



agriculture & environmental affairs

Department:
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PROVINCE OF KWAZULU-NATAL

POTATO PRODUCTION FOR SMALL-SCALE FARMERS

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Introduction

Commercially available potato cultivars need to be tested at various sites throughout KwaZulu-Natal to determine their adaptability and production potential under small-scale farmer management practices.

Methods and Materials

Cultivar trials were conducted at the Nyangweni and Ndwedwe Training Centers for three seasons, 2010 to 2012. Twelve to eighteen cultivars were planted during May of each year in a randomized block design with three replicates. Four rows of 5 m were planted per plot with the seed spaced 0.3 m apart in the row. The row width was 0.9 m.

In addition to the cultivar trials, seven demonstration trials, each 0.1 ha in size, were conducted together with Potato SA. These were planted in various rural communities in KwaZulu-Natal to encourage small-scale farmers to become commercial producers. Two cultivars were used in these demonstrations.

In both the cultivar trials and Potato SA demonstrations, fertilizer was applied according to recommendations for a 40 t/ha yield. Weeds, insects and diseases were controlled and irrigation was applied when necessary.

Results and discussion

Uneven application of irrigation water at Nyangweni in 2010 affected the yields of certain cultivars, e.g. Sifra (Table 1). In 2011 irrigation was more reliable, resulting in good yields at both sites. However, in 2012, burst municipality pipe lines resulted in insufficient irrigation water and consequently lower yields, especially at Nyangweni. Although their yields may be reduced by blight, Mondial and Sifra are cultivars recommended to small-scale farmers because of their early tuber initiation and high yield potential.

Table 1. Yields obtained from the highest producing cultivars in the different seasons at the two production sites

Cultivar	2010	2011		2012	
	Nyangweni	Nyangweni	Ndwedwe (t/ha)	Nyangweni	Ndwedwe
Mozart	43.0	–	–	–	–
Hertha	42.0	–	–	18.0	20.0
Mondial	42.0	39.0	39.0	16.0	38.0
Sifra	27.0	30.0	45.0	14.0	32.0
98F-164-1	–	45.0	46.0	–	32.0
Ronaldo	–	36.0	36.0	15.0	33.0

In the Potato SA demonstrations the yields obtained ranged from 10 t/ha to 45 t/ha, depending on crop management and availability of irrigation. Seven small-scale farmers progressed to commercial production, with each farmer planting four or more hectares.

Conclusions

Uneven and insufficient irrigation are the main factors contributing to low yields. Therefore, more reliable cultivar data and higher yields could potentially be obtained at the Training Centers and in the Potato SA demonstrations if sufficient even irrigation could be applied.