

# New partnership will contribute to the wheat industry turnaround strategy



The amalgamation of local seed company Sensako and the multinational agricultural company Syngenta bodes well for the South African grain sector and will boost the turnaround strategy that the wheat industry embarked on in 2014. The new team plans to maintain the number one position in wheat breeding in the country.

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As long ago as 2012 the Wheat Forum and Wheat Forum Steering Committee made the decision to focus on the sustainable funding of seed breeding. A task group investigated global approaches to find a sustainable and effective research funding model, specifically focused on advanced breeding and technology. In 2014 a collaborative approach was adopted by role players to turn around the decline of the wheat industry and one of the decisions was to focus on the implementation of an end point royalty system. This ultimately led to the establishment of the South African Cultivar Technology Agency (SACTA).

It is evident that the statutory levies instituted by SACTA has brought about a major change in how international seed breeding companies now view open-pollinated crops and invariably contributed to the decision of Syngenta to team up with Sensako.

The functions to be financed from breeding and technology levies are in the public interest as increased production and productivity would lead to more jobs being created, increased efficiency and therefore competitiveness and an overall increase in the national economic growth. Even more important, it will enable breeding programmes to invest in better equipment, tools, and infrastructure as well as collaborate with international experts. The levies also contribute towards achieving the objectives of the Marketing of Agricultural Products (MAP) Act.

Sensako already boasts a long and proven history in the seed industry, especially with the breeding of hybrid wheat, and it has taken a leading role in the release of new varieties. According to SACTA, Sensako presently has a wheat market share in excess of 70%. The wheat breeding programme,

which is based at the two Sensako research stations, namely Bethlehem (Free State) and Napier (Western Cape), has produced 70% of the recent provisional and final wheat cultivar releases. These include 11 irrigation wheat, 6 dryland (rainfed) and 6 Cape wheat varieties that have been released for commercial sale since 2010.

The SACTA levy on wheat commenced in 2016 and the resultant compensation to seed companies has had an invigorating effect on wheat breeding. Because up to 70% of seed is retained on wheat farms for plantings, there was previously no incentive for breeders to bring new cultivars to market here. It takes about 12 years and up to R16 million to bring a new cultivar to market. Every year and over various localities, new varieties being evaluated require more than 15 000 plants to be inspected, 22 000 quality trait tests are conducted for milling and baking worth and 85 disease evaluations done over about 55 000 plots.

## Sensako wheat breeding programme

The Sensako wheat breeding programme focuses on developing varieties with improved yield, good agronomic adaptation to growing conditions, disease resistance and varieties that can respond to lower inputs. In addition, the breeding programme is also aimed at high-end use quality for the milling and baking industries.

In the 2020 National Cultivar Evaluation trials, Sensako once again showed its mettle with its entries making up 13 of the cultivars evaluated in 32 field trials located over all the wheat production areas. The recent data shows the crop results over a four-year period from 2017 to 2020. **Table 1** and **Table 2** show the Sensako cultivars that have produced the top 5 yields on average over the last four and three years respectively. The

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consistency in performance illustrates the stability of these cultivars to perform well over extended and variable periods in the irrigation regions as well as in the Western Cape. In the Free State, it appears that Sensako's sharpened focus to improve the performance of its cultivars is yielding positive results.

## Irrigation

In the irrigation areas, all plantings were done at two different times except for in KwaZulu-Natal. Five Sensako cultivars were amongst the ten top yielders for both early and late plantings in the Cooler Central region.

In the Warmer Northern region, six and four cultivars were ranked amongst the top ten in 2020 for early and late plantings respectively.

Results for Highveld were shaken up by a new entry from Sensako, SSK 8205, which produced the highest and third highest yields for early and late planting with 8,81 t/ha and 8,72 t/ha respectively. SST 895 was the top producer in the late plantings with a yield of 8,79 t/ha.

SSK 8205 also had the highest yield in KwaZulu Natal with 7,14 t/ha while SSK 8205 and SST 8175 were ranked third, both yielding 6,93 t/ha.

## Western Cape

In the Western Cape, the 2020 National Cultivar Evaluation trials were conducted in seven different regions. Sensako once again exhibited superior performance with both existing and also new entries.

## Free State summer rainfall

Based on the average yields produced over the last four and three years, only SST 356 ranked second and first respectively for late wheat plantings and only in the Eastern Free State summer rainfall region. However, it appears that Sensako's efforts to develop suitable cultivars for the Free State is beginning to pay off. In the 2020 National Cultivar Evaluation trials, SST 356 and SST 347 again ranked in the top five yielding cultivars for both early and late wheat plantings in the Eastern Free State, while in the Northwest Free State, SST 387 and SST 356 ranked in the top five yielding cultivars for early wheat plantings and SST 374, SST 356 and SST 347 ranked in the top five yielding cultivars for late wheat plantings.

## Conclusion

In 2020 the Southern African Plant Breeders' Association (SAPBA) nominated Dr Francois Koekemoer, Director: Research & Development at Sensako as one of the twenty most influential plant breeders in Africa. It is clear that, under his leadership, Sensako's wheat breeding programme stands to benefit greatly with the direct access to Syngenta's broad international germplasm bank and cutting-edge technologies as well as hybrid wheat technology. 🌾

**Table 1. Sensako irrigation cultivars ranked in the top 5 of the 2020 National Cultivar Evaluation trials based on the average yields produced for early and late wheat plantings over the last four and three years.**

Irrigation region	Cultivar	Ranking based on 4-year average	Ranking based on 3-year average
Cooler Central early planting	SST 895	2	2
	SST 8135	4	6
	SST 806	5	5
Cooler Central late planting	SST 884	1	1
	SST 895	3	3
	SST 8154	4	5
Warmer Northern early planting	SST 884	1	3
	SST 895	2	2
	SST 8154	3	1
Warmer Northern late planting	SST 884	1	1
	SST 895	2	4
	SST 8135	3	3
Highveld early planting	SST 8135	1	2
	SST 884	3	3
Highveld late planting	SST 895	1	2
	SST 884	2	1
KwaZulu-Natal	SST 8135	2	3
	SST 8154	4	5

**Table 2. Sensako dryland cultivars ranked in the top 5 of the 2020 National Cultivar Evaluation trials based on the average wheat yields produced over the last four and three years**

Irrigation region	Cultivar	Ranking based on 4-year average	Ranking based on 3-year average
Swartland High rainfall	SST 0116	1	1
	SST 0147	2	2
	SST 0117	3	3
	SST 087	4	4
	SST 0127	5	5
Swartland Central	SST 0166	1	1
	SST 0117	2	2
	SST 0147	3	3
	SST 0127	4	5
	SST 087	5	4
Swartland Koringberg	SST 0166	1	2
	SST 0117	2	1
	SST 0127	3	3
	SST 015	4	5
Swartland Sandveld	SST 0166	1	1
	SST 0117	3	4
	SST 015	4	3
	SST 0127	5	8
Rûens West	SST 0166	1	1
	SST 0147	2	2
	SST 015	3	3
	SST 0127	4	4
	SST 0117	5	5
Rûens East	SST 0117	1	2
	SST 0166	2	1
	SST 0127	3	3
	SST 0147	4	4
	SST 087	5	5
Rûens South	SST 0166	1	1
	SST 0117	2	2
	SST 0127	3	2
	SST 0147	4	4
	SST 087	5	5