

Sonneblomkultivaraanbevelings vir 2018/2019

Dr SH Ma'ali, LNR-IGG, Potchefstroom

Om finansiële sukses met sonneblomproduksie te verseker, is 'n hoë vlak van doeltreffendheid noodsaaklik. Die seleksie van goed aangepaste kultivars is 'n goedkoop en eenvoudige manier om doeltreffendheid te bevorder en daarvoor is inligting oor die prestasie van kultivars nodig.

Die doel van die nasionale sonneblomkultivarevaluasieproewe is om dié inligting te verskaf, waaruit 'n sinvolle kultivarkeuse gemaak kan word.

Kultivaraanbevelings in dié dokument spruit voort uit samewerking tussen die LNR-IGG en verskeie saadmaatskappye met finansiële ondersteuning van die Olie- en Proteïensade Ontwikkelingstrust.

Negentien kultivars, waarvan ses nuwe inskrywings, is in 12 veldproewe gedurende 2017/2018 geëvalueer. In Tabel 1 word die groeiseisoenlengtes van dié kultivars, asook die gemiddelde opbrengste wat in 2016/2017 en 2017/2018 behaal is, aangetoon.

Figuur 1 toon sonneblom saad opbrengs vir een jaar (a), twee jaar (b) en drie jaar (c).

Opbrengswaarskynlikheid

Die opbrengswaarskynlikheid van 'n kultivar is die kans om 'n bogemiddelde opbrengs by 'n bepaalde opbrengspotensiaal te behaal. Indien die opbrengswaarskynlikheid van 'n kultivar by 'n bepaalde opbrengspotensiaal byvoorbeeld 60% is, dui dit op 'n 60% kans om 'n bogemiddelde opbrengs te behaal en 'n 40% kans om ondergemiddeld te presteer.

Tabel 2 toon opbrengswaarskynlikheidswaardes, van die kultivars wat in 2017/2018 geëvalueer is aan. Weens die jaarlikse toevoeging en onttrekking van kultivars, is 'n meerjarige oesskerheidsevaluasie op slegs 'n beperkte aantal kultivars moontlik. Tabel 3 toon opbrengswaarskynlikheidswaardes, van 13 kultivars wat in 24 proewe gedurende 2016/2017 en 2017/2018 geëvalueer is, aan. Tabel 4 toon opbrengswaarskynlikheid van twaalf kultivars wat in 34 proewe gedurende 2015/2016 – 2017/2018 groei seisoen geëvalueer is.

Tabel 3 kan gebruik word om 'n kernseleksie van

Sunflower cultivar recommendations for 2018/2019

Dr SH Ma'ali, ARC-Grain Crops, Potchefstroom

Maintaining a high level of efficiency is the basis for the financial success of sunflower production. The selection of well-adapted cultivars is a simple and easy way to foster efficiency for which information on the performance of cultivars is needed.

The aim of the sunflower cultivar trials is to generate information from which a sensible selection of cultivars can be made.

The cultivar recommendations in this document stem from such an evaluation, made possible by collaboration between the ARC-GC and several seed companies with financial support from the Oil and Protein Seed Development Trust.

19 cultivars, of which six were new introductions, were evaluated in twelve field trials during 2017/2018. **Table 1** shows the growing season lengths of these cultivars as well as their mean seed yields for 2016/2017 and 2017/2018.

The graphs below show sunflower seed yields for one year (**Graph A**), two years (**Graph B**) and three years (**Graph C**).

Yield probability

A cultivar's yield probability is the chance to realise an above average yield at a particular yield potential. For instance, if the yield probability of a cultivar, at a particular yield potential equals 60%, the chance to realise a yield above the mean of all cultivars is 60% with a 40% chance of obtaining a yield below the mean.

Table 2 shows yield probability values for the cultivars tested in 2017/2018. Since new cultivars are introduced and some removed annually, a multi-season reliability analysis is only possible for a limited number of cultivars. **Table 3** shows yield probability values for 13 cultivars that were evaluated in 24 trials during 2016/2017 and 2017/2018. **Table 4** shows yield probability values for twelve cultivars that were evaluated in 34 trials during the 2015/2016 to 2017/2018 growing season.

kultivars te maak. Hierdie kern kan aangevul word met kultivars uit Tabela 1 en 2. Dit is altyd raadsaam om meer as een kultivar te plant en om nuwe kultivars slegs op 'n beperkte skaal in te sluit.

Kultivarseleksie uit die opbrengswaarskynlikheidstabel

Bepaal eerstens die opbrengspotensiaal van 'n land en stel dan 'n opbrengsmikpunt. Die langtermyn gemiddelde opbrengs is gewoonlik 'n goeie aanduiding van die opbrengspotensiaal wat dikwels ook as die mikpunt dien. Raadpleeg vervolgens die opbrengswaarskynlikheidstabelle.

Kultivars met die hoogste opbrengswaarskynlikhede, wat in die kolom onder 'n bepaalde opbrengspotensiaal getoon word, het die grootste kans om goed in die bepaalde omstandighede te presteer.

Table 3 and Table 4 can be used to select a core of cultivars. This selection can be expanded with cultivars selected from Tables 1 and 2. It is advisable to grow more than one cultivar and to include new cultivars on a limited scale only.

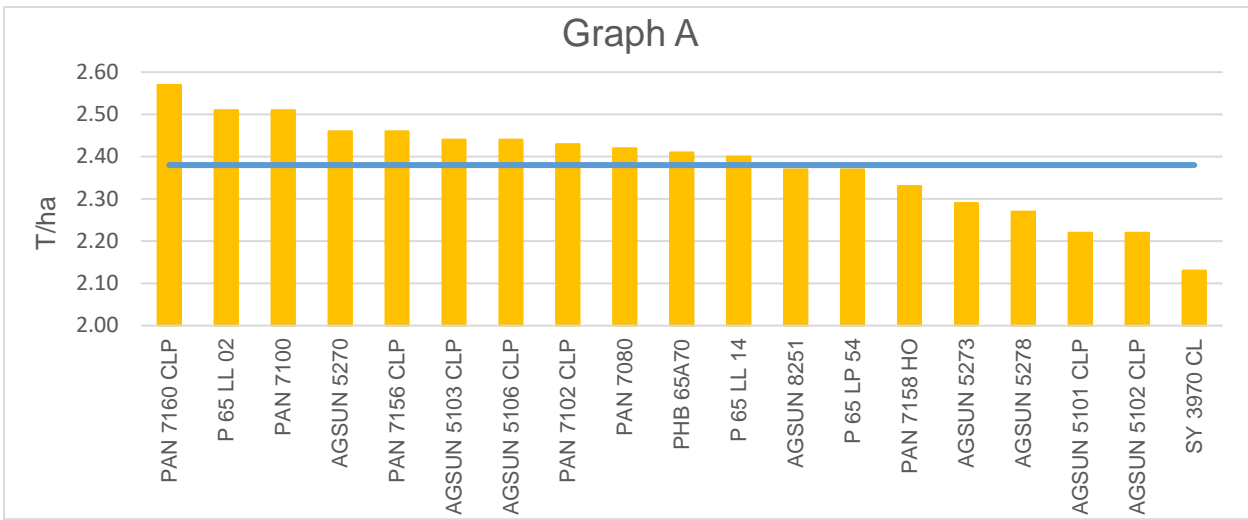
Cultivar selection from the yield probability table

Determine the yield potential for a particular land and set a yield target. The long-term mean yield of a particular field is usually a good indicator of the yield potential and can therefore serve as yield target. Consult the yield probability tables next.

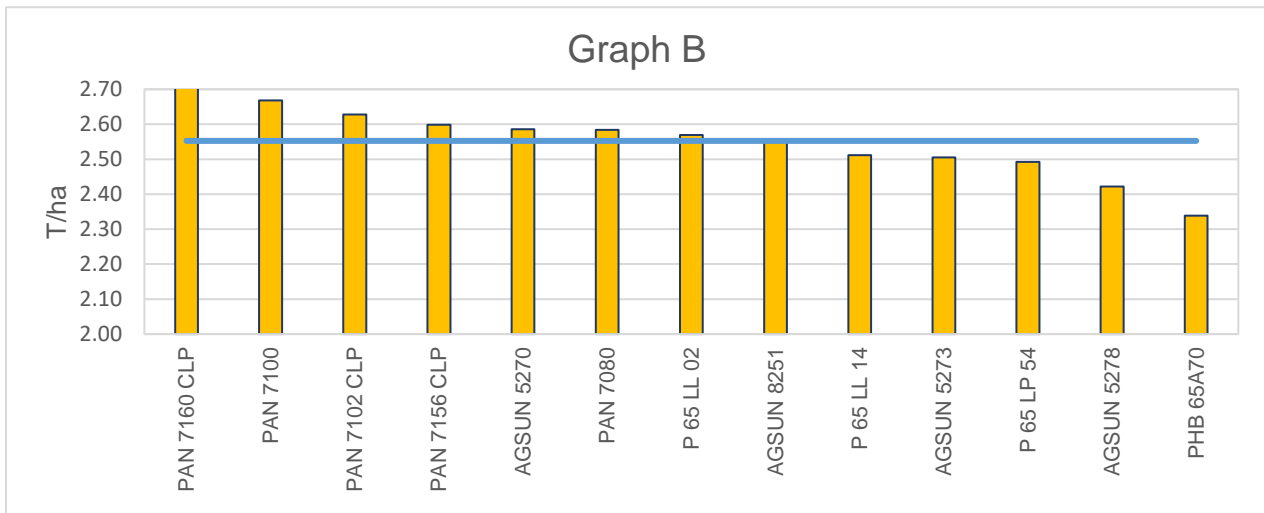
Cultivars with the highest yield probability values, in the column below a particular yield potential, are those with the best chance to perform well under the particular conditions.

TABLE 1: DAYS TO FLOWERING AND SEED YIELD OF CULTIVARS EVALUATED IN 2016/2017 AND 2017/2018

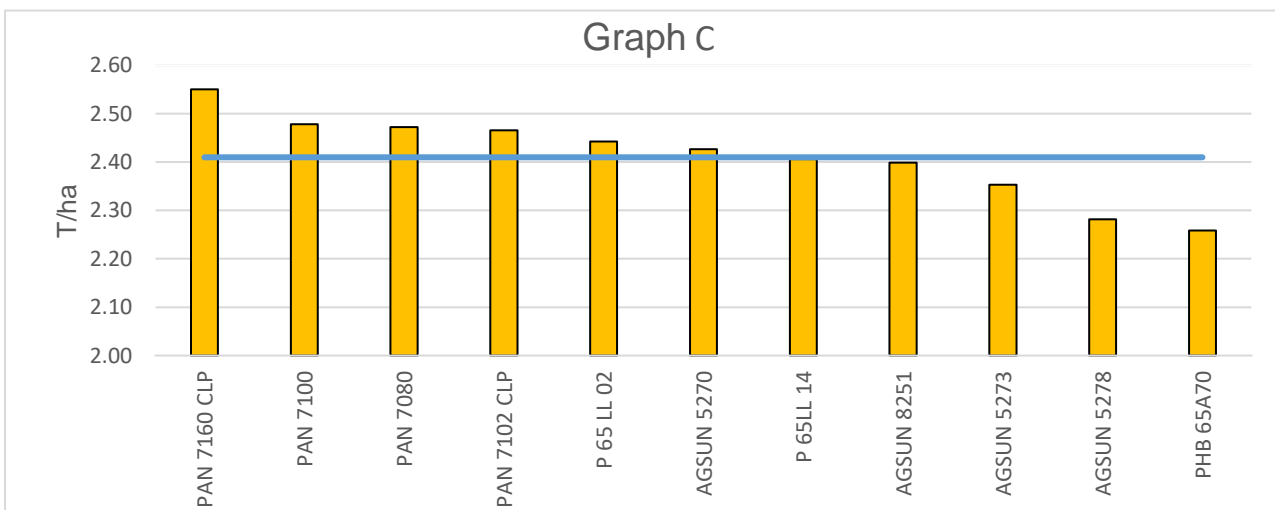
CULTIVAR	DAYS TO 50% FLOWERING MEAN	YIELD (T/HA)		
		2016/2017	2017/2018	MEAN
AGSUN 5101 CLP	71	-	2,23	2,23
AGSUN 5102 CLP	70	-	2,21	2,21
AGSUN 5103 CLP	72	-	2,44	2,44
AGSUN 5106 CLP	72	-	2,43	2,43
AGSUN 5264	65	2,36	-	2,36
AGSUN 5270	68	2,63	2,46	2,54
AGSUN 5272	67	2,66	-	2,66
AGSUN 5273	69	2,62	2,29	2,46
AGSUN 5278	69	2,45	2,26	2,36
AGSUN 8251	69	2,64	2,35	2,5
P 65LL 02	70	2,53	2,52	2,53
P 65LL14	69	2,54	2,37	2,46
P 65LP 54	69	2,5	2,4	2,45
PAN 7080	69	2,6	2,43	2,52
PAN 7098	66	2,64	-	2,64
PAN 7100	68	2,71	2,51	2,61
PAN 7095 CL	67	2,35	-	2,35
PAN 7102 CLP	67	2,73	2,42	2,58
PAN 7156 CLP	70	2,63	2,45	2,54
PAN 7160 CLP	69	2,79	2,59	2,69
PAN 7158 HO	72	-	2,33	2,33
PHB 65A70	67	2,21	2,42	2,32
SV 60064	69	2,25	-	2,25
SY 3970 CL	70	-	2,11	2,11



Sunflower seed yield average for one year (Graph A)



Sunflower seed yield average for two years (Graph B)



Sunflower seed yield average for three years (Graph C)

TABLE 2: THE YIELD PROBABILITY (%) OF CULTIVARS EVALUATED IN 2017/2018 AT DIFFERENT YIELD POTENTIALS

CULTIVAR	YIELD POTENTIAL (T/HA)					
	1	1,5	2	2,5	3	3,5
AGSUN 5101 CLP	13	15	18	23	29	37
AGSUN 5102 CLP	6	4	4	3	4	5
AGSUN 5103 CLP	20	31	46	65	78	87
AGSUN 5106 CLP	62	61	61	59	57	56
AGSUN 5270	64	65	65	66	65	64
AGSUN 5273	61	50	36	25	15	11
AGSUN 5278	77	63	43	25	12	6
AGSUN 8251	57	55	51	49	45	43
P 65 LL 02	65	68	70	72	73	73
P 65 LL14	56	55	54	53	51	50
P 65 LP 54	24	31	40	50	60	69
PAN 7160 CLP	85	90	93	95	95	95
PAN 7080	19	30	45	63	76	86
PAN 7100	43	57	72	83	91	94
PAN 7102 CLP	58	59	57	58	55	55
PAN 7156 CLP	65	64	62	59	56	54
PAN 7158 HO	50	47	43	40	37	34
PHB 65A70	76	70	61	51	40	32
SY 3970 CL	33	24	15	10	7	5

TABLE 3: THE YIELD PROBABILITY (%) OF CULTIVARS EVALUATED IN 2016/2017 AND 2017/2018 AT DIFFERENT YIELD POTENTIALS

CULTIVAR	YIELD POTENTIAL (T/HA)					
	1	1,5	2	2,5	3	3,5
AGSUN 5270	51	53	53	55	55	56
AGSUN 5273	31	35	38	44	48	54
AGSUN 5278	72	59	44	29	17	10
AGSUN 8251	62	58	54	49	44	40
P 65 LL 02	52	53	54	55	55	57
P 65 LL 14	34	37	40	44	47	51
P 65 LP 54	64	57	48	40	32	25
PAN 7080	17	27	40	56	70	82
PAN 7100	41	50	60	70	78	84
PAN 7102 CLP	31	40	50	62	71	79
PAN 7156 CLP	71	68	62	57	50	45
PAN 7160 CLP	78	80	83	85	86	86
PHB 65A70	55	47	39	30	23	18

TABLE 4: THE YIELD PROBABILITY (%) OF CULTIVARS EVALUATED IN 2015/2016 TO 2017/2018 AT DIFFERENT YIELD POTENTIALS

CULTIVAR	YIELD POTENTIAL (T/HA)					
	1	1,5	2	2,5	3	3,5
AGSUN 5270	46	48	50	52	54	55
AGSUN 5273	28	33	36	41	45	50
AGSUN 5278	58	49	39	29	21	15
AGSUN 8251	57	54	51	49	46	43
P 65 LL 02	59	60	58	58	56	56
P 65 LL 14	50	50	48	48	47	47
PAN 7080	37	45	53	63	70	77
PAN 7100	48	53	59	64	68	72
PAN 7102 CLP	43	50	56	64	69	75
PAN 7160 CLP	67	71	73	76	78	80
PHB 65A70	54	48	40	34	27	23

Wenke vir optimum opbrengste in sonneblom

1. Produsent moet nie net na die opbrengs van 'n kultivar kyk nie. Bepaal eers 'n realistiese opbrengs mikpunt van elke land, en kies dan 'n kultivar met 'n goeie opbrengs potensiaal, stabiliteit en ook 'n goeie opbrengswaarskynlikheid.
2. Plant datum: aanplantings gedurende November tot middel Desember sal 'n aansienlike beter opbrengs lewer teenoor laat seisoen aanplantings gedurende Januarie en selfs Februarie.
3. Plant diepte: dit is baie moeilik om 'n aanbeveling ten opsigte van plant diepte te maak. In die meeste gevalle word bietjie dieper geplant in sanderige grond wat vinniger uitdroog. Vermy swak gedreineerde gronde sowel as gronde met 'n hoë suur inhoud vir sonneblom produksie.
4. Dit word aanbeveel om drie tot vier dae na aanplanting met 'n duisendpoot oor die land te gaan om die vorming van 'n kors te voorkom, aangesien dit ook tot swak stand kan lei.
5. Plant populasie: dit word gebaseer op grond tipe, reënval en opbrengspotensiaal. 'n Optimale plantestand van 35 000 tot 42 000 per hektaar met 'n rywydte van 0.91cm word aanbeveel.
6. Wisselbou: moet nie dieselfde gewas op dieselfde land plant jaar na jaar nie. 'n Twee tot drie jaar wisselbou stelsel is noodsaaklik om siektes onder beheer te hou.
7. Korrekte kunsmis toediening is noodsaaklik vir 'n optimum opbrengs. Die toediening moet altyd gebaseer word op grondontledings. Indien moontlik moet die helfte van die stikstof aanbeveling tydens plant tyd toegedien word en die ander helfte 30 tot 40 dae na opkoms.
8. Nog 'n baie belangrike punt om in ag te neem vir 'n goeie sonneblom opbrengs is goeie onkruid beheer, veral gedurende die eerste 45 dae. Die gebruik van "Clearfield kultivars" laat toe dat produsente kort na-opkoms onkruiddoder kan gebruik. Produsent moet nie nalaat om voor-opkoms grasdoder toe te dien met plant nie.

Tips to optimise sunflowers yields

1. Choosing the correct hybrid is one of the key decisions every grower has to take before the beginning of a season. Growers should consider not just the yield, but also yield stability, yield potential and yield probability according to a realistic yield potential for each field.
2. Planting date: Plantings during November up to mid-December will benefit yield significantly as opposed to late season plantings in January or even February.
3. Planting depth: A general recommendation for planting depth is an extreme challenge. In most cases sandy soils that tend to dry out quicker will necessitate deeper planting depth. Avoid poorly drained soils, as well as highly acidic soils.
4. It is essential to run a millipede rotary harrow (*duisendpoot*) over your newly planted crop three to four days after planting, because a hard crust also causes a poor stand.
5. Plant population: Should be based on soil type, rainfall and yield potential. Keep to the optimal plant population of 35 000 to 42 000 plants per hectare and maintain a row width of 0,91cm.
6. Crop rotation: Do not plant the same crop in the same field year after year. A two or three year rotation cycle is necessary to control diseases.
7. Appropriate fertilisation is important and plays an important role in yields achieved. Your fertiliser programme must always be based on scientific soil analysis. If it is possible, do not apply the full nitrogen requirement in one application. Rather apply half during planting and the other half at 30 to 40 days after emergence.
8. Another vital key to achieving a good sunflower yield is good weed control, especially in the first 45 days in the life of a young seedling. Clearfield hybrids allow growers to address the issue shortly after emergence with the application of post-emergence herbicide. Growers should not neglect to apply a pre-emergence grass herbicide during planting.

