Evaluasie 2022/Evaluation 2022

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Maart/March 2023

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GOEIE OPBRENGSTE vir besproeiingskoring ten SPYTE VAN LAAT REËN

DAWIE DU PLESSIS, LIENTJIE VISSER, THOBEKA KHUMALO, TEBOGO OLIPHANT, ERNEST DUBE en **TOI TSILO,** LNR-Kleingraan, Bethlehem

Die LNR-Kleingraan het weer eens 'n suksesvolle kultivarevalueringsprogram in die vernaamste besproeiingsareas oor die land heen uitgevoer. Twee van die 19 kultivars wat ingesluit is in die 2022-veldproewe was nuwe inskrywings. Op 16 Februarie 2023 het die nasionale kultivarevalueringswerkgroep die prestasiedata van die 2022-besproeiingskoringproewe goedgekeur, wat goeie tot aanvaarbare opbrengste vir die meeste produksie-areas aangetoon het.

Laatseisoenreën het egter gelei tot 'n afname in kwaliteit vir sommige produsente as gevolg van uitloop in die aar, met gevolglike afgradering by die silo's.

Suid-Afrika se besproeiingskoringproduksie-area is ingedeel in vier hoofstreke: die koeler sentrale besproeiingsarea in die Noord-Kaap, die warmer noordelike besproeiingsarea in die Noordwes, Limpopo en Gauteng, die Hoëveld in Mpumalanga en die Vrystaat, en KwaZulu-Natal. In elkeen van hierdie streke moet proewe op twee verskillende tye geplant word, hetsy vroeër of later, met die presiese datums wat tussen die streke varieer. Die uitsondering is die KwaZulu-Natal-area waar die plantvenster te nou is vir twee plantdatums. Produsente kan hierdie inligting gebruik om die beste kultivar volgens hulle verlangde plantdatums te kies.

Drie instellings, naamlik LNR-Kleingraan, Syngenta en Pannar, het 18 inskrywings vir die 2022-seisoen gelewer. Die opbrengsresultate vir die 2022-seisoen, sowel as die twee-, drie- en vierjaarresultate vir elke streek en plantdatum word in **Tabel 1** tot **6** weergegee. Meer gedetailleerde inligting oor die prestasie van besproeiingskoringkultivars kan gevind word in die produksieriglyne wat jaarliks deur die LNR-Kleingraan gepubliseer word. Hierdie riglyne bevat inligting rakende eenjaarprestasie asook langtermyndata vir alle produksiestreke en planttye. Dit sal vanaf die einde Februarie 2023 op die LNR se webtuiste (*www.arc.agric.za*) beskikbaar wees.

Produsente wat meer inligting benodig, is welkom om Toi Tsilo by 058 307 3400 of *tsilot@arc.agric.za* te kontak.

1 KOELER SENTRALE BESPROEIINGSAREA (VROEËR PLANTDATUM). GEMIDDELDE OPBRENGS (T/HA) VAN INSKRYWINGS VAN 2019 - 2022.

KULTIVAR	*2022	R	2021	R	2020	R	2019	R	4-JAARGE-MIDDELD 2019 - 2022	R	3-JAARGE-MIDDELD 2020 - 2022	R	2-JAARGE-MIDDELD 2021 - 2022	R
DUZI	6,95	16	11,88	2	7,39	9	7,89	5	8,53	6	8,74	9	9,41	11
KOEDOES	7,87	4	11,51	11	7,84	6	7,92	3	8,78	3	9,07	4	9,69	5
KROKODIL	6,82	18	11,55	10	7,27	12	7,02	11	8,16	12	8,54	13	9,18	16
PAN 3400	7,73	7	11,75	5	7,69	7	7,61	8	8,69	4	9,06	5	9,74	4
PAN 3497	7,68	8	11,64	7	7,12	14	6,77	13	8,30	10	8,81	7	9,66	6
PAN 3541	6,98	15	11,43	12	7,17	13	7,27	10	8,21	11	8,53	14	9,21	15
PAN 3644	6,89	17	10,69	17	8,22	2	7,91	4	8,43	8	8,60	11	8,79	17
RENOSTER	8,06	2	-	-	7,30	11	7,52	9	-	-	-	-	-	-
SELONS	8,53	1	11,35	13	-	-	-	-	-	-	-	-	9,94	1
SST 8135	7,31	13	11,23	14	7,39	10	7,80	6	8,43	7	8,64	10	9,27	14
SST 8154	7,46	10	11,85	3	7,97	4	8,27	1	8,89	2	9,09	3	9,66	7
SST 8156	7,23	14	11,58	8	7,61	8	6,99	12	8,35	9	8,81	8	9,40	12
SST 8175	7,75	6	10,96	16	8,26	1	7,68	7	8,66	5	8,99	6	9,36	13
SST 8177	7,34	11	11,57	9	6,84	15	-	-	-	-	8,58	12	9,46	10
SST 8205	7,52	9	12,14	1	7,92	5	-	-	-	-	9,19	1	9,83	2
SST 884	7,33	12	11,79	4	8,18	3	8,26	2	8,89	1	9,10	2	9,56	8
UMGENI	7,93	3	11,07	15	-	-	-	-	-	-	-	-	9,50	9
USUTU	7,82	5	11,72	6	-	-	-	-	-	-	-	-	9,77	3
GEMIDDELD	**7,25**	**-**	**11,51**	**-**	**7,64**	**-**	**7,48**	**-**	**8,53**	**-**	**8,84**	**-**	**9,50**	**-**
KBV$_t$ (0,05)	**1,04**	**-**	**0,80**	**-**	**0,26**	**-**	**0,35**	**-**	**0,31**	**-**	**0,36**	**-**	**0,53**	**-**

* Slegs Petrusville-data R = Rangorde KBV = Kleinste betekenisvolle verskil

2 KOELER SENTRALE BESPROEIINGSAREA (LATER PLANTDATUM). GEMIDDELDE OPBRENGS (T/HA) VAN INSKRYWINGS VAN 2019 - 2022.

KULTIVAR	*2022	R	2021	R	2020	R	2019	R	4-JAARGE-MIDDELD 2019 - 2022	R	3-JAARGE-MIDDELD 2020 - 2022	R	2-JAARGE-MIDDELD 2021 - 2022	R
DUZI	7,16	18	9,16	10	8,36	4	9,67	6	8,59	12	8,23	14	8,16	17
KOEDOES	7,28	17	9,75	2	8,76	1	10,29	3	9,02	5	8,59	8	8,51	15
KROKODIL	7,85	15	9,36	6	8,13	10	9,66	7	8,75	9	8,45	11	8,61	12
PAN 3400	8,53	10	9,44	4	8,08	13	9,94	5	9,00	6	8,68	5	8,98	6
PAN 3497	8,79	9	9,13	12	8,11	11	9,14	13	8,79	8	8,68	6	8,96	7
PAN 3541	9,82	2	9,22	9	8,25	7	9,16	12	9,11	4	9,10	2	9,52	2
PAN 3644	7,49	16	9,37	5	8,20	8	9,66	8	8,68	10	8,35	13	8,43	16
RENOSTER	8,84	8	-	-	8,44	3	9,48	10	-	-	-	-	-	-
SELONS	8,44	13	8,60	15	-	-	-	-	-	-	-	-	8,52	14
SST 8135	9,07	5	9,36	7	8,15	9	9,98	4	9,14	3	8,86	4	9,21	5
SST 8154	8,29	14	9,50	3	8,00	14	9,57	9	8,84	7	8,60	7	8,90	8
SST 8156	9,12	3	7,95	17	8,09	12	9,26	11	8,61	11	8,39	12	8,54	13
SST 8175	9,11	4	9,34	8	8,28	6	10,32	2	9,26	2	8,91	3	9,22	4
SST 8177	9,03	6	8,55	16	7,83	15	-	-	-	-	8,47	10	8,79	10
SST 8205	8,49	11	8,77	14	8,33	5	-	-	-	-	8,53	9	8,63	11
SST 884	9,03	6	10,00	1	8,47	2	10,53	1	9,51	1	9,16	1	9,51	3
UMGENI	8,46	12	9,15	11	-	-	-	-	-	-	-	-	8,80	9
USUTU	10,31	1	8,83	13	-	-	-	-	-	-	-	-	9,57	1
GEMIDDELD	**8,62**	**-**	**9,14**	**-**	**8,24**	**-**	**9,61**	**-**	**8,94**	**-**	**8,64**	**-**	**8,87**	**-**
KBV$_t$ (0,05)	**1,0**	**-**	**1,3**	**-**	**0,3**	**-**	**0,6**	**-**	**0,8**	**-**	**0,3**	**-**	**0,7**	**-**

* Slegs Petrusville-data R = Rangorde KBV = Kleinste betekenisvolle verskil

3 WARMER NOORDELIKE BESPROEIINGSAREA (VROEËR PLANTDATUM). GEMIDDELDE OPBRENGS (T/HA) VAN INSKRYWINGS VAN 2019 - 2022.

KULTIVAR	2022	R	2021	R	2020	R	2019	R	4-JAARGE-MIDDELD 2019 - 2022	R	3-JAARGE-MIDDELD 2020 - 2022	R	2-JAARGE-MIDDELD 2021 - 2022	R
DUZI	9,02	5	9,24	8	7,39	9	7,89	5	8,39	5	8,55	6	9,13	5
KOEDOES	8,39	17	8,73	16	7,84	6	7,92	3	8,22	7	8,32	12	8,56	17
KROKODIL	8,63	11	9,75	1	7,27	12	7,02	11	8,17	10	8,55	7	9,19	3
PAN 3400	8,66	10	8,80	15	7,69	7	7,61	8	8,19	8	8,38	10	8,73	13
PAN 3497	9,14	2	8,24	17	7,12	14	6,77	13	7,82	12	8,17	14	8,69	16
PAN 3541	9,06	3	9,25	7	7,17	13	7,27	10	8,19	9	8,49	9	9,15	4
PAN 3644	8,82	7	8,94	14	8,22	2	7,91	4	8,47	4	8,66	4	8,88	9
RENOSTER	8,55	13	-	-	7,30	11	7,52	9	-	-	-	-	-	-
SELONS	8,43	15	8,99	13	-	-	-	-	-	-	-	-	8,71	14
SST 8135	8,42	16	9,32	3	7,39	10	7,80	6	8,23	6	8,38	11	8,87	10
SST 8154	8,58	12	9,13	12	7,97	4	8,27	1	8,49	3	8,56	5	8,85	11
SST 8156	8,77	8	9,16	11	7,61	8	6,99	12	8,13	11	8,52	8	8,97	8
SST 8175	8,84	6	9,32	4	8,26	1	7,68	7	8,53	2	8,81	1	9,08	6
SST 8177	8,49	14	9,21	10	6,84	15	-	-	-	-	8,18	13	8,85	12
SST 8205	9,05	4	9,41	2	7,92	5	-	-	-	-	8,79	2	9,23	1
SST 884	8,74	9	9,22	9	8,18	3	8,26	2	8,60	1	8,71	3	8,98	7
UMGENI	8,11	18	9,29	5	-	-	-	-	-	-	-	-	8,70	15
USUTU	9,16	1	9,28	6	-	-	-	-	-	-	-	-	9,22	2
GEMIDDELD	**8,71**	**-**	**9,13**	**-**	**7,61**	**-**	**7,61**	**-**	**8,28**	**-**	**8,50**	**-**	**8,93**	**-**
KBV$_t$ (0,05)	**0,35**	**-**	**0,69**	**-**	**0,26**	**-**	**0,35**	**-**	**0,22**	**-**	**0,28**	**-**	**0,41**	**-**

R = Rangorde KBV = Kleinste betekenisvolle verskil

4 WARMER NOORDELIKE BESPROEIINGSAREA (LATER PLANTDATUM). GEMIDDELDE OPBRENGS (T/HA) VAN INSKRYWINGS VAN 2019 - 2022.

KULTIVAR	2022	R	*2021	R	2020	R	2019	R	4-JAARGE-MIDDELD 2019 - 2022	R	3-JAARGE-MIDDELD 2020 - 2022	R	2-JAARGE-MIDDELD 2021 - 2022	R
DUZI	7,81	1	8,73	16	8,08	5	7,67	10	8,07	6	8,21	4	8,27	5
KOEDOES	6,96	13	8,99	13	8,40	1	8,06	4	8,10	3	8,11	5	7,97	14
KROKODIL	7,08	10	9,43	5	7,61	11	7,86	8	7,99	9	8,04	9	8,25	6
PAN 3400	6,97	12	9,48	4	8,20	4	7,79	9	8,11	2	8,22	3	8,22	7
PAN 3497	6,04	18	9,12	10	7,35	14	6,78	13	7,32	11	7,50	13	7,58	16
PAN 3541	7,29	7	9,34	6	7,37	13	8,11	3	8,03	8	8,00	10	8,31	3
PAN 3644	7,24	8	9,01	12	8,02	7	7,95	6	8,05	7	8,09	7	8,12	11
RENOSTER	7,17	9	-	-	7,76	9	7,87	7	-	-	-	-	-	-
SELONS	6,88	14	9,22	8	-	-	-	-	-	-	-	-	8,05	12
SST 8135	6,78	16	9,18	9	8,37	2	8,05	5	8,10	4	8,11	6	7,98	13
SST 8154	7,36	5	8,98	14	7,78	8	8,21	2	8,08	5	8,04	8	8,17	9
SST 8156	6,79	15	9,48	3	7,09	15	7,34	12	7,68	10	7,79	11	8,14	10
SST 8175	7,07	11	9,50	2	7,73	10	7,54	11	-	-	-	-	8,29	4
SST 8177	6,53	17	9,06	11	7,51	12	-	-	-	-	7,70	12	7,80	15
SST 8205	7,74	3	9,24	7	8,30	3	-	-	-	-	8,42	2	8,49	2
SST 884	7,75	2	9,55	1	8,07	6	8,38	1	8,44	1	8,46	1	8,65	1
UMGENI	7,30	6	7,69	17	-	-	-	-	-	-	-	-	7,49	17
USUTU	7,50	4	8,89	15	-	-	-	-	-	-	-	-	8,19	8
GEMIDDELD	**7,12**	**-**	**9,11**	**-**	**7,77**	**-**	**7,70**	**-**	**8,00**	**-**	**8,05**	**-**	**8,12**	**-**
KBV$_t$ (0,05)	**0,12**	**-**	**1,31**	**-**	**0,27**	**-**	**0,40**	**-**	**0,20**	**-**	**0,22**	**-**	**0,44**	**-**

* Slegs Skuinsdrift-data R = Rangorde KBV = Kleinste betekenisvolle verskil

5 HOËVELD-BESPROEIINGSAREA (VROEËR PLANTDATUM). GEMIDDELDE OPBRENGS (T/HA) VAN INSKRYWINGS VAN 2018 - 2022.

KULTIVAR	2022	R	2020	R	2019	R	2018	R	*4-JAARGE-MIDDELD 2018 - 2022	R	*3-JAARGE-MIDDELD 2019 - 2022	R	*2-JAARGE-MIDDELD 2020 - 2022	R
DUZI	4,80	16	8,14	10	7,53	5	8,16	5	7,16	9	6,83	12	6,47	14
KOEDOES	4,78	17	7,93	14	7,08	10	7,72	8	6,88	12	6,60	13	6,36	15
KROKODIL	5,35	13	8,64	2	7,82	2	7,54	11	7,34	4	7,27	1	7,00	7
PAN 3400	4,68	18	8,47	7	7,82	1	7,74	7	7,18	8	6,99	9	6,58	12
PAN 3497	5,43	12	8,39	9	7,06	11	7,37	12	7,06	10	6,96	10	6,91	9
PAN 3541	5,59	8	8,56	4	7,57	3	8,92	1	7,66	1	7,24	2	7,07	5
PAN 3644	5,76	6	8,51	5	6,82	12	8,13	6	7,30	6	7,03	7	7,13	3
RENOSTER	5,07	15	8,04	12	7,46	7	7,65	10	7,05	11	6,86	11	6,55	13
SELONS	5,14	14	-	-	-	-	-	-	-	-	-	-	-	-
SST 8135	5,58	10	8,47	6	7,50	6	8,59	2	7,54	2	7,18	4	7,02	6
SST 8154	5,58	9	8,05	11	7,36	8	8,19	4	7,29	7	6,99	8	6,81	10
SST 8156	5,97	3	8,42	8	7,20	9	7,69	9	7,32	5	7,20	3	7,20	2
SST 8175	5,99	2	8,57	3	6,80	13	-	-	-	-	7,12	6	7,28	1
SST 8177	5,69	7	7,89	15	-	-	-	-	-	-	-	-	6,79	11
SST 8205	5,44	11	8,81	1	-	-	-	-	-	-	-	-	7,12	4
SST 884	5,90	4	8,02	13	7,54	4	8,48	3	7,48	3	7,15	5	6,96	8
UMGENI	6,01	1	-	-	-	-	-	-	-	-	-	-	-	-
USUTU	5,77	5	-	-	-	-	-	-	-	-	-	-	-	-
GEMIDDELD	**5,47**	**-**	**8,33**	**-**	**7,35**	**-**	**8,02**	**-**	**7,27**	**-**	**7,03**	**-**	**6,88**	**-**
KBV$_t$ (0,05)	**0,67**	**-**	**0,25**	**-**	**0,31**	**-**	**0,25**	**-**	**0,20**	**-**	**0,26**	**-**	**0,32**	**-**

* Die 2021-proewe is afgeskryf R = Rangorde KBV = Kleinste betekenisvolle verskil

6 KWAZULU-NATAL-BESPROEIINGSAREA.
GEMIDDELDE OPBRENGS (T/HA) VAN INSKRYWINGS VAN 2019 - 2022.

KULTIVAR	2022	R	2021	R	2020	R	2019	R	4-JAARGE-MIDDELD 2019 - 2022	R	3-JAARGE-MIDDELD 2020 - 2022	R	2-JAARGE-MIDDELD 2021 - 2022	R
DUZI	5,91	1	4,11	17	6,72	9	7,31	10	6,01	9	5,58	12	5,01	13
KOEDOES	5,58	5	4,26	16	6,93	2	6,87	12	5,91	10	5,59	11	4,92	15
KROKODIL	5,22	14	5,80	10	6,79	8	7,49	4	6,33	6	5,94	7	5,51	10
PAN 3400	5,25	12	6,08	6	6,91	5	7,32	8	6,39	5	6,08	5	5,67	8
PAN 3497	4,11	17	5,76	11	6,07	15	6,54	13	5,62	12	5,31	14	4,93	14
PAN 3541	5,49	8	6,49	2	6,84	6	7,61	2	6,60	1	6,27	2	5,99	2
PAN 3644	4,80	16	4,97	14	6,34	13	6,89	11	5,75	11	5,37	13	4,89	16
RENOSTER	5,30	11	-	-	6,56	11	7,32	9	-	-	-	-	-	-
SELONS	3,66	18	4,50	15	-	-	-	-	-	-	-	-	4,08	17
SST 8135	5,82	3	6,06	7	6,36	12	7,77	1	6,50	4	6,08	6	5,94	5
SST 8154	5,35	10	5,56	12	6,82	7	7,36	6	6,27	8	5,91	9	5,45	11
SST 8156	5,57	6	6,38	3	6,68	10	7,41	5	6,51	3	6,21	3	5,97	4
SST 8175	5,72	4	6,23	4	6,93	2	7,50	3	6,60	2	6,30	1	5,98	3
SST 8177	5,20	15	5,88	9	6,25	14	-	-	-	-	5,78	10	5,54	9
SST 8205	5,24	13	6,21	5	7,14	1	-	-	-	-	6,20	4	5,72	6
SST 884	5,55	7	5,32	13	6,93	2	7,34	7	6,29	7	5,93	8	5,43	12
UMGENI	5,43	9	5,95	8	-	-	-	-	-	-	-	-	5,69	7
USUTU	5,83	2	6,90	1	-	-	-	-	-	-	-	-	6,36	1
GEMIDDELD	**5,28**	**-**	**5,67**	**-**	**6,69**	**-**	**7,24**	**-**	**6,23**	**-**	**5,90**	**-**	**5,48**	**-**
KBV$_t$ (0,05)	**0,23**	**-**	**0,65**	**-**	**0,24**	**-**	**0,25**	**-**	**0,17**	**-**	**0,22**	**-**	**0,32**	**-**

R = Rangorde KBV = Kleinste betekenisvolle verskil

Die navorsing is moontlik gemaak deur die finansiële ondersteuning van die Landbounavorsingsraad (LNR) en die Suid-Afrikaanse Wintergraanbedryfstrust (SAWCIT)

Kom ons groei saam

SENSAKO

Koringsaad wat presteer in die wintergraanstreek

SYNGENTA staan aan die voorpunt van koringnavorsing in Suid-Afrika. Ons SENSAKO-koringkultivars is jaar na jaar onder die toppresteerders.
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Optimum yield possible with right cultivar choice

PETRUS DELPORT, ARC-Small Grain, Stellenbosch

The Western Cape national wheat cultivar trials for 2022 were jointly conducted by ARC-Small Grain, the Western Cape Department of Agriculture and Syngenta. This collaboration provides a robust platform for generating objective results to help wheat producers in the Western Cape make informed cultivar choices. The trials were scientifically designed, executed, monitored, and harvested to accurately reflect the performance of each cultivar.

Data collected during the trials were subjected to statistical analysis using two methods: analysis of variance (ANOVA) and additive main effects and multiplicative interaction (AMMI). ANOVA was used to evaluate the performance of each cultivar in a specific locality, while AMMI was used to assess the performance of cultivars across multiple localities. This analysis allowed ARC-Small Grain to predict the performance of each cultivar with a high degree of certainty, taking into account factors such as climate, soil, and production practices.

The trials evaluated 17 commercial cultivars, including Tredou, Ratel, Steenbok, SST 015, SST 056, SST 087, SST 0127, SST 0117, SST 0147, SST 0166, SST 0187, PAN 3471, PAN 3753, PAN 3976, PAN 3774, PAN 3855 and PAN 3783. With such a wide selection of cultivars, Western Cape producers have access to a wealth of information to inform their choice. The ARC and other companies conduct field trials to assess the performance of these cultivars across a broad production area, taking into account parameters such as yield, hectoliter mass, and falling number. This information helps producers choose the cultivars that are best suited to their growing conditions, including average rainfall, soil type, and agronomic practices. To minimise risk, it is always recommended to plant more than one cultivar. When producers are choosing cultivars, they should not just consider the 2022 results, but also long-term averages.

Tables 1 and **2** list the top four performers at each locality for the 2022 trials. As seen from the Swartland data, several cultivars made the top four list, with SST 0187 appearing in the top four at eight localities, followed by PAN 3774 and SST 0166 at six localities, and SST 0177 and SST 0147 at five localities each. In the Rûens, the cultivars were more evenly distributed, with SST 0127 appearing in the top four at five localities, followed by PAN 3774, SST 0117, SST 0147, SST 0166, and SST 0187 at four localities each. **Tables 3** and **4** list yield results for the 2022 season, as well as the two-, three-, and four-year results for each region and planting date.

Important factors to remember to ensure that an optimum yield is realised:

To achieve optimal yields, it is important to properly prepare before planting. The following factors should be considered:

- Use quality seed that is pure and has a high germination rate.
- Properly apply seed coatings.
- Plant a mix of tried and tested cultivars (75%) and new cultivars (25%) to maximise performance.
- Calculate seeding density using thousand kernel mass rather than kilogram per hectare to achieve optimal planting density per square meter.
- Conduct soil analysis to determine the correct fertilisation rate for each crop field to avoid over- or under-fertilisation.

With these factors in mind, producers can start the season from a favourable position and realise an optimum yield.

For any additional information, producers are welcome to contact Toi Tsilo at 058 307 3400 or *tsilot@arc.agric.za*.

1 AMMI PREDICTIONS FOR THE BEST PERFORMERS IN THE SWARTLAND FOR 2022.

SUBREGION	LOCALITY	CULTIVARS			
HIGH RAINFALL	Malmesbury (Harmonie)	PAN 3774	PAN 3976	Steenbok	SST 015
	Malmesbury (Koringplaas)	SST 0187	SST 0117	SST 0147	SST 0166
	Philadelphia (Altona)	SST 015	Steenbok	SST 056	SST 0187
	Wellington (Boland Landbou)	PAN 3753	PAN 3774	SST 015	PAN 3855
	Malmesbury (Langgewens)	SST 0127	SST 0117	Steenbok	SST 0166
MIDDLE SWARTLAND	Moorreesburg (Klein Swartfontein)	SST 056	PAN 3976	Steenbok	SST 087
	Moorreesburg (Langrug)	SST 0166	SST 0187	PAN 3774	PAN 3855
	Piketberg (Kolsvlei)	SST 0187	SST 0117	SST 0147	PAN 3774
	Halfmanshof (Uitkoms)	SST 0187	SST 0117	SST 0147	SST 0166
KORINGBERG	Porterville (Eikenhof)	PAN 3976	SST 0147	PAN 3774	PAN 3783
	Koringberg (Langkloof)	SST 0187	SST 0147	PAN 3783	SST 015
	Eendekuil (The Rest)	PAN 3783	SST 0166	SST 0127	SST 0187
	Pools (Langvlei)	SST 0127	SST 0117	SST 0187	SST 0166
SANDVELD	Hopefield (Dankbaar)	SST 015	SST 0166	SST 056	SST 0127
	Hopefield (Enkelvlei)	PAN 3976	PAN 3774	SST 056	PAN 3783
	Darling (Klipvlei)	SST 0166	SST 056	SST 0147	SST 0117

2 AMMI PREDICTIONS FOR THE BEST PERFORMERS IN THE RÛENS FOR 2022.

SUBREGION	LOCALITY	CULTIVARS			
WESTERN RÛENS	Riviersonderend (Tygerhoek)	SST 0166	SST 0147	SST 087	PAN 3774
	Caledon (De Vlei)	SST 0117	PAN 3774	Steenbok	SST 0127
	Caledon (Uitvlug)	PAN 3976	PAN 3774	Tredou	PAN 3783
SOUTHERN RÛENS	Klipdale (Panorama)	Steenbok	SST 0147	SST 0127	SST 056
	Napier (Tamatiekraal)	SST 0166	SST 0127	SST 0117	SST 0147
EASTERN RÛENS	Riversdale (Uitkyk)	SST 0187	SST 0117	SST 0166	SST 087
	Witsand (Kinko)	PAN 3855	PAN 3783	PAN 3774	SST 0187
	Heidelberg (Voorstekop)	SST 0127	SST 015	SST 0187	SST 0166
	Swellendam (Kleinfontein)	SST 0187	PAN 3783	SST 0117	PAN 3471

3 RÛENS AVERAGE YIELD (T/HA) OF ENTRIES FROM 2019 - 2022.

CULTIVAR	2022	R	2021	R	2020	R	2019	R	4-YEAR AVERAGE 2019 - 2022	R	3-YEAR AVERAGE 2020 - 2022	R	2-YEAR AVERAGE 2021 - 2022	R
PAN 3753	2,52	15	-	-	-		-	-	-	-	-	-	-	-
PAN 3471	2,43	16	4,12	9	3,25	11	2,09	4	2,97	9	3,27	11	3,28	11
PAN 3774	2,97	7	-	-	-	-	-	-	-	-	-	-	-	-
PAN 3855	2,77	11	-	-	-	-	-	-	-	-	-	-	-	-
PAN 3783	2,75	12	-	-	-	-	-	-	-	-	-	-	-	-
PAN 3976	2,42	17	-	-	-	-	-	-	-	-	-	-	-	-
RATEL	2,70	13	4,15	8	3,42	9	1,83	10	3,02	7	3,42	8	3,43	9
SST 0117	3,18	3	4,44	5	3,90	4	2,19	2	3,43	3	3,84	5	3,81	5
SST 0127	3,20	1	4,61	3	3,85	5	2,11	3	3,44	2	3,89	3	3,91	3
SST 0147	3,16	4	4,51	4	3,99	2	2,03	6	3,42	4	3,89	4	3,84	4
SST 015	2,89	9	4,09	10	3,38	10	1,86	9	3,06	6	3,45	7	3,49	8
SST 0166	3,20	2	4,65	2	3,92	3	2,37	1	3,53	1	3,92	2	3,92	1
SST 0187	3,10	5	4,73	1	4,11	1	-	-	-	-	3,98	1	3,92	2
SST 056	2,94	8	4,43	6	3,48	8	2,09	5	3,23	5	3,62	6	3,69	6
SST 087	2,99	2,8	2,62	12	3,76	6	1,91	8	2,82	11	3,12	12	2,81	12
STEENBOK	2,84	10	4,17	7	2,93	12	1,91	7	2,96	10	3,31	10	3,50	7
TREDOU	2,62	14	3,94	11	3,66	7	1,78	11	3,00	8	3,41	9	3,28	10
MEAN	**2,86**	**-**	**4,21**	**-**	**3,64**	**-**	**2,00**	**-**	**3,17**	**-**	**3,59**	**-**	**3,57**	**-**
LSD$_t$ (0,05)	**0,20**	**-**	**0,19**	**-**	**0,22**	**-**	**0,13**	**-**	**0,10**	**-**	**0,75**	**-**	**0,14**	**-**

R = Ranking LSD = Least significant difference

Sea view from trial site at Caledon (De Vlei).

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OPTIMUM YIELD POSSIBLE...

4 SWARTLAND AVERAGE YIELD (T/HA) OF ENTRIES FROM 2019 - 2022.

CULTIVAR	2022	R	2021	R	2020	R	2019	R	4-YEAR AVERAGE 2019 - 2022	R	3-YEAR AVERAGE 2020 - 2022	R	2-YEAR AVERAGE 2021 - 2022	R
PAN 3753	2,98	15												
PAN 3471	2,91	16	4,16	11	3,94	10	2,86	6	3,47	9	3,67	12	3,54	11
PAN 3774	3,31	5	-	-	-	-	-	-	-	-	-	-	-	-
PAN 3855	3,17	10	-	-	-	-	-	-	-	-	-	-	-	-
PAN 3783	3,02	13	-	-	-	-	-	-	-	-	-	-	-	-
PAN 3976	3,05	12	-	-	-	-	-	-	-	-	-	-	-	-
RATEL	2,85	17	4,18	10	4,13	5	2,48	11	3,41	11	3,72	11	3,52	12
SST 0117	3,44	2	4,26	9	4,14	4	2,97	3	3,70	3	3,95	5	3,85	5
SST 0127	3,31	5	4,42	4	4,14	3	2,67	9	3,63	4	3,96	4	3,87	4
SST 0147	3,42	3	4,49	3	4,13	7	2,88	5	3,73	2	4,01	3	3,96	3
SST 015	3,06	11	4,36	6	3,94	11	2,91	4	3,57	7	3,79	8	3,71	8
SST 0166	3,42	3	4,63	2	4,20	2	3,17	1	3,86	1	4,08	2	4,03	2
SST 0187	3,51	1	4,68	1	4,22	1	-	-	-	-	4,14	1	4,10	1
SST 056	3,27	7	4,41	5	3,99	9	2,72	8	3,60	5	3,89	6	3,84	6
SST 087	3,21	8	4,11	12	4,13	5	2,73	7	3,54	8	3,82	7	3,66	9
STEENBOK	3,21	8	4,27	8	3,86	12	2,98	2	3,58	6	3,78	9	3,74	7
TREDOU	2,99	14	4,28	7	4,02	8	2,49	10	3,44	10	3,76	10	3,64	10
MEAN	**3,18**	**-**	**4,35**	**-**	**4,07**	**-**	**2,81**	**-**	**3,59**	**-**	**3,88**	**-**	**3,79**	**-**
LSD$_t$ (0,05)	**0,13**	**-**	**0,15**	**-**	**0,17**	**-**	**0,13**	**-**	**0,07**	**-**	**0,09**	**-**	**0,10**	**-**

R = Ranking LSD = Least significant difference

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Harvesting at Heidelberg (Voorstekop).

Maximising dryland yield potential for Free State wheat

ERNEST DUBE, DAWIE DU PLESSIS, LIENTJIE VISSER, THOBEKA KHUMALO, RICHARD TAYLOR and **TOI TSILO,** ARC-Small Grain, Bethlehem

Dryland wheat farming in the Free State province of South Africa has seen transformation from a yield potential of only 1 t/ha in the eighties to 2,7 t/ha in present times, thanks to the use of higher-yielding cultivars of superior quality. This change is attributed to the ARC-Small Grain's national wheat cultivar evaluation programme. The programme facilitates the adoption of wheat cultivars that are well-suited to producer localities, resulting in improved yields and quality.

The Free State is characterised by varying precipitation, soil types, and average temperatures, leading to its division into four distinct dryland wheat production regions: the south-western Free State, the north-western Free State, the central Free State, and the eastern Free State. In order to improve cultivar choice and minimise the uncertainties of dryland wheat farming, it is essential to conduct annual cultivar evaluations in each of these distinct geographic regions of the province.

Successful dryland wheat cultivar trials were conducted in the Free State in 2022. There were 16 trials planted in the north-western and eastern Free State, featuring 15 cultivars provided by ARC-Small Grain, Syngenta and Pannar. The results of the trials suggest that the 2022 season was good for many dryland wheat producers, with a yield potential of more than 3 t/ha achieved for some cultivars in the eastern parts of the province. Adequate rainfall prior to planting allowed for good emergence and development of the crop. Although there was a dry winter period from May to August, this was followed by spring rain in September, which helped the dryland wheat recover. Excessively wet conditions during ripening caused some delays in harvesting in some locations, but selecting for cultivars with high sprouting tolerance can help producers overcome this challenge. The red-billed quelea is becoming a growing threat to dryland wheat production, particularly in the northern regions.

Producers can report swarms and roosting sites to the Department of Agriculture, Land Reform and Rural Development (DALRRD) to control the birds and reduce damage by selecting later-maturing cultivars.

The yield results for the 2022 season, along with the two-, three-, and four-year results for each region and planting date, are presented in **Tables 1** to **4**. For each region, results for an earlier and a later planting are presented. Producers can access more detailed information on the yield potential of dryland wheat cultivars through the production guidelines published annually by ARC-Small Grain. These guidelines include information on one-year performance and long-term data for all production regions and planting times. The guidelines will be available on the ARC website (*www.arc.agric.za*) from the end of February 2023.

For any additional information, producers are welcome to contact Dr. Toi Tsilo at 058 307 3400 or *tsilot@arc.agric.za*.

1 NORTH-WESTERN FREE STATE (EARLIER PLANTING). AVERAGE YIELD (T/HA) OF ENTRIES DURING THE PERIOD FROM 2019 - 2022.

CULTIVAR	2022	R	2021	R	2020	R	2019	R	4-YEAR AVERAGE 2019 - 2022	R	3-YEAR AVERAGE 2020 - 2022	R	2-YEAR AVERAGE 2021 - 2022	R
ELANDS	2,64	3	3,80	11	2,42	5	2,26	6	2,78	6	2,95	8	3,22	9
KOONAP	2,06	9	3,73	12	2,14	10	1,61	10	2,38	10	2,64	11	2,90	12
KOUGAS	1,88	11	4,02	9	2,14	9	1,89	9	2,48	9	2,68	10	2,95	11
KUBETU	2,00	10	5,35	2	2,40	6	2,37	4	3,03	4	3,25	4	3,68	4
MATLABAS	2,62	4	5,07	3	2,93	1	2,50	1	3,28	1	3,54	1	3,85	2
MOKOLO	2,42	6	4,45	8	2,26	8	-	-	-	-	3,04	6	3,44	5
PAN 3111	2,26	7	5,79	1	2,31	7	2,26	5	3,15	2	3,45	2	4,03	1
PAN 3161	2,71	2	4,76	6	2,53	2	2,45	3	3,11	3	3,33	3	3,74	3
PAN 3373	2,73	1	-	-	-	-	-	-	-	-	-	-	-	-
SENQU	2,45	5	3,97	10	2,09	11	2,08	7	2,65	8	2,84	9	3,21	10
SST 3197	2,23	8	4,60	7	-	-	-	-	-	-	-	-	3,42	6
SST 3207	1,78	13	-	-	-	-	-	-	-	-	-	-	-	-
SST 356	1,59	14	4,93	4	2,46	4	1,95	8	2,73	7	2,99	7	3,26	8
WEDZI	1,87	12	4,86	5	2,53	2	2,49	2	2,94	5	3,09	5	3,37	7
MEAN	**2,23**	**-**	**4,61**	**-**	**2,38**	**-**	**2,10**	**-**	**2,85**	**-**	**3,07**	**-**	**3,42**	**-**
LSD$_t$ (0,05)	**0,24**	**-**	**0,40**	**-**	**0,14**	**-**	**0,14**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

R = Ranking LSD = Least significant difference

2 NORTH-WESTERN FREE STATE (LATER PLANTING). AVERAGE YIELD (T/HA) OF ENTRIES DURING THE PERIOD FROM 2019 - 2022.

CULTIVAR	2022	R	2021	R	2020	R	2019	R	4-YEAR AVERAGE 2019 - 2022	R	3-YEAR AVERAGE 2020 - 2022	R	2-YEAR AVERAGE 2021 - 2022	R
ELANDS	2,00	2	4,42	9	3,52	5	1,27	8	2,80	4	3,31	4	3,21	4
KOONAP	1,94	4	4,01	11	3,06	10	1,45	4	2,61	10	3,00	10	2,98	8
KOUGAS	1,37	11	4,46	8	3,36	8	1,35	5	2,63	9	3,06	9	2,92	10
KUBETU	1,57	8	4,77	4	4,04	1	1,79	2	3,04	3	3,46	3	3,17	5
PAN 3111	1,92	5	5,21	1	3,41	7	1,67	3	3,05	2	3,51	2	3,57	1
PAN 3161	2,02	1	4,97	2	3,91	3	2,02	1	3,23	1	3,63	1	3,50	2
PAN 3373	1,99	3	-	-	-	-	-	-	-	-	-	-	-	-
SENQU	1,89	6	4,72	6	3,13	9	1,28	7	2,76	5	3,19	7	3,31	3
SST 3197	1,72	7	4,04	10	-	-	-	-	-	-	-	-	2,88	11
SST 3207	1,31	-	-	-	-	-	-	-	-	-	-	-	-	-
SST 356	1,39	10	4,73	5	3,66	4	1,23	10	2,75	7	3,26	5	3,06	6
SST 374	1,05	13	4,81	3	3,92	2	1,23	9	2,75	6	3,26	6	2,93	9
WEDZI	1,46	9	4,58	7	3,49	6	1,31	6	2,71	8	3,18	8	3,02	7
MEAN	**1,66**	**-**	**4,61**		**3,58**		**1,41**		**2,83**	**-**	**3,29**	**-**	**3,14**	**-**
LSD$_t$ (0,05)	**0,19**	**-**	**0,45**		**0,22**		**0,08**		**0,13**	**-**	**0,18**	**-**	**0,24**	**-**

R = Ranking LSD = Least significant difference

3 EASTERN FREE STATE (EARLIER PLANTING). AVERAGE YIELD (T/HA) OF ENTRIES DURING THE PERIOD FROM 2019 - 2022.

CULTIVAR	2022	R	2021	R	**2020	R	*2019	R	4-YEAR AVERAGE 2019 - 2022	R	3-YEAR AVERAGE 2020 - 2022	R	2-YEAR AVERAGE 2021 - 2022	R
ELANDS	1,63	13	3,16	11	2,35	9	0,71	9	1,96	10	2,38	10	2,40	11
KOONAP	1,53	14	3,14	12	2,54	7	0,76	8	1,99	8	2,40	9	2,34	12
KOUGAS	1,90	11	3,33	10	1,85	11	0,77	7	1,96	9	2,36	11	2,62	9
KUBETU	2,28	6	3,63	7	2,84	3	1,05	4	2,45	3	2,92	4	2,96	5
MATLABAS	3,07	2	3,77	4	3,09	1	1,06	3	2,75	1	3,31	1	3,42	3
MOKOLO	2,26	7	3,65	6	2,58	6					2,83	5	2,96	5
PAN 3111	2,72	4	4,17	1	2,62	5	1,16	2	2,67	2	3,17	2	3,45	2
PAN 3161	2,31	5	3,60	8	2,29	10	1,24	1	2,36	5	2,73	7	2,96	5
PAN 3373	1,92	10												
SENQU	1,72	12	3,35	9	2,48	8	0,98	5	2,13	7	2,52	8	2,54	10
SST 3197	3,34	1	3,76	5									3,55	1
SST 3207	2,86	3												
SST 356	2,07	8	3,96	2	2,85	2	0,63	10	2,38	4	2,96	3	3,02	4
WEDZI	1,94	9	3,88	3	2,65	4	0,80	6	2,32	6	2,82	6	2,91	8
MEAN	**2,25**	**-**	**3,62**	**-**	**2,57**	**-**	**0,81**	**-**	**2,30**	**-**	**2,76**	**-**	**2,92**	**-**
LSD$_t$ (0,05)	**0,32**	**-**	**0,29**	**-**	**0,21**	**-**	**0,11**	**-**	**0,15**	**-**	**0,18**	**-**	**0,22**	**-**

** Only Clarens data*
*** Only Daniëlsrus data*

R = Ranking LSD = Least significant difference

MAXIMISING DRYLAND YIELD...

4 EASTERN FREE STATE (LATER PLANTING).
AVERAGE YIELD (T/HA) OF ENTRIES DURING THE PERIOD FROM 2019 - 2022.

CULTIVAR	2022	R	2021	R	**2020	R	*2019	R	4-YEAR AVERAGE 2019 - 2022	R	3-YEAR AVERAGE 2020 - 2022	R	2-YEAR AVERAGE 2021 - 2022	R
ELANDS	2,69	7	3,48	6	2,78	5	0,82	4	2,44	6	2,98	6	3,09	6
KOONAP	1,98	13	2,90	10	2,34	10	0,98	2	2,05	10	2,41	10	2,44	11
KOUGAS	2,40	11	3,12	8	2,72	7	0,56	10	2,20	8	2,75	8	2,76	9
KUBETU	3,05	1	3,58	5	2,75	6	0,79	5	2,54	5	3,13	5	3,32	5
PAN 3111	3,04	2	4,09	1	2,46	9	0,65	7	2,56	4	3,20	4	3,57	1
PAN 3161	2,83	4	3,94	4	2,89	3	1,08	1	2,68	2	3,22	3	3,39	3
PAN 3373	2,42	10	-	-	-	-	-	-	-	-	-	-	-	-
SENQU	2,62	8	3,29	7	2,59	8	0,79	6	2,32	7	2,83	7	2,96	7
SST 3197	2,79	5	2,80	11	-	-	-	-	-	-	-	-	2,80	8
SST 3207	2,55	9	-	-	-	-	-	-	-	-	-	-	-	-
SST 356	2,92	3	3,99	2	3,09	1	0,84	3	2,71	1	3,33	1	3,46	2
SST 374	2,15	12	3,08	9	2,82	4	0,62	9	2,17	9	2,68	9	2,62	10
WEDZI	2,73	6	3,95	3	3,00	2	0,62	8	2,58	3	3,23	2	3,34	4
MEAN	**2,63**	**-**	**3,47**	**-**	**2,73**	**-**	**0,69**	**-**	**2,43**	**-**	**2,98**	**-**	**3,06**	**-**
LSD$_t$ (0,05)	**0,49**	**-**	**0,22**	**-**	**0,24**	**-**	**0,12**	**-**	**0,23**	**-**	**0,27**	**-**	**0,32**	**-**

** Only Clarens data*
*** Only Daniëlsrus data*

R = Ranking LSD = Least significant difference

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