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**VERSLAG VAN DIE NASIONALE
SOJABOON KULTIVARPROEWE/
2013/14
REPORT OF THE NATIONAL
SOYBEAN CULTIVAR TRIALS**

Verantwoordelike beampte:
Responsible officer:
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1 INTRODUCTION

The National Soybean Cultivar Trials (project M101/60) were planted for the 36th successive year this past growing season. A total of 21 trials were planted at 20 localities, illustrated in the locality list.

1.1 AIM

The aim of the project was primarily the following:

- (i) To compare cultivars for agronomic and economic performance;
- (ii) to test the adaptability of cultivars and new releases for specific areas and cultivation practices.

2 MATERIALS AND METHODS

2.1 GENERAL

The trials were planted as randomized block designs (rows & columns) using three replications with 32 cultivars. Cultivar characteristics are shown in Table 1.

Each trial plot consisted of four, 5 m rows. Four metres were harvested from each of the middle two rows, in order to avoid border effects. Soil form, fertilization and weed control are indicated together with row spacing in Table 3. All seeds were inoculated with *Bradyrhizobium japonicum* bacteria at planting.

The localities where trials were planted represent a wide range of climatic conditions. Trials were carried out on the ARC and Departmental Research Stations as well as on privately owned farms. Observations were recorded by responsible officers and collaborators as indicated in the list of collaborators. Planting time and cultivation practice were executed to correspond with that of commercial plantings in the specific areas. Rainfall and irrigation are indicated in Table 3. Note that rainfall is only recorded from October to April and not for the specific growing season of a trial.

2.2 OBSERVATIONS

A brief definition of some of the observations in the trials is as follow:

2.2.1 Date of flowering: The time at which one fully open flower per plant was observed across 50% of the plots.

2.2.2 Date of harvest maturity: When 95% of the pods for a given plot had turned brown.

2.2.3 Length of growing season: The number of days from date of planting to date of maturity.

2.2.4 Plant height: The average height in centimetre (cm) of plants from the soil surface to the growth point at maturity.

2.2.5 Pod height: The average height in centimetre (cm) of the lowest pods on the plant from soil surface at maturity.

2.2.6 Green stem: The percentage green stems at harvest rated on a 1 (normally mature) to 5 (more than 80% green stems) scale.

2.2.7 Lodging: Lodging at time of harvest was rated on the following scale:

- 1 = No lodging
- 2 = Few lodging, will not hamper mechanical harvesting
- 3 = Few lodging, lodging less than what will hamper mechanical harvesting
- 4 = Few lodging, will hamper mechanical harvesting, with yield loss
- 5 = Fair number of plants lodged, will hamper mechanical harvesting, with yield loss
- 6 = Many plants lodged, will hamper mechanical harvesting, with yield loss

- 7 = A large number of plants lodged, will hamper mechanical harvesting, with yield loss
- 8 = Nearly all plants lodged, will hamper mechanical harvesting, yield loss
- 9 = All plants lodged, will hamper mechanical harvesting, yield loss

2.2.8 Shattering: Measured at time of harvest and three weeks later. Shattering is reported on a scale of 1 (no shattering) to 5 (more than 91-100% pods shattered).

2.2.9 100 seeds mass: Determined on an air dry basis from a randomly selected sample retained on a 4,75 mm standard grading screen.

2.2.10 Undesirable seed: The mass of undesirable seed was determined in a random 100 g sample with seed size greater than 4,75 mm (excluding mechanical damaged seeds).

2.2.11 Protein and oil percentage: The determinations were done on a sample with whole seeds (moisture free) and a variation can be expected.

2.2.12 Seed yield: Four metres of the two centre rows were harvested by hand at soil level and threshed. Seed moisture was determined and seed yield calculated on a basis of 12,5 % moisture content.

2.3 THE EVALUATION OF TRIALS

The yield data of the individual trials were subjected to analysis of variance, and from the mean square error and components of variance the following parameters were calculated, viz: C_e (error coefficient of variation); C_g (genetic coefficient of variation); t (repeatability of plot yield or intra class correlation coefficient) and t_n (repeatability of mean yield).

The diagnostic value of these parameters may be illustrated as follows:

The t parameter as defined above relates to the repeatability of plot means over replications, and is interpreted in the same way as 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 SE (t) calculated for a particular t -value indicates the accuracy for the estimate of t .

The t_n parameter relates to the repeatability of entry means, and can be defined as the relationship of genetic variance (the variance of true yield of entries) to the total variance of observed means. In cultivar trials this parameter is useful only when the number of replications between trials varies, where this is not the case, the t -value is sufficient.

3 DISCUSSION OF RESULTS

3.1 GENERAL

The rainfall and irrigation data are shown in Table 3. Sporadic early rains limited the ideal planting period. Most of the soybean production areas also experienced early drought with a heavy rainy season during the pod fill stage.

A total of five (5) of the 21 trials (23.8%) could not be included in the report compared to the nine (9) out of 24 trials (37.5%) in the 2012/13 season.

The following trials could not be included in the report for the following reasons:

- 1 Vaalharts – Nematode damage resulting in a high CV
- 2 Rustenburg – Very high CV due to excessive rain during the late season which resulted in waterlogging
- 3 Villiers – Herbicides damage
- 4 Marquard – CV too high, grazed by cattle
- 5 Dundee – CV too high, extreme drought.

As in the previous seasons the evaluation of the trials were based on a number of parameters. No conclusion can be made on a single parameter.

3.2 DISCUSSION OF TABLES

3.2.1 Days to flowering (Table 4), physiologically mature (Table 5) and length of the growing season (Table 6)

The number of days from planting to flowering (Table 4) is an effective measure for the grouping of cultivars because the relative order for this characteristic is repeated to a great extent over localities and years. As expected, average days to flowering was the lowest in the warm areas (45 days at Brits and 46 in Groblersdal) and the highest in the cooler areas (83 days at Delmas).

The number of days to physiological maturity (Table 5) is an effective measure for scheduling the spray of soybean rust. The longest average days to maturity was experienced at Kinross.

The number of days to harvest maturity (Table 6) was used to determine the length of the growing season of a cultivar. The number of days to harvest maturity is however, more dependent on climatic changes and planting date for soybeans and, the number of days to flowering is therefore a more reliable maturity grouping criterion.

3.2.2 Plant height (Table 7)

The indeterminate cultivar Marula (MG 6) showed a mean plant height of 111 cm (highest) in the warm area compared to 59 cm (lowest) of the semi-determinate cultivar LS 6444 R (MG 4) in the moderate region. Plant height for cultivars with an indeterminate growth habit was in general higher than those with a determinate growth habit.

The average plant height between localities varied from a mean of 59 cm at Hoopstad to 102 cm at Bethlehem.

3.2.3 Pod height (Table 8)

The variation in pod and plant height between cultivars is linked with the length of the growing season of a cultivar. The cultivar Dundee (MG 6) showed a mean pod height of 14 cm for the third successive year in the moderate area, while PAN 1614 R (MG 6.2) also had an average pod height of 14 cm in the cool areas. Both cultivars had an indeterminate growth habit and belong to the medium-long (6 - 6.9) maturity grouping.

LS 6444 R (MG 4) (semi-determinate) which, as for the two (2) previous seasons, had the lowest pod height (respectively 6, 4 and 2) in the cool, moderate and warm regions. Considerable harvest losses can occur due to low pod height; thus pod height is an important factor influencing cultivar choice. Differences in pod height between localities can mainly be attributed to differences in row width and climate.

3.2.4 Lodging (Table 9)

The highest lodging occurred in the trials at Cedara and Delmas. The highest lodging figures was reported for S 722/6/1E in the cool and moderate production areas with the highest number 4 and 2.67, respectively.

3.2.5 Green stem (Table 10)

A lot of green stem was reported at Groblersdal and Greytown. The cultivar PHB95Y40, as reported for the 4th successive growing season, showed a high tendency for green stem, across all three climatic regions. Plants also retained their leaves that could hamper the harvesting process.

3.2.6 Shattering 3 weeks after harvesting (Table 11)

The highest shattering occurred at Delmas in the cool production area, as in the previous season. No shattering was reported at 10 of the localities.

3.2.7 Number of plants (Table 12)

Enough certified seed was provided to establish 400 000 plants ha⁻¹ for the irrigation and high rainfall areas and 350 000 for dry-land. A very low plant density was reported for Groblersdal and Delmas. The low plant numbers at Groblersdal were due to pigeon damage. It seems as if PHB 95 Y 20 and S 722/6/1E might have a problem with plant density at the warm areas.

3.2.8 Percentage undesirable seed (Table 13)

The lowest mean of 0.04% undesirable seeds was recorded for the cool region. The range varied from 0.15% at Migdol to 0.16% at Cedara.

3.2.9 Mass (g) 100⁻¹ seeds (Table 14)

The variation in seed mass among localities ranged between 13.90 g 100⁻¹ seeds at Kokstad to 20.18 g 100⁻¹ seeds at Brits. The highest seed mass was recorded for S722/6/1E across all climatic regions, while LS 6444 R had the smallest seed for the most part across all areas.

3.2.10 Oil percentage (Table 15)

LS 6146 R had, like the two previous seasons, the highest average oil percentage for all the regions. The lowest oil percentage was recorded for Egret for the third successive year in all the climatic regions.

3.2.11 Crude Protein percentage (Table 16)

The crude protein is negatively correlated to the oil percentage thus LS 6444 R had the lowest crude protein for all regions. Egret had the highest figure for the past two seasons in the moderate area.

3.2.12 Profat (Table 17)

The inclusion of this table in the report was requested by Dr Erhard Bredenham as the total value of oil and protein is a much better indicator for the selection of a cultivar than the single oil or protein factor. As with the two (2) previous seasons, PHB95Y40 had the highest average profat value for all the regions. PAN 1623 R and Ibis 2000 had a percentage above 60% in the warm regions.

3.2.13 Yield (Table 18)

Due to the sensitivity of soybean cultivars to environmental conditions, it is preferable to divide the soybean production areas into cool, moderate and warm regions. A better yield can be established by choosing a cultivar suitably adapted for a specific region. It is also necessary to use data from more than one year to select between cultivars. Due to the significant cultivar and locality interaction, conclusions on cultivar performance should not be made from average yield data alone. The mean yield over localities has therefore been omitted.

4 INTERPRETATION OF YIELD RESULTS

4.1 INTRODUCTION

A given aim of the national soybean cultivar trials is the evaluation of cultivars for their adaptability to a potential production area, and for their yield performance. Adaptability is especially important because of the fact that soybean cultivars are known to be restricted in terms of recommended production area. This fact is also demonstrated by the results discussed in this report.

Because of genotypic restriction in adaptability the statistical analysis of data over all trial entries and localities tend to demonstrate strong interaction components which confound interpretation. Interaction makes genotype rankings at one site inapplicable to another site. The larger the interaction the more information is lost if interaction is not analysed effectively. This will be a lesser problem for homogeneous areas than for non-homogeneous areas. However, a purpose of the national trials is to identify

homogeneous areas or homogeneous growing conditions based on cultivar performance. Localities were therefore grouped together based on past research experience and with the assistance of photo-thermal charts provided by the Institute for Soil, Climate and Water. Localities were grouped in cool, moderate and warm production areas.

4.2 YIELD RELIABILITY AND YIELD (Tables 19, 20, 21, 22, 23, 24 & 25)

A minimum number of successful trials per climatic area are needed to calculate reliability values. Yield reliability tables are set up for cool-, moderate and warm regions, if enough data is available.

LS 6164 R and PAN 1583 R are the cultivars that performed the best across all three production seasons (2011/12, 2012/13, 2013/14) in the cool areas. LS 6161 R and PHB 95 Y 40 performed above average in the moderate areas, while LS 6161 R, PHB95Y40 and Egret performed above average in the warm areas.

Lokalteite, medewerkers en adresse van kultivarproewe soos beplan vir, 2013/14
Localities, co-operators and addresses of the cultivar trials , 2013/14

Nr No	Lokalteit Locality	Adres van proeflokality Address of trial locality	Tel. no. Tel. nr.	Verantwoordelike beampte Responsible officer
1	Bethlehem	Kleingraan Instituut Bethlehem 9700	082 576 8545	N de Klerk en E Maree
2	Brits	Hartebeespoort Nav. Stasie Posbus 1261 Brits 0250	082 576 8545	N de Klerk en T Kruger
3	Cedara	Cedara P/bag X9059 Pietermaritzburg 3200	033-355 9495/072 241 9182	J Arathoon
4	Delmas Pannar	Pannar Saad Navorsingsplaas Posbus 439 Delmas 2210	013-665 8524/082 715 4878	K van Huyssteen
5	Dundee	Dundee Navorsingstasie Posbus 626 Dundee 3000	034 212 479/076 953 3587	M Buthelezi
6	Glen	Glen Proefplaas Bloemfontein 9300	082 576 8545	N de Klerk, J Richter en E Maree
7	Greytown	Pannar Proefplaas Posbus 19 Greytown 3250	033-413 9639	A Jarvie
8	Greytown Kranskop	Umvoyuna Farm Posbus 755 Greytown 3250	033-417 1494(6)/082 558 1766	P Herbst
9	Grobiersdal-Loskop	Loskopproefplaas Posbus 1367 Grobiersdal 0470	013-262 3042/083 274 1951	C Fourie
10	Hoopstad		082 576 8545	N de Klerk
11	Kinross	Vosstoffel Boerdery Posbus 80 Kinross 2270	082 576 8545	N de Klerk
12	Kokstad	Research Station P/Bag X501 Kokstad 4700	039 727 2105/072 778 8785	MP Skhakhane
13	Marquard	J Bester Plaas Leeuwkop Posbus 109 Marquard 9610	082 576 8545	N de Klerk en E Maree
14	Middel burg	G Anderson Postnet Suite 15 P/Bag 1866 Middelburg 1050	082 576 8545	N de Klerk
15	Migdol	Koos Bezuidenhout Posbus 90 Migdol 2775	082 576 8545	N de Klerk
16-17	Potchefstroom	IGG Proefplaas Privaatsak X1251 Potchefstroom 2520	018-299 6303/082 576 8545	N de Klerk
18	Ruistenburg	NITK Proefplaas Privaatsak X82075 Ruistenburg 0300	014-536 3151-7/082 576 8545	N de Klerk en Ishmael
19	Stoffberg	Piet Prinsloo Posbus 107 Stoffberg 1056	082 576 8545	N de Klerk
20	Vaalharts	LNS Privaatsak X9 Jan Kempdorp 8550	053-456 0084	J van Schaalkwyk
21	Villiers	O du Plessis Posbus 34 Villiers 9840	082 576 8545	N de Klerk en E Maree

Tabel 1 Sojaboonsaad eienskappe en inligting oor verskaffers, 2013/14
 Table 1 Soybean seed characteristics and information about agents, 2013/14

Kultivar Cultivar	Volwassenheids- groeiperings Maturity Group	Groeiwyse Growth habit *1	Hilum kleur Hilum colour *2	Blomkleur Flower colour *3	Haarkleur Pubescence *4	Op varieteits lys On variety list	Verskaffer Agent	Telersregte Breeding rights
Sonop	4.0	I	B	P	B	JAYES	GW Bührmann	JAYES
LS 6240 R	4.0	SD	BL	W	B	JAYES	Linkseed	JAYES
LS 6444 R	4.0	SD	BL	W	G	JAYES	Link Seed	JAYES
LS 6146 R	4.4	I	BL	P	G	JAYES	Link Seed	JAYES
PAN 1454 R	4.3	I	BL	P	B	JAYES	Pannar	JAYES
PHB 94 Y 80 R	4.8	ID	LB	P	W	JAYES	Pioneer	JAYES
LS 6248 R	4.8	SD	BL	W	W	JAYES	Link Seed	JAYES
Highveld Top	5.0	I	BL	P	B	JAYES	GW Bührmann	JAYES
Knap	5.0	I	B/BL	P	B	JAYES	GW Bührmann	JAYES
PHB 95 Y 20	5.2	D	BL	P	G	JAYES	Pioneer	JAYES
PAN 1583 R	5.0	D	LB	P	G	JAYES	Pannar	JAYES
LS 6453 R	5.0	SD	BL	W	B	JAYES	Link Seed	JAYES
PAN 1664 R	5.3	D	LB	P	G	JAYES	Pannar	JAYES
PHB 95 Y 40	5.4	D	BL	W	B	JAYES	Pioneer	JAYES
PAN 1521 R	5.7	I	IB	P	B	JAYES	Pannar	JAYES
PAN 1500 R	5.8	I	IB	P	G	JAYES	Pannar	JAYES
Marula	6.0	I	B/BL	P	B	JAYES	GW Bührmann	JAYES
PAN 1513 R	6.0	I	KL	W	B	JAYES	GW Bührmann	NEE/NO
Dundee	6.0	I	B	P	B	JAYES	Pannar	JAYES
S 722/6/1E	6.0	I	KL	P	B	JAYES	Allgro	JAYES
LS 6261 R	6.0	SD	BL	W	B	JAYES	Seed-co	JAYES
PAN 1666 R	6.1	I	BL	W	B	JAYES	Link Seed	JAYES
PAN 1623 R	6.1	I	KL	W	B	JAYES	Pannar	JAYES
LS 6164 R	6.0	D	LB	W	G	JAYES	Pannar	JAYES
DM 6.2i RR	6.2	I	LB	P	G	JAYES	Link Seed	JAYES
LS 6161 R	6.3	D	IB	P	G	JAYES	Agricol	JAYES
PAN 1614 R	6.2	I	B	W	B	JAYES	Link Seed	JAYES
Egret	7.0	D	KL	P	G	JAYES	Pannar	NEE/NO
Heron	7.0	D	LB	P	G	JAYES	LNR/ARC	JAYES
Ibis 2000	7.0	D	IB	P	G	JAYES	LNR/ARC	JAYES
PAN 1729 R	7.3	I	KL	W	G	JAYES	LNR/ARC	JAYES
							Pannar	JAYES

*1 D - Bepaald/determinate I - Onbepaald/indeterminate SD - Semi-Bepaald/semi determinate

*2 BL - Swart/black IB - Onvolledig swart/imperfect black B - Bruin/brown
 LB - Ligbruin/buff G - Grys/grey KL - Kleurloos/buff

*3 P - Pers/purple W - Wit/white

*4 B - Bruin/brown G - Grys/grey W - Wit/white

Table 2 Algemene inligting aangaande grond en verbouingspraktieke by die onderskeie proeflokaleite van die kultivarproewe, 2013/14
 Table 2 General information in connection with soil and cultivation practices at the different trial localities, 2013/14

Lokaliteit Locality	Plantdatum Date of planting	Grondvorm Soil type	Grond ontleding			Bemesting			Spasiëring Spacing (cm)	Onkruid beheer Weed control
			Soil analysis			Fertilization				
			pH (H ₂ O)	P	K	N	P	K		
Bethlehem/D	30/10/13	Avalon	6.73	58	138	4.76	2.52	0	90	Bateleur Gold, skoffel
Brits/B	04/12/13	Arcadia	7.53	7	230	2.24	17.64	0	75	Bateleur Gold, skoffel
Cedara/D	13/11/13	Hutton (Doveton)	5.34	10	284	0	20	0	45	Hammer, Dual Gold, Basagran
Delmas/D	04/11/13	Rooi Hutton	5.74	102	228	7.28	26.46	34	75	Metolachlor 960, Broadstrike
Dundee/D	06/11/13	Hutton	5.02	50	308	8.68	2.52	35	90	Bateleur Gold, skoffel
Glen/B	19/11/13	Hutton	7.35	23	163	5.04	12.50	0	75	Bateleur Gold, skoffel
Greytown/D	26/11/13	Hutton	-	-	-	22.22	33.33	44	75	Metagan Gold, Classic
Greytown Kranskop/D	14/11/13	Hutton	5.03	27	190	0	21	0	90	Felgan Gold, Classic
Groblerdsdal/B	03/12/13	Avalon	-	-	-	8.4	31.71	41	75	Bateleur Gold, skoffel
Hoopstad	27/11/13	-	7.35	37	233	7.56	2.52	0	90	Bateleur Gold
Kinross/D	01/11/13	-	6.99	78	150	5.6	2.31	0	75	Bateleur Gold, skoffel
Kokstad/D	04/12/13	-	5.03	30	105	2.8	9.24	11.5	45	Dual Gold
Marquard/D	29/10/13	-	5.36	25	180	5.88	6.93	0	90	Bateleur Gold
Middelburg/D	15/11/13	-	Boer werk op globale monster			0	5.25	0	75	Bateleur Gold
Migdol	26/11/13	-	5.56	28	175	5.32	6.62	0	90	Bateleur Gold
Potchefstroom/B	12/11/13	Hutton	7.39	20	128	2.24	13.02	0	75	Bateleur Gold, skoffel
Potchefstroom/D	11/11/13	Hutton	6.46	29	115	1.68	6.51	0	90	Bateleur Gold, skoffel, Basagran
Rustenburg/B	09/12/13	Arcadia	7.89	21	243	0	12.81	0	75	Bateleur Gold, skoffel
Stoffberg/D	13/11/13	-	5.72	4	98	0	19.95	17	75	Bateleur Gold, skoffel
Vaalharts/B	02/12/13	Hutton	7.32	55	185	3.92	1.37	0	45	Hammer, Metagan
Villiers/D	31/10/13	-	6.62	15	165	5.32	10.29	0	75	Bateleur Gold

- Inligting nie beskikbaar/information not available

Tabel 3 Reënval en besproeiing vir die verskillende lokaliteite (mm), 2013/14
 Table 3 Rainfall and irrigation at the different localities (mm), 2013/14

Lokaliteit Locality	Maandelikse reënval (mm)/ Monthly rainfall (mm)												Totaal Total *	Besproeiing Irrigation	Totaal Total **
	Okt	Nov	Des	Jan	Feb	Mrt	Apr	Apr	Apr	Apr	Apr	Apr			
Bethlehem	91.95	81.54	178.81	146.56	124.97	88.89	34.29						747.01	0	747.01
Brits	60.5	90.5	178	25	228	226	27						835	160	995
Cedara	108	105	138	98	96	240	17						802	0	802
Dundee	52.5	75	156.5	32	77	105.5	3.5						502	0	502
Glen Bespr	65	7	167	32	30.5	63	30						394.5	588	982.5
Greytown	90.6	120.6	144	59	64.2	244.6	41.8						764.8	0	764.8
Greytown Kranskop	86	89	112	64	49	153	28						581	0	581
Groblersdal Bespr	143	121	251.5	44.5	82	225	58						925	195	1120
Hoopstad	24.64	47.5	115.32	39.11	106.17	74.17	0.76						407.67	0	407.67
Kokstad	71.1	91.5	142	216.5	79.5	110	32.5						743.1	0	743.1
Marquard	42.67	38.1	99.31	45.21	106.43	75.44	16.51						423.67	0	423.67
Middelburg	194.31	213.87	244.09	67.82	106.17	182.12	19.56						1027.94	0	1027.94
Migdal	-	-	-	93.73	133.6	62.48	2.79						292.6	0	292.6
Potchefstroom Bespr	102.36	59.44	216.66	81.03	116.84	182.12	6.1						764.55	267.5	1032.05
Potchefstroom Drg	102.36	59.44	216.66	81.03	116.84	182.12	6.1						764.55	0	764.55
Rustenburg	65.28	39.87	155.21	112.02	257.81	168.65	25.65						824.49	0	824.49
Stoffberg	182.36	161.54	182.11	154.44	58.42	195.07	48.26						982.2	0	982.2
Vaalharts	9.4	20.07	72.9	11.18	-	-	-						113.55	557	670.55
Villiers	40.13	47.75	159.26	87.37	100.33	108.46	28.96						572.26	0	572.26

* Vir reënval/For rainfall

** Vir reënval en besproeiing/For rainfall and irrigation

Tabel 4 Die aantal dae vanaf plant tot 50% blomstadium van die verskillende sojaboonkultivars by die verskillende proef lokaliteite, 2013/14
 Table 4 The number of days from planting to 50% flowering stage of the different soybean cultivars at the different trial localities, 2013/14

Kultivar	Koel/Cool					Matig/Moderate								Warm				
	Bethlehem	Delmas	Kinross	Kokstad	Middelburg	Gem/Mean	Cedara	Gen	Greytown	Hoopstad	Migdol	Potchetstroom Besp.	Potchetstroom Drg	Stoffberg	Gem/Mean	Brits	Groblersdal	Gem/Mean
Sonop	77	84	70	75	73	76	76	66	66	54	55	69	54	52	62	37	48	43
LS 6240 R	50	66	48	51	52	53	57	55	41	43	44	47	48	46	48	33	34	34
LS 6444 R	50	73	48	54	52	55	54	55	43	43	44	47	48	46	47	33	41	37
LS 6146 R	50	71	48	61	52	56	55	53	43	43	44	47	48	46	47	33	41	37
PAN 1454 R	57	67	59	51	52	57	57	57	43	43	55	47	48	46	50	33	41	37
PHB 94 Y 80 R	57	71	55	65	56	61	63	55	43	48	44	56	57	55	53	37	41	39
LS 6248 R	68	84	55	77	70	71	73	70	65	54	55	69	70	68	66	37	48	43
Highveld Top	86	84	75	76	74	79	78	56	67	58	55	72	73	71	66	41	48	45
Knep	77	84	75	76	66	76	78	60	67	61	55	69	70	68	66	53	48	51
PHB 95 Y 20 R	94	89	87	75	74	84	82	70	67	62	59	75	76	74	71	41	48	45
PAN 1583 R	72	84	80	75	70	76	75	60	61	62	55	74	75	73	67	37	41	39
LS 6453 R	72	77	80	65	66	70	75	62	61	54	55	75	76	74	67	37	41	39
PAN 1664 R	77	80	80	75	70	76	74	60	63	43	55	72	73	71	64	53	41	47
PHB 95 Y 40 R	77	85	80	76	74	78	81	70	67	54	55	69	70	68	67	53	48	51
PAN 1521 R	86	87	80	75	70	80	78	63	67	61	59	75	76	74	69	41	48	45
PAN 1500 R	94	85	84	72	70	81	78	70	65	58	55	72	73	71	68	37	48	43
Marula	72	83	88	77	73	79	77	65	66	62	55	72	73	71	68	53	48	51
PAN 1513 R	86	89	87	61	66	78	80	65	70	54	59	69	70	68	67	53	48	51
Dundee	72	88	84	75	74	79	77	70	67	62	59	75	76	74	70	41	48	45
S 722/6/1E	94	93	88	84	81	88	84	70	73	68	70	72	73	71	73	53	55	54
LS 6261 R	68	82	70	75	70	73	73	62	64	54	44	69	56	54	60	53	48	51
PAN 1666 R	77	84	75	75	74	77	78	70	66	58	62	73	74	72	69	53	48	51
PAN 1623 R	72	84	75	76	73	76	80	70	66	61	59	69	70	68	68	53	48	51
LS 6164 R	77	84	70	76	70	75	77	60	64	54	59	75	76	74	67	41	48	45
DM 16.2i RR	68	80	87	76	74	77	79	69	67	61	59	75	76	74	70	41	48	45
LS 6161 R	77	84	75	84	70	78	78	65	66	58	59	75	76	74	69	41	48	45
PAN 1614 R	86	87	75	77	70	79	79	63	65	58	59	74	75	73	68	58	48	53
Egret	94	90	84	82	81	86	87	70	72	65	59	76	77	75	73	55	48	52
Heron	94	89	87	79	79	86	84	70	68	54	66	76	77	75	71	41	34	38
Ibis 2000	86	81	48	82	81	76	86	70	72	68	66	75	76	74	73	58	41	50
PAN 1729 R	94	89	88	82	74	85	87	70	72	69	63	75	76	74	73	58	55	57
Standaard	77	89	80	77	81	81	83	69	67	62	59	76	77	75	71	41	48	45
Gem/Mean	76	83	74	73	70	75	76	64	63	57	56	69	69	67	65	45	46	45

Tabel 5 Die aantal dae vanaf plant tot fisiologiesnyfstadium van die verskillende sojaboonkultivars by die verskillende proef lokaliteite, 2013/14
 Table 5 The number of days from planting to physiological maturity of the different soybean cultivars at the different trial localities, 2013/14

Kultivar Cultivar	Koel/Cool					Matig/Moderate					Warm						
	Bethlehem	Kinross	Kokstad	Midelburg	Gem/Mean	Cedara	Glen	Greytown	Kranskop	Hoopstad	Mitgdl	Potchefstroom	Potchefstroom Drg	Stoffberg	Gem/Mean	Brits	Gem/Mean
Sonop	135	165	146	145	148	144	140	142	134	117	125	147	148	146	138	113	113
LS 6240 R	131	131	128	132	131	132	113	131	113	125	133	120	121	119	123	96	96
LS 6444 R	131	131	128	132	131	131	108	130	111	117	104	115	116	114	116	96	96
LS 6146 R	131	137	128	132	132	131	108	142	113	114	104	115	116	114	117	96	96
PAN 1454 R	131	131	131	132	131	133	120	137	113	117	104	127	128	126	123	96	96
PHB 94 Y 80 R	131	131	128	132	131	133	113	137	113	117	104	120	121	119	120	96	96
LS 6248 R	146	153	139	138	144	139	127	142	128	121	115	134	135	133	130	104	104
Highveld Top	155	148	139	145	147	139	127	146	124	117	118	134	135	133	130	113	113
Knap	155	165	141	145	152	144	140	142	132	124	125	147	148	146	138	113	113
PHB 95 Y 20 R	155	148	146	151	150	144	140	142	132	124	125	147	148	146	139	113	113
PAN 1583 R	155	134	139	145	143	143	140	144	122	124	125	147	148	146	138	113	113
LS 6453 R	146	148	133	138	141	140	127	138	116	124	118	134	135	133	129	104	104
PAN 1664 R	146	148	133	145	143	143	140	143	128	125	115	147	148	146	137	113	113
PHB 95 Y 40 R	155	148	139	145	147	147	140	145	131	125	125	147	148	146	139	113	113
PAN 1521 R	146	137	142	138	141	144	140	137	120	124	125	147	148	146	137	113	113
PAN 1500 R	146	148	146	145	146	142	140	143	132	125	125	147	148	146	139	113	113
Marula	155	160	146	145	152	144	140	141	131	140	115	147	148	146	139	113	113
PAN 1513 R	155	160	139	151	151	145	140	138	132	124	125	147	148	146	138	113	113
Dundee	155	170	149	151	156	143	140	140	136	124	127	147	148	146	139	113	113
S 722/61E	162	-	161	156	160	152	157	144	136	140	139	164	165	163	151	125	125
LS 6261 R	146	160	131	138	144	143	140	146	130	140	118	147	148	146	140	113	113
PAN 1666 R	146	148	141	145	145	139	140	137	128	124	133	147	148	146	138	113	113
PAN 1623 R	146	148	141	145	145	143	140	141	130	140	118	147	148	146	139	113	113
LS 6164 R	155	160	139	145	150	144	140	141	128	140	133	147	148	146	141	113	113
DM 6.21RR	146	148	146	138	145	145	140	142	128	125	115	147	148	146	137	113	113
LS 6161 R	146	160	141	145	148	143	140	145	134	124	125	147	148	146	139	113	113
PAN 1614 R	146	148	149	145	147	144	140	141	132	125	115	147	148	146	138	104	104
Egret	162	165	147	151	156	152	140	142	138	140	133	147	148	146	143	125	125
Heron	155	160	149	151	154	151	140	141	138	140	118	147	148	146	141	125	125
Ibis 2000	155	160	141	145	150	146	140	143	147	140	118	147	148	146	142	125	125
PAN 1729 R	155	160	149	151	154	150	140	146	138	140	133	147	148	146	143	125	125
Standaard	155	160	146	151	153	143	140	140	126	140	133	147	148	146	140	125	125
Gem/Mean	148	151	141	144	146	142	135	141	128	128	121	142	143	141	136	112	112

Tabel 6 Die aantal dae vanaf plant tot oesstadium van die verskillende sojaboonkultivars by die verskillende proef lokaliteite, 2013/14
 Table 6 The number of days from planting to maturity of the different soybean cultivars at the different trial localities, 2013/14

Kultivar	Koel/Cool							Matig/Moderate							Warm					
	Bethlehem	Delmas	Kinross	Kokstad	Middelburg	Gem/Mean	Cedara	Glen	Greytown	Kranskop	Hoopstad	Migdol	Potchefstroom	Potchefstroom	Drg	Stoffberg	Gem/Mean	Brits	Groblersdal	Gem/Mean
Sonop	166	171	174	173	166	170	176	157	151	142	141	164	165	163	157	130	132	131		
LS 6240 R	146	154	147	141	145	147	162	127	130	133	130	134	135	133	136	125	124	125		
LS 6444 R	146	154	147	139	132	144	162	127	130	133	130	134	135	133	136	125	126	126		
LS 6146 R	146	154	147	141	132	144	162	127	130	133	135	134	135	133	136	125	128	127		
PAN 1454 R	146	154	147	141	132	144	162	136	130	133	130	143	144	142	140	133	114	123		
PHB 94 Y 80 R	146	154	147	139	132	144	162	127	130	133	142	134	135	133	137	128	122	125		
LS 6248 R	163	171	176	160	151	164	162	157	138	137	133	164	165	163	152	128	136	132		
Highveld Top	170	180	174	160	166	170	176	157	152	142	141	164	165	163	156	130	140	135		
Knop	170	185	174	150	166	169	162	157	152	142	141	164	165	163	158	128	135	131		
PHB 95 Y 20 R	177	171	174	172	166	172	176	159	168	146	142	166	167	165	161	146	140	143		
PAN 1583 R	166	171	174	153	166	166	176	177	152	151	147	184	185	183	169	142	143	142		
LS 6453 R	162	176	174	153	151	163	162	157	130	140	141	164	165	163	153	125	135	130		
PAN 1664 R	166	171	174	153	166	166	176	157	152	153	147	164	165	163	160	142	143	142		
PHB 95 Y 40 R	177	176	176	173	166	173	176	160	168	151	147	167	168	166	163	142	138	140		
PAN 1521 R	165	180	165	153	151	163	162	157	139	151	143	164	165	163	155	125	140	132		
PAN 1500 R	165	185	174	173	166	173	162	162	168	151	145	169	170	168	162	142	143	142		
Marula	170	176	174	173	166	172	166	167	144	144	141	174	175	173	161	128	126	127		
PAN 1513 R	166	185	174	170	166	172	162	167	144	142	143	174	175	173	160	125	137	131		
Dundee	177	185	179	173	166	176	176	157	168	148	141	164	165	163	160	130	143	137		
S 722/61E	177	185	-	180	166	177	176	157	168	153	147	164	165	163	162	146	143	145		
LS 6261 R	162	171	174	170	166	169	176	157	152	140	138	164	165	163	157	128	136	132		
PAN 1666 R	166	171	174	160	166	167	162	157	144	146	141	164	165	163	155	135	137	136		
PAN 1623 R	163	180	174	173	166	171	166	167	152	144	141	174	175	173	162	128	136	132		
LS 6164 R	166	176	174	170	166	170	176	157	168	146	143	164	165	163	160	133	138	135		
DM 6.2i RR	173	185	174	180	166	176	176	157	168	153	147	164	165	163	162	128	134	131		
LS 6161 R	167	171	174	160	166	168	176	159	152	144	141	166	167	165	159	128	137	132		
PAN 1614 R	166	184	176	180	166	174	176	159	168	142	143	166	167	165	161	125	140	132		
Egret	177	180	177	173	166	175	176	167	151	153	147	174	175	173	165	137	143	140		
Heron	177	185	179	170	166	175	176	157	151	148	147	164	165	163	159	133	140	136		
Ibis 2000	177	176	174	173	166	173	176	167	168	148	143	174	175	173	166	133	143	138		
PAN 1729 R	177	185	174	170	166	174	176	157	168	153	147	164	165	163	162	137	143	140		
Standaard	173	176	176	160	166	170	162	157	139	151	145	164	165	163	156	146	143	145		
Gem/Mean	166	174	170	163	160	167	170	155	151	145	142	162	163	161	156	132	136	134		

Tabel 7 Die planthoogte van die verskillende soja boonkultivars by die verskillende proef lokaliteite, 2013/14
 Table 7 The plant height of the different soybean cultivars at the different trial localities, 2013/14

Kultivar	Koel/Cool						Matig/Moderate						Warm								
	Bethlehem	Delmas	Kinross	Kokstad	Middeburg	Gem/Mean	Cedara	Glen	Greytown	Greytown	Kranskop	Hoopstad	Migdol	Potchefstroom	Bespr	Potchefstroom	Stoffberg	Gem/Mean	Brits	Groblersdal	Gem/Mean
Sonop	127	103	90	100	107	105	107	93	85	93	97	97	97	82	82	62	100	88	98	111	105
LS 6240 R	82	62	68	59	55	65	75	70	56	70	55	65	55	60	60	55	57	63	52	67	60
LS 6444 R	73	50	72	58	58	62	70	60	58	60	52	58	52	58	58	58	55	59	56	64	60
LS 6146 R	85	75	70	60	53	69	87	77	68	77	55	63	63	72	72	60	77	71	73	87	80
PAN 1454 R	90	67	85	78	58	76	94	75	70	75	62	63	63	70	70	53	78	71	68	74	71
PHB 94 Y 80 R	78	62	73	62	50	65	73	65	57	65	52	75	75	62	62	60	63	63	59	71	65
LS 6248 R	112	88	80	87	72	88	94	85	73	85	72	78	78	73	70	78	78	79	82	90	86
Highveld Top	113	97	87	98	68	93	93	78	69	78	60	100	100	72	72	73	90	79	68	90	79
Knap	117	100	98	100	107	104	101	88	81	88	67	88	90	87	87	60	92	84	88	112	100
PHB 95 Y 20 R	102	70	73	65	68	76	99	83	70	83	48	65	65	70	70	62	80	73	61	73	67
PAN 1583 R	108	62	77	81	82	82	93	80	68	80	55	52	52	63	63	57	77	69	55	78	66
LS 6453 R	113	77	78	93	93	91	87	65	66	65	58	58	72	83	68	68	77	71	87	85	86
PAN 1664 R	88	60	55	65	82	70	94	83	63	83	47	48	48	68	60	60	75	69	55	69	62
PHB 95 Y 40 R	98	70	77	78	65	78	90	85	66	85	62	62	53	72	73	73	80	74	63	63	63
PAN 1521 R	107	95	95	92	82	94	90	80	66	80	58	83	83	83	58	58	83	76	84	90	87
PAN 1500 R	108	77	85	82	63	83	83	85	61	85	63	72	72	77	63	63	72	73	70	83	77
Manula	113	98	88	105	72	95	104	92	87	92	82	93	93	85	73	97	97	89	103	119	111
PAN 1513 R	107	98	92	77	108	96	98	90	72	90	60	87	87	75	68	68	87	81	93	98	96
Dundee	112	100	110	95	105	104	103	95	85	95	57	95	95	93	67	67	83	86	115	106	110
S 722/6/1E	93	88	-	92	83	89	97	85	72	85	55	77	77	83	72	72	73	78	85	83	84
LS 6261 R	80	70	78	70	70	74	75	60	54	60	55	72	72	65	45	65	65	61	65	65	65
PAN 1666 R	117	83	87	112	83	96	92	80	71	80	63	70	70	72	65	65	83	75	88	83	86
PAN 1623 R	102	90	87	85	90	91	93	83	67	83	60	80	80	80	68	68	78	77	73	99	86
LS 6164 R	103	83	80	85	70	84	92	85	69	85	50	73	73	77	68	85	85	76	77	96	86
DM 6.2/RR	102	97	83	102	82	93	93	85	62	85	53	84	84	77	57	57	92	76	78	94	86
LS 6161 R	105	88	90	90	90	93	92	90	66	90	62	90	90	83	68	68	80	80	83	94	89
PAN 1614 R	117	92	90	102	82	96	103	95	77	95	67	78	78	72	68	68	85	82	85	102	94
Egret	102	73	85	78	92	86	97	93	68	93	53	58	58	63	55	55	80	74	87	85	86
Heron	98	72	60	81	83	79	103	98	68	98	57	67	67	72	60	75	75	78	52	86	69
Ibis 2000	108	77	63	83	102	86	107	100	83	100	55	80	80	77	62	62	80	83	82	90	86
PAN 1729 R	97	88	93	94	107	96	95	80	75	80	47	85	85	73	67	67	82	76	83	91	87
Standaard	97	77	83	71	92	84	92	100	66	100	53	45	45	65	58	58	82	73	68	66	67
Gem/Mean	102	81	82	84	80	86	93	83	69	83	59	74	74	74	63	63	79	75	76	86	81

Tabel 8 Die peulhoogte van die verskillende soja boonkultivars by die verskillende proef lokaliteite, 2013/14
 Table 8 The pod height of the different soybean cultivars at the different trial localities, 2013/14

Kultivar	Koei/Cool										Matig/Moderate								Wamm		
	Bethlehem	Delmas	Kinross	Kokstad	Midelburg	Gem/Mean	Cedara	Glen	Greytown	Kranskop	Hoopstad	Mitgdo	Potchestroom	Bespr	Potchestroom	Drg	Stoffberg	Gem/Mean	Brits	Groblersdal	Wamm
Sonop	20	9	10	8	10	11	25	13	13	19	8	11	7	7	3	18	13	8	4	6	
LS 6240 R	7	8	7	5	5	7	12	8	5	10	4	3	2	2	1	9	6	0	4	2	
LS 6444 R	4	5	7	7	7	6	11	7	6	7	0	0	0	0	0	6	4	0	3	2	
LS 6146 R	7	7	8	6	8	7	13	10	6	10	2	2	4	4	0	10	6	2	5	3	
PAN 1454 R	7	5	10	5	5	6	14	13	5	8	0	2	5	5	2	11	7	5	4	5	
PHB 94 Y 80 R	9	5	8	5	5	6	12	14	6	10	2	5	2	2	3	12	7	5	3	4	
LS 6248 R	11	17	13	7	10	12	21	13	14	19	6	8	8	8	3	15	12	12	5	8	
Highveld Top	12	17	15	8	10	12	23	14	14	19	2	12	3	5	5	13	12	8	4	6	
Knap	18	18	11	8	7	12	22	15	11	19	4	10	10	10	2	18	12	10	7	9	
PHB 95 Y 20 R	12	13	10	8	8	10	20	4	13	18	0	3	3	3	2	20	9	6	6	6	
PAN 1583 R	10	7	12	6	7	8	18	12	12	15	5	2	1	2	2	13	9	6	4	5	
LS 6453 R	13	7	12	6	10	10	17	8	11	9	3	3	10	10	7	12	9	9	4	7	
PAN 1664 R	5	13	7	5	7	7	19	7	11	19	0	0	2	2	2	13	8	3	4	3	
PHB 95 Y 40 R	12	13	13	7	8	11	20	17	13	24	3	0	5	5	7	17	12	2	3	2	
PAN 1521 R	11	18	12	8	8	11	19	19	13	20	2	8	10	3	17	12	12	13	5	9	
PAN 1500 R	15	15	13	8	7	12	18	10	10	20	7	7	5	3	17	11	11	7	6	6	
Marula	17	17	13	8	10	13	22	15	14	19	7	10	7	8	17	13	13	8	2	5	
PAN 1513 R	12	17	15	6	7	11	23	12	9	20	3	8	8	8	7	17	12	13	5	9	
Dundee	15	15	20	4	8	13	25	14	13	25	3	10	8	8	3	20	14	8	6	7	
S 722/61E	7	17	-	7	10	10	21	5	10	25	0	5	3	3	8	15	10	3	4	4	
LS 6261 R	5	10	10	5	7	7	18	6	13	17	3	7	7	7	0	15	10	6	3	5	
PAN 1666 R	20	15	15	8	8	13	24	13	13	20	3	3	5	5	5	17	12	8	4	6	
PAN 1623 R	9	15	10	7	8	10	18	10	12	19	3	7	10	10	6	13	11	8	3	6	
LS 6164 R	13	10	12	5	10	10	20	13	12	15	0	3	7	7	7	12	10	8	4	6	
DM 6.21RR	12	15	17	7	7	11	17	19	10	19	2	5	7	7	2	17	11	8	3	6	
LS 6161 R	13	23	10	5	7	12	27	14	15	24	2	12	8	8	3	15	13	13	6	10	
PAN 1614 R	20	22	15	9	5	14	24	13	15	27	5	6	5	5	7	17	13	12	7	9	
Egret	13	13	15	6	8	11	19	7	10	17	3	0	2	2	0	15	8	7	5	6	
Heron	10	17	10	9	8	11	23	9	10	20	3	4	5	5	2	17	10	5	3	4	
Ibis 2000	8	15	10	8	7	10	28	19	12	20	2	5	7	7	3	15	12	7	4	5	
PAN 1729 R	10	15	13	5	5	10	18	10	8	19	2	7	3	3	5	13	10	8	4	6	
Standaard	13	15	15	9	10	12	19	10	14	27	0	2	5	5	4	13	10	4	4	4	
Gem/Mean	12	13	12	7	8	10	20	12	11	18	3	5	5	5	3	15	10	7	4	6	

Tabel 10 Groenstam (1-5) van die verskillende sojaboonkultivars by die verskillende proef lokaliteite, 2013/14 20
 Table 10 Green stem. (1-5) of the different soybean cultivars at the different trial localities, 2013/14

Kultivar	Koel/Cool					Matig/Moderate								Warm					
	Bethlehem	Delmas	Kinross	Kokstad	Middelburg	Gem/Mean	Cedara	Glen	Greytown	Hoopstad	Migdol	Potchetstream	Bespr	Potchetstream	Drg	Stoffberg	Gem/Mean	Brts	Groblersdal
Sonop	1.00	1.00	1.00	1.00	1.00	1.03	1.00	1.00	4.00	1.67	1.33	1.67	1.67	1.33	1.00	1.63	1.33	2.00	1.67
LS 6240 R	1.00	1.00	1.33	1.00	1.00	1.03	1.33	1.00	3.00	1.67	2.33	1.67	1.67	2.00	1.00	1.75	1.00	3.33	2.17
LS 6444 R	1.00	1.00	1.00	1.00	1.00	1.03	2.00	1.00	1.00	2.33	1.33	1.67	1.67	2.00	1.00	1.54	1.33	4.33	2.83
LS 6146 R	1.00	1.00	1.33	1.00	1.00	1.07	1.00	1.00	3.67	2.00	2.00	1.67	1.67	1.67	1.00	1.75	1.00	4.67	2.83
PAN 1454 R	1.00	1.00	1.33	1.00	1.00	1.03	3.00	1.00	3.33	2.00	2.33	1.33	1.33	1.00	1.00	1.88	1.00	3.67	2.33
PHB 94 Y 80 R	1.00	1.00	1.00	1.00	1.00	1.00	3.00	1.00	4.00	2.67	1.67	2.00	1.67	1.67	1.00	2.13	2.33	1.67	2.00
LS 6248 R	1.00	1.00	1.00	1.00	1.00	1.03	1.00	1.00	5.00	2.33	1.67	1.33	1.33	1.00	1.67	1.88	1.33	3.00	2.17
Highveld Top	1.00	1.00	1.33	1.00	1.00	1.27	1.00	1.00	5.00	2.00	1.00	1.00	1.00	1.33	2.00	1.79	1.33	5.00	3.17
Knap	1.00	1.00	3.33	1.00	1.00	1.50	1.67	1.00	3.33	1.00	1.67	1.00	1.00	2.00	1.67	1.67	1.00	3.00	2.00
PHB 95 Y 20 R	1.67	2.00	2.00	1.00	1.00	1.27	1.33	1.33	4.67	2.33	1.33	1.33	1.33	1.33	5.00	2.33	1.33	4.00	2.67
PAN 1583 R	1.00	1.00	1.00	1.00	1.00	1.03	2.00	1.00	4.33	2.00	2.00	1.00	1.00	1.33	2.00	1.96	3.67	4.00	3.83
LS 6453 R	1.00	1.00	1.33	1.00	1.00	1.17	1.67	1.00	3.67	2.33	2.33	1.00	1.00	1.00	1.00	1.75	2.00	4.67	3.33
PAN 1664 R	1.00	1.00	2.33	1.00	1.00	1.87	2.33	1.00	4.67	1.33	2.00	1.00	1.00	1.33	3.33	2.13	4.33	4.33	4.33
PHB 95 Y 40 R	1.00	3.67	2.67	1.00	4.00	1.77	2.67	1.00	5.00	2.33	2.67	1.00	1.00	2.00	5.00	2.71	4.33	4.67	4.50
PAN 1521 R	1.00	1.00	1.00	1.33	1.00	1.10	1.00	1.00	3.67	1.33	1.00	1.33	1.00	1.33	1.00	1.50	1.00	3.67	2.33
PAN 1500 R	1.00	1.00	1.33	1.33	1.00	1.20	1.00	1.33	3.67	1.33	2.00	1.33	1.67	1.67	5.00	2.17	1.67	4.33	3.00
Marula	1.00	1.00	2.33	1.00	1.00	1.13	1.33	1.67	2.33	1.33	1.00	1.33	1.00	1.33	1.00	1.38	1.33	2.67	2.00
PAN 1513 R	1.00	1.00	1.00	1.00	1.00	1.13	1.00	1.00	1.67	1.67	1.67	1.33	1.33	1.33	1.00	1.33	1.00	2.33	1.67
Dundee	1.00	1.00	2.33	1.00	1.00	1.15	1.67	1.00	3.67	1.00	1.67	1.33	1.33	1.67	1.33	1.67	1.00	3.33	2.17
S 722/6/1E	1.00	1.00	-	1.00	1.00	1.44	2.33	1.33	3.33	1.67	2.67	2.00	2.00	2.67	2.33	2.29	3.67	4.33	4.00
LS 6261 R	1.00	1.00	5.00	1.00	1.00	1.40	4.33	2.00	5.00	2.67	1.67	1.33	1.33	1.33	3.33	2.71	1.67	5.00	3.33
PAN 1666 R	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.67	1.67	3.00	1.33	1.33	1.33	2.33	2.04	1.00	3.67	2.33
PAN 1623 R	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5.00	2.67	1.67	1.00	1.00	2.00	2.00	2.04	1.00	4.67	2.83
LS 6164 R	1.00	1.00	1.00	1.00	1.00	1.17	1.00	1.00	3.67	1.33	2.00	1.00	1.00	2.00	1.00	1.63	1.00	3.00	2.00
DM 6.21RR	1.00	1.00	2.67	1.00	1.00	1.17	1.67	1.00	5.00	1.33	1.67	1.67	1.67	2.00	1.00	1.92	1.33	2.00	1.67
LS 6161 R	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	3.67	2.00	1.33	1.00	1.00	1.67	5.00	2.17	1.00	3.67	2.33
PAN 1614 R	1.00	1.00	1.00	1.00	1.00	1.20	1.33	1.00	5.00	2.00	1.67	1.00	1.00	2.00	3.00	2.13	1.00	4.67	2.83
Egret	1.00	1.00	3.00	1.00	1.00	1.23	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.33	1.00	1.29	1.00	4.00	2.50
Heron	1.00	1.00	1.33	1.00	1.00	1.17	1.00	1.00	2.00	1.67	1.67	1.00	1.00	1.00	1.00	1.29	1.67	3.67	2.67
Ibis 2000	1.00	1.00	2.33	1.00	1.00	1.13	1.67	1.00	1.67	1.67	2.00	1.00	1.00	1.00	1.00	1.38	1.67	5.00	3.33
PAN 1729 R	1.00	1.00	1.00	1.00	1.00	1.20	1.00	1.00	1.00	1.33	2.00	1.67	1.67	1.33	1.00	1.29	1.00	3.33	2.17
Standaard	1.67	2.33	1.00	1.00	1.00	1.30	1.00	1.67	5.00	2.67	2.00	1.33	1.33	1.33	2.33	2.17	3.00	4.00	3.50
Gem/Mean	1.04	1.16	1.66	1.02	1.09	1.19	1.58	1.11	3.65	1.82	1.82	1.30	1.30	1.52	2.00	1.85	1.67	3.74	2.70

Tabel 11 Oopspring (1-5) van die verskillende soja-boonkultivars by die verskillende proef lokaliteite, 2013/14
 Table 11 Shattering (1-5) of the different soybean cultivars at the different trial localities, 2013/14

Kultivar	Koel/Cool					Matig/Moderate								Warm			
	Bethlehem	Delmas	Kinross	Kokstad	Middeburg	Gem/Mean	Cedara	Glen	Greytown	Hoopstad	Migdol	Potcheers- stroom Bespr	Potcheers- stroom Drg	Stoffberg	Gem/Mean	Brits	Gem/Mean
Sonop	1.00	2.00	1.00	1.00	1.00	1.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LS 6240 R	1.00	1.00	1.00	1.00	1.67	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LS 6444 R	1.00	4.00	1.00	1.00	1.00	1.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LS 6146 R	1.00	1.67	1.00	1.00	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1454 R	1.00	3.33	1.00	1.00	1.00	1.47	1.00	1.00	1.33	1.00	1.00	1.00	1.00	1.00	1.04	1.00	1.00
PHB 94 Y 80 R	1.00	2.67	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LS 6248 R	1.00	4.33	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00	1.04	1.00	1.00
Highveld Top	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Knap	1.00	3.67	1.00	1.00	1.00	1.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHB 95 Y 20 R	1.00	1.33	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1583 R	1.00	3.33	1.00	1.00	1.00	1.47	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LS 6453 R	1.00	3.67	1.00	1.00	1.00	1.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1664 R	1.00	3.67	1.00	1.00	1.00	1.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHB 95 Y 40 R	1.00	2.33	1.00	1.00	1.00	1.27	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1521 R	1.00	1.67	1.00	1.00	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1500 R	1.00	1.67	1.00	1.00	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Manula	1.00	2.67	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1513 R	1.00	1.67	1.00	1.00	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dundee	1.00	2.00	1.00	1.00	1.00	1.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
S 722/61E	1.00	2.00	-	1.00	1.00	1.25	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00	1.04	1.00	1.00
LS 6261 R	1.00	3.67	1.00	1.00	1.00	1.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1666 R	1.00	1.67	1.00	1.00	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1623 R	1.00	1.67	1.00	1.00	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LS 6164 R	1.00	3.00	1.00	1.00	1.00	1.40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DM 6.21 RR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LS 6161 R	1.00	3.33	1.00	1.00	1.00	1.47	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1614 R	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Egret	1.00	3.33	1.00	1.00	1.00	1.47	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heron	1.00	3.33	1.00	1.00	1.00	1.47	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ibis 2000	1.00	3.67	1.00	1.00	1.00	1.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PAN 1729 R	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Standaard	1.00	2.67	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Gem/Mean	1.00	2.47	1.00	1.00	1.02	1.30	1.00	1.00	1.01	1.00	1.02	1.00	1.00	1.00	1.00	1.00	1.00

Tabel 12 Die plantelling geoes (x 1000) van die verskillende soja boonkultivars by die verskillende proeflokalisiteite, 2013/14
 Table 12 The number of plant harvested (x 1000) of the different soybean cultivars at the different trial localities, 2013/14

Kultivar	Koel/Cool							Matig/Moderate							Warm				
	Bethlehem	Delmas	Kinross	Kokstad	Middeburg	Gem/Mean	Cedara	Glen	Kranskop	Hoopstad	Migdol	Potchersstroom	Bespr	Potchersstroom	Drg	Stoffberg	Gem/Mean	Brits	Groblersdal
Sonop	253	163	192	196	287	218	254	285	263	204	253	294	294	211	237	250	303	122	213
LS 6240 R	114	174	296	155	269	202	181	329	230	213	235	302	302	186	171	231	298	103	201
LS 6444 R	144	186	292	235	257	223	284	378	278	188	238	262	262	198	256	260	312	126	219
LS 6146 R	113	192	302	205	328	228	245	363	281	174	250	275	275	169	244	250	327	155	241
PAN 1454 R	137	136	288	205	283	210	222	328	285	196	244	214	214	169	271	241	272	83	178
PHB 94 Y 80 R	177	171	323	217	331	244	229	333	259	197	249	233	233	178	233	239	309	87	198
LS 6248 R	275	193	324	242	294	266	279	339	289	247	271	246	246	218	255	268	311	79	195
Highveld Top	252	172	296	239	289	249	289	255	300	183	260	273	273	207	283	256	240	141	191
Knap	244	160	315	196	283	240	296	249	259	202	253	307	307	217	261	256	241	187	214
PHB 95 Y 20 R	246	137	298	119	287	218	220	186	241	184	218	228	228	225	274	222	91	44	68
PAN 1583 R	276	163	256	239	286	244	268	222	285	205	210	264	264	186	245	236	196	130	163
LS 6453 R	235	137	312	173	267	225	235	322	267	189	236	265	265	213	278	251	332	100	216
PAN 1664 R	258	150	331	234	292	253	272	234	267	176	200	289	289	166	282	236	168	140	154
PHB 95 Y 40 R	268	153	305	268	288	256	332	326	359	192	225	284	284	181	284	273	222	132	177
PAN 1521 R	279	175	378	240	296	273	264	319	300	192	270	261	261	188	282	260	207	167	187
PAN 1500 R	234	160	292	203	294	237	281	266	267	205	249	309	309	213	302	262	177	176	176
Marula	254	140	307	176	294	234	318	266	259	216	256	304	304	209	262	261	216	77	146
PAN 1513 R	269	176	287	229	294	251	293	153	300	191	246	257	257	207	228	234	293	116	204
Dundee	267	113	301	143	299	224	231	223	181	194	267	282	282	188	277	230	248	79	163
S 7226/1E	196	131	-	221	299	212	232	231	193	183	206	223	223	199	222	211	104	66	85
LS 6261 R	208	137	290	195	291	224	310	186	270	156	251	272	272	213	239	237	280	122	201
PAN 1666 R	283	191	323	250	277	265	341	163	330	190	250	261	261	207	276	252	228	156	192
PAN 1623 R	251	167	342	360	272	279	391	249	344	198	267	284	284	164	263	270	315	163	239
LS 6164 R	273	179	321	213	298	257	263	141	237	156	246	249	249	202	278	221	292	129	211
DM 6.21RR	230	143	283	144	288	217	197	202	211	169	249	277	277	192	272	221	294	106	200
LS 6161 R	254	219	325	303	300	280	412	254	289	206	277	324	324	213	267	280	306	231	268
PAN 1614 R	281	184	319	267	287	268	362	304	378	223	235	273	273	214	255	281	306	205	256
Egret	263	129	333	142	294	232	292	321	274	190	218	247	247	151	277	246	264	104	184
Heron	269	129	299	168	297	232	249	161	241	162	244	312	312	165	261	224	345	120	233
Ibis 2000	262	177	332	296	288	271	396	277	278	220	237	261	261	167	277	264	332	117	224
PAN 1729 R	227	111	293	106	295	207	177	278	244	160	231	256	256	232	277	232	250	81	166
Standaard	257	143	265	167	301	226	256	211	319	176	207	219	219	186	236	226	127	111	119
Gem/Mean	236	159	304	211	291	240	277	261	274	192	242	269	269	195	260	246	256	124	190

Tabel 17 Gemiddelde van die olie-en proteïen persentasie saamgevoeg (Protolie), 2013/14
 Table 17 Average of the oil and protein percentage joined (Protfat), 2013/14

Kultivar	Koel/Cool				Matig/Moderate								Warm						
	Bethlehem	Delmas	Kinross	Kokstad	Middelburg	Gem/Mean	Cedara	Glen	Greytown	Kranskop	Hoopstad	Migdal	Pochestroom Bespr	Pochestroom Drg	Stoffberg	Gem/Mean	Brits	Groblersdal	Gem/Mean
Sonop	54.70	55.20	54.90	52.80	54.70	54.46	58.40	57.50	58.00	56.80	57.00	55.50	56.50	57.20	56.60	57.06	58.30	58.30	58.30
LS 6240 R	56.60	56.80	55.60	54.60	55.90	55.90	58.80	58.70	57.80	57.50	58.30	54.10	58.30	58.10	56.90	57.61	58.10	58.40	58.25
LS 6444 R	55.50	54.00	56.70	52.70	54.20	54.62	56.90	55.80	55.70	56.70	56.90	52.10	55.90	58.30	56.30	56.07	56.30	55.50	55.90
LS 6146 R	54.80	56.40	53.90	53.70	54.80	54.72	57.90	58.20	58.40	56.80	57.80	56.80	57.50	58.50	56.00	57.54	56.40	57.70	57.05
PAN 1454 R	55.00	55.80	54.50	54.70	54.94	54.94	58.50	58.10	57.50	57.00	59.20	54.70	57.20	57.10	56.50	57.31	58.00	57.70	57.85
PHB 94 Y 80 R	55.80	56.40	56.30	54.90	56.70	56.02	57.10	57.70	57.30	57.30	59.30	56.80	57.10	58.10	56.70	57.49	58.00	55.40	56.70
LS 6248 R	56.30	54.80	54.60	52.40	54.50	54.52	57.70	57.30	57.40	56.30	57.40	53.70	56.10	56.10	55.80	56.42	57.20	58.60	57.90
Highveld Top	55.20	54.50	55.70	53.30	56.10	54.96	57.40	56.20	57.60	57.50	57.50	52.40	57.10	58.00	57.10	56.76	57.70	56.60	57.15
Knap	55.30	55.60	54.70	51.80	54.80	54.44	58.10	56.80	56.90	57.00	58.20	53.60	57.00	57.90	57.40	56.99	57.20	59.80	58.50
PHB 95 Y 20 R	55.50	56.70	56.40	55.20	54.80	55.72	58.00	57.40	58.30	56.80	58.60	53.50	56.80	57.30	56.30	57.00	58.50	59.20	58.85
PAN 1583 R	54.20	54.70	53.70	51.90	54.80	53.86	58.00	56.00	56.80	56.00	56.80	56.20	56.30	55.50	53.60	56.13	57.70	54.10	55.90
LS 6453 R	55.40	55.00	56.40	55.30	56.60	55.74	58.40	57.70	57.10	56.60	58.10	53.80	57.30	57.60	56.60	57.02	57.30	59.90	58.60
PAN 1664 R	54.70	54.50	57.00	52.80	53.80	54.56	38.20	55.30	56.40	55.30	56.10	50.70	55.80	56.00	54.50	53.14	57.30	54.50	55.90
PHB 95 Y 40 R	56.20	57.20	56.80	54.90	57.20	56.46	58.00	57.60	57.20	57.50	58.80	54.90	57.40	58.30	56.70	57.38	59.40	57.30	58.35
PAN 1521 R	55.00	56.10	54.60	55.40	54.00	55.02	57.90	57.10	56.90	55.90	56.90	54.30	56.10	57.10	55.70	56.43	56.70	55.80	56.25
PAN 1500 R	57.20	55.90	55.60	56.60	56.70	56.40	58.60	57.10	57.00	56.10	58.60	55.00	57.30	57.90	56.20	57.09	57.90	57.60	57.75
Marula	55.10	56.00	54.60	52.30	54.50	54.50	59.00	54.80	57.00	56.70	57.30	55.10	56.00	56.80	56.40	56.57	57.50	59.20	58.35
PAN 1513 R	53.90	54.70	54.30	53.20	54.30	54.08	57.10	58.40	56.10	56.80	58.50	52.70	55.70	57.30	54.90	56.39	56.10	57.00	56.55
Dundee	54.80	52.80	53.30	50.10	51.10	52.42	57.80	56.40	54.90	55.80	56.20	55.40	54.70	55.30	54.70	55.69	56.30	57.00	56.65
S 722/6/1E	55.70	56.10	0.00	54.00	58.30	44.82	58.50	56.60	56.40	56.90	57.30	56.20	57.80	57.50	56.10	57.03	59.20	59.50	59.35
LS 6261 R	55.30	55.50	55.30	52.40	54.90	54.68	58.00	56.60	57.40	55.90	57.30	55.90	56.50	57.50	57.20	56.92	57.80	58.60	58.20
PAN 1666 R	54.90	55.60	55.50	52.80	55.50	54.86	57.80	57.40	57.00	56.60	57.60	55.60	56.70	56.90	56.40	56.89	58.80	58.70	58.75
PAN 1623 R	55.60	57.30	56.60	54.40	57.90	56.36	59.50	58.50	56.90	56.10	57.60	53.10	57.70	58.10	56.80	57.14	59.60	60.60	60.10
LS 6164 R	54.90	55.30	55.70	54.00	55.60	55.10	58.50	57.70	55.90	56.00	58.20	54.00	56.90	56.90	56.30	56.71	57.80	56.90	57.35
DM 6.2/RR	53.20	54.80	53.90	51.80	53.90	53.52	56.20	57.60	55.00	56.20	57.10	54.50	55.90	55.80	54.50	55.87	57.40	53.20	55.30
LS 6161 R	55.80	56.30	55.30	54.20	54.20	55.16	57.60	57.60	57.10	56.00	57.50	52.50	56.90	58.20	56.60	56.67	56.20	54.70	55.45
PAN 1614 R	56.50	56.00	54.90	55.00	55.50	55.58	55.70	56.70	56.70	55.00	56.60	55.20	54.90	56.50	56.40	55.99	55.80	58.00	56.90
Egret	55.60	55.30	55.20	52.00	55.60	54.74	58.40	57.70	55.30	57.00	58.60	57.10	58.30	57.80	57.10	57.48	57.50	58.10	57.80
Heron	54.10	53.50	54.30	52.60	54.20	53.74	56.10	56.20	56.10	56.40	56.60	53.50	57.20	56.10	56.00	56.02	58.70	57.70	58.20
Ibis 2000	55.60	57.70	54.00	52.20	56.40	55.18	57.00	56.40	54.50	56.00	58.10	55.90	56.70	55.90	57.20	56.41	57.20	63.70	60.45
PAN 1729 R	53.80	55.00	52.70	49.40	52.60	52.70	56.20	56.30	56.90	55.90	58.10	57.10	55.60	57.90	56.20	56.69	58.70	58.60	58.65
Standaard	53.80	56.10	54.00	50.70	54.60	53.84	57.40	57.20	57.20	56.20	57.20	56.10	57.20	57.20	56.00	56.86	59.20	57.20	58.20
Gem/Mean	55.19	55.55	53.34	53.25	55.11	54.49	57.18	57.05	56.77	56.46	57.67	54.63	56.70	57.21	56.18	56.65	57.68	57.66	57.67

Tabel 19 Oessekerheid by die verskillende opbrengsmikpunte vir die koeler produksiegebiede, 2011/12, 2012/13, 2013/14
 Table 19 Yield reliability at the different yield targets for the cooler production areas, 2011/12, 2012/13, 2013/14

Kultivar Cultivar	Opbrengsmikpunte/Yield targets ton ha ⁻¹										Gem/Mean 3 jaar/year	D ²
	1.00	1.50	2.00	2.50	3.00	3.50	4.00					
PAN 1454 R	1.40*	1.52*	1.60*	1.76	1.87	1.99	2.11	2.78	0.51			
LS 6161 R	0.19	0.75	1.32	1.88*	2.45*	3.01*	3.58*	2.62	0.24			
LS 6164 R	0.45	1.06*	1.66*	2.27*	2.88*	3.48*	4.09*	2.87	0.15			
LS 6146 R	0.77*	0.98*	1.21	1.43	1.65	1.87	2.08	2.76	0.86			
PAN 1666 R	0.25	0.69	1.13	1.57	2.02	2.46	2.90	2.41	0.32			
Sonop	0.47	0.92	1.38*	1.83	2.28	2.73	3.19	2.57	0.24			
PHB 95 Y 20	0.44	0.91	1.38*	1.85	2.32	2.79	3.26	2.49	0.18			
Heron	0.00	0.54	1.14	1.75	2.36	2.97*	3.57*	2.32	0.14			
Egret	0.00	0.09	0.75	1.40	2.05	2.70	3.35	2.24	0.31			
Ibis 2000	0.38	0.80	1.22	1.64	2.06	2.48	2.90	2.21	0.14			
PAN 1664 R	0.14	0.76	1.39*	2.01*	2.63*	3.25*	3.87*	2.75	0.24			
Dundee	0.03	0.60	1.17	1.74	2.31	2.88	3.45	2.28	0.12			
LS 6444 R	1.36*	1.37*	1.37	1.38	1.38	1.38	1.39	2.72	0.90			
LS 6248 R	0.01	0.58	1.15	1.71	2.28	2.85	3.42	2.58	0.33			
PAN 1583 R	0.43	0.96*	1.50*	2.04	2.58*	3.11*	3.65*	2.75	0.22			
PHB 95 Y 40	0.03	0.61	1.19	1.77	2.35	2.93	3.51*	2.61	0.31			
Highveld Top	0.05	0.62	1.19	1.76	2.33	2.91	3.48	2.44	0.20			
Knap	0.20	0.75	1.30	1.85	2.40*	2.95*	3.50*	2.47	0.17			
Marula	0.34	0.81	1.27	1.74	2.21	2.68	3.14	2.35	0.16			

Tabel 20 Saadobrenings (kg/ha⁻¹) van kultivars gedurende die 2012/13 en 2013/14 groeiseisoen ten opsigte van die verskillende lokaliteite wat in die koeler produksiegebiede geleë is

Table 20 Seed yield (kg/ha⁻¹) of cultivars during yhe 2012/13 and 2013/14 growing season for the various localities situated in the cooler production areas

Kultivar	2012/13					2013/14				
	Bethlehem	Delmas	Middelburg	Gem/Mean	Bethlehem	Delmas	Kruss	Kokstad	Middelburg	Gem/Mean
Sonop	1427	3278	2896	2467	3657	3325	4012	2948	2664	3321
LS 6444 R	2184	1828	2383	2132	3688	3117	1923	3146	1408	2656
PAN 1454 R	2691	2482	3535	2903	2547	3458	2592	2904	2025	2705
LS 6146 R	2617	2596	2250	2488	2923	4798	2286	2539	2177	2944
LS 6248 R	1633	5016	2441	3030	3561	3720	3910	3516	1905	3323
PAN 1583 R	1318	4828	2752	2966	3960	3424	4002	3081	3079	3509
Highveld Top	1157	3969	2596	2574	2963	3906	3478	3476	2892	3343
Knap	1217	4410	2728	2785	3069	4535	2503	2771	2413	3058
PHB 95 Y 20	1429	3831	3177	2812	1948	3939	3051	2552	2469	2792
PHB 95 Y 40	1943	4925	1802	2890	2784	4033	3791	3151	3817	3515
A 5409 RG	1881	4574	2987	3148	-	-	-	-	-	-
PHB 95 B 53	1797	4607	2915	3106	-	-	-	-	-	-
PAN 1666 R	1130	4001	3037	2723	3438	2650	3305	3485	3021	3180
PAN 1664 R	1430	5394	2750	3191	3441	3799	3409	2944	2861	3291
LS 6164 R	1389	4858	2407	2885	3795	4186	3747	3173	2908	3562
Dundee	1255	4293	2434	2661	2096	4108	2769	2809	2557	2868
Manula	1118	3462	3214	2598	2721	4109	2431	2899	2926	3017
LS 6161 R	2046	4467	2456	2990	3444	4161	3828	3284	2620	3467
LS 6150 R	998	4481	2180	2553	-	-	-	-	-	-
Egret	936	4985	1746	2556	2214	4307	2725	1933	2839	2803
Heron	1415	4911	2042	2789	2679	4391	2377	2571	2689	2941
Ibis 2000	1450	3433	2150	2344	1966	3768	2440	2468	2572	2643
LS 6453 R	2065	3591	2701	2786	3271	2508	3803	3133	2596	3062
PAN 1500 R	1085	4318	2361	2588	3830	3610	3472	3126	3219	3452
LS 6261 R	1653	4109	2509	2757	3559	3394	3919	2980	2855	3342
PAN 1614 R	764	3951	2460	2392	3778	4871	3524	1846	3261	3456
PAN 1616 R	1279	4671	2696	2882	-	-	-	-	-	-
LS 6240 R	-	-	-	-	3185	5133	1594	2809	2691	3082
PHB 94 Y 80 R	-	-	-	-	3310	4712	2568	3207	2143	3188
PAN 1521 R	-	-	-	-	3729	5024	4323	3054	2829	3792
PAN 1513 R	-	-	-	-	3466	5474	3802	3169	3203	3823
S 722/6/1E	-	-	-	-	1797	2606	-	2469	1698	2143
PAN 1623 R	-	-	-	-	3574	4664	3875	3479	3053	3729
DM 6.2i RR	-	-	-	-	3037	4772	3528	2969	2784	3418
PAN 1729 R	-	-	-	-	2095	3955	3326	2626	2282	2857
Gem/Mean	1530	4121	2571	2741	3081	4015	3211	2920	2660	3170

Table 21 Oessekerheid by die verskillende opbrengsmikpunte vir die matige produksiegebiede, 2011/12, 2012/13, 2013/14
 Table 21 Yield reliability at the different yield targets for the moderate production areas, 2011/12, 2012/13, 2013/14

Kultivar	Opbrengsmikpunte/Yield targets ton ha-1										Gem/Mean 3 jaar/year	D2
	1.00	1.50	2.00	2.50	3.00	3.50	4.00					
Cultivar	1.00	1.50	2.00	2.50	3.00	3.50	4.00					
PAN 1454 R	0.47	0.94	1.41	1.87	2.34	2.80	3.27				2.49	0.19
LS 6161 R	0.73*	1.22*	1.70*	2.19*	2.67*	3.16*	3.64*				2.69	0.13
LS 6164 R	0.53	1.00	1.48	1.95	2.42	2.90	3.37				2.50	0.15
Sonop	0.74*	1.25*	1.76*	2.27*	2.78*	3.29*	3.80*				2.64	0.07
PAN 1666 R	0.57	1.06	1.55	2.05	2.54	3.03	3.52				2.52	0.12
LS 6146 R	0.19	0.66	1.14	1.61	2.08	2.55	3.03				2.40	0.32
Heron	0.42	0.91	1.39	1.88	2.36	2.85	3.34				2.40	0.14
Egret	0.48	0.89	1.30	1.71	2.12	2.53	2.94				2.30	0.18
Ibis 2000	0.25	0.66	1.07	1.48	1.89	2.30	2.71				2.21	0.27
Dundee	0.32	0.86	1.40	1.94	2.49	3.03	3.57				2.51	0.16
LS 6444 R	0.00	0.42	0.96	1.50	2.04	2.58	3.12				2.27	0.30
LS 6248 R	0.54	1.07	1.60*	2.12*	2.65*	3.18*	3.70*				2.54	0.09
PHB 95 Y 20	0.54	1.00	1.46	1.92	2.39	2.85	3.31				2.41	0.12
PHB 95 Y 40	0.58	1.09*	1.61*	2.13*	2.64*	3.16*	3.68*				2.54	0.08
PAN 1583 R	0.81*	1.30*	1.80*	2.29*	2.78*	3.27*	3.76*				2.71	0.09
PAN 1664 R	0.51	1.04	1.57	2.10*	2.63*	3.16*	3.69*				2.75	0.22
Highveld Top	0.53	1.08	1.63*	2.17*	2.72*	3.27*	3.82*				2.66	0.12
Knap	0.64*	1.13*	1.63*	2.13*	2.62*	3.12*	3.61				2.59	0.11
Marula	0.59*	1.14*	1.69*	2.25*	2.80*	3.35*	3.91*				2.60	0.06

Tabel 22 Oessekerheid by die verskillende opbrengsmikpunte vir die matige produksiegebiede, 2012/13, 2013/14
 Table 22 Yield reliability at the different yield targets for the moderate production areas, 2012/13, 2013/14

Kultivar Cultivar	Opbrengsmikpunte/Yield targets ton ha ⁻¹										Gem/Mean 3 jaar/year	D ²
	1.00	1.50	2.00	2.50	3.00	3.50	4.00					
PAN 1454 R	0.27	0.77	1.27	1.77	2.27	2.77	3.27	2.61	0.163			
LS 6161 R	0.76*	1.21*	1.67*	2.12*	2.57*	3.02	3.48	2.95	0.169			
LS 6164 R	0.58*	1.03	1.47	1.91	2.36	2.80	3.24	2.78	0.193			
PAN 1666 R	0.46	0.96	1.45	1.95	2.45	2.95	3.45	2.79	0.158			
LS 6146 R	0.00	0.44	0.93	1.42	1.92	2.41	2.90	2.57	0.382			
Heron	0.23	0.74	1.25	1.76	2.27	2.78	3.29	2.65	0.186			
PHB 95 Y 20	0.38	0.85	1.33	1.80	2.28	2.76	3.23	2.63	0.157			
Egret	0.42	0.82	1.23	1.63	2.04	2.44	2.85	2.53	0.230			
Ibis 2000	0.41	0.78	1.14	1.51	1.87	2.24	2.60	2.51	0.323			
PAN 1664 R	0.42	0.93	1.44	1.96	2.47	2.98	3.50	3.02	0.310			
Dundee	0.48	1.01	1.53	2.06*	2.58*	3.11*	3.63*	2.88	0.142			
LS 6444 R	0.00	0.05	0.68	1.30	1.92	2.54	3.17	2.40	0.293			
PHB 95 Y 40	0.77*	1.25*	1.72*	2.20*	2.67*	3.15*	3.63*	2.85	0.077			
LS 6248 R	0.41	0.95	1.49	2.03	2.56*	3.10*	3.64*	2.79	0.110			
PAN 1583 R	0.83*	1.30*	1.77*	2.24*	2.71*	3.18*	3.65*	2.97	0.110			
Sonop	0.66*	1.19*	1.72*	2.25*	2.78*	3.31*	3.84*	2.89	0.061			
Highveld Top	0.42	0.97	1.53	2.08*	2.64*	3.19*	3.75*	2.95	0.160			
Knap	0.43	0.98	1.54	2.09*	2.64*	3.19*	3.75*	2.83	0.098			
Marula	0.63*	1.17*	1.70*	2.23*	2.76*	3.30*	3.83*	2.91	0.076			
LS 6261 R	0.17	0.69	1.22	1.75	2.28	2.81	3.34	2.57	0.139			
PAN 1614 R	0.32	0.96	1.60*	2.24*	2.88*	3.52*	4.16*	3.09	0.125			
PAN 1500 R	0.57*	1.07*	1.58*	2.08*	2.59*	3.09*	3.60	2.88	0.133			

Tabel 23 Oesseekeerheid by die verskillende opbrengsmikpunte vir die warm produksiegebiede, 2011/12, 2012/13, 2013/14
 Table 23 Yield reliability at the different yield targets for the warm production areas, 2011/12, 2012/13, 2013/14

Kultivar Cultivar	Opbrengsmikpunte/Yield targets ton ha ⁻¹										Gem/Mean 3 jaar/year	D ²
	1.00	1.50	2.00	2.50	3.00	3.50	4.00					
PAN 1454 R	0.36	0.86	1.36	1.86	2.36	2.86	3.36	3.20	0.149			
LS 6161 R	0.59*	1.10*	1.61*	2.11*	2.62*	3.13*	3.64*	3.48	0.155			
LS 6164 R	0.00	0.75	1.28	1.80	2.33	2.86	3.39	3.38	0.271			
Sonop	0.66*	1.11*	1.56*	2.01*	2.46*	2.91	3.36	3.15	0.090			
PAN 1666 R	0.55*	1.04*	1.52*	2.01*	2.50*	2.99*	3.48*	3.35	0.155			
PHB 95 Y 40	0.76*	1.25*	1.74*	2.23*	2.71*	3.20*	3.69*	3.47	0.113			
LS 6146 R	0.14	0.68	1.23	1.77	2.32	2.87	3.41	3.25	0.190			
PHB 95 Y 20	0.00	0.02	0.70	1.38	2.07	2.75	3.43	3.30	0.345			
Heron	0.26	0.77	1.27	1.78	2.28	2.79	3.30	3.37	0.309			
Egret	0.67*	1.15*	1.64*	2.12*	2.61*	3.09*	3.58*	3.47	0.168			
Ibis 2000	0.00	0.00	1.11	1.53	1.95	2.36	2.78	2.94	0.278			
PAN 1664 R	0.40	0.88	1.36	1.84	2.32	2.80	3.28	3.36	0.282			
Dundee	0.72*	1.07*	1.41	1.75	2.09	2.43	2.78	3.08	0.301			
LS 6444 R	0.00	0.58	1.13	1.67	2.22	2.77	3.32	3.15	0.185			
LS 6248 R	0.17	0.73	1.29	1.85	2.41	2.97*	3.53*	3.29	0.155			
PAN 1583 R	0.36	0.89	1.42	1.95	2.48*	3.01*	3.54*	3.43	0.202			
Highveld Top	0.31	0.76	1.21	1.66	2.11	2.56	3.01	3.01	0.200			
Knap	0.71*	1.16*	1.62*	2.07*	2.52*	2.97*	3.43	3.23	0.101			
Marula	0.86*	1.27*	1.69*	2.10*	2.51*	2.92	3.34	3.14	0.074			

Tabel 24 Saadopbrengs (kg/ha⁻¹) van kultivars gedurende die 2012/13 en 2013/14 groeiseisoen ten opsigte van die verskillende lokaliteite wat in die warm produksiegebiede geleë is

Table 24 Seed yield (kg/ha⁻¹) of cultivars during yhe 2012/13 and 2013/14 growing season for the various localities situated in the warm production areas

Kultivar	2012/13					2013/14				
	Atlanta	bits	Groblersdal	Koedoeskop	Rustenburg	Gem/Mean	bits	Groblersdal	Gem/Mean	
Sonop	3256	2790	3967	3933	3280	3445	2779	2532	2656	
LS 6444 R	3742	2599	3836	4731	2395	3461	2676	2501	2588	
PAN 1454 R	3455	3271	4554	4263	2926	3694	2602	1766	2184	
LS 6146 R	4028	3027	4338	4377	2042	3563	2753	2758	2755	
LS 6248 R	3796	2853	3929	4245	4010	3767	3396	2326	2861	
PAN 1583 R	4086	3216	4434	4715	3224	3935	2494	2370	2432	
Highveld Top	3241	2915	3761	3872	3367	3431	2675	2198	2436	
Knop	3187	3151	4539	3942	3440	3652	3357	2641	2999	
PHB 95 Y 20	4237	3315	5978	4289	2851	4134	2962	1785	2373	
PHB 95 Y 40	4507	3064	4920	4031	3295	3963	3329	2677	3003	
A 5409 RG	3590	2873	4340	4087	3496	3677	-	-	-	
PHB 95 B 53	4428	2454	4576	4334	3815	3921	-	-	-	
PAN 1666 R	3723	3280	3978	4223	3894	3819	2823	2163	2493	
PAN 1664 R	4643	3318	4064	4739	2484	3850	2766	2642	2704	
LS 6164 R	4088	3508	4747	4436	2094	3775	2998	3314	3156	
Dundee	2888	2389	3311	3768	4109	3293	2864	2694	2779	
Marula	3192	3055	3849	4141	2926	3433	2661	2489	2575	
LS 6161 R	4168	3541	4612	4125	4374	4164	3169	2637	2903	
LS 6150 R	3810	3054	4415	4390	2027	3539	-	-	-	
Egret	4319	2577	5011	4131	3829	3973	3081	3415	3248	
Heron	3370	2919	4719	4295	3743	3809	1871	2770	2320	
Ibis 2000	4453	2799	3472	3638	2162	3305	2552	2754	2653	
LS 6453 R	4155	3537	3629	4349	2797	3693	3635	2544	3090	
PAN 1500 R	3940	2805	4148	4140	3566	3720	2737	2257	2497	
LS 6261 R	3987	2765	5000	4821	4022	4119	3555	2445	3000	
PAN 1614 R	4281	2545	4256	3340	3429	3570	3412	3262	3337	
PAN 1616 R	4168	2938	4649	4095	3571	3884	-	-	-	
LS 6240 R	-	-	-	-	-	-	2827	2322	2575	
PHB 94 Y 80 R	-	-	-	-	-	-	2358	2259	2308	
PAN 1521 R	-	-	-	-	-	-	3876	2707	3291	
PAN 1513 R	-	-	-	-	-	-	3424	2092	2758	
S 722/6/1E	-	-	-	-	-	-	2418	1752	2085	
PAN 1623 R	-	-	-	-	-	-	3619	3503	3561	
DM 6.2i RR	-	-	-	-	-	-	3607	2325	2966	
PAN 1729 R	-	-	-	-	-	-	2922	2095	2509	
Gem/Mean	3879	2984	4335	4202	3228	3726	2974	2516	2745	

Tabel 25 Saamgevatte inligting van al die lokaliteite in die koel produksiegebiede, 2013/14
Table 25 Summarised information for all the localities in the cool production areas, 2013/14

Kultivar/Cultivar	Dae tot blom/ Days to flowering	Fisiologies ryp/ Physiological mature	Dae tot oes/Days to harvest	Plant hoogte (cm)	Peulhoogte/ Pod height (cm)	Omval/ Lodging (1-5)	Groen stam/ Green stem (1-5)	Opspring/ Shattering (1-5)	Planttelling/ Number of plants	Persentasie ongewenste sade/Percent tagete undesirable seed	Massa 100 sade/ Mass 100 seeds (g)	Olie persen- tasie/Oil percentage	Ru- proteien- persentasie/ Crude protein percentage	Opbrengs/ Yield (kg/ha)
Sonop	76	148	170	105	11	1.07	1.03	1.20	218	0.50	18.61	17.98	36.48	3321
LS 6240 R	53	131	147	65	7	1.00	1.03	1.13	202	0.60	19.80	19.62	36.28	3082
LS 6444 R	55	131	144	62	6	1.00	1.03	1.60	223	0.64	14.46	20.12	34.50	2656
LS 6146 R	56	132	144	69	7	1.00	1.07	1.13	228	0.34	15.79	20.70	34.02	2944
PAN 1454 R	57	131	144	76	6	1.00	1.03	1.47	210	0.58	17.70	19.30	35.64	2705
PHB 94 Y 80 R	61	131	144	65	6	1.00	1.00	1.33	244	0.40	17.33	18.92	37.10	3188
LS 6248 R	71	144	164	88	12	1.00	1.03	1.67	266	0.46	15.49	17.96	36.56	3323
Highveld Top	79	147	170	93	12	1.07	1.27	1.00	249	0.14	17.09	18.30	36.66	3343
Knap	76	152	169	104	12	1.00	1.50	1.53	240	0.34	18.53	17.36	37.08	3058
PHB 95 Y 20 R	84	150	172	76	10	1.20	1.27	1.07	218	0.28	16.61	16.72	39.00	2792
PAN 1583 R	76	143	166	82	8	1.00	1.03	1.47	244	0.20	16.00	17.78	36.08	3509
LS 6453 R	70	141	163	91	10	1.00	1.17	1.53	225	0.26	15.47	18.08	37.66	3062
PAN 1664 R	76	143	166	70	7	1.00	1.87	1.53	253	0.22	15.65	18.00	36.56	3291
PHB 95 Y 40 R	78	147	173	78	11	1.00	1.77	1.27	256	0.32	16.30	16.68	39.78	3515
PAN 1521 R	80	141	163	94	11	1.00	1.10	1.13	273	0.52	17.79	17.84	37.18	3792
PAN 1500 R	81	146	173	83	12	1.00	1.20	1.13	237	0.44	17.00	17.94	38.46	3452
Marula	79	152	172	95	13	1.07	1.13	1.33	234	0.58	18.31	17.50	37.00	3017
PAN 1513 R	78	151	172	96	11	1.00	1.13	1.13	251	0.56	15.93	18.66	35.42	3823
Dundee	79	156	176	104	13	1.20	1.15	1.20	224	0.86	16.90	17.40	35.02	2868
S 722/6/1E	88	160	177	89	10	1.75	1.44	1.25	212	0.43	20.46	16.60	39.43	2143
LS 6261 R	73	144	169	74	7	1.00	1.40	1.53	224	0.56	16.60	18.52	36.16	3342
PAN 1666 R	77	145	167	96	13	1.00	1.00	1.13	265	0.30	15.97	18.20	36.66	3180
PAN 1623 R	76	145	171	91	10	1.00	1.00	1.13	279	0.30	15.54	18.06	38.30	3729
LS 6164 R	75	150	170	84	10	1.00	1.17	1.40	257	0.34	15.67	17.76	37.34	3562
DM 6.21 RR	77	145	176	93	11	1.00	1.17	1.00	217	0.48	17.67	17.10	36.42	3418
LS 6161 R	78	148	168	93	12	1.00	1.00	1.47	280	0.24	15.12	18.32	36.84	3467
PAN 1614 R	79	147	174	96	14	1.00	1.20	1.00	268	0.46	16.11	17.68	37.90	3456
Egret	86	156	175	86	11	1.00	1.23	1.47	232	0.26	14.65	16.60	38.14	2803
Heron	86	154	175	79	11	1.00	1.17	1.47	232	0.36	17.23	17.14	36.60	2941
Ibis 2000	76	150	173	86	10	1.00	1.13	1.53	271	0.40	15.44	16.58	38.60	2643
PAN 1729 R	85	154	174	96	10	1.00	1.20	1.00	207	0.12	15.76	18.52	34.18	2857
Standaard	81	153	170	84	12	1.13	1.30	1.33	226	0.40	17.70	16.24	37.60	3007
Germ/Mean	75	146	167	86	10	1.05	1.19	1.30	240	0.40	16.71	17.94	36.90	3165

Tabel 26 Saamgevatte inligting van al die lokaliteite in die matige produksiegebiede, 2013/14
 Table 26 Summarised information for all the localities in the moderate production areas, 2013/14

Kultivar/Cultivar	Dae tot blom/ Days to flowering	Fisiologies tyf/ Physiological mature	Dae tot oes/Days to harvest	Plant hoogte (cm)	Peulhoogte/ Pod height (cm)	Omval/ Lodging (1-5)	Groen stam/ Green stem (1-5)	Opspring/ Shattering (1-5)	Planttelling/ Number of plants	Persentasie ongewenste sade/Percentage undesirable seed	Massa 100 sade/ Mass 100 seeds (g)	Olle persentasie/Oil percentage	Ru- proteien- persentasie/ Crude protein percentage	Opbrengs/ Yield (kg/ha)
Sonop	62	138	157	88	13	1.00	1.63	1.00	250	0.67	20.95	19.57	37.49	3133
LS 6240 R	48	123	136	63	6	1.00	1.75	1.00	231	1.01	20.71	20.12	37.49	2728
LS 6444 R	47	116	136	59	4	1.00	1.54	1.00	260	0.53	16.16	20.73	35.33	2454
LS 6146 R	47	117	136	71	6	1.00	1.75	1.00	250	1.14	16.53	20.37	37.18	2555
PAN 1454 R	50	123	140	71	7	1.00	1.88	1.04	241	1.09	19.07	20.22	37.09	2677
PHB 94 Y 80 R	53	120	137	63	7	1.00	2.13	1.00	239	0.69	18.14	19.56	37.93	2811
LS 6248 R	66	130	152	79	12	1.00	1.88	1.04	268	0.64	16.52	19.38	37.04	3023
Highveld Top	66	130	156	79	12	1.00	1.79	1.00	256	0.82	18.61	19.50	37.26	3124
Knap	66	138	158	84	12	1.00	1.67	1.00	256	0.93	20.09	19.23	37.76	3025
PHB 95 Y 20 R	71	139	161	73	9	1.05	2.33	1.00	222	0.70	17.22	18.46	38.54	2864
PAN 1583 R	67	138	169	69	9	1.00	1.96	1.00	236	0.51	17.20	19.38	36.76	3036
LS 6453 R	67	129	153	71	9	1.00	1.75	1.00	251	0.61	15.69	19.34	37.68	2833
PAN 1664 R	64	137	160	69	8	1.00	2.13	1.00	236	0.49	16.59	19.83	33.31	3005
PHB 95 Y 40 R	67	139	163	74	12	1.05	2.71	1.00	273	0.62	17.15	18.52	38.86	2918
PAN 1521 R	69	137	155	76	12	1.00	1.50	1.00	260	0.70	17.72	19.16	37.28	3166
PAN 1500 R	68	139	162	73	11	1.00	2.17	1.00	262	0.61	18.10	18.88	38.21	2828
Marula	68	139	161	89	13	1.00	1.38	1.00	261	0.78	20.15	19.21	37.36	3239
PAN 1513 R	67	138	160	81	12	1.00	1.33	1.00	234	0.41	17.62	20.36	36.03	3026
Dundee	70	139	160	86	14	1.10	1.67	1.00	230	0.58	20.33	19.19	36.50	3186
S 722/6/1E	73	151	162	78	10	1.24	2.29	1.04	211	0.49	22.89	18.14	38.89	2709
LS 6261 R	60	140	157	61	10	1.00	2.71	1.00	237	0.78	18.61	19.36	37.57	3211
PAN 1666 R	69	138	155	75	12	1.00	2.04	1.00	252	0.83	17.40	19.53	37.36	2871
PAN 1623 R	68	139	162	77	11	1.00	2.04	1.00	270	0.56	17.07	19.57	37.58	3256
LS 6164 R	67	141	160	76	10	1.00	1.63	1.00	221	0.96	17.20	19.08	37.63	2934
DM 602iRR	70	137	162	76	11	1.00	1.92	1.00	221	0.36	18.90	18.82	37.04	2937
LS 6161 R	69	139	159	80	13	1.00	2.17	1.00	280	0.41	17.20	19.32	37.34	3110
PAN 1614 R	68	138	161	82	13	1.00	2.13	1.00	281	0.57	17.85	19.43	36.56	3076
Egret	73	143	165	74	8	1.00	1.29	1.00	246	0.27	16.42	17.64	39.83	2765
Heron	71	141	159	78	10	1.05	1.29	1.00	224	0.32	19.20	18.70	37.32	2926
Ibis 2000	73	142	166	83	12	1.14	1.38	1.00	264	0.36	16.93	18.08	38.33	2784
PAN 1729 R	73	143	162	76	10	1.00	1.29	1.00	232	0.40	17.39	19.39	37.30	2844
Standaard	71	140	156	73	10	1.00	2.17	1.00	226	0.86	20.06	18.10	38.76	3006
Gern	65	136	156	75	10	1.02	1.85	1.00	246	0.65	18.18	19.26	37.39	2939

Tabel 27 Saamgevatte inligting van al die lokaliteite in die warmer produksiegebiede, 2013/14
 Table 27 Summarised information for all the localities in the warmer production areas, 2013/14

Kultivar/Cultivar	Dae tot blom/ Days to flowering	Fisiologies tyf/ Physiological mature	Dae tot oes/Days to harvest	Plant hoogte (cm)	Peulhoogte/ Pod height (cm)	Omval/ Lodging (1-5)	Groen stam/ Green stem (1-5)	Opspring/ Shattering (1-5)	Planttelling/ Number of plants	Persentasie ongewenste sade/Percentage undesirable seed	Massa 100 sade/ Mass 100 seeds (g)	Olie persentasie/Oil percentage	Ru- proteien- persentasie/ Crude protein percentage	Opbrengs/ Yield (kg/ha)
Sonop	43	113	131	105	6	1.00	1.67	1.00	213	0.70	22.18	20.90	37.40	2656
LS 6240 R	34	96	125	60	2	1.00	2.17	1.00	201	0.75	20.93	21.30	36.95	2575
LS 6444 R	37	96	126	60	2	1.00	2.83	1.00	219	0.55	17.08	22.40	33.50	2588
LS 6146 R	37	96	127	80	3	1.00	2.83	1.00	241	0.90	16.03	22.60	34.45	2755
PAN 1454 R	37	96	123	71	5	1.00	2.33	1.00	178	0.25	19.95	21.55	36.30	2184
PHB 94 Y 80 R	39	96	125	65	4	1.00	2.00	1.00	198	0.80	18.80	21.85	34.85	2308
LS 6248 R	43	104	132	86	8	1.00	2.17	1.00	195	0.70	17.32	20.40	37.50	2861
Highveld Top	45	113	135	79	6	1.00	3.17	1.00	191	0.70	17.90	21.80	35.35	2436
Knap	51	113	131	100	9	1.00	2.00	1.00	214	0.55	20.75	20.20	38.30	2999
PHB 95 Y 20 R	45	113	143	67	6	1.00	2.67	1.00	68	1.00	20.40	20.30	38.55	2373
PAN 1583 R	39	113	142	66	5	1.00	3.83	1.00	163	0.35	19.68	21.80	34.10	2432
LS 6453 R	39	104	130	86	7	1.00	3.33	1.00	216	0.20	16.40	19.25	39.35	3090
PAN 1664 R	47	113	142	62	3	1.00	4.33	1.00	154	0.15	18.88	21.65	34.25	2704
PHB 95 Y 40 R	51	113	140	63	2	1.00	4.50	1.00	177	0.50	20.72	20.80	37.55	3003
PAN 1521 R	45	113	132	87	9	1.00	2.33	1.00	187	0.45	19.10	21.05	35.20	3291
PAN 1500 R	43	113	142	77	6	1.00	3.00	1.00	176	0.65	19.93	20.45	37.30	2497
Marula	51	113	127	111	5	1.00	2.00	1.00	146	0.15	20.80	20.40	37.95	2575
PAN 1513 R	51	113	131	96	9	1.00	1.67	1.00	204	0.55	18.13	21.60	34.95	2758
Dundee	45	113	137	110	7	1.00	2.17	1.00	163	0.55	20.47	20.80	35.85	2779
S 722/6/1E	54	125	145	84	4	1.00	4.00	1.00	85	0.30	27.62	20.00	39.35	2085
LS 6261 R	51	113	132	65	5	1.00	3.33	1.00	201	0.40	18.65	20.95	37.25	3000
PAN 1666 R	51	113	136	86	6	1.00	2.33	1.00	192	0.65	17.28	20.95	37.80	2493
PAN 1623 R	51	113	132	86	6	1.00	2.83	1.00	239	0.50	17.98	20.45	39.65	3561
LS 6164 R	45	113	135	86	6	1.00	2.00	1.00	211	0.35	18.22	21.05	36.30	3156
DM 602i RR	45	113	131	86	6	1.00	1.67	1.00	200	0.30	19.38	21.70	33.60	2966
LS 6161 R	45	113	132	89	10	1.00	2.33	1.00	268	0.15	15.90	21.80	33.65	2903
PAN 1614 R	53	104	132	94	9	1.00	2.83	1.00	256	0.40	18.78	20.65	36.25	3337
Egret	52	125	140	86	6	1.00	2.50	1.00	184	0.05	18.53	18.90	38.90	3248
Heron	38	125	136	69	4	1.00	2.67	1.00	233	0.45	21.72	19.65	38.55	2320
Ibis 2000	50	125	138	86	5	1.00	3.33	1.00	224	0.45	19.05	20.30	40.15	2653
PAN 1729 R	57	125	140	87	6	1.00	2.17	1.00	166	0.45	20.85	19.60	39.05	2509
Standaard	45	125	145	67	4	1.00	3.50	1.00	119	1.75	24.08	20.85	37.35	2341