



# DRY BEAN CULTIVAR RECOMMENDATIONS

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In South Africa a national dry bean (*Phaseolus vulgaris*) cultivar evaluation trial is conducted annually in the major grain production areas. The project is co-ordinated by the Agricultural Research Council – Grain Crops Institute in Potchefstroom. However, the Crop Scientific Research Services of the KwaZulu-Natal Department of Agriculture and Rural Development is a co-worker of the trials conducted on the Kokstad and Cedara Research Stations and in the Loskop area, whilst Pannar Seed is a co-worker of the trial conducted in the Greytown area. The cultivars included in the trial are small white beans and red speckled sugar beans.

The trials were planted in 0.75 m wide rows at a seeding rate of 180 000 seeds/hectare. The crops were grown under dry-land conditions and were fertilized for optimum yields, based on soil analysis recommendations conducted by the Cedara Analytical Laboratory. Fungicides were applied regularly from flowering to control leaf diseases. Weeds and insects were controlled throughout the growing-season.

Successful dry bean production is based on:

- Fertilizing the crop according to the soil analysis recommendations
- Thorough land preparation
- Optimum planting period
- Cultivar selection
- Control of weeds, insects and diseases.

While grain yield is rightly considered an important factor, other characteristics should also be taken into account.

These include:

## a) Cultivar choice

- Small white beans (15 - 25 g/100 seeds) are mainly used for canning purposes and occupy 10 to 20% of South African production.
- Red speckled sugar beans (40 – 55 g/100 seeds) command a higher price than small white beans and occupy 65 – 75% of national production.
- Carioca beans (20 – 25 g/100 seeds) are disease resistant and high yielding, but not very popular.
- Large white kidney beans (80 – 100 g/100 seeds) occupy about 5 – 10% of national production.

Farmers must grow what the local market needs. High yielding cultivars with good adaptability and disease resistance should be planted.

## b) Growing-season length

Temperatures, especially during the night, determine the length of the growing-season of a cultivar. Therefore, the number of days from planting to harvest maturity will be shorter in warm areas than in cool areas.

Growing-season lengths are classified as:

- Short (85 – 94 days from planting to maturity)
- Medium (95 – 104 days)
- Long (105 – 115 days)

The number of days taken from planting to harvest maturity at each locality was fairly similar for all the cultivars.

### c) Planting date

Planting date is mainly restricted by the possible occurrence of frost (planting too late) and rain at harvesting, resulting in poor quality (planting too early). Planting dates range from November to mid-January in areas where frost occurs, with the optimum period being from mid-December to mid-January. In

frost-free areas, March and April are the best months for planting. If possible, the planting date should be such that high temperatures at flowering are avoided.

### Cultivar recommendations

Due to the differences in climatic conditions at each locality and season (Table 1), individual cultivar performance may be affected. Cultivar recommendations are therefore based on three to five seasons' data, thus providing more reliable information.

**TABLE 1** The climatic conditions depicting cool (Kokstad), moderate (Cedara and Greytown) and warm (Loskop) production areas

Month	Kokstad		Cedara		Greytown		Loskop	
	Heat Units	Rain (mm)	Heat Units	Rain (mm)	Heat Units	Rain (mm)	Heat Units	Rain (mm)
November	195	95	237	104	237	112	279	91
December	257	103	301	109	291	127	335	112
January	279	129	307	150	313	135	353	120
February	244	125	280	113	286	127	314	109
March	233	101	279	96	288	113	310	91
April	132	49	210	53	201	52	216	42
<b>Total</b>	<b>1 340</b>	<b>602</b>	<b>1 614</b>	<b>625</b>	<b>616</b>	<b>666</b>	<b>1 807</b>	<b>565</b>

**TABLE 2** Dry bean cultivar yields recorded at the four localities over three to five seasons

Small White Beans							
Kokstad*		Cedara*		Greytown*		Dundee#	
Cultivar	(t/ha)	Cultivar	(t/ha)	Cultivar	(t/ha)	Cultivar	(t/ha)
PAN 123	2.05	TEEBUS RR1	3.16	TEEBUS RR1	2.16	TEEBUS RR1	2.90
TEEBUS RR1	1.87	PAN 123	2.80	PAN 123	1.93	PAN 123	2.80
TEEBUS	1.70	TEEBUS	2.73	TEEBUS	1.41	TEEBUS	2.55
Red Speckled Sugar Beans							
KAMIESBERG	3.91	DBS 840	3.64	PAN 9292	2.18	RS 6	3.06
RS 5	3.65	PAN 9213	3.50	PAN 9216	2.13	PAN 9213	3.06
WERNA	3.54	PAN 148	3.47	PAN 9249	2.05	TYGERBERG	3.04
DBS 310	3.48	RS 5	3.44	RS 6	2.05	DBS 840	2.85
SEDERBERG	3.45	RS 6	3.42	OPS-RS 4	2.01	SEDERBERG	2.85
PAN 9216	3.38	SEDERBERG	3.37	KRANSKOP	1.94	PAN 9249	2.80
TYGERBERG	3.38	DBS 830	3.37	KRANSKOP HR1	1.91	KRANSKOP HR1	2.77
RS 6	3.36	OPS-RS 4	3.31	PAN 148	1.88	KRANSKOP	2.76
OPS-RS4	3.34	TYGERBERG	3.25	JENNY	1.86	OPS-RS 4	2.75
PAN 148	3.32	JENNY	3.23	SEDERBERG	1.80	JENNY	2.75

# Seasons 2009/10, 2010/11 and 2012/13

^ Seasons 2010/11 to 2013/14

\* Seasons 2010/11 to 2014/15

## References

Fourie, D., 2015. 2014/15 Report of the National Dry Bean Cultivar Trials. ARC-Grain Crops Institute, Potchefstroom.

Liebenberg, A.J., 2002. Dry Bean Production. Compiled by Directorate Agricultural Information Services, Department of Agriculture in cooperation with the ARC-Grain Crops Institute.

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