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PROVINCE OF KWAZULU-NATAL

DRY BEAN CULTIVARS FOR KWAZULU-NATAL

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Introduction

The Agronomy Section, the Agricultural Research Council – Grain Crops Institute and seed companies, annually conduct dry bean cultivar evaluation trials at various localities in KwaZulu-Natal. These trials form part of the National cultivar trial, which is conducted in the major production areas of South Africa.

Materials and methods

The cultivars evaluated included four small-white and twenty six red speckled sugar bean varieties. 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 from the Cedara Analytical Laboratory. Weeds and insects were controlled throughout the growing-season. At Cedara, Kokstad and Greytown, the trials were duplicated with one trial being sprayed regularly with fungicides from flowering and the other not sprayed, so as to determine the cultivars' tolerance to fungal leaf diseases.

Results and Discussion

Due to differences in the climatic conditions at each locality and within each season, individual cultivar performance may have been affected. Cultivar recommendations are therefore based on three seasons' data, thus providing more reliable information.

Of the small white cultivars, Teebus produced the lowest yields at three of the four sites (Table 1) and is highly susceptible to rust, but remains the best cultivar for canning qualities. Teebus RR1 displayed good adaptability to all the localities and is resistant to rust.

Of the red speckled sugar beans, RS-6, Tygerberg and Sederberg performed consistently at all the localities, whilst some of the other cultivars performed differently at each site. For example, OPS-RS2 and RS-5 yielded best under the cooler conditions at Kokstad, whilst PAN 9249, which had the largest seeds, and PAN 9292 yielded best under the drier conditions experienced at Greytown. Leaf diseases were not a problem in Kokstad during the past three seasons.

TABLE 1. Yields recorded in the fungicide-applied trials for the four small-white cultivars and the ten highest yielding red speckled sugar bean cultivars at the different localities

KOKSTAD#		CEDARA*		LOSKOP*		GREYTOWN*	
Cultivar	t/ha	Cultivar	t/ha	Cultivar	t/ha	Cultivar	t/ha
SMALL WHITE BEANS							
Teebus RR1	3.98	Teebus RR1	2.88	Teebus RCR2	2.96	Teebus RR1	1.84
PAN 123	3.91	Teebus	2.60	PAN 123	2.92	PAN 123	1.64
Teebus RCR2	3.87	PAN 123	2.42	Teebus RR1	2.91	Teebus RCR2	1.59
Teebus	3.00	Teebus RCR2	2.35	Teebus	2.47	Teebus	1.20
RED SPECKLED SUGAR BEANS							
OPS-RS2	4.17	DBS 840	3.49	RS-6	3.23	RS-6	1.77
RS-5	4.01	PAN 9213	3.32	PAN 9213	3.22	Sederberg	1.64
Werna	3.92	PAN 148	3.29	Tygerberg	3.11	Werna	1.62
Tygerberg	3.90	RS-6	3.27	DBS 840	3.01	DBS 840	1.62
PAN 116	3.86	DBS 830	3.14	OPS-RS4	2.93	PAN 9249	1.56
Sederberg	3.84	Jenny	3.13	DBS 310	2.90	PAN 9292	1.54
Ukulinga	3.81	Kranskop	3.13	DBS 830	2.88	OPS-RS4	1.53
PAN 148	3.81	Tygerberg	3.11	Sederberg	2.88	Tygerberg	1.53
RS-6	3.80	Sederberg	3.10	Kranskop	2.86	PAN 116	1.52
OPS-RS4	3.72	OPS-RS4	3.08	Kranskop HR1	2.80	PAN 9213	1.51

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

*Seasons 2010/11 to 2012/13

Conclusions

As cultivars perform differently at the various localities, cultivar selection should be based on consistency and adaptation to the climatic conditions. In areas where leaf disease pressure is expected to be high, fungicides must be applied regularly from flowering and more resistant cultivars should be grown.