



## Potato cultivar evaluation at Cedara

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### Introduction

Potato (*Solanum tuberosum* L.) is a major staple food crop that can be prepared in many ways. In South Africa, potato production increased from 1 280 million tons in 1990 to 2 460 million tons in 2018, while the production area decreased from 63 000 ha to 53 500 ha. In 1990, almost 50% of the production area was under irrigation, while currently 82% of the area is irrigated. As a result, yields have increased from 20.3 t/ha to 46.5 t/ha. However, not only has the production area decreased, but the number of commercial producers has also decreased from 2 031 in 1993 to 517 in 2018.



**FIGURE 1:** Potato cultivar evaluation trial at the Cedara Research Station

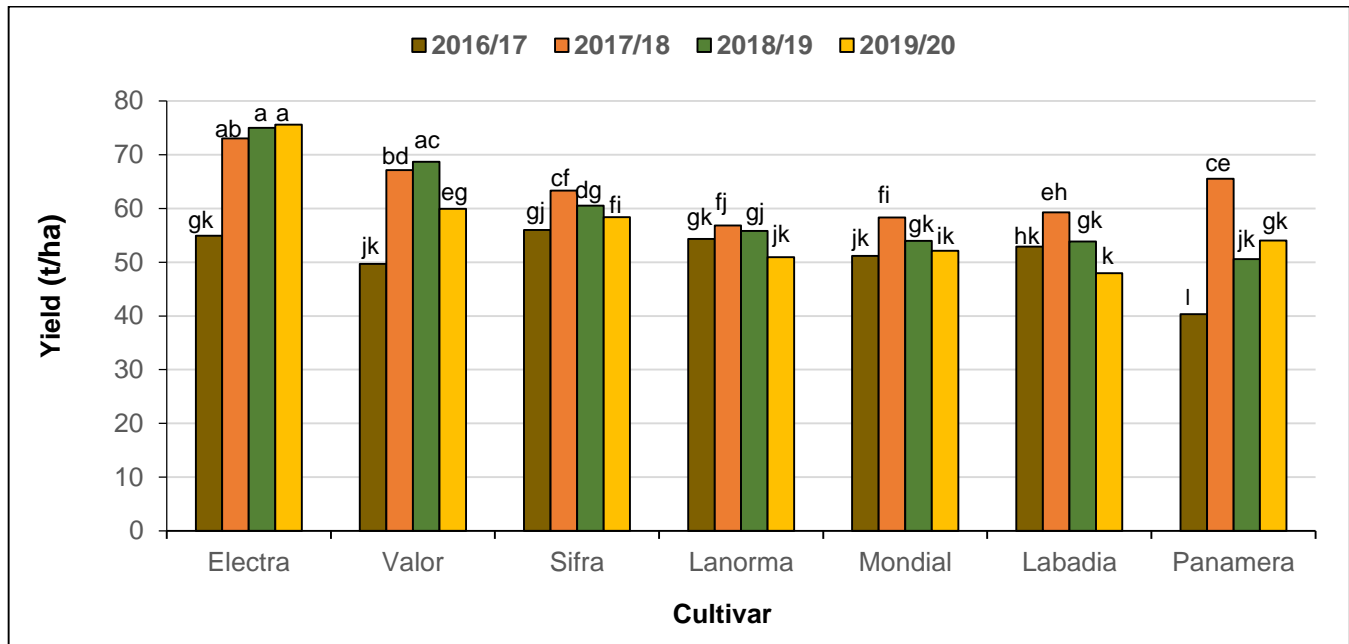
High input costs are required to grow potatoes successfully. Total allocated variable costs can be more than R90 000/ha (KwaZulu-Natal Enterprise Budgets, 2019/2020). Therefore, it is very important

that producers manage their crop efficiently to optimise yields and financial gains. Sufficient irrigation, good fertilization and the management of leaf fungal diseases, particularly late blight (*Phytophthora infestans* (Mont.) De Bary) and early blight (*Alternaria solani*), are essential.

### Research at Cedara

KwaZulu-Natal produces 5% of the South African crop. It is essential that growers produce what the market demands. Therefore, cultivar selection is important. The main cultivars grown in the province are Mondial, Valor and Sifra (Potatoes SA, 2019). These three cultivars were evaluated against four other cultivars in research trials at the Cedara Research Station during the four growing seasons from 2016/17 to 2019/20. The seeding rate was 37 037 tubers/ha and the crop was fertilized for a 70 t/ha yield. Irrigation was applied when required and fungicides and insecticides were applied weekly from ridging.

A significant interaction was measured for yield between the seasons and cultivars (Figure 2). Drier and warmer conditions were experienced in the 2016/17 season, which resulted in a lower mean yield. In the 2017/18, 2018/19 and 2019/20 seasons, and overall, Electra produced significantly higher yields than the other cultivars. Lanorma produced consistent yields over all the seasons, while Panamera yielded inconsistently.



**FIGURE 2:** Yield of the seven cultivars evaluated during the 2016/17, 2017/18, 2018/19 and 2019/20 growing-seasons at Cedara. Values sharing the same alphabetical letters are not significantly different.

Sifra and Labadia are earlier maturing than the other cultivars (Table 1). Electra, Valor and Panamera have good tolerance to late blight. Therefore, these three

cultivars will be better suited for resource-poor smallholder and household growers.

Table 1. Agronomic characteristics of the seven cultivars crops, giving an optimum range based on potential yield					
Cultivar	Tuber shape	Skin colour	Flesh colour	Late blight	Season length*
Electra	Oval/round	Yellow	Yellow	Tolerant	150
Valor	Oval/round	Light yellow	Cream	Tolerant	151
Sifra	Round	Light yellow	Cream	Susceptible	129
Lanorma	Oval	Light yellow	Light yellow	Susceptible	154
Mondial	Long oval	Light yellow	Light yellow	Susceptible	152
Labadia	Oval	Light yellow	Light yellow	Susceptible	125
Panamera	Oval	Yellow	Yellow	Tolerant	150

\* Number of days from planting to harvest (mean for the 2018/19 and 2019/20 seasons at Cedara)

### Recommendations

Commercial potato producers should produce cultivars that the market wants. However, as Electra yielded consistently well, all producers in the high potential rainfall areas of KwaZulu-Natal should consider producing and marketing this cultivar more extensively, because of its high yield potential and good tolerance to late blight.

### References

KwaZulu-Natal Enterprise Budgets, Vegetable Crops, 2019/2020. Economics, Marketing and Value Adding Directorate, KwaZulu-Natal Department of Agriculture and Rural Development.

Potatoes SA, 2019. The South African potato industry in perspective, September 2019.

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