

SOYA cultivar selection



Choosing the right soya bean cultivars to plant is a crucial decision. Unadapted cultivars can supply yields of up to 20% less than the top producer in national cultivar trials (Table 1). With low profit margins in crop production, great losses can be experienced with the wrong cultivar. Taking into account that the best cultivar supplies up to 580kg/ha higher yield at R4 500/t, losses can amount to as much as R2 610/ha.

Table 1: Differences in average yield of the best compared to the poorest performing cultivar in the national soya bean trials for 2013–2014.

	Cool regions	Moderate regions	Warm regions
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
Difference in yield (t/ha)	0,66	0,54	0,67
Percentage difference	26%	22%	17%

Source: AS de Beer and N de Klerk, 2014

Available cultivars

There is a large number of soya bean cultivars available on the market. The improvement in yield over the last 34 years amounts to 1,2% per year. This makes sufficient information available to select the right package. The competition between seed companies is intense and each company carefully selects the best cultivars to sell. They utilise modern production and cultivation techniques to supply the best quality seed.

The Agricultural Research Council's (ARC) national cultivar trials are the best place to start when a cultivar has to be selected. Avoid cultivars that are not included in the trials.

Production regions

South African production regions are divided into three primary ones: Cool, moderate and warm.

Elsewhere in the world soya bean production regions are determined by the relative distance from the equator, but in South Africa they are determined by height above sea level. The cool production regions are in the eastern highlands and characterised by a shorter production season, with moderate summer days and a relatively high rainfall.

The moderate production regions have a longer production season, with warmer

days and an average rainfall. The warm production regions have a long growth season with warm days and a low rainfall, and soya beans cultivated under irrigation.

Every farmer should know in which of the production regions his fields are located, and also what the production potential is.

Considering research

Seed companies conduct substantial research so that the correct cultivar can be identified for each region and data can be obtained to aid in the decision-making process. It is also necessary to study local comparative strip trials undertaken by research groups and farmers. Once all this information has been gathered, three to

five cultivars will stand out.

Growth classes

The next step is to select between the various available growth classes. To spread risk, plant a package comprising of different cultivars. By arranging cultivars in different growth classes, one is able to select the best from each. Thus risk can be optimally managed.

In low-rainfall years, the 4.5 to 5.5 growth classes will perform better than the 5.5 to 7.5. The opposite is true if the second half of the season gets good rainfall. Over the long term, growth classes 5 and 6 deliver the most stable results (Table 2) and the biggest part of the package should be constituted from these.

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

Growth class groups and regional combinations average (t/ha) for 34 years (1978–2011)			
Growth class	Cool regions	Moderate regions	Warm regions
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 alphanumeric symbol is the same in a column, the difference in yield is not significant. Source: AS de Beer and MA Prinsloo, 2013