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Cultivar selection:

A key decision

Selecting the right soya bean cultivars is one of the most important decisions a farmer has to make during the planting season. It comes as no surprise that unadjusted cultivars produce yields of up to 20% less than the top producer in the national cultivar trials (*Table 1*).

With low profit margins in crop production being the order of the day, great losses can be suffered if the wrong cultivars are used. Bearing in mind that the best cultivar's yield can be up to 580kg/ha higher at a price of R4 500/ton, the loss can be as much as R2 610/ha. Therefore, the time spent on gathering information and data to make more informed decisions, is crucial and certainly not a waste of time.

Table 1: The differences in average yield of the best compared to the worst performing cultivars in the national cultivar trials of 2013/2014.

	Cool areas	Moderate areas	Hot areas
Average yield (t/ha)	2,54	2,51	3,48
Highest yield cultivar (t/ha)	2,87	2,75	3,94
Lowest yield cultivar (t/ha)	2,21	2,21	3,27
Yield difference (t/ha)	0,66	0,54	0,67
Percentage difference	26%	22%	17%

Source: AS de Beer and N de Klerk, 2014, Soya Bean Cultivar Recommendations

Cultivar variety

A farmer can choose from a large variety of soya bean cultivars on the market. The cultivar yield has improved by 1,2% per annum over the past 34 years. *Table 1* provides helpful information to select the right package.

There is intense competition among seed companies, each aiming to sell the best quality product to the farmer. Companies carefully select their best cultivars. They use the most modern production and breeding techniques to supply the farmer with seed of the highest quality.

The Agricultural Research Council's (ARC) national cultivar trials are the best starting point in the selection of a cultivar. If a cultivar fails to appear in these trials, it should preferably be avoided.

Production regions

South Africa is divided into three primary production regions, namely cool, moderate and hot. Unlike the rest of the world where soya bean production regions are determined by the relative distance from the equator, those in South Africa are determined by the area's height above sea level. The cool production regions are in the eastern higher lying parts of the country, characterised by a shorter production season with moderate summer days and relatively higher rainfall.

In general, the production season of this moderate production region is longer, with warmer days and average rainfall. The hot production areas have a longer growing period with warmer days and less rainfall, and soya beans are mostly planted under irrigation. Every farmer should be aware of which one of the three production areas his land is located in, and what the production potential of the soil is. The wheat can thereby be separated from the chaff.

Seed companies conduct their independent research to identify the right cultivar for each region. This data can then be used to help with the decision. It is also vital to consider local comparative strip trials carried out by study groups and certain farmers. It is a risky option to only listen to the advice of a neighbour, because the current season will not always be the same as the previous one. If all the information is gathered and combined, three to five cultivars that can be used will stand out.

Table 2: Performance of growth class groups over 34 years in different South African production regions.

Growth class groups and regional combination average (t/ha) for 34 years (1978–2011)			
Growth class	**Cool areas**	**Moderate areas**	**Hot areas**
4–4,9	1,65[b]	2,40[b]	2,61[b]
5–5,9	2,35[a]	2,47[a]	2,83[a]
6–6,9	1,52[b]	2,48[a]	2,95[a]
7+	1,98[b]	2,31[c]	2,91[a]
LSD (95% accurate)	0,28	0,08	0,09

Where the alphanumerical symbol in a column corresponds, the difference in yield is not significant.
Source: AS de Beer and MA Prinsloo, 2013, The 'National Soya Bean Cultivar Trials in South Africa – 34 years Experiences and Progress' presentation.

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Different growth classes

The next step is to make a decision regarding the different growth classes. It is good practice not 'to put all your eggs in one basket'. In order to spread one's risk, a compendium of different cultivars should preferably be planted. By firstly arranging the cultivars into different growth classes, the best of each class can be selected. By doing so, risk can be optimally managed.

In years when rain does not fall at the end of February and in March, the growth classes 4,5 to 5,5 will perform much better than the 5,5 to 7,5 classes. The opposite is true if good rains are received in the second half of the season. Over the long term, classes 5 and 6 offer the most consistent yield (*Table 2*), and most of the planting should consist of these growth classes.