



SOJABOON KULTIVARAANBEVELINGS SOYBEAN CULTIVAR RECOMMENDATIONS

2013/2014

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Hoewel sojabone 'n gewas is wat bykans wêreldwyd verbou word, het individuele kultivars 'n beperkte gebiedsaanpassing. Gevolglik sal die kultivar wat die beste aangepas is vir 'n gegewe lokaliteit, dié een wees wat oor 'n aantal jare die hoogste opbrengs en saadkwaliteit lewer. Onder vergelykbare omgewingstoestande en produksiepraktyke kan 'n seleksie uit kultivars gemaak word wat 'n hoë opbrengs en 'n meer akkurate oessekerheidswaarde het. Die Nasionale Sojaboonkultivarproewe van die LNR-Instituut vir Graangewasse en verskeie medewerkers lewer in die opsig waardevolle inligting ten opsigte van verskillende produksie areas in Suid-Afrika.

BELANGRIKE INLIGTING VIR KULTIVARKEUSE

Die belangrikste inligting wat in ag geneem moet word ten opsigte van kultivarkeuse by

Although soybeans as a crop are grown worldwide, individual cultivars demonstrates a limited adaptation to specific geographical areas. The best adapted cultivar is therefore the one that will, in the long term, give the best yield and quality for a specific locality within a specific geographical area. A selection can be made of cultivars with high yield and optimal yield reliability under comparable environmental conditions as well as production practises. The National Soybean Cultivar Trials conducted by the ARC-Grain Crops Institute and several collaborators render a valuable service in identifying such cultivars for different production areas in South Africa.

IMPORTANT INFORMATION FOR CULTIVAR CHOICE

The **length of the growing season** is the most important characteristic to take into

sojabone, is **lengte van groeiseisoen**. Anders as by die meeste algemeen verboude gewasse, is sojabone gevoelig vir daglengte en sal 'n gegewe kultivar al hoe later ryp word hoe verder suid dit in Suider Afrika geplant word. Vir dieselfde rede sal plantdatum ook die lengte van die groeiseisoen beïnvloed en sal 'n gegewe kultivar heelwat gouer blom by 'n later plantdatum. Heersende temperatuur (veral nagtemperatuur) het ook 'n invloed en sojabone groei heelwat stadiger op die hoëveld, vergeleke met die warmer laeveld. Tabel 1 illustreer die invloed wat die lengte van groeiseisoene het ten opsigte van die verskillende kultivars asook vir 'n spesifieke kultivar in verskillende produksiegebiede. Dit is belangrik om te onthou dat vroeë en later plantdatums binne dieselfde gebied ook die groeiseisoenlengte van 'n kultivar beïnvloed.

Vir produsente met ondervinding van sojaboonproduksie kan die gevoeligheid vir daglengte en die genetiese variasie vir relatiewe groeiseisoenlengte, met vrug gebruik word vir byvoorbeeld hooiproduksie (gebruik van lang groeiseisoen kultivars), stroopskedulering (plant kultivars met verskillende rypword datums) en vir droogte ontwyking of noodaanplantings (kultivars met 'n relatief kort groeiseisoen). Vir produsente wat nie ondervinding het van sojaboonproduksie nie, kan dié eienskap ook by wyse van verkeerde kultivarkeuse tot gevolg hê dat die sojabone, a) nie wil ryp word nie in die geval van waar 'n kultivar met 'n te lang groeiseisoen in die gebied aangeplant is, b) reeds oesgereed is terwyl reën en hoë temperature stroop bemoeilik en kwaliteit benadeel waar 'n kultivar met 'n te kort groeiseisoen vir 'n gebied gekies is en c) onstroopbaar is as gevolg van 'n te lae peulhoogte.

Prosedure vir kultivarkeuse op grond van groeiseisoenlengte is dan as volg: Die lokaliteite waar sojaboonkultivarproewe uitgevoer is, is gegroepeer om warm-, matig- en koel gebiede aan te dui (Tabel 2). Wanneer daar 'n kultivar keuse gemaak word is dit belangrik om die gebied te identifiseer wat

consideration in terms of cultivar choice for soybean. Unlike the other most commonly cultivated crops, soybean are sensitive to day length and a given cultivar will ripen later and result in a longer growing season the further south it is planted in Southern Africa. Planting dates will therefore also influence the length of the growing season and a given cultivar will flower much earlier should it be planted at a later planting date. Prevailing temperature also has an effect, with soybean growing much slower on the Highveld compared to the warmer Lowveld. Table 1 illustrates the substantial variation for length of growing season among cultivars as well as for the different production areas.

Producers well experienced in soybean cultivation can utilize the photoperiod sensitivity of soybean, along with the genetic variation for relative length of the growing season with great success, for example, for hay production (a long growing season cultivar can be used), for scheduling of harvesting (plant cultivars with different ripening dates) and for drought avoidance or emergency planting (use relatively short growing season cultivars). For producers with little or no experience in soybean cultivation, this characteristic could prove to be hazardous when the wrong cultivar choice is made and optimal yield is not realised because a) the cultivar does not ripen where a too long grower has been planted for the area, b) is ready for harvesting while rain and high temperatures hamper harvesting and adversely affect quality where a too short grower has been planted for the area, and c) the cultivar is unable to be harvested because of a too low pod height.

Procedure for Cultivar choice using length of growing season: Localities where soybean trials were conducted during the past season were divided into warm-, moderate- and cool production areas (Table 2). When cultivar selections is been done it is important to establish which localities has

dieselfde klimaatstoestand het en dan die Tabelle te gebruik wat dieselfde klimaatstreek verteenwoordig. Risiko kan geminimaliseer word wanneer Tabel 1 en 3 gebruik word. As algemene reël word aanvaar dat kultivars met 'n langer groeiseisoen die beste sal doen in gebiede met 'n warmer klimaat, medium groeiseisoen kultivars in gebiede met 'n gematigde klimaat en korter groeiseisoen kultivars in gebiede met 'n koeler klimaat. Dit is egter belangrik om te onthou dat daar ook uitsonderings op die reël is en daarom word aanbeveel dat sowel opbrengs en aanpassingsvermoë van kultivars soos aangedui in Tabelle 4, 5, 6, 7, 8 and 9 saam met groeiseisoenlengte gebruik sal word om 'n meer akkurate kultivarkeuse vir 'n spesifieke gebied te maak.

Plantdatum beïnvloed sojabone se aanpassing en gevolglik kultivarkeuse. Die optimale plantdatum is normaalweg tydens November. In warmer gebiede kan produsente egter tot die eerste week in Januarie nog plant, maar dan word nouer rywydte, hoër plantpopulasie en 'n vinniger-groeiende kultivar aanbeveel. Waar grond- en lugtemperatuur aanvaarbare vlakke vroeg in die seisoen bereik, word 'n Oktober plantdatum, veral op die hoërliggende gebiede aanbeveel. Dit is belangrik om te onthou dat 'n vroeër of 'n later plantdatum in al die produksiegebiede kultivarkeuse kan beïnvloed.

Peul- en planthoogte beïnvloed die stroopbaarheid en die staanvermoë van sojabone en is faktore wat in ag geneem moet word by kultivarkeuse. Oor die algemeen is daar 'n verband tussen peul- en planthoogte en relatiewe lengte van die groeiseisoen. Relatief kort groeiseisoenkultivars het gewoonlik uit 'n laer peul- en planthoogte as langgroeiseisoenkultivars onder vergelykbare toestande. Beide eienskappe word egter ook deur produksiepraktyke beïnvloed. 'n Nouer tussenry- en binnery spasiëring sal peulhoogte betekenisvol verhoog. In die Nasionale Kultivarproewe word by gestandaardiseerde toestande vir peulhoogte geëvalueer en kan

the same climate conditions and to use these Tables representing the same region. Risk can be minimised if Tables 1 and 3 are utilised. It is generally accepted that cultivars with a longer growing season will perform better in the warmer growing areas, cultivars with a medium growing season in the moderate growing areas and cultivars with a shorter growing season in the cooler production areas. There are however exceptions to the rule and it is therefore recommended to also use yield performance and cultivar adaptation presented in Tables 4, 5, 6, 7, 8 and 9 in combination with length of growing season during cultivar selection for a specific area.

Planting date influences the adaptation of soybean cultivars and therefore also cultivar choice. The optimum planting date is usually during November. In warmer areas though, soybean can be planted until the first week of January. With later planting dates narrow rows, higher plant populations and shorter growing season cultivars are recommended. A planting date during October, especially in areas with a higher altitude, will be recommended where soil and air temperatures reach acceptable levels early in the growing season. Planting at an earlier or later planting date will affect cultivar choice.

Pod- and plant height have an impact on the ability to harvest the crop, and are characteristics that should be taken into account during deciding on what cultivar to plant. A relationship exists between pod- and plant height and relative length of the growing season. Cultivars with a shorter growing season tend to have lower plant- and pod heights compared to longer growing season cultivars under similar growing conditions. Both characteristics are also influenced by production practices. More narrow inter- and intra row spacing will increase pod height significantly. Pod clearance for the cultivars evaluated is reported in Table 3.

kultivars met aanvaarbare peulhoogtes gekies word. Peulhoogte word aangedui in Tabel 3.

Staanvermoë kan beïnvloed word deur die aantal bewolkte dae wat tydens die seisoen voorkom. Dit kan tot gevolg hê dat kultivars wat normaalweg goed staan, hoër groei en dus word die risiko van omval verhoog.

Groeiwyse onderskei tussen bepaalde en onbepaalde groeiers. Kultivars met 'n bepaalde groeiwyse word verkieslik onder besproeiing geplant, terwyl kultivars met 'n onbepaalde groeiwyse (wat nie lengtegroei tydens blom staak nie) onder droëlandtoestande verkies word. Die groeiwyse van die kultivars word in Tabel 3 aangedui.

Rywydte kan ook kultivarkeuse beïnvloed aangesien 'n betekenisvolle interaksie tussen die twee bestaan. Kultivars wat geneig is tot sytakvorming en 'n digte blaredak het, is beter aangepas in wye rye, terwyl kultivars met 'n oop blaredak en min sytakke, beter aangepas is by relatief nouer rywydtes.

Weerstand teen oopspring van peule kan 'n belangrike rol speel tydens ongunstige toestande gedurende die oes van sojabone

Volgens inligting uit die Nasionale Kultivarproewe is dit duidelik dat relatief kort groeiseisoenkultivars die grootste risiko vir oopspring het, terwyl relatief lang groeiseisoenkultivars die minste daardeur geraak word. 'n Aanduiding ten opsigte van genetiese weerstand tussen kultivars van dieselfde groeiseisoenlengte wat oopspring aanbetref, kon egter nie verkry word nie. Kultivars word geëvalueer op 'n skaal van 1 (goed) tot 5 (swak) wat oopspring aanbetref en die resultate word in Tabel 3 aangebied.

Gevoeligheid vir onkruidodder kan in sommige gevalle kultivarkeuse beïnvloed. Geen sojaboonkultivar is bestand teen die atrazine-tipe onkruidodders nie en die volle wagperiode moet nagekom word voordat die plant van

Standability is influenced by the number of overcast days experienced during the growing season. Plant height tends to increase when overcast weather occurs and could result in a higher lodging percentage of plants.

Growth habit distinguishes between determinate and indeterminate genotypes. Cultivars with a determinate growth habit are preferably planted under irrigation, while indeterminate cultivars (that do not stop vertical growth during flowering) are preferred under dry land conditions. Growth habit for registered cultivars is indicated in Table 3.

Row width will also influences cultivar selection, since a significant relation exists between cultivars and row width. Cultivars with more side branches and leaves are better adapted to wider rows, while cultivars with less side branches and leaves are better adapted to more narrow rows.

Resistance against seed shattering can play an important role during unfavourable harvesting conditions. Information obtained during the National Soybean Cultivar Trials indicates that cultivars with a relative short growing period tend to shatter more than cultivars with a longer growing period.

Rating of cultivars in terms of their susceptibility to shattering are done on a scale from 1 (good) to 5 (poor) and are presented in Table 3.

Sensitivity to herbicides can, in some cases, influence the choice of a cultivar. No soybean is resistant to the atrazine type herbicides and the full waiting period have to be maintained before the planting of soybean can be considered. Ensure, in any case, that the herbicide can be used with the selected cultivar as indicated on the herbicide label.

sojabone oorweeg word. In alle gevalle moet seker gemaak word dat aanwysings op die onkruidodder-etiket voorsiening maak vir die kultivar wat aangeplant gaan word.

Saadgrootte, hilumkleur, proteïengehalte en GMO-status is eienskappe waarop 'n premieprys moontlik betaal kan word. Saadgrootte is geneties, maar word sterk beïnvloed deur omgewingstoestande. Gunstige toestande tydens die saadvulperiode sal saadgrootte positief beïnvloed.

Proteïeninhoud van die saad is ook geneties maar kan nadelig beïnvloed word deur omgewingstoestande (reënval, temperatuur en stremming) en bestuur (swak of geen nodulering, suur grond en lae grondvrugbaarheid). Proteïeninhoud (vogvrye basis) onder 36% is onbevredigend en bokant 40% is uitstekend wat sojabone aanbetref.

Saadopbrengs gee 'n aanduiding van 'n kultivar se genetiese aanpassing en geskiktheid vir 'n bepaalde gebied. Vir die 2012/2013 seisoen is 27 kultivars geplant en geëvalueer en was die data van 19 proewe aanvaarbaar vir statistiese analises. Tabelle 5, 7 en 9 bevat inligting aangaande die opbrengs van die kultivars vir die 2011/2012 en 2012/2013 produksieseisoen op die onderskeie lokaliteite. Gebruik die opbrengsdata saam met die oessekerheidstabelle om u kultivarkeuse te maak.

Die **oessekerheidswaardes** van die 16 kultivars vir die drie verbouingsgebiede (warm, matig en koud) word in Tabelle 4 & 6 en 8 aangebied. Tabelle 4, 6 en 8 bevat inligting oor kultivars wat vir onderskeidelik drie jaar in dié proewe ingesluit was. Dit is belangrik dat u die verdeling van lokaliteite in Tabel 2 gebruik om te bepaal in watter gebied u plaas geleë is. Vergelyk dan die kultivars in die oessekerheidstabel wat u gekies het met mekaar by die realistiese opbrengsmikpunt vir u plaas.

Seed size, hilum colour, protein qualities and GMO status are characteristics that can possibly earn a premium price. Seed size is genetically regulated, but is greatly influenced by the environment conditions. Favourable conditions during the seed filling period will positively influence seed size. The protein content of soybean seed is also genetically regulated and can be adversely affected by environmental conditions (rainfall, temperature, stress) and crops management (poor or no nodulating, acidic soil and low soil fertility). Protein contents of soybean seed below 36% are unsatisfactory, while that above 40%, on a moisture free basis, is regarded as excellent.

Seed yield indicates the genetic adaptation and suitability of a cultivar to be planted in a specific area. During the 2012/2013 season 27 cultivars were included in the National Soybean Cultivar Trials, while data of 19 localities were acceptable for statistical analyses. Yield of the cultivars at the different localities for the 2011/2012 and 2012/2013 growing season is presented in Tables 5, 7 and 9.

It is recommended to use the yield results with the yield reliable values for a more accurate cultivar choice.

Yield reliability values of the 16 cultivars for the three productionareas (warm, moderate and cool) are presented in Tables 4 & 6 and 8. Tables 4, 6 and 8 contain information regarding cultivars included in the trials for three and two years respectively. It is also important to use the information provided in Table 2 to determine whether the area to be planted corresponds with the warm, moderate or cool localities. Use the selected yield reliability table (warm, moderate or cool) to select cultivars for the yield potential of the specific farm.

Cultivar planning - A valuable aid in cultivar planning is the yield reliability values, which are

Kultivarbeplanning - 'n Waardevolle hulpmiddel by kultivarbeplanning is die oessekerheidswaardes, wat 'n afleiding is van inligting wat deur die regressiegrafiek van 'n kultivar uitgebeeld word. Hierdie oessekerheidswaardes word verkry van die onderste betroubaarheidsband van die regressiegrafiek by 'n 90% waarskynlikheidspeil. Dit beteken dat die oessekerheidswaarde van 'n kultivar by 'n sekere potensiaal die minimum opbrengs is wat daardie kultivar in nege uit tien gevalle kan behaal. By die berekening van oessekerheidswaardes (opbrengste) word die opbrengsgeneigdheid, gemiddelde opbrengs en stabiliteit in ag geneem.

In die oessekerheidstabelle word die volgende inligting verskaf: Eerstens word die oessekerheidswaardes by verskillende potensiaal toestande aangetoon. Tweedens volg die gemiddelde opbrengs van die kultivar vir die stel proewe wat gebruik is. Laastens volg die opbrengstabiliteit wat deur die D^2 -waarde aangedui word. Hoe meer die D^2 -waarde neig na nul, hoe meer stabiel en voorspelbaar is die kultivar in terme van opbrengs, en hoe groter die D^2 -waarde is hoe meer sal opbrengs tussen seisoene wissel.

Die prosedure wat gevolg word vir die maak van kultivaraanbevelings is kortliks as volg: Eerstens moet vasgestel word vir watter opbrengspotensiaal aanbevelings gemaak word. Die produsent moet homself vergewis van die potensiaal wat ter sprake is. Die tweede stap is om die oessekerheidstabel te raadpleeg by die vasgestelde potensiaal. Selekteer by die gekose potensiaal daardie kultivars met die hoogste oessekerheidswaardes. Die kultivars met die hoogste waardes behoort vir u die beste kans op 'n stabiele, suksesvolle opbrengs te verseker. Indien verdere verfyning in die keuse nodig is, kan die stabiliteit (D^2) gebruik word.

the deviations from the regression graph of a cultivar. The yield reliability values are obtained from the lower reliability band of the regression graph at a 90% probability level. This means that the yield reliability value of a particular cultivar at a given potential is the minimum yield, which can be obtained in nine out of ten seasons. In the calculation of yield reliability values (yield) the yield tendency, average yield and stability are taken into consideration.

In the yield reliability tables the following information is presented: Firstly, the yield reliability values at different yield potential levels are shown. Secondly, the average yield of the cultivar for the set of trials used is presented. Lastly, the yield stability is indicated by the D^2 -values.

With D^2 -values approaching zero, the cultivar can be expected to be more stable and predictable in terms of yield achievement, and the greater the D^2 -values are, the more the yield would vary between seasons.

The procedure to be followed in the making of cultivar recommendations is briefly as follows: Determine for which yield potential recommendations must be made. This must be done by the producer (farmer). The next step is to consult the yield reliability table at the determined yield potential. Select at the chosen yield potential those cultivars with the highest yield reliability values. The cultivars with the highest values should provide one with the best chance for a stable, successful yield.

Huidige varieteitslys: (om te publiseer in September 2013)
Current variety list: (to be published in September 2013)

Konvensioneel/Conventional:		
Amstel No. 1 (305)	* LS 678 (484)	* PAN 1867 (1412)
Dumela (305)	Marula(150)	# RM 5500 (1573)
* Dundee (254-3)	Maruti (305)	--- Y 550
* Egret (254-3)	Mopanie (489)	* S 722/6/1E (1137)
* Heron (254-3)	MPimbo (876)	# SC Sorcerer (1526)
Highveld Top (150)	Mukwa (489)	Sonop (150)
* Ibis 2000 (254-3)	* NED 11-91 (65)	Spitfire (296)
JF 91 (296)	* Nqutu (254-3)	* Stork (254-3)
* Jimmy (254-3)	Octa (1412)	Tambotie (489)
Kiaat (489)	* PAN 660 (1412)	VegSoyBrBr082 (1574)
Knap (150)	* PAN 809 (1412)	VegSoyYeCo069 (1574)
* Lightning (598)	* PAN 1595 (1412)	VegSoyYGP077 (1574)
* LS 555 (484)	* PAN 1652 (1412)	VegSoyYGP083 (1574)
* LS 677 (484)	* PAN 1800 (1412)	Wenner (369)
GMO:		
# 6.15 F (1573)	# LS 6240 R (484)	* PAN 1583 R (1412)
--- Y 615F	* LS 6248 R (484)	PAN 1614 R (1412)
* A 5409 RG (80)	# LS 6256(2) R (484)	PAN 1616 R (1412)
* AG 5601 (80)	* LS 6261 R (484)	# PAN 1623 R (1412)
# AGC 58007 R (1076)	* LS 6444 R (484)	* PAN 1664 R (1412)
# AGC 64107 R (1076)	* LS 6452 R (484)	* PAN 1666 R (1412)
* AS 4801 R (1076)	* LS 6453 R (484)	# PAN 1729 R (1412)
# Don Mario 6.2i (1)	* LS 6466 R (484)	* Phb 94Y80 R (411)
# Don Mario 6.8i (1)	* PAN 535 RR (1412)	* Phb 95B53 R (411)
* LS 6050 R (484)	* PAN 538 RR (1412)	* Phb 95Y01 R (411)
* LS 6146 R (484)	* PAN 737 RR (1412)	* Phb 95Y20 R (411)
* LS 6150 R (484)	* PAN 1454 R (1412)	* Phb 95Y40 R (411)
* LS 6161 R (484)	* PAN 1500 R (1412)	* Phb 95Y41 R (411)
* LS 6162 R (484)	PAN 1513 R (1412)	* Phb 96B01 R (411)
* LS 6164 R (484)	# PAN 1521 R (1412)	

= PBR pending * = PBR granted

Address list:

1 Agricol
80 Monsanto
150 Buhrman, G.
254-3 ARC GCI
296 Tregenna Farm Trust
305 Vreken, H.
369 Borman, G.J.J.
411 Pioneer Hi-Bred RSA
484 Link Seed
489 New Crop

598 Cedara Agric Research Station
876 Schlanders, R.T.
1076 Agriocare
1137 Seed-Co (Pty) Ltd.
1412 Pannar Seed
1573 Southern Hemisphere Seeds
1610 Newlands Mashu, Edamane Development Program

Tabel 1. Gemiddelde aantal dae tot 50% blom en oesrypheid van kultivars gedurende die 2012/13 groeiseisoen vir warm, matig en koue produksiegebiede.

Table 1. Average number of days to 50 % flowering and harvesting of cultivars during the 2012/13 growing season for warm, moderate and cool production areas.

Kultivar/ Cultivar	Dae tot 50% blom/Days to 50% flowering			Dae tot oes/Days to harvest		
	Warm/ Warm ¹	Matig/ Moderate ²	Koud/ Cool ³	Warm/ Warm ⁴	Matig/ Moderate ⁵	Koel/ Cool ⁶
LS 6146 R	43	48	49	125	148	140
LS 6248 R	48	66	72	136	157	159
LS 6444 R	44	51	50	127	148	138
Sonop	50	67	77	139	158	167
PAN 1454 R	44	51	50	134	147	141
Highveld Top	52	63	75	134	154	162
Knap	52	66	76	139	158	168
LS 6150 R	50	69	74	149	160	173
LS 6453 R	48	64	70	137	154	156
PHB 95 Y 20	52	71	76	143	158	173
PAN 1583 R	49	63	71	143	155	170
A 5409 RG	53	69	78	136	155	167
PHB 95 Y 40	51	71	77	145	161	176
PHB 95 B 53	50	69	76	142	158	169
PAN 1664 R	47	62	70	144	158	169
PAN 1500 R	54	68	80	140	158	172
PAN 1666 R	52	68	76	146	159	169
Dundee	54	68	77	143	163	172
LS 6161 R	54	70	79	140	159	171
LS 6164 R	50	68	76	148	157	170
LS 6261 R	50	66	73	136	158	162
Marula	52	68	77	139	161	167
PAN 1614 R	54	71	80	140	161	171
PAN 1616 R	51	70	80	140	160	173
Egret	56	75	85	147	164	185
Heron	52	71	76	143	161	176
Ibis 2000	54	74	77	151	163	179

¹ - Gemiddeld van 5 lokaliteite / average of 5 localities

² - Gemiddeld van 7 lokaliteite / average of 7 localities

³ - Gemiddeld van 6 lokaliteit / average of 6 locality

⁴ - Gemiddeld van 3 lokaliteite / average of 3 localities

⁵ - Gemiddeld van 8 lokaliteite / average of 8 localities

⁶ - Gemiddeld van 5 lokaliteite / average of 5 localities

Dae tot blom - Gemiddeld 50% van die plante het een blom/Days to flowering – Average of 50% of plants with one flower

Dae tot oes – Gemiddeld van alle peule is volwasse, bros en droog/Days to harvest – Average of pods is mature, brittle and dry

Tabel 2. Groepering van lokaliteite volgens warm, matige en koue produksiegebiede gedurende die 2012/13 groeiseisoen.

Table 2. Grouping of localities according to warm, moderate and cool production areas during the 2012/13 growing season.

Warm/Warm	Matig/Moderate	Koel/Cool
Atlanta (B/I) L Brits (B/I) NW Groblersdal (B/I) L Koedoeskop (B/I) L Rustenburg (B/I) NW Vaalharts (B/I) NC	Bothaville (D) FS Cedara (D) KZN Dundee (D) KZN Glen (B/I) FS Greytown (D) KZN Greytown Kranskop (D) KZN Lichtenburg (D) NW Potchefstroom (B/I) NW Potchefstroom (D) NW Stoffberg (D) MP	Belfast (D) MP Bethlehem (D) FS Delmas (D) MP Kinross (D) MP Kokstad (D) KZN Marquard (D) FS Middelburg (D) MP Villiers (D) FS

B - Besproeing / I - Irrigation

D - Droëland / Dry land

Sleutel/ Key:

NW - Noordwes/North West

L - Limpopo

MP - Mpumalanga

FS - Vrystaat/Free State

NC - Noord Kaap/North Cape

KZN - Kwazulu Natal

Tabel 3. Algemene inligting ten opsigte van geregistreerde sojaboonkultivars wat tydens die 2012/13 groeiseisoen geëvalueer is.
Table 3. General information on registered soybean cultivars that were evaluated during the 2012/13 growing season.

Kultivar/ Cultivar	Volwassen- heidsgroe- pering/ Maturity Group	Groe- wyse/ Growth habit ¹	Hilum kleur/ Hilum colour ²	Oliepersentasie/ Oil percentage (%)			Proteïenpersentasie/ Protein percentage (%)			Peulhoogte/ Pod height ³			Oopsporing/ Shattering ⁴			Verskaffer/ Supplier
				Koel Cool	Matig Mode- rate	Warm	Koel Cool	Matig Mode- rate	Warm	Koel Cool	Matig Mode- rate	Warm	Koel Cool	Matig Mode- rate	Warm	
LS 6146 R	4.4	D	B	20.27	20.11	21.96	36.13	36.33	36.36	8	9	5	2.11	1.52	2.00	Link Seed
LS 6248 R	4.8	SD	LB	18.12	19.32	20.64	38.45	36.04	37.80	10	13	10	2.50	1.81	2.00	Link Seed
LS 6444 R	4.0	SD	BL	20.25	19.98	21.28	35.62	36.54	37.10	4	8	4	2.33	1.81	2.00	Link Seed
Sonop	4.0	I	B	17.23	19.09	20.90	39.70	37.40	37.38	13	15	10	2.17	1.43	2.00	GW Bührmann
PAN 1454 R	4.5	I	BL	19.25	19.59	20.84	37.75	37.02	37.86	9	12	6	2.17	1.76	2.00	Pannar
Highveld Top	5.0	I	BL	16.05	19.63	20.98	40.88	36.01	36.70	10	11	9	2.00	1.71	2.00	GW Bührmann
Knap	5.0	I	B	18.28	19.02	20.78	37.98	37.59	38.00	14	14	10	1.75	1.57	1.50	GW Bührmann
LS 6150 R	6.5	I	LB	18.17	19.24	21.28	37.53	36.36	36.02	10	13	11	2.33	1.33	1.50	Link Seed
LS 6453 R	5.0	SD	S	18.27	19.28	19.92	39.00	37.43	39.02	9	11	10	2.33	2.14	2.00	Link Seed
PHB 95 Y 20	5.2	D	BL	17.08	18.76	20.56	40.22	37.98	36.98	9	13	10	1.50	1.29	1.50	Pioneer
PAN 1583 R	5.0	D	LB	18.35	19.72	21.02	35.98	35.20	35.54	7	10	7	1.50	1.48	1.50	Pannar
A 5409 RG	5.5	I	G	18.13	19.38	20.28	38.55	36.67	37.78	6	11	9	1.83	1.10	1.00	Pannar
PHB 95 Y 40	5.4	D	BL	17.15	18.70	19.78	40.77	38.70	38.74	7	12	6	2.00	1.29	2.00	Pioneer
PHB 95 B 53	5.5	D	BL	17.53	18.52	19.46	39.10	37.87	38.98	10	11	9	1.33	1.00	1.00	Pioneer
PAN 1664 R	5.8	D	LB	18.25	19.27	21.22	36.37	36.01	35.54	7	12	7	1.83	1.33	1.50	Pannar
PAN 1500 R	5.8	I	IB	17.30	18.51	19.96	39.82	38.28	38.58	9	11	10	1.33	1.10	1.00	Pannar
PAN 1666 R	5.8	I	BL	18.03	19.24	21.02	37.57	36.64	37.16	11	14	10	2.00	1.00	1.00	Pannar
Dundee	6.0	I	B	17.73	19.22	21.16	39.30	35.94	35.70	14	15	15	1.75	1.19	1.00	Allgro
LS 6161 R	6.3	D	IB	18.27	19.18	20.40	38.12	36.93	37.70	11	15	13	1.67	1.57	1.00	Link Seed
LS 6164 R	6.0	D	LB	17.40	19.23	20.88	39.42	36.66	36.22	10	15	9	2.00	1.24	1.00	Link Seed
LS 6261 R	6.0	SD	S	18.55	19.10	20.42	37.75	37.27	37.54	8	11	8	2.33	1.71	1.50	Link Seed
Marula	6.0	I	BL	17.35	18.94	21.36	39.58	37.21	36.62	14	13	10	1.80	1.43	2.00	GW Bührmann
PAN 1614 R	6.2	I	LB	18.58	19.09	20.96	37.28	36.77	36.22	10	14	10	2.00	1.05	1.00	Pannar
PAN 1616 R	6.2	D	IB	18.02	18.89	20.72	39.23	37.76	37.20	8	12	6	1.67	1.19	1.00	Pannar
Egret	7.0	D	KL	15.28	17.11	18.40	41.45	40.29	40.22	13	12	9	1.75	1.48	1.00	Allgro
Heron	7.0	D	LB	16.53	18.28	19.74	38.98	37.70	37.58	14	13	10	1.50	1.48	1.00	Allgro
Ibis 2000	7.0	D	IB	15.90	17.97	19.68	40.18	37.90	38.04	13	15	11	2.00	1.24	1.00	Allgro

¹ D - Bepaald/Determinate

² BL - Swart/Black

B - Bruin/Brown

G - Grys/Grey

³ Peulhoogte in cm/Pod height in cm

⁴ Geneigtheid tot oopsporing geëvalueer op 'n skaal van 1-5, waar 1 = goed en 5 = swak

Tendency to shatter evaluated on a scale from 1-5, where 1 = good and 5 = poor

I - Onbepaald/Indeterminate
IB - Onvolledig swart/Imperfect black
LB - Ligbruin/Buf

KL - Kleurloos/Buf

Tabel 4 Oessekerheid by die verskillende opbrengsmikpunte vir die koeler produksiegebiede, 2010/11, 2011/12, 2012/13
Table 4 Yield reliability at different yield targets for the cooler production areas, 2010/11, 2011/12, 2012/13

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	1.19*	1.37*	1.55*	1.72	1.90	2.08	2.26	2.82	0.62
LS 6161 R	0.20	0.74	1.27	1.81	2.34	2.88	3.41	2.42	0.25
LS 6164 R	0.36	1.01*	1.66*	2.31*	2.96*	3.61*	4.26*	2.72	0.14
LS 6150 R	0.18	0.70	1.22	1.75	2.27	2.79	3.31	2.25	0.18
PAN 1666 R	0.09	0.62	1.16	1.69	2.22	2.75	3.28	2.26	0.22
A 5409 RG	0.20	0.77	1.35	1.93	2.50	3.08	3.66	2.43	0.19
PHB 95 Y 20	0.60*	1.11*	1.62*	2.13*	2.64*	3.15	3.66	2.49	0.10
Heron	0.00	0.54	1.22	1.90	2.57*	3.25*	3.93*	2.32	0.15
Egret	0.00	0.22	0.88	1.54	2.20	2.85	3.51	2.14	0.26
Ibis 2000	0.32	0.74	1.16	1.58	2.00	2.42	2.84	2.07	0.16
PAN 1664 R	0.05	0.79	1.53*	2.27*	3.01*	3.75*	4.49*	2.70	0.17
Dundee	0.15	0.71	1.28	1.84	2.40	2.97	3.53	2.14	0.09
LS 6444 R	1.40*	1.38*	1.37	1.35	1.33	1.32	1.30	2.72	0.90
PHB 95 B 53	0.18	0.73	1.28	1.82	2.37	2.92	3.46	2.49	0.29
PAN 1583 R	0.50	1.07*	1.63*	2.19*	2.76*	3.32*	3.88*	2.57	0.12
PHB 95 Y 40	0.06	0.54	1.02	1.50	1.98	2.46	2.94	2.18	0.30

Hoër as kolomgemiddelde/higher than column mean.

D² waarde dui stabiliteit van 'n kultivar aan. Hoe kleiner die D² waarde, hoe meer stabiel is die kultivar.

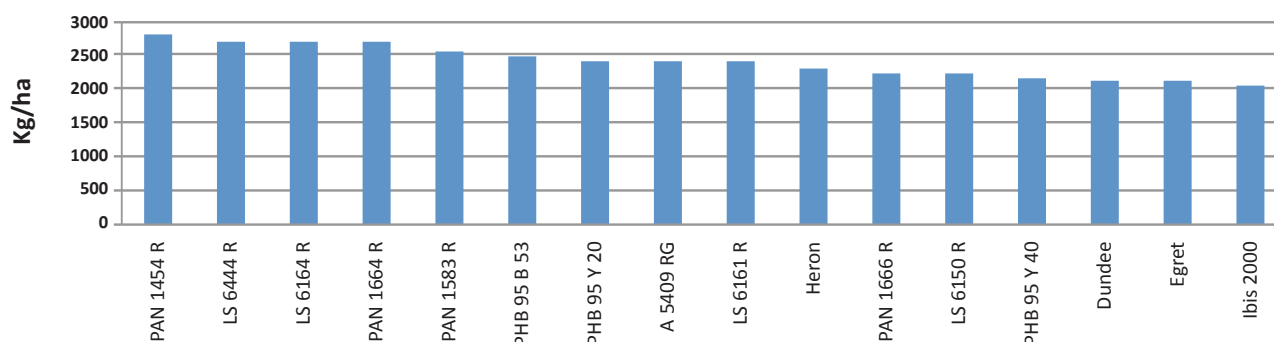
D² value indicates the stability of a cultivar. A smaller D² value indicates a more stable cultivar.

Tabel 5 Saadopbrengs (kg ha⁻¹) van kultivars gedurende die 2011/12 en 2012/13 groeiseisoene ten opsigte van die verskillende lokaliteite wat in die koeler produksiegebiede geleë is

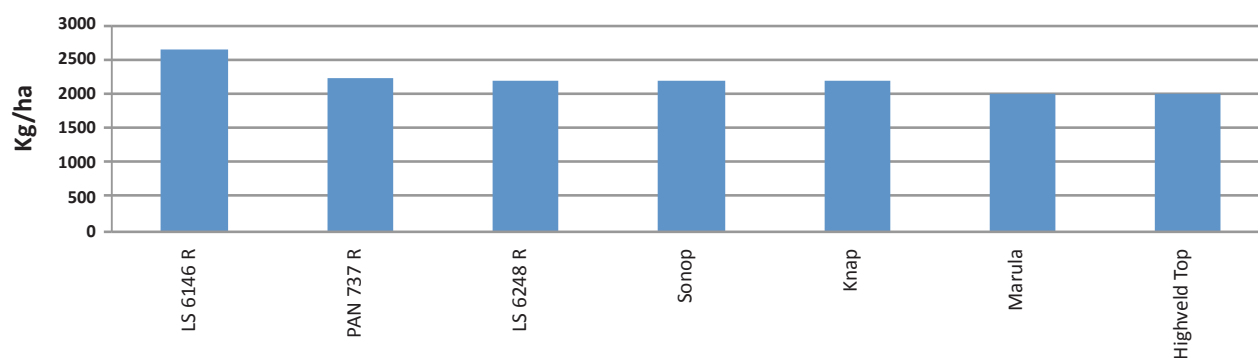
Table 5 Seed yield (kg ha⁻¹) of cultivars during the 2011/12 and 2012/13 growing seasons for the various localities situated in the cooler production areas

Kultivar Cultivar	2011/12								2012/13			
	Belfast	Bethlehem	Clocolan	Delmas	Harrismith	Kinross	Middelburg	Gem/Mean	Bethlehem	Delmas	Middelburg	Gem/Mean
Sonop	2218	869	1822	3315	1781	1726	2771	2072	1427	3278	2696	2467
LS 6444 R	2515	2797	1858	4538	2278	4334	2848	3024	2184	1828	2383	2132
PAN 1454 R	2535	2269	1898	4634	1980	3154	2932	2772	2691	2482	3535	2903
LS 6146 R	2393	2401	1484	3952	1605	4578	2751	2738	2617	2596	2250	2488
LS 6248 R	2672	1418	1676	1620	1889	1397	2369	1863	1633	5016	2441	3030
PAN 1583 R	2321	1370	1945	1890	1919	2808	2547	2114	1318	4828	2752	2966
Highveld Top	2252	382	1481	1609	2071	1637	2721	1736	1157	3969	2596	2574
Knap	1944	1376	1688	1809	1893	1626	3136	1925	1217	4410	2728	2785
PHB 95 Y 20	1687	1430	1810	2701	1611	2696	2456	2056	1429	3831	3177	2812
PHB 95 Y 40	1964	1103	2176	1914	1924	1473	2245	1828	1943	4925	1802	2890
A 5409 RG	2015	825	2315	1758	1415	1844	2136	1758	1881	4574	2987	3148
PHB 95 B 53	1884	747	1931	2053	1781	3584	1922	1986	1797	4607	2915	3106
PAN 1666 R	1971	1256	2047	1648	1696	1450	1984	1722	1130	4001	3037	2723
PAN 1664 R	2201	1336	1896	3863	926	2601	2451	2182	1430	5394	2750	3191
LS 6164 R	2147	1303	2050	3950	1658	2288	3147	2363	1389	4858	2407	2885
Dundee	1676	1047	1589	2448	981	1276	2790	1687	1255	4293	2434	2661
Marula	2000	1242	1936	2272	1291	1549	2039	1761	1118	3462	3214	2598
LS 6161 R	1988	1352	2043	2408	1633	718	2852	1856	2046	4467	2456	2990
LS 6150 R	2131	1270	2203	1876	1729	1202	2573	1855	998	4481	2180	2553
PAN 737 R	1971	763	1843	1805	1695	1860	2549	1784	-	-	-	-
Egret	901	368	1935	2049	1403	2479	2723	1694	936	4985	1746	2556
Heron	1660	887	1801	2015	1186	2120	2128	1685	1415	4911	2042	2789
Ibis 2000	1896	726	1892	2449	1559	1408	2934	1838	1450	3433	2150	2344
LS 6453 R	-	-	-	-	-	-	-	-	2065	3591	2701	2786
PAN 1500 R	-	-	-	-	-	-	-	-	1085	4318	2361	2588
LS 6261 R	-	-	-	-	-	-	-	-	1653	4109	2509	2757
PAN 1614 R	-	-	-	-	-	-	-	-	764	3951	2460	2392
PAN 1616 R	-	-	-	-	-	-	-	-	1279	4671	2696	2882
Gem/Mean	2041	1241	1883	2547	1648	2166	2565	2013	1530	4121	2571	2741

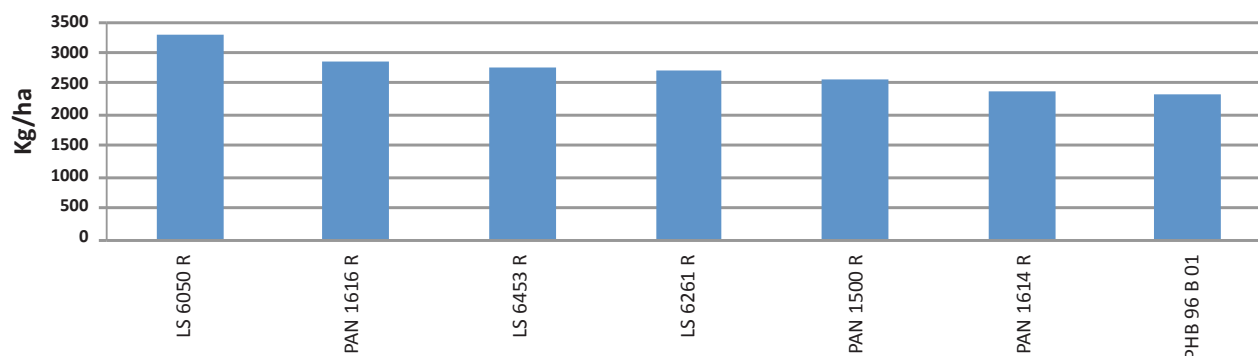
Gemiddelde 3 jaar opbrengs vir koel gebied, 2010/11, 2011/12, 2012/13
Average 3 year yield for cool area, 2010/11, 2011/12, 2012/13



Gemiddelde 2 jaar opbrengs vir koel gebied, 2011/12 en 2012/13
Average 3 year yield for cool area, 2011/12 and 2012/13



Gemiddelde opbrengs vir koel gebied, 2012/13
Average yield for cool area, 2012/13



Tabel 6 Oessekerheid by die verskillende opbrengsmikpunte vir die matige produksiegebiede, 2010/11, 2011/12 en 2012/13
Table 6 Yield reliability at different yield targets for the moderate production areas, 2010/11, 2011/12 and 2012/13

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	0.78*	1.26*	1.74*	2.21*	2.69*	3.16	3.64	2.58	0.10
LS 6161 R	0.85*	1.36*	1.88*	2.40*	2.91*	3.43*	3.94*	2.62	0.04
LS 6164 R	0.51	1.02	1.53	2.04	2.55	3.06	3.57	2.50	0.14
LS 6150 R	0.72*	1.22*	1.72*	2.22*	2.72*	3.22*	3.71	2.55	0.08
PAN 1666 R	0.26	0.88	1.51	2.13	2.76*	3.39*	4.01*	2.56	0.13
A 5409 RG	0.37	0.97	1.56	2.16*	2.75*	3.34*	3.94*	2.48	0.08
Heron	0.60	1.04	1.49	1.93	2.38	2.83	3.27	2.27	0.08
Egret	0.68*	1.04	1.40	1.75	2.11	2.47	2.83	2.14	0.10
Ibis 2000	0.43	0.80	1.17	1.54	1.91	2.28	2.66	2.05	0.16
Dundee	0.35	0.82	1.29	1.76	2.24	2.71	3.18	2.22	0.13
LS 6444 R	0.26	0.72	1.19	1.65	2.11	2.58	3.04	2.36	0.32
PHB 95 B 53	0.34	0.88	1.43	1.97	2.52	3.06	3.61	2.36	0.11
PHB 95 Y 20	0.57	1.04	1.52	1.99	2.46	2.94	3.41	2.33	0.08
PHB 95 Y 40	0.38	0.84	1.31	1.77	2.24	2.70	3.16	2.42	0.26
PAN 1583 R	0.63*	1.19*	1.75*	2.30*	2.86*	3.41*	3.97*	2.70	0.11
PAN 1664 R	0.57	1.18*	1.79*	2.40*	3.01*	3.62*	4.23*	2.86	0.15

Hoër as kolomgemiddelde/higher than column mean.

D² waarde dui stabiliteit van 'n kultivar aan. Hoe kleiner die D² waarde, hoe meer stabiel is die kultivar.

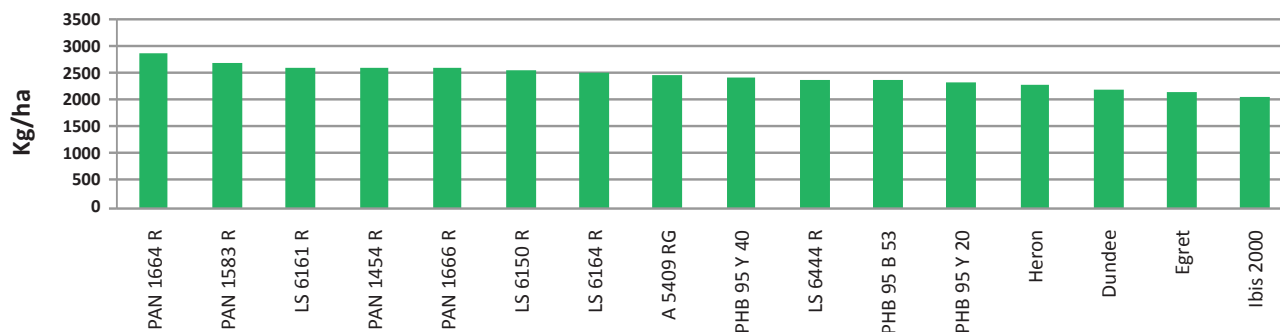
D² value indicates the stability of a cultivar. A smaller D² value indicates a more stable cultivar.

Tabel 7 Saadopbrengs (kg ha⁻¹) van kultivars gedurende die 2011/12 en 2012/13 groeiseisoene ten opsigte van die verskillende lokaliteite wat in die matige produksiegebiede geleë is

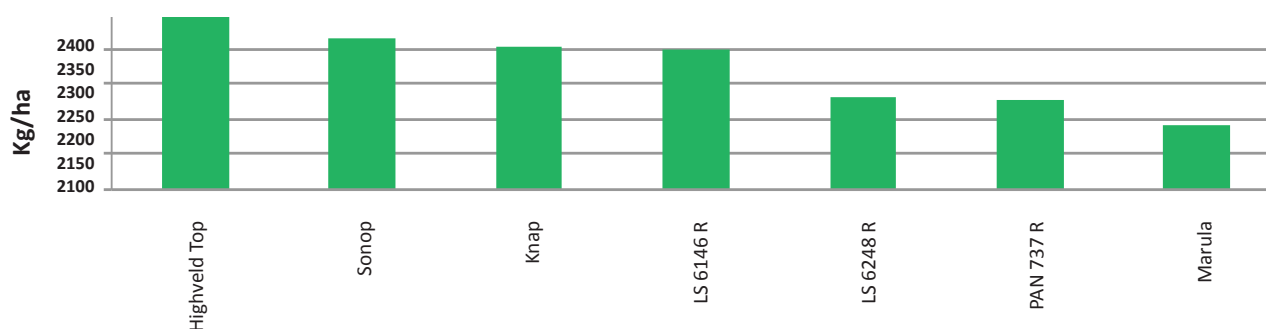
Table 7 Seed yield (kg ha⁻¹) of cultivars during the 2011/12 and 2012/13 growing seasons for the various localities situated in the moderate production areas

Kultivar Cultivar	2011/12								2012/13							
	Bothaville	Cedara	Dundee	Greytown	Greytown Kranskop	Potchefstroom Bespr PD1	Potchefstroom Bespr PD2	Gem/Mean	Cedara	Dundee	Greytown	Greytown Kranskop	Lichtenburg	Potch Bespr	Stoffberg	Gem/Mean
LS 6444 R	925	3554	1525	1913	2948	1511	1301	1954	3652	3033	2626	3864	598	967	1653	2342
PAN 1454 R	1235	3693	1113	2433	3174	2068	1638	2193	3839	3034	2839	3362	900	2434	2215	2661
PAN 1583 R	1625	3330	1101	2928	2926	1547	1478	2134	3477	3107	3338	4041	882	2726	2559	2876
PHB 95 B 53	1390	3058	1157	2164	2103	675	1456	1715	3739	2477	2399	3132	1078	1871	2128	2404
PHB 95 Y 20	1573	3419	1404	2199	2167	1352	1328	1920	3491	2733	2526	3355	1042	1142	1956	2321
PHB 95 Y 40	1458	3444	1524	2153	2282	738	1138	1820	3954	3034	2939	3735	1233	1896	2611	2772
A 5409 RG	1169	2928	1325	2199	2621	1264	1146	1807	3276	3386	2946	3499	818	2032	2000	2565
PAN 1666 R	1290	3052	1325	2347	2558	1666	1194	1919	4142	2772	3056	3568	609	1826	2829	2686
PAN 1664 R	1774	3528	1278	2765	2905	1193	1502	2135	3719	3373	3335	3761	947	3597	2597	3047
LS 6164 R	1552	2796	1169	2341	2885	1041	1182	1852	3466	2632	2859	3618	909	2754	2558	2685
LS 6161 R	1395	3433	1378	2778	2798	1570	1263	2088	4077	2711	2737	3639	808	2884	2327	2741
LS 6150 R	1984	2701	1284	2857	2689	1384	988	1984	3551	2866	2659	3417	1033	2900	2478	2700
PAN 737 R	1599	3402	1299	2415	2218	601	1342	1839	-	-	-	-	-	-	-	-
Dundee	1839	2731	1419	2194	2181	419	1030	1688	3983	2797	2432	2831	1129	2426	1771	2481
Egret	1472	3034	1453	2162	1706	1137	1366	1761	3444	2339	2177	2580	997	2392	1717	2235
Heron	1399	3061	1384	2319	2034	1435	1196	1833	3367	2602	2499	3322	1129	1286	1850	2293
Ibis 2000	1109	2843	1093	2031	1294	1258	1037	1524	3276	1986	2486	1749	909	2542	2154	2157
Sonop	1377	3351	1397	2240	2718	2012	1287	2055	3513	3075	2506	3566	779	2424	2178	2577
LS 6146 R	1128	3262	745	2443	3141	1734	1676	2018	3945	2390	2803	4000	1200	1890	1836	2581
LS 6248 R	1546	3068	1159	2604	2920	1338	1155	1970	3834	2814	2290	3611	1091	1494	2312	2492
Highveld Top	1225	3297	1490	2383	2791	1156	1626	1995	3846	3301	1990	3692	949	3045	2272	2728
Knap	1685	2899	1088	2337	2427	1705	2000	2020	3691	2864	2641	3210	822	2685	2204	2588
Marula	1181	3211	1228	2319	2868	1025	1382	1888	3761	2650	2775	3237	624	2225	2181	2493
LS 6453 R	-	-	-	-	-	-	-	-	3525	2407	2273	3414	897	1128	1995	2234
PAN 1500 R	-	-	-	-	-	-	-	-	3447	2512	3097	3675	1000	3916	2444	2870
LS 6261 R	-	-	-	-	-	-	-	-	4029	3786	3317	4056	904	2035	2448	2939
PAN 1614 R	-	-	-	-	-	-	-	-	3988	2841	3248	3539	957	1681	2084	2620
PAN 1616 R	-	-	-	-	-	-	-	-	3665	2781	2532	2916	827	2107	2305	2448
Gem/Mean	1432	3178	1276	2371	2537	1297	1335	1918	3693	2826	2716	3422	929	2234	2210	2575

Gemiddelde 3 jaar opbrengs van matige gebied, 2010/11, 2011/12, 2012/13
Average 3 year for moderate area, 2010/11, 2011/12, 2012/13



Gemiddelde 2 jaar opbrengs van matige gebied, 2011/12 en 2012/13
Average 2 year for moderate area, 2011/12 and 2012/13



Gemiddelde opbrengs van matige gebied, 2013
Average yield for moderate area, 2013



Tabel 8 Oessekerheid by die verskillende opbrengsmikpunte vir die warmer produksiegebiede, 2010/11, 2011/12, 2012/13
Table 8 Yield reliability at different yield targets for the warmer production areas, 2010/11, 2011/12, 2012/13

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	0.26	0.77	1.27	1.78	2.28	2.79	3.30	3.06	0.15
LS 6161 R	0.70*	1.20*	1.71*	2.21*	2.71*	3.22*	3.72*	3.50	0.16
LS 6164 R	0.00	0.46	1.07	1.67	2.28	2.88	3.49*	3.38	0.35
LS 6150 R	0.05	0.60	1.16	1.72	2.28	2.83	3.39	3.06	0.15
PAN 1666 R	0.11	0.64	1.17	1.70	2.24	2.77	3.30	3.17	0.25
PHB 95 Y 40	0.20	0.72	1.24	1.76	2.28	2.80	3.32	3.18	0.23
A 5409 RG	0.05	0.59	1.13	1.67	2.21	2.75	3.29	3.15	0.25
PHB 95 Y 20	0.00	0.56	1.13	1.70	2.27	2.84	3.41	3.33	0.33
Heron	0.68*	1.16*	1.63*	2.11*	2.58*	3.06*	3.53*	3.34	0.15
Egret	0.93*	1.30*	1.68*	2.05*	2.42*	2.80	3.17	3.37	0.39
Ibis 2000	0.00	0.00	1.00	1.43	1.87	2.30	2.73	2.93	0.38
PAN 1664 R	0.35	0.84	1.34	1.83	2.32	2.81	3.31	3.36	0.34
Dundee	0.61*	0.99*	1.36	1.74	2.12	2.50	2.88	2.99	0.25
LS 6444 R	0.00	0.27	0.86	1.46	2.05	2.65	3.25	3.24	0.43
PHB 95 B 53	0.28	0.81	1.34	1.88	2.41*	2.95*	3.48*	3.37	0.26
PAN 1583 R	0.32	0.86	1.40	1.94*	2.48*	3.01*	3.55*	3.33	0.19

Hoër as kolomgemiddelde/higher than column mean.

D² waarde dui stabiliteit van 'n kultivar aan. Hoe kleiner die D² waarde, hoe meer stabiel is die kultivar.

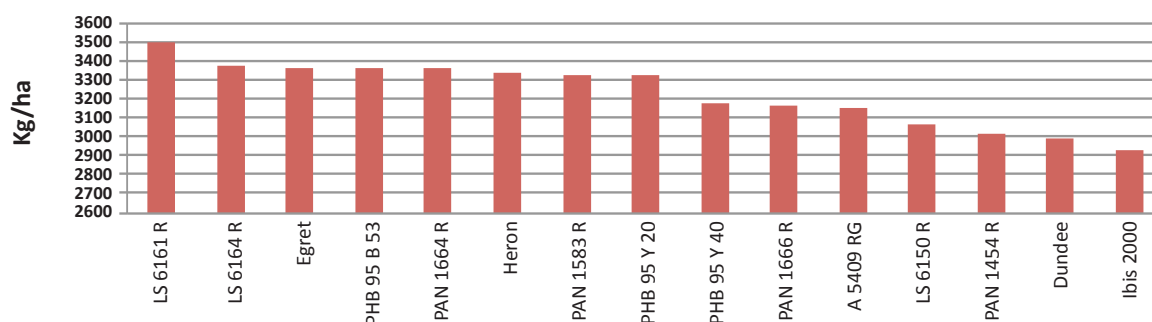
D² value indicates the stability of a cultivar. A smaller D² value indicates a more stable cultivar.

Tabel 9 Saadopbrengs (kg ha⁻¹) van kultivars gedurende die 2011/12 en 2012/13 groeiseisoene ten opsigte van die verskillende lokaliteite wat in die warmer produksiegebiede geleë is

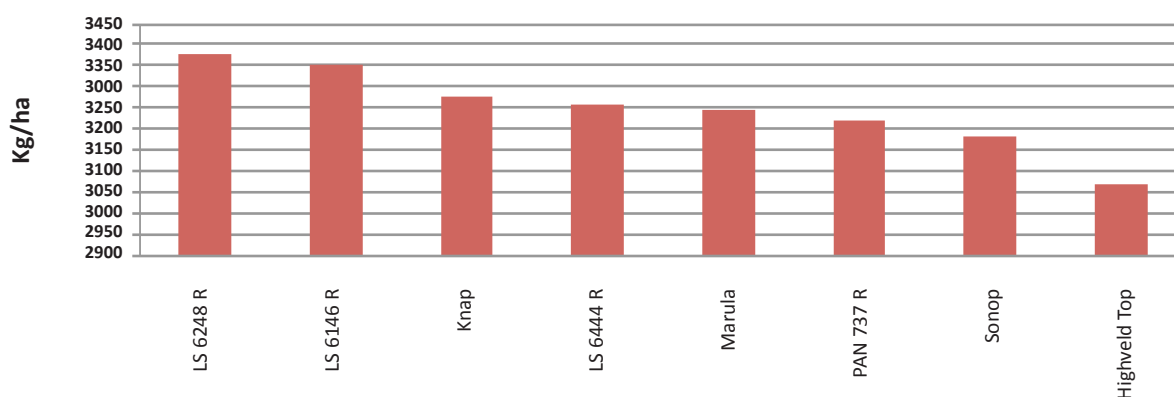
Table 9 Seed yield (kg ha⁻¹) of cultivars during the 2011/12 and 2012/13 growing seasons for the various localities situated in the warmer production areas

Kultivar Cultivar	2011/12						2012/13					
	Brits	Grobiersdal	Rietrivier	Rustenburg PD2	Vaalharts	Gem/Mean	Atlanta	Brits	Grobiersdal	Koedoeskop	Rustenburg	Gem/Mean
Sonop	2848	4256	2790	1513	3252	2932	3256	2790	3967	3933	3280	3445
LS 6444 R	2729	4351	2852	1416	3959	3061	3742	2599	3836	4731	2395	3461
PAN 1454 R	3543	3932	2942	1738	2876	3006	3455	3271	4554	4263	2926	3694
LS 6146 R	3560	4251	2833	1346	3743	3147	4028	3027	4338	4377	2042	3563
LS 6248 R	3018	4758	2870	1136	3192	2995	3796	2853	3929	4245	4010	3767
PAN 1583 R	4065	3646	3058	1577	4241	3317	4086	3216	4434	4715	3224	3935
Highveld Top	2086	4018	2352	1562	3531	2710	3241	2915	3761	3872	3367	3431
Knap	2811	4165	2442	1691	3434	2909	3187	3151	4539	3942	3440	3652
PHB 95 Y 20	2483	4295	2589	1701	3061	2826	4237	3315	5978	4289	2851	4134
PHB 95 Y 40	3841	4130	2639	2018	3213	3168	4507	3064	4920	4031	3295	3963
A 5409 RG	2007	4347	3290	1134	3257	2807	3590	2873	4340	4087	3496	3677
PHB 95 B 53	3537	4476	2564	1803	3150	3106	4428	2454	4576	4334	3815	3921
PAN 1666 R	4123	4223	2811	1539	3368	3213	3723	3280	3978	4223	3894	3819
PAN 1664 R	3550	3372	2959	1671	4081	3127	4643	3318	4064	4739	2484	3850
LS 6164 R	3455	4153	2507	1474	3785	3075	4088	3508	4747	4436	2094	3775
Dundee	3597	4324	2270	1871	2856	2984	2888	2389	3311	3768	4109	3293
Marula	3213	4361	2864	1836	3042	3063	3192	3055	3849	4141	2926	3433
LS 6161 R	2828	4438	2737	1737	3338	3016	4168	3541	4612	4125	4374	4164
LS 6150 R	2948	4153	2780	1451	3319	2930	3810	3054	4415	4390	2027	3539
PAN 737 R	3331	4093	3307	1911	3601	3249	-	-	-	-	-	-
Egret	3314	3842	2934	1686	3532	3062	4319	2577	5011	4131	3829	3973
Heron	3467	4371	2491	2046	4398	3355	3370	2919	4719	4295	3743	3809
Ibis 2000	3511	3708	2308	1442	2507	2695	4453	2799	3472	3638	2162	3305
LS 6453 R	-	-	-	-	-	-	4155	3537	3629	4349	2797	3693
PAN 1500 R	-	-	-	-	-	-	3940	2805	4148	4140	3566	3720
LS 6261 R	-	-	-	-	-	-	3987	2765	5000	4821	4022	4119
PAN 1614 R	-	-	-	-	-	-	4281	2545	4256	3340	3429	3570
PAN 1616 R	-	-	-	-	-	-	4168	2938	4649	4095	3571	3884
Gem/Mean	3212	4159	2747	1622	3423	3033	3879	2984	4335	4202	3228	3726

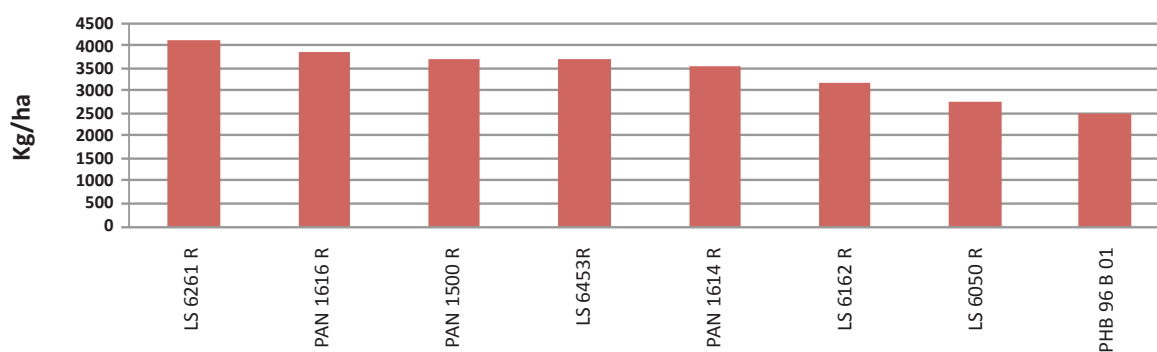
Gemiddelde 3 jaar opbrengs van warm gebied 2010/11, 2011/12, 2012/13
Average 3 year yield for warm area, 2010/11, 2011/12, 2012/13



Gemiddeld 2 jaar opbrengs vir warm area, 2011/12 and 2012/13
Average 2 year for warm area, 2011/12 and 2012/13



Gemiddeld opbrengs vir warm gebied, 2013
Average yield for warm area, 2013



NOTAS / NOTES

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VERDERE INLIGTING



Volledige inligting oor die Nasionale Sojaboon Kultivarproewe en 'n nuttige bron van inligting oor sojaboonproduksie nl "Sojaboon produksiehandleiding" is beskikbaar by:

LNR-Instituut vir Graangewasse
Privaatsak X1251Chris Hani Straat 114, Potchefstroom 2520
Tel.: (018) 299 6100 • Faks: (018) 294 7146

** Kultivars wat in die verslag opgeneem is, is die enigste kultivars wat deur die LNR getoets en aanbeveel word.*

ERKENNING

Die uitvoer van die proewe is moontlik gemaak deur die finansiële ondersteuning van die Landbounavorsingsraad, Proteïennavorsingstigting, verskeie Saadmaatskappye en 'n groot aantal medewerkers wat proewe uitgevoer het. Tegnieke ondersteuning is verleen deur Me. Heila Vermeulen.

FURTHER INFORMATION



Information on the National Soybean Cultivar Trials and an useful guide, namely "Soybean Production Manual" are available at:

ARC-Grain Crops Institute
Private Bag X1251Chris Hani Street 114, Potchefstroom 2520
Tel.: (018) 299 6100 • Fax: (018) 294 7146

** Cultivars that are discussed in this report are the only cultivars evaluated and recommended by the ARC..*

ACKNOWLEDGEMENT

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