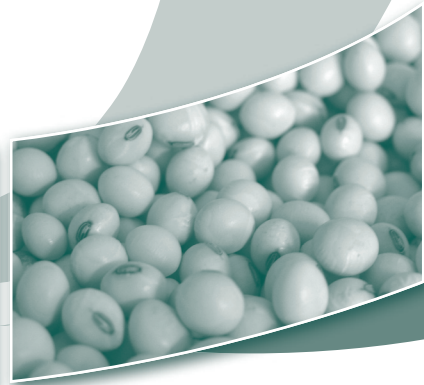
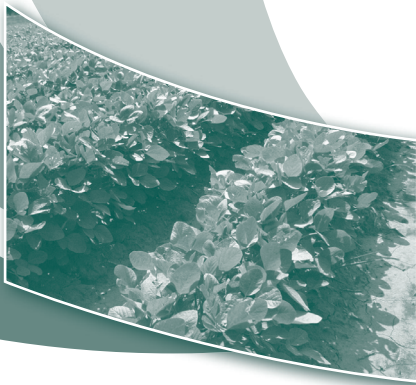




Sojaboon Kultivaraanbevelings Vir Soybean Cultivar Recommendations For

2012/2013

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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.

Although soybean's as a crop is 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.

BELANGRIKE INLIGTING VIR KULTIVARKEUSE

Die belangrikste inligting wat in ag geneem moet word ten opsigte van kultivarkeuse by sojabone, is die **lengte van die 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 nag-temperatuur) 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

IMPORTANT INFORMATION FOR CULTIVAR CHOICE

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

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 dieselfde klimaatstoestand het en dan die Tabela 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 groeiseisoenkultivars 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 Tabela 4, 5, 6, 7, 8 en 9 saam met groeiseisoenlengte gebruik sal word om 'n meer akkurate kultivarkeuse vir 'n spesifieke gebied te maak.

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 (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 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

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 'n laer peul- en planthoogte as lang groeiseisoenkultivars 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 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

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.

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 influence 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.

kultivars met 'n oop blaredak en min sytakke, beter aangepas is by relatief nouer ryydtes.

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

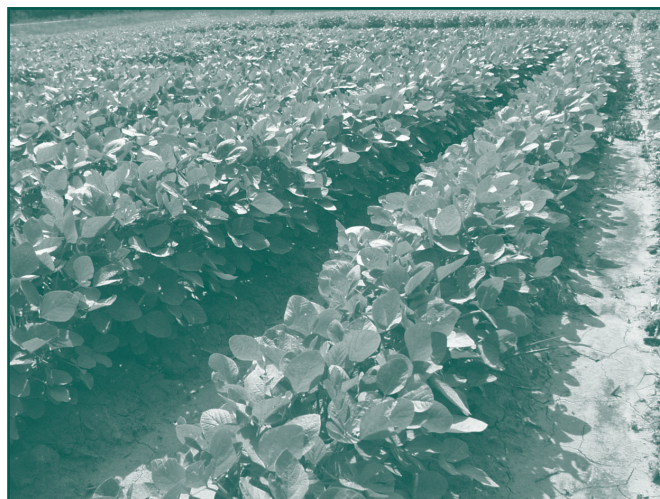
Volgens inligting uit die Nasionale Kultivarproewe is dit duidelik dat relatief kort groeiseisoenkultivars die grootste risiko vir oopspring het, terwyl relatief lang groeiseisoenkultivars die minste daardeur geraak word. 'n Aanduiding ten opsigte van genetiese weerstand tussen kultivars van dieselfde groeiseisoenlengte wat oopspring aanbetref, kon egter nie verkry word nie. Kultivars word geëvalueer op 'n skaal van 1 (goed) tot 9 (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 sojabone oorweeg word. In alle gevalle moet seker gemaak word dat aanwysings op die onkruidodderetiket 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.



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 9 (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.

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

Saadopbrengs gee 'n aanduiding van 'n kultivar se genetiese aanpassing en geskiktheid vir 'n bepaalde gebied. Vir die 2011/2012 seisoen is 23 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 2010/2011 en 2011/2012 produksieseisoen op die onderskeie lokaliteite. Gebruik die opbrengsdata saam met die oessekerheidstabelle om u kultivarkeuse te maak.

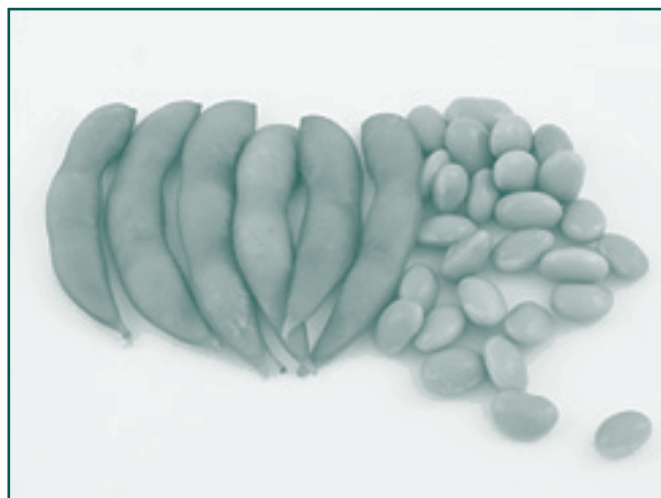
Die **oessekerheidswaardes** van die 15 kultivars vir die drie verbouingsgebiede (warm, matig en koud) word in Tabelle 4 & 6 en 8 aangebied. Tabelle 4, 6 en 8 bevat inligting oor kultivars wat vir onderskeidelik drie jaar in dié proewe ingesluit was. Dit is belangrik dat u die verdeling van lokaliteite 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.



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 potensiaaltoestande 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.

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 2011/2012 season 23 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 2010/2011 and 2011/2012 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 15 cultivars for the three production areas (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 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.

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.

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.

Tabel 1. Gemiddelde aantal dae tot 50% blom en oesrypheid van kultivars gedurende die 2011/12 groeiseisoen vir warm, matig en koue produksiegebiede.

Table 1. Average number of days to 50 % flowering and harvesting of cultivars during the 2011/12 growing season for warm, moderate and cool production areas.

Kultivar/ Cultivar	Dae tot 50% blom/Days to 50% flowering			Dae tot oesryp/Days to harvest		
	Warm/ Warm ¹	Matig/ Moderate ²	Koud/Cool ³	Warm/ Warm ⁴	Matig/ Moderate ⁵	Koel/Cool ⁶
Sonop	51	58	73	132	126	-
LS 6444 R	41	41	59	122	114	-
PAN 1454 R	42	43	60	127	119	-
LS 6146 R	42	42	61	121	118	-
LS 6248 R	52	56	72	130	125	-
PAN 1583 R	47	55	69	136	126	-
Highveld Top	53	58	75	129	122	-
Knap	52	58	72	137	126	-
PHB 95 Y 20	53	60	76	133	126	-
PHB 95 Y 40	51	59	77	135	131	-
A 5409 RG	51	60	75	130	126	-
PHB 95 B 53	52	60	75	131	130	-
PAN 1666 R	54	59	75	132	125	-
PAN 1664 R	48	57	73	137	126	-
LS 6164 R	54	59	76	131	130	-
Dundee	57	61	79	135	133	-
Marula	52	58	76	133	127	-
LS 6161 R	56	59	78	135	132	-
LS 6150 R	55	61	78	135	127	-
PAN 737 R	56	62	76	135	138	-
Egret	59	64	83	136	139	-
Heron	54	62	78	136	136	-
Ibis 2000	59	65	80	137	137	-

¹ - Gemiddeld van 4 lokaliteite / average of 4 localities

³ - Gemiddeld van 7 lokaliteite / average of 7 locality

⁵ - Gemiddeld van 1 lokaliteite / average of 1 locality

² - Gemiddeld van 6 lokaliteite / average of 6 localities

⁴ - Gemiddeld van 3 lokaliteite / average of 3 localities

⁶ - Geen inligting beskikbaar/None information available

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

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

Tabel 2. Groepering van lokaliteite volgens warm, matige en koue produksiegebiede gedurende die 2011/12 groeiseisoen.

Table 2. Grouping of localities according to warm, moderate and cool production areas during the 2011/12 growing season.

Warm/Warm	Matig/Moderate	Koud/Cool
Brits (B/I)	Bothaville (D)	Belfast (D)
Groblersdal (B/I)	Cedara (D)	Bethlehem (D)
Koedoeskop (B/I)	Dundee (D)	Clocolan (D)
Rietrivier (B/I)	Glen (B/I)	Delmas (D)
Rustenburg PD1 (B/I)	Greytown (D)	Harrismith (D)
Rustenburg PD2 (B/I)	Greytown Kranskop (D)	Kinross (D)
Vaalharts (B/I)	Lichtenburg (D)	Kokstad (D)
	Potchefstroom PD1 (B/I)	Middelburg (D)
	Potchefstroom PD2 (B/I)	Villiers (D)
	Potchefstroom Drg PD1 (D)	
	Potchefstroom Drg PD2 (D)	

B – Besproeing / I - Irrigation

D – Droëland / Dry land

Table 3. Algemene inligting ten opsigte van geregistreerde sojaboonkultivars wat tydens die 2011/12 groeiseisoen geëvalueer is.
Table 3. General information on registered soybean cultivars that were evaluated during the 2011/12 growing season.

Kultivar/ Cultivar	Volwassen- heidsgroe- pering/Ma- turity Group	Groei - wyse/ Growth habit ¹	Hilum kleur/ Hilum colour ²	Oliepersentasie/Oil percentage (%)			Proteïenpersentasie/ Protein percentage (%)			Peulhoogte/Pod height ³			Opspring/Shattering ⁴			Verskaffer/ Supplier
				Koel	Matig	Warm	Koel	Matig	Warm	Koel	Matig	Warm	Koel	Matig	Warm	
Sonop	4.0	I	B	17.47	19.81	19.98	38.77	37.99	37.78	17	17	15	3.00	1.67	6.00	GW Bührmann
LS 6444 R	4.0	SD	BL	19.87	20.21	21.08	35.49	37.80	35.62	6	9	9	3.25	4.00	5.00	Link Seed
PAN 1454 R	4.5	I	BL	19.46	20.49	20.58	36.06	37.60	37.36	6	11	13	3.00	2.33	9.00	Pannar
LS 6146 R	4.4	D	B	19.96	21.23	22.14	35.76	35.99	34.48	8	11	12	3.00	2.00	3.00	Link Seed
LS 6248 R	4.8	SD	LB	17.51	19.53	19.80	37.37	37.73	37.26	14	15	14	2.75	3.33	9.00	Link Seed
PAN 1583 R	5.0	D	LB	17.61	20.29	20.28	36.46	35.70	35.08	8	13	8	3.00	1.67	9.00	Pannar
Highveld Top	5.0	I	BL	17.27	19.47	20.28	39.01	37.89	36.38	13	13	14	2.75	2.33	9.00	GW Bührmann
Knap	5.0	I	B	16.86	19.63	19.92	39.36	37.40	37.58	16	15	17	3.00	2.00	9.00	GW Bührmann
PHB 95 Y 20	5.2	D	BL	16.36	18.81	19.24	40.57	39.39	38.32	13	13	15	1.25	1.67	9.00	Pioneer
PHB 95 Y 40	5.4	D	BL	16.74	18.87	19.06	40.53	39.91	39.28	10	13	13	2.00	1.00	5.00	Pioneer
A 5409 RG	5.5	I	G	17.59	19.93	20.30	38.20	37.07	35.94	11	12	12	1.00	1.00	6.00	Pannar
PHB 95 B 53	5.5	D	BL	16.63	18.49	19.50	39.46	39.40	37.30	13	14	14	1.50	1.00	3.00	Pioneer
PAN 1666 R	5.8	I	BL	17.33	19.51	20.26	37.94	37.76	36.50	13	15	14	3.00	1.00	1.00	Pannar
PAN 1664 R	5.8	D	LB	17.57	20.09	20.12	36.43	35.97	35.40	7	13	10	1.00	1.67	9.00	Pannar
LS 6164 R	6.0	D	LB	17.50	19.67	20.36	37.89	37.33	35.58	8	12	13	3.00	1.67	4.00	Link Seed
Dundee	6.0	I	B	16.99	19.63	20.54	37.50	36.74	34.44	16	18	18	1.00	1.00	1.00	Allgro
Marula	6.0	I	BL	16.80	19.47	19.92	39.60	38.60	37.18	15	15	14	1.75	2.33	6.00	GW Bührmann
LS 6161 R	6.3	D	IB	17.97	19.83	19.76	37.14	37.60	36.98	13	15	15	3.00	1.67	9.00	Link Seed
LS 6150 R	6.5	I	LB	17.23	19.69	20.64	37.53	37.31	35.16	12	13	13	3.00	1.67	4.00	Link Seed
PAN 737 R	7.0	D	IB	17.66	19.04	19.96	37.27	38.09	35.98	11	13	13	1.75	1.67	8.00	Pannar
Egret	7.0	D	KL	15.56	17.76	17.96	40.94	39.73	39.00	14	14	15	1.50	1.00	8.00	Allgro
Heron	7.0	D	LB	16.66	18.21	18.84	38.36	38.43	37.56	14	14	14	1.00	1.00	2.00	Allgro
Ibis 2000	7.0	D	IB	15.99	17.91	18.88	39.76	39.46	38.10	13	15	16	1.00	1.00	6.00	Allgro

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/Buf
G - Grys/Grey KL - Kleurloos/Buf

³ Peulhoogte in cm/Pod height in cm

⁴ Geneigdheid tot oopspring geëvalueer op 'n skaal van 1-9, waar 1 = min en 9 = baie
Tendency to shatter evaluated on a scale from 1-9, where 1 = few and 9 = numerous

Tabel 4 Oesekerheid by die verskillende opbrengsmikpunte vir die koeler produksiegebiede, 2009/10, 2010/11, 2011/12
Table 4 Yield reliability at different yield targets for the cooler production areas, 2009/10, 2010/11, 2011/12

Kultivar/ Cultivar	Opbrengsmikpunte/Yield targets ton ha ⁻¹							Gem Mean 3 jaar	D ²
	1	1.5	2	2.5	3	3.5	4		
PAN 1454 R	0.62*	1.06*	1.50*	1.95*	2.39*	2.83	3.28	2.80	0.489
LS 6161 R	0.16	0.70	1.25	1.79	2.33	2.87	3.41*	2.31	0.242
LS 6164 R	0.28	0.92*	1.56*	2.20*	2.84*	3.47*	4.11*	2.60	0.186
LS 6150 R	0.58*	0.96*	1.34	1.72	2.10	2.47	2.85	2.17	0.163
PAN 1666 R	0.19	0.73	1.26	1.79	2.33	2.86	3.39	2.25	0.197
A 5409 RG	0.24	0.81	1.39*	1.96*	2.53*	3.10*	3.67*	2.35	0.169
PAN 737 R	0.16	0.80	1.44*	2.09*	2.73*	3.38*	4.02*	2.26	0.072
Heron	0.00	0.50	1.14	1.77	2.41*	3.04*	3.68*	2.13	0.157
Egret	0.00	0.00	0.41	0.83	1.24	1.65	2.07	1.83	0.642
Ibis 2000	0.26	0.70	1.14	1.58	2.03	2.47	2.91	2.00	0.158
PAN 1664 R	0.14	0.84	1.55*	2.25*	2.96*	3.66*	4.37*	2.60	0.167
Dundee	0.26	0.79	1.32	1.85	2.38	2.91*	3.44*	2.08	0.080
LS 6444 R (LS 6162 R)	1.18*	1.37*	1.55*	1.73	1.91	2.10	2.28	2.90	0.748
PHB 95 B 53	0.16	0.70	1.24	1.78	2.32	2.86	3.40	2.36	0.284
PAN 1583 R	0.83*	1.31*	1.78*	2.25*	2.72*	3.20*	3.67*	2.50	0.084

* 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 2010/11 en 2011/12 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 2010/11 and 2011/12 growing seasons for the various localities situated in the cooler production areas

2010/11					2011/12							
Kultivar/ Cultivar	Bethlehem	Delmas	Kokstad	Gem/Mean	Belfast	Bethlehem	Clocolan	Delmas	Harrismith	Kinross	Middelburg	Gem/Mean
LS 6444 R (LS 6162)	3672	2121	1969	2587	2515	2797	1858	4538	2278	4334	2848	3024
PAN 1454 R	3589	3166	1756	2837	2535	2269	1898	4634	1980	3154	2932	2772
PAN 1583 R	3383	3774	2583	3247	2321	1370	1945	1890	1919	2808	2547	2114
PHB 95 B 53	3311	3565	2269	3048	1884	747	1931	2053	1781	3584	1922	1986
PHB 95 Y 20	2735	3567	2603	2968	1687	1430	1810	2701	1611	2696	2456	2056
PHB 95 Y 40	2305	3076	1545	2309	1964	1103	2176	1914	1924	1473	2245	1828
A 5409 RG	3666	3653	2567	3295	2015	825	2315	1758	1415	1844	2136	1758
PAN 1666 R	2746	4246	2129	3040	1971	1256	2047	1648	1696	1450	1984	1722
PAN 1664 R	3676	4264	2356	3432	2201	1336	1896	3863	926	2601	2451	2182
LS 6164 R	3478	4276	2362	3372	2147	1303	2050	3950	1658	2288	3147	2363
PHB 96 B 01	2692	2524	1780	2332								
LS 6161 R	3137	3865	2488	3163	1988	1352	2043	2408	1633	718	2852	1856
LS 6050 R	3444	4234	2181	3286								
LS 6150 R	2731	3463	2436	2877	2131	1270	2203	1876	1729	1202	2573	1855
PAN 737 R	3387	4117	2180	3228	1971	763	1843	1805	1695	1860	2549	1784
Dundee	2751	3196	2140	2696	1676	1047	1589	2448	981	1276	2790	1687
Egret	2665	3256	2314	2745	901	368	1935	2049	1403	2479	2723	1694
Heron	4079	3606	2275	3320	1660	887	1801	2015	1186	2120	2128	1685
Ibis 2000	1945	3368	1727	2347	1896	726	1892	2449	1559	1408	2934	1838
Sonop					2218	869	1822	3315	1781	1726	2771	2072
LS 6146 R					2393	2401	1484	3952	1605	4578	2751	2738
LS 6248 R					2672	1418	1676	1620	1889	1397	2369	1863
Highveld Top					2252	382	1481	1609	2071	1637	2721	1736
Knap					1944	1376	1688	1809	1893	1626	3136	1925
Marula					2000	1242	1936	2272	1291	1549	2039	1761
Gem/Mean	3126	3544	2193	2954	2041	1241	1883	2547	1648	2166	2565	2013

Tabel 6 Oessekerheid by die verskillende opbrengsmikpunte vir die matige produksiegebiede, 2009/10, 2010/11 en 2011/12
Table 6 Yield reliability at different yield targets for the moderate production areas, 2009/10, 2010/11 and 2011/12

Kultivar/ Cultivar	Opbrengsmikpunte/Yield targets ton ha ⁻¹							Gem Mean 3 jaar	D ²
	1	1.5	2	2.5	3	3.5	4		
PAN 1454 R	0.70*	1.18*	1.67*	2.16*	2.64*	3.13*	3.61*	2.65	0.11
PAN 1583 R	0.57*	1.14*	1.71*	2.28*	2.84*	3.41*	3.98*	2.80	0.12
LS 6161 R	0.85*	1.36*	1.86*	2.37*	2.88*	3.39*	3.90*	2.71	0.05
LS 6164 R	0.50	1.01	1.52*	2.03*	2.54*	3.05*	3.56*	2.59	0.14
LS 6150 R	0.75*	1.24*	1.72*	2.20*	2.68*	3.17*	3.65*	2.65	0.09
PAN 1666 R	0.24	0.83	1.43	2.02	2.61	3.20*	3.80*	2.63	0.17
A 5409 RG	0.47	1.05*	1.63*	2.21*	2.79*	3.37*	3.95*	2.61	0.07
PAN 737 R	0.36	0.89	1.42	1.95	2.48	3.01	3.54*	2.49	0.13
Heron	0.59*	1.07*	1.55*	2.03*	2.50	2.98	3.46	2.46	0.08
Egret	0.59*	0.99	1.39	1.79	2.19	2.59	2.99	2.25	0.10
Ibis 2000	0.38	0.81	1.24	1.66	2.09	2.52	2.95	2.15	0.11
PAN 1664 R	0.57*	1.16*	1.75*	2.34*	2.93*	3.52*	4.11*	2.88	0.13
Dundee	0.30	0.74	1.19	1.63	2.07	2.51	2.96	2.37	0.30
LS 6444 R (LS 6162 R)	0.62*	1.04*	1.46	1.88	2.29	2.71	3.13	2.52	0.20
PHB 95 B 53	0.16	0.72	1.28	1.84	2.40	2.95	3.51	2.41	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 2010/11 en 2011/12 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 2010/11 and 2011/12 growing seasons for the various localities situated in the moderate production areas

2010/11										2011/12							
Kultivar/Cultivar	Cedara	Glen	Greytown	Greytown Kranskop	Potch B PD I	Potch B PD2	Potch Drg PD I	Potch Drg PD2	Gem/Mean	Bothaville	Cedara	Dundee	Greytown	Greytown Kranskop	Potchefstroom Bespr PD I	Potchefstroom Bespr PD2	Gem/Mean
LS 6444 R (LS 6162 R)	3073	2930	1202	2442	2873	3483	3008	2939	2744	925	3554	1525	1913	2948	1511	1301	1954
PAN 1454 R	3088	3093	1314	2225	3666	2524	3574	3386	2859	1235	3693	1113	2433	3174	2068	1638	2193
PAN 1583 R	3091	3600	1301	1854	4841	2493	3647	3491	3040	1625	3330	1101	2928	2926	1547	1478	2134
PHB 95 B 53	2106	4086	1222	1957	3416	2519	4558	3194	2882	1390	3058	1157	2164	2103	675	1456	1715
PHB 95 Y 20	2675	3401	1269	1571	3513	2462	3445	3230	2696	1573	3419	1404	2199	2167	1352	1328	1920
PHB 95 Y 40	2270	3226	1839	1875	2578	3088	4343	1790	2626	1458	3444	1524	2153	2282	738	1138	1820
A 5409 RG	2438	3804	1222	1463	4259	2653	4505	3640	2998	1169	2928	1325	2199	2621	1264	1146	1807
PAN 1666 R	2193	3326	1268	1711	4545	2486	4557	4511	3075	1290	3052	1325	2347	2558	1666	1194	1919
PAN 1664 R	2757	3598	1144	2081	4946	3527	4287	4369	3339	1774	3528	1278	2765	2905	1193	1502	2135
LS 6164 R	2226	2554	1775	2063	4523	2363	4192	3464	2895	1552	2796	1169	2341	2885	1041	1182	1852
PHB 96 B 01	1731	3381	1393	1571	3503	2440	3526	3434	2622								
LS 6161 R	2776	3759	1542	2207	3673	2883	3776	3236	2982	1395	3433	1378	2778	2798	1570	1263	2088
LS 6050 R	2206	3978	1756	1879	3901	3017	3257	3330	2916								
LS 6150 R	2312	3641	1260	2034	3892	2572	4095	3495	2913	1984	2701	1284	2857	2689	1384	988	1984
PAN 737 R	1880	3926	1604	1506	3511	2366	3106	2629	2566	1599	3402	1299	2415	2218	601	1342	1839
Dundee	2165	2918	1227	1376	3284	1658	3572	3366	2446	1839	2731	1419	2194	2181	419	1030	1688
Egret	1590	2901	1712	1801	2899	2713	3406	2134	2394	1472	3034	1453	2162	1706	1137	1366	1761
Heron	2576	3533	1314	1510	3497	2880	3317	2447	2634	1399	3061	1384	2319	2034	1435	1196	1833
Ibis 2000	2201	3051	1243	2013	2797	1864	3366	2801	2417	1109	2843	1093	2031	1294	1258	1037	1524
Sonop										1377	3351	1397	2240	2718	2012	1287	2055
LS 6146 R										1128	3262	745	2443	3141	1734	1676	2018
LS 6248 R										1546	3068	1159	2604	2920	1338	1155	1970
Highveld Top										1225	3297	1490	2383	2791	1156	1626	1995
Knap										1685	2899	1088	2337	2427	1705	2000	2020
Marula										1181	3211	1228	2319	2868	1025	1382	1888
Mean	2387	3405	1400	1849	3690	2631	3765	3205	2792	1431	1431	1431	1431	1431	1431	1431	1431

Tabel 8 Oesekerheid by die verskillende opbrengsmikpunte vir die warmer produksiegebiede, 2009/10, 2010/11, 2011/12
Table 8 Yield reliability at different yield targets for the warmer production areas, 2009/10, 2010/11, 2011/12

Kultivar/ Cultivar	Opbrengsmikpunte/Yield targets ton ha-1							Gem Mean	D ²
	1	1.5	2	2.5	3	3.5	4		
PAN 1454 R	0.37	0.84*	1.31	1.79	2.26	2.73	3.20	2.84	0.14
LS 6161 R	0.54*	1.04*	1.54*	2.03*	2.53*	3.02*	3.52*	3.17	0.17
LS 6164 R	0.00	0.56	1.21	1.86	2.52*	3.17*	3.83*	3.31	0.25
LS 6150 R	0.26	0.82*	1.37*	1.93*	2.49*	3.04*	3.60*	2.98	0.09
PAN 1666 R	0.00	0.49	1.05	1.60	2.16	2.71	3.27	2.92	0.24
A 5409 RG	0.00	0.44	1.01	1.57	2.14	2.71	3.28	2.97	0.29
PAN 737 R	1.45*	1.81*	2.18*	2.54*	2.90*	3.26*	3.62*	3.31	0.07
Heron	0.73*	1.18*	1.63*	2.08*	2.53*	2.98*	3.43*	3.14	0.15
Egret	1.10*	1.42*	1.74*	2.06*	2.38*	2.70	3.02	3.05	0.20
Ibis 2000	0.00	0.00	1.10	1.56	2.02	2.49	2.95	2.88	0.31
PAN 1664 R	0.49*	0.98*	1.48*	1.98*	2.47*	2.97*	3.46*	3.29	0.28
Dundee	0.37	0.83*	1.30	1.76	2.23	2.69	3.15	2.89	0.18
LS 6444 R (LS 6162 R)	0.00	0.30	0.99	1.68	2.37	3.06*	3.75*	3.24	0.30
PHB 95 B 53	0.29	0.79	1.29	1.79	2.29	2.79	3.29	3.18	0.33
PAN 1583 R	0.28	0.82*	1.35	1.89*	2.42*	2.96*	3.49*	3.17	0.23

* Hoër as kolomgemiddelde/higher than column mean

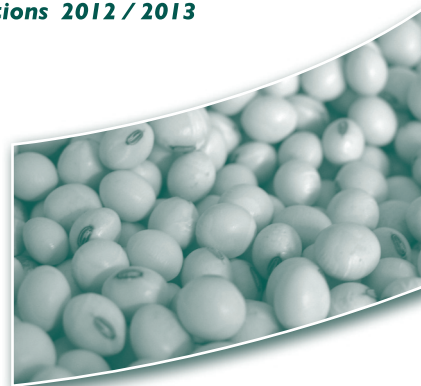
D² waarde dui stabiliteit van 'n kultivar aan. Hoe kleiner die D² waarde, hoe meer stabiel is die kultivar

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 2010/11 en 2011/12 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 2010/11 and 2011/12 growing seasons for the various localities situated in the warmer production areas

Kultivar/ Cultivar	2010/11						2011/12					
	Brits	Groblersdal	Koedoeskop	Rustenburg	Vaalharts	Gem/Mean	Brits	Groblersdal	Rietrivier	Rustenburg PD2	Vaalharts	Gem/Mean
LS 6444 R (LS 6162 R)	4051	3217	2483	1199	5074	3205	2729	4351	2852	1416	3959	3061
PAN 1454 R	2270	2528	2383	1377	3287	2369	3543	3932	2942	1738	2876	3006
PAN 1583 R	3496	2328	2544	1686	3636	2738	4065	3646	3058	1577	4241	3317
PHB 95 B 53	4505	2693	3250	1697	3260	3081	3537	4476	2564	1803	3150	3106
PHB 95 Y 20	2898	3061	3728	2120	3335	3028	2483	4295	2589	1701	3061	2826
PHB 95 Y 40	2219	2663	2389	1714	3056	2408	3841	4130	2639	2018	3213	3168
A 5409 RG	3109	3252	2389	1732	4352	2967	2007	4347	3290	1134	3257	2807
PAN 1666 R	1859	2551	3267	1267	3477	2484	4123	4223	2811	1539	3368	3213
PAN 1664 R	3041	3710	2506	1807	4499	3113	3550	3372	2959	1671	4081	3127
LS 6164 R	3024	2374	3922	1861	5242	3285	3455	4153	2507	1474	3785	3075
PHB 96 B 01	2983	1735	3111	2170	2605	2521						
LS 6161 R	3481	2879	3956	2051	4179	3309	2828	4438	2737	1737	3338	3016
LS 6050 R	2528	2639	3733	1622	3340	2772						
LS 6150 R	2521	2353	3517	1515	3687	2719	2948	4153	2780	1451	3319	2930
PAN 737 R	3164	2865	3406	2907	3673	3203	3331	4093	3307	1911	3601	3249
Dundee	2920	2859	2844	1604	3222	2690	3597	4324	2270	1871	2856	2984
Egret	2458	2779	3150	3081	3921	3078	3314	3842	2934	1686	3532	3062
Heron	2663	2933	2861	2198	3686	2868	3467	4371	2491	2046	4398	3355
Ibis 2000	4217	2112	2872	1595	3119	2783	3511	3708	2308	1442	2507	2695
Sonop							2848	4256	2790	1513	3252	2932
LS 6146 R							3560	4251	2833	1346	3743	3147
LS 6248 R							3018	4758	2870	1136	3192	2995
Highveld Top							2086	4018	2352	1562	3531	2710
Knap							2811	4165	2442	1691	3434	2909
Marula							3213	4361	2864	1836	3042	3063
Gem/Mean	3022	2712	3069	1853	3718	2875	3313	4109	2767	1660	3444	3059



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 X1251 Chris 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. Tegniese ondersteuning is verleen deur Mrs. 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 X1251
Chris Hani Street 114
Potchefstroom
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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.**

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