
Potchefstroom <sup>(5)</sup>	14,22	0,80		9,80	4,30	0,16	0,37	0,36
Potchefstroom <sup>(1)</sup>	14,62	1,37		16,20	4,00	0,06	0,35	0,16
Potchefstroom <sup>(6)</sup>	8,87	0,60		11,70	14,90	0,62	0,28	0,83
Prieska <sup>(3)</sup>	15,88	0,74		8,10	.	-0,09	0,30	-0,33
Swartruggens <sup>(1)</sup>	8,88	0,41		7,90	13,80	0,75	0,21	0,90
<b>2017-2018 season</b>								
Bapsfontein <sup>(7)</sup>	14,64	0,25		3,00	0,20	0,01	0,34	0,03
Douglas <sup>(3)</sup>	14,37	0,94		11,30	.	-0,24	0,22	-1,38
Grootpan <sup>(4)</sup>	13,87	1,42		17,70	1,20	0,00	0,33	0,00
Hopetown <sup>(2)</sup>	12,57	0,48		6,70	7,90	0,59	0,30	0,81
Jacobsdal <sup>(4)</sup>	13,16	1,32		17,30	7,40	0,15	0,37	0,35
Orania <sup>(3)</sup>	15,12	0,88		10,10	.	-0,08	0,30	-0,29
Potchefstroom <sup>(5)</sup> D1	13,27	0,99		12,90	4,20	0,09	0,36	0,23
Potchefstroom <sup>(5)</sup> D2	11,11	1,09		17,00	3,00	0,03	0,34	0,08
Potchefstroom <sup>(1)</sup>	13,89	1,04		12,90	.	-0,38	0,11	-4,75
Potchefstroom <sup>(4)</sup>	11,20	0,16		2,50	6,10	0,86	0,13	0,95
Swartruggens <sup>(1)</sup>	13,84	0,49		6,10	3,80	0,27	0,38	0,53

(1) =ARC (2) = Pannar, (3) = Monsanto, (4) = Pioneer, (5) = Agricol, (6) = Linkseed, (7) = Klein Karoo

**Tabel 6:** Opbrengswaarskynlikheid (%) Bo  $y=x$  lyn vir 2016/2017 & 2017/2018 seisoene (Warm streek)

**Table 6:** Probability (%) above  $y = x$  line for 2016/2017 & 2017/2018 seasons (Warm region)

Genotype Genotipe	Yield potential (t ha <sup>-1</sup> ) Opbrengspotensiaal (t ha <sup>-1</sup> )				
	10	12	14	16	18
LS8542	50,37	45,78	41,23	37,16	33,81
P1690R	61,85	54,36	46,37	38,84	32,49
P1814R	62,62	55,64	48,12	40,92	34,74
PHB32D22YR	27,82	44,50	62,86	78,01	87,77

**Tabel 7:** Gemiddelde graanopbrengs (t ha<sup>-1</sup>) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Koel streek) gedurende die 2016/2017 en 2017/2018 seisoene

**Table 7:** Mean yield (t ha<sup>-1</sup>) for different short growing maize genotypes under different irrigated environments (Cool region) during the 2016/2017 and 2017/2018 seasons

Localiteit Locality	Genotipe Genotype				Gemiddelde t ha <sup>-1</sup> mean t ha <sup>-1</sup>	KV% CV%
	LS8542	P1690R	P1814R	PHB32D22YR		
<b>2016-2017 season</b>						
Bapsfontein <sup>(1)</sup>	11,41	13,18	14,99	13,25	13,21	7,30
Bethlehem <sup>(1)</sup>	10,38	12,51	12,37	11,25	11,63	12,60
Grootpan <sup>(4)</sup>	13,57	16,22	14,16	12,23	14,05	6,80
Hoogekraal <sup>(2)</sup>	7,65	6,30	6,80	4,18	6,23	14,70
Potchfestroom <sup>(5) AD2</sup>	14,26	15,07	14,75	12,80	14,22	9,80
Potchfestroom <sup>(1)</sup>	14,77	12,49	15,84	15,39	14,62	16,20
Potchfestroom <sup>(6)</sup>	10,08	8,48	9,95	6,99	8,87	11,70
Swartruggens <sup>(1)</sup>	8,89	8,87	10,18	7,12	8,77	12,00
<b>2017-2018 season</b>						
Bapsfontein <sup>(1)</sup>	14,87	14,37	14,84	14,47	14,64	3,00
Grootpan <sup>(4)</sup>	13,71	12,11	14,09	15,58	13,87	17,70
Potchfestroom <sup>(5) D1</sup>	11,70	13,26	14,33	13,77	13,27	12,90
Potchfestroom <sup>(5) D2</sup>	11,43	11,52	9,44	12,04	11,11	17,00
Potchfestroom <sup>(1)</sup>	13,25	14,05	14,06	14,19	13,89	12,90
Potchfestroom <sup>(4)</sup>	11,17	10,90	12,01	10,40	11,12	4,40
Swartruggens <sup>(1)</sup>	14,13	12,86	13,82	14,54	13,84	6,10
Ventersdorp <sup>(7)</sup>	13,80	13,32	12,91	12,87	13,23	14,80

(1) =ARC (2) = Pannar, (4) = Pioneer, (5) = Agricol, (6) = Linkseed, (7) = Klein Karoo

**Tabel 8:** Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2016/2017 & 2017/2018 seisoene (Koel streek)

**Table 8:** Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2015/2016 & 2016/2017 & 2017/2018 seasons (Cool region)

Lokaliteit Locality	Gemiddelde Mean (t ha <sup>-1</sup> )	SF SE	KV% CV(%)	GKV GCV	t t	SF (t) SE(t)	tn
<b>2016-2017 season</b>							
Bapsfontein <sup>(1)</sup>	13,21	0,56	7,30	10,20	0,66	0,26	0,85
Bethlehem <sup>(1)</sup>	11,63	0,85	12,60	4,60	0,12	0,36	0,29
Grootpan <sup>(4)</sup>	14,05	0,55	6,80	11,10	0,73	0,22	0,89
Hoogekraal <sup>(2)</sup>	6,23	0,53	14,70	22,20	0,69	0,25	0,87
Potchfestroom <sup>(5) AD2</sup>	14,22	0,80	9,80	4,30	0,16	0,37	0,36
Potchfestroom <sup>(1)</sup>	14,62	1,37	16,20	4,00	0,06	0,35	0,16
Potchfestroom <sup>(6)</sup>	8,87	0,60	11,70	14,90	0,62	0,28	0,83
Swartruggens <sup>(1)</sup>	8,77	0,61	12,00	12,60	0,52	0,33	0,76
<b>2017-2018 season</b>							
Bapsfontein <sup>(1)</sup>	14,64	0,25	3,00	0,20	0,01	0,34	0,03
Grootpan <sup>(4)</sup>	13,87	1,42	17,70	1,20	0,00	0,33	0,00
Potchfestroom <sup>(5) D1</sup>	13,27	0,99	12,90	4,20	0,09	0,36	0,23
Potchfestroom <sup>(5) D2</sup>	11,11	1,09	17,00	3,00	0,03	0,34	0,08
Potchfestroom <sup>(1)</sup>	13,89	1,04	12,90	.	-0,38	0,11	-4,75
Potchfestroom <sup>(4)</sup>	11,12	0,28	4,40	5,50	0,61	0,29	0,82
Swartruggens <sup>(1)</sup>	13,84	0,49	6,10	3,80	0,27	0,38	0,53
Ventersdorp <sup>(7)</sup>	13,23	1,13	14,80	.	-0,40	0,09	-6,00

(1) = ARC; (2) = Pannar; (4) = Pioneer; (5) =Agricol; (6) =Linkseed; (7) =Klein karoo

**Tabel 9:** Opbrengswaarskynlikheid (%) bo y=x lyn vir 2016/2017 en 2017/2018 seisoene (Koel streek)

**Table 9:** Probability (%) above y = x line for 2016/2017 and 2017/2018 seasons (Cool region)

Genotype Genotipe	Yield potential (t ha <sup>-1</sup> ) Opbrengspotensiaal (t ha <sup>-1</sup> )				
	10	12	14	16	18
LS8542	66,42	50,96	35,16	22,77	14,78
P1690R	50,73	47,02	43,41	40,32	37,92
P1814R	76,92	74,63	71,27	67,23	63,02
PHB32D22YR	18,40	34,93	55,83	73,93	85,49

**Tabel 10:** Gemiddelde graanopbrengs (t ha<sup>-1</sup>) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Warm streek) gedurende die 2015/2016, 2016/2017 & 2017/2018 seisoene

**Table 10:** Mean yield (t ha<sup>-1</sup>) for different short growing maize genotypes under different irrigated environments (Warm region) during the 2015/2016, 2016/2017 & 2017/2018 seasons

Localiteit Locality	Genotipe Genotype												Gemiddelde t ha <sup>-1</sup> mean t ha <sup>-1</sup>	KV% CV%
	BG3292	BG3492B	BG3792BR	DKC64-54BR	DKC65-52BR	IMP50-10BR	IMP50-10R	LG3607Y	P1745R	PAN3P-502R	PAN3Q-740BR	PAN6126		
<b>2015-2016 season</b>														
Bapsfontein <sup>(7)</sup>	13,8	14,0	13,1	11,9	7,3	8,4	8,6	10,4	14,1	12,5	12,3	9,1	11,3	9,3
Hopetown <sup>(2)</sup>	13,2	13,6	14,3	14,0	13,7	12,0	12,8	9,7	14,6	9,8	15,4	12,9	13,0	5,2
Jacobsdal <sup>(4)</sup>	13,2	13,0	12,3	9,9	7,2	10,2	10,4	13,6	11,3	10,3	12,3	10,3	11,2	10,3
Lukehof <sup>(3)</sup>	15,5	16,2	7,5	16,0	16,0	13,7	15,5	12,3	18,5	16,2	11,7	18,9	14,8	11,8
Orania <sup>(3)</sup>	16,7	21,2	19,5	16,3	14,4	17,6	16,5	12,2	17,2	16,6	16,2	17,4	16,8	17,4
Vaalharts <sup>(1)</sup>	13,3	14,0	10,5	10,7	12,1	13,4	12,2	12,1	9,9	12,5	13,5	13,1	12,3	14,7
<b>2016-2017 season</b>														
Bapsfontein <sup>(7)</sup>	15,0	15,6	14,3	15,4	15,7	13,9	12,5	12,3	12,2	13,1	13,6	15,7	14,1	6,0
Hopetown <sup>(2)</sup>	11,8	12,7	11,6	14,3	11,3	9,2	10,1	15,0	14,6	13,8	6,1	14,9	12,1	18,8
Jacobsdal <sup>(4)</sup>	16,6	16,5	15,6	14,4	14,7	13,2	14,3	18,4	16,7	16,8	16,3	14,9	15,7	8,6
Prieska <sup>(3)</sup>	15,7	13,5	15,4	12,5	14,3	11,7	10,6	14,9	14,3	16,4	17,1	11,2	14,0	18,1
<b>2017-2018 season</b>														
Bapsfontein <sup>(7)</sup>	14,1	15,7	14,4	15,1	14,3	14,4	12,4	13,7	15,9	15,0	14,2	13,1	14,4	7,8
Douglas <sup>(3)</sup>	13,3	13,5	14,1	15,1	14,5	14,2	11,8	16,2	13,5	12,0	12,7	13,7	13,7	7,3
Hopetown <sup>(2)</sup>	13,2	13,6	12,8	14,2	13,3	12,5	12,1	12,9	13,7	15,1	13,7	13,6	13,4	6,0
Orania <sup>(3)</sup>	14,7	15,3	15,3	16,5	14,1	14,1	14,1	15,7	15,2	12,3	14,1	14,7	14,7	10,8

(1) = ARC; (2) = Pannar; (3) = Monsanto, (4) = Pioneer (7) = Klein Karoo

**Tabel 11:** Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2015/2016, 2016/2017 & 2017/2018 seisoene (Koel streek)

**Table 11:** Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2015/2016, 2016/2017 & 2017/2018 seasons (Warm region)

Localiteit Locality	Gemiddelde Mean (t ha <sup>-1</sup> )	SF	SE	KV% CV(%)	GKV GCV	t t	SF (t) SE(t)	tn
<b>2015-2016 season</b>								
Bapsfontein <sup>(7)</sup>	11,30	0,61	9,30	20,80	0,83	0,08	0,94	
Hopetown <sup>(2)</sup>	13,00	0,39	5,20	13,30	0,87	0,06	0,95	
Jacobsdal <sup>(4)</sup>	11,16	0,66	10,30	15,30	0,69	0,13	0,87	
Lukehof <sup>(3)</sup>	14,83	1,01	11,80	19,90	0,74	0,11	0,90	
Orania <sup>(3)</sup>	16,82	1,69	17,40	8,70	0,20	0,20	0,43	
Vaalharts <sup>(1)</sup>	12,28	1,04	14,70	6,30	0,16	0,19	0,36	
<b>2016-2017 season</b>								
Bapsfontein <sup>(7)</sup>	14,09	0,49	6,00	9,00	0,69	0,13	0,87	
Hopetown <sup>(2)</sup>	12,11	1,31	18,80	19,50	0,52	0,17	0,76	
Jacobsdal <sup>(4)</sup>	15,69	0,78	8,60	7,80	0,45	0,18	0,71	
Prieska <sup>(3)</sup>	13,96	1,46	18,10	10,60	0,26	0,20	0,51	
<b>2017-2018 season</b>								
Bapsfontein <sup>(7)</sup>	14,35	0,65	7,80	5,30	0,31	0,20	0,57	
Douglas <sup>(3)</sup>	13,70	0,58	7,30	8,00	0,55	0,17	0,79	
Hopetown <sup>(2)</sup>	13,39	0,47	6,00	4,70	0,38	0,19	0,65	
Orania <sup>(3)</sup>	14,66	0,92	10,80	3,60	0,10	0,19	0,25	

(1)= ARC; (2) = Pannar; (3) = Monsanto, (4) = Pioneer



**Tabel 12:** Opbrenghwaarskynlikheid (%) bo  $y=x$  lyn vir 2015/2016, 2016/2017 & 2017/2018 seisoene (Warm streek)  
**Table 12:** Probability (%) above  $y = x$  line for 2015/2016, 2016/2017 & 2017/2018 seasons (Warm region)

Genotype Genotipe	Yield potential (t ha <sup>-1</sup> ) Opbrengspotensiaal (t ha <sup>-1</sup> )				
	10	12	14	16	18
BG3292	93,54	87,69	73,51	52,05	33,68
BG3492B	69,98	77,90	83,65	86,14	86,33
BG3792BR	54,41	51,66	48,28	45,19	43,03
DKC64-54BR	61,39	61,77	61,11	59,37	57,28
DKC65-52BR	17,66	25,57	39,15	54,80	66,79
IMP50-10BR	13,49	18,17	27,62	40,90	53,29
IMP50-10R	8,62	10,12	14,77	23,56	34,30
LG3607Y	73,70	61,52	44,64	29,63	20,55
P1745R	64,09	65,41	65,52	64,15	62,03
PAN3P-502R	52,07	51,91	51,54	51,03	50,54
PAN3Q-740BR	54,44	51,57	48,05	44,85	42,64
PAN6126	41,72	47,40	54,35	60,53	64,66

**Tabel 13:** Diagnostiese parameters vir die statistiese aanvaarbaarheid van proewe vir betroubare opbrengsanalises, 2015/2016, 2016/2017 & 2017/2018 seisoene (Koel streek)

**Table 13:** Diagnostic parameters for the statistical acceptability of trials for reliable yield analysis for the 2015/2016, 2016/2017 & 2017/2018 seasons (Cool region)

Lokaleiteit Locality	Gemiddelde Mean (t ha <sup>-1</sup> )	SF SE	KV% CV(%)	GKV GCV	t t	SF (t) SE(t)	tn
<b>2015-2016 season</b>							
Bethlehem <sup>(1)</sup>	9,85	0,62	10,80	8,00	0,36	0,19	0,63
Hoogekraal <sup>(2)</sup>	16,58	1,45	15,10	13,20	0,43	0,19	0,69
Potchefstroom <sup>(5)</sup>	13,42	0,74	9,60	.	-0,15	0,14	-0,64
Stilfontein <sup>(5)</sup>	9,28	0,87	16,30	6,60	0,14	0,19	0,33
<b>2016-2017 season</b>							
Bethlehem <sup>(1)</sup>	11,80	1,06	15,50	.	-0,21	0,12	-1,09
Grootpan <sup>(4)</sup>	13,99	0,50	6,20	11,80	0,78	0,10	0,91
Hoogekraal <sup>(2)</sup>	6,59	0,80	20,90	23,40	0,56	0,16	0,79
Potchefstroom <sup>(5)D2</sup>	14,60	0,63	7,50	6,70	0,44	0,18	0,70
Potchefstroom <sup>(5)D1</sup>	17,08	1,22	12,30	10,60	0,42	0,19	0,68
Potchefstroom <sup>(1)</sup>	14,83	1,14	13,30	.	-0,04	0,17	-0,13
Potchefstroom <sup>(6)</sup>	8,83	0,41	8,10	3,20	0,14	0,19	0,33
Swartruggens <sup>(1)</sup>	9,22	0,63	11,80	17,80	0,69	0,13	0,87
<b>2017-2018 season</b>							
Grootpan <sup>(4)</sup>	13,79	0,71	9,00	6,70	0,36	0,19	0,63
Potchefstroom <sup>(5)D1</sup>	14,16	0,78	9,60	7,50	0,38	0,19	0,65
Potchefstroom <sup>(5)D2</sup>	10,20	0,64	10,80	23,50	0,82	0,08	0,93
Potchefstroom <sup>(1)</sup>	14,41	0,76	9,20	5,60	0,27	0,20	0,53
Potchefstroom <sup>(4)</sup>	10,58	0,59	9,60	5,00	0,21	0,20	0,44
Swartruggens <sup>(1)</sup>	12,88	0,51	6,90	13,30	0,79	0,09	0,92
Ventersdorp <sup>(7)</sup>	13,67	1,07	13,60	11,70	0,43	0,19	0,69

(1)= ARC; (2) = Pannar; (3) = Monsanto; (4) = Pioneer; (5) =Agricol; (6) =Linkseed; (7) =Klein karo; (8) Link Seed

**Tabel 14:** Gemiddelde graanopbrengs (t ha<sup>-1</sup>) vir kort groeiseisoen mieliegenotipes by verskillende besproeiingsomgewings (Koel streek) gedurende die 2015/2016, 2016/2017 & 2017/2018 seisoene

**Table 14:** Mean yield (t ha<sup>-1</sup>) for different short growing maize genotypes under different irrigated environments (Cool region) during the 2015/2016, 2016/2017 & 2017/2018 seasons

Localiteit Locality	Genotipe Genotype												Gemiddelde t ha <sup>-1</sup> mean t ha <sup>-1</sup>	KV% CV%
	BG3292	BG3492B	BG3792BR	DKC64-54BR	DKC65-52BR	IMP50-10BR	IMP50-10R	LG3607Y	P1745R	PAN3P-502R	PAN3Q-740BR	PAN6126		
<b>2015-2016 season</b>														
Bethlehem <sup>(1)</sup>	10,23	10,10	10,22	12,15	9,40	10,52	9,79	8,05	10,20	9,27	9,23	9,02	9,85	10,80
Hoogekraal <sup>(2)</sup>	17,54	18,85	18,34	18,35	14,40	15,73	10,28	14,05	16,17	17,54	19,20	18,51	16,58	15,10
Potchefstroom <sup>(5)</sup>	13,64	13,48	14,58	12,94	14,01	13,75	13,20	12,44	13,68	13,22	12,75	13,31	13,42	9,60
Stilfontein <sup>(5)</sup>	11,06	9,62	8,90	8,70	6,89	8,06	9,79	10,05	10,04	9,24	9,42	9,54	9,28	16,30
<b>2016-2017 season</b>														
Bethlehem <sup>(1)</sup>	12,18	11,76	11,55	11,60	12,14	11,01	12,21	10,89	13,20	12,53	11,94	10,63	11,80	15,50
Grootpan <sup>(4)</sup>	14,65	14,95	14,33	16,17	14,25	13,08	9,60	12,35	15,77	13,80	14,41	14,54	13,99	6,20
Hoogekraal <sup>(2)</sup>	5,16	6,72	5,34	7,35	5,93	4,23	5,35	7,79	5,15	9,96	9,12	6,94	6,59	20,90
Potchefstroom <sup>(5)</sup>	13,43	15,39	14,43	14,12	13,76	13,03	15,13	14,11	16,22	15,61	16,54	13,43	14,60	7,50
Potchefstroom <sup>(5)</sup>	16,75	17,23	16,68	14,47	15,14	14,44	15,17	18,57	20,51	19,28	20,46	16,30	17,08	12,30
Potchefstroom <sup>(1)</sup>	15,85	14,94	14,99	16,94	15,45	13,64	14,13	13,53	14,97	14,35	15,74	13,45	14,83	13,30
Potchefstroom <sup>(6)</sup>	8,51	9,03	8,31	8,93	8,90	8,43	9,40	9,29	8,06	9,45	9,43	8,26	8,83	8,10
Swartruggens <sup>(1)</sup>	7,30	9,01	9,40	9,78	8,73	5,89	8,94	8,41	9,00	11,98	12,33	9,83	9,22	11,80
<b>2017-2018 season</b>														
Grootpan <sup>(4)</sup>	15,94	13,19	13,89	14,98	13,65	12,06	13,23	13,04	14,74	15,07	13,21	12,47	13,79	9,00
Potchefstroom <sup>(5)</sup> D1	15,43	14,72	16,90	14,84	14,05	12,22	13,49	14,08	14,15	12,95	14,78	12,35	14,16	9,60
Potchefstroom <sup>(5)</sup> D2	7,19	10,04	6,07	10,84	10,14	11,97	12,49	13,54	12,05	6,72	9,00	12,31	10,20	10,80
Potchefstroom <sup>(1)</sup>	14,27	14,71	13,75	14,14	13,02	12,59	15,45	13,79	15,15	15,25	16,64	14,16	14,41	9,20
Potchefstroom <sup>(4)</sup>	9,20	10,89	11,54	9,36	11,05	9,67	11,00	11,39	10,65	11,24	10,23	10,71	10,58	9,60
Swartruggens <sup>(1)</sup>	14,25	13,28	15,43	12,22	9,38	11,97	11,47	13,80	14,62	12,72	14,54	10,82	12,88	6,90
Ventersdorp <sup>(7)</sup>	14,25	15,63	16,24	14,68	11,27	10,57	10,67	13,89	14,48	13,65	15,60	13,13	13,67	13,60

**Tabel 15:** Opbrengstwaarskynlikheid (%) bo  $y=x$  lyn vir 2015/2016, 2016/2017 & 2017/2018 seisoene (Koel streek)  
**Table 15:** Probability (%) above  $y = x$  line for the 2015/2016, 2016/2017 & 2017/2018 seasons (Cool region)

Genotype Genotipe	Yield potential (t ha <sup>-1</sup> ) Opbrengspotensiaal (t ha <sup>-1</sup> )				
	10	12	14	16	18
BG3292	37,82	49,08	60,54	70,54	78,22
BG3492B	60,94	71,92	80,83	87,08	91,07
BG3792BR	44,64	55,97	66,80	75,70	82,22
DKC64-54BR	62,10	60,61	58,80	56,84	54,88
DKC65-52BR	32,43	27,18	22,78	19,47	17,15
IMP50-10BR	21,23	17,52	14,74	12,89	11,82
IMP50-10R	51,05	37,17	24,94	15,99	10,26
LG3607Y	58,82	49,12	39,40	30,87	24,15
P1745R	57,24	71,79	83,15	90,43	94,47
PAN3P-502R	62,73	60,53	58,00	55,35	52,77
PAN3Q-740BR	68,69	75,09	80,30	84,13	86,75
PAN6126	45,64	39,52	33,83	29,05	25,32

**Tabel 16:** Opsomming van gemiddelde waardes vir alle agronomiese parameters vir die 2017/2018 seisoen (Koel en Warm streke)

**Table 16:** Summary of mean values for all agronomic parameters for the 2017/2018 season (Cool and Warm regions)

Genotype Genotipe	Agronomiese eienskappe Agronomic characteristics			
	Spruit %	Koppe per plant	Graan vog %	Graan opbrengs (t ha <sup>-1</sup> )
	Tillering %	Ears per plant	Grain moisture %	Grain yield (t ha <sup>-1</sup> )
BG3292	12,74	1,42	20,30	13,30
BG3492B	9,95	1,63	20,72	13,61
BG3792BR	8,85	1,40	20,60	13,67
DKC64-54BR	9,98	1,54	20,92	13,57
DKC65-52BR	7,59	1,46	21,87	12,53
DKC65-60BR	6,37	1,52	20,85	13,43
IMP50-10BR	10,63	1,45	20,10	12,31
IMP50-10R	13,92	1,58	20,65	12,58
LG31.642R	13,65	1,50	20,50	12,75
LG31.644R	12,56	1,55	20,15	13,00
LG3607Y	15,22	1,75	20,48	13,72
LS8542	10,89	1,52	20,77	13,24
P1184YR	8,83	1,38	19,22	12,96
P1517W	9,71	1,42	20,32	13,72
P1690R	8,49	1,54	19,92	13,19
P1745R	8,93	1,52	20,75	13,97
P1814R	9,55	1,57	21,18	13,22
PAN3P-502R	9,07	1,59	21,43	12,97
PAN3Q-740BR	8,06	1,57	21,05	13,51
PAN6126	10,23	1,49	20,20	12,83
PHB32D22YR	9,54	1,44	21,88	13,88
VP8208	10,81	1,46	19,87	12,97
VP8208BR	8,70	1,36	20,47	12,47
VP8208R	12,42	1,53	20,83	13,28
<b>Gemiddeld Mean</b>	<b>10,28</b>	<b>1,51</b>	<b>20,63</b>	<b>13,19</b>

**Tabel 17:** Opsomming van gemiddelde waardes vir alle agronomiese parameters vir kultivars waarvan inligting vir die 2016/2017 & 2017/2018 seisoene (Warm streek)

**Table 17:** Summary of mean values for all agronomic parameters for cultivars of which the information is available for 2016/2017 & 2017/2018 seasons (Warm region)

Genotipe	Groei seison	% Omval	% Spruite	Koppe	Graan Vog
Genotype	Grow length	Lodging	Tillers	Ears	Moisture
LS 8542	K/S	6,31	4,62	11,01	14,83
P 1690 R	M/S	4,51	4,64	10,58	14,27
P 1745 R	K/S	4,90	5,30	11,01	14,62
P 1814 R	K/S	5,72	3,77	11,22	14,38
PHB 32D22 YR	M/S	5,87	4,19	11,61	14,86

<sup>(1)</sup> ARC

**Tabel 18:** Opsomming van gemiddelde waardes vir alle agronomiese parameters vir kultivars waarvan inligting vir die 2015/2016, 2016/2017 & 2017/2018 seisoene (Warm streek)

**Table 18:** Summary of mean values for all agronomic parameters for cultivars of which the information is available for 2015/2016, 2016/2017 & 2017/2018 seasons (Warm region )

Genotipe	Groeilengte	% Omval	% Spruite	Koppe	Graan Vog
Genotype	Grow length	Lodging	Tillers	Ears	Moisture
BG3292 <sup>2</sup>	K/S	4,38	5,30	7,59	15,16
BG3492B <sup>2</sup>	K/S	3,43	5,46	7,71	15,44
BG3792BR <sup>2</sup>	K/S	6,12	5,93	7,63	15,67
DKC64-54BR <sup>2</sup>	K/S	3,19	5,84	7,69	15,34
DKC65-52BR <sup>2</sup>	K/S	3,76	4,86	7,83	15,74
IMP50-10BR <sup>2</sup>	K/S	2,20	5,50	7,74	15,52
IMP50-10R <sup>2</sup>	K/S	3,69	5,50	7,52	14,83
LG3607Y <sup>2</sup>	K/S	5,43	5,76	7,52	14,95
P1517W <sup>2</sup>	K/S	3,46	5,37	7,58	15,42
P1745R <sup>2</sup>	K/S	3,45	5,67	7,72	15,25
PAN3P-502R <sup>2</sup>	K/S	3,51	4,79	7,91	14,99
PAN3Q-740BR <sup>2</sup>	K/S	2,69	5,06	7,80	15,27
PAN6126 <sup>2</sup>	K/S	3,90	4,67	7,52	14,53