

Better cuttings, higher yields: Optimizing agronomic practices for on-farm seed potato production

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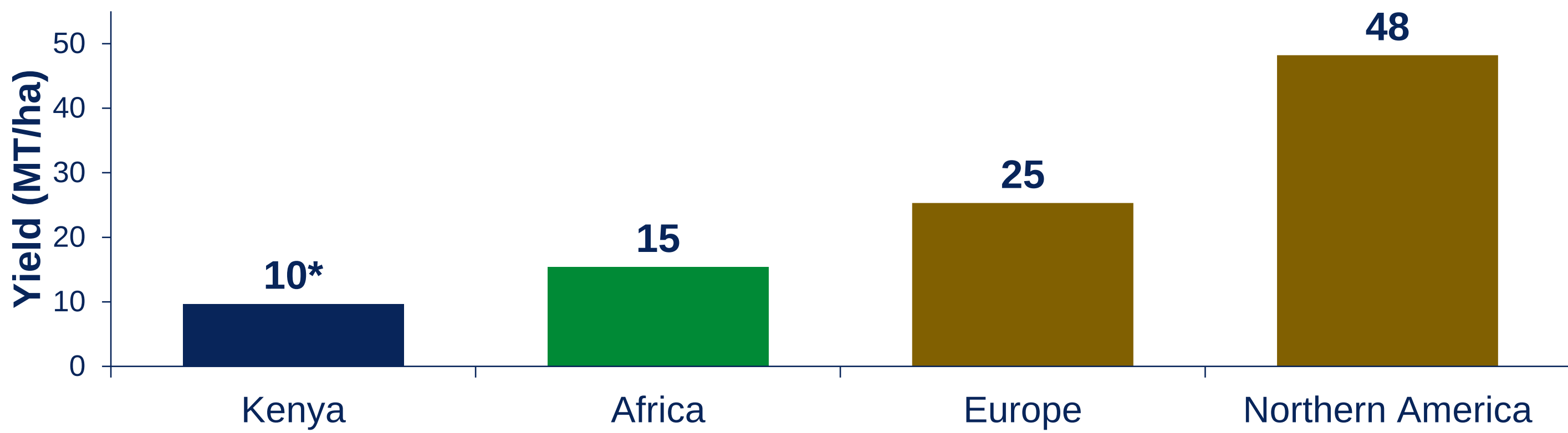
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1a Introduction

Potato productivity varies widely across regions, averaging approximately 10 MT/ha in Kenya, 15 MT/ha in Africa, 25 MT/ha in Europe, and 48 MT/ha in North America. Potato rooted apical cuttings (PRACs) offer a scalable solution for improving access to quality seed potato in African smallholder farming systems. However, tuber productivity varies across seed classes and successive multiplication cycles, highlighting the need to optimize cutting quality and agronomic practices to enhance yields and help close the productivity gap.

1b Average potato productivity (MT/ha)



Supplied FAOSTAT (2024) benchmarks; exact extract to confirm. Europe and Northern America provide regional context.

* Kenya: about 4 tonnes per acre, or 80 bags of 50 kg each.

2 Hypothesis

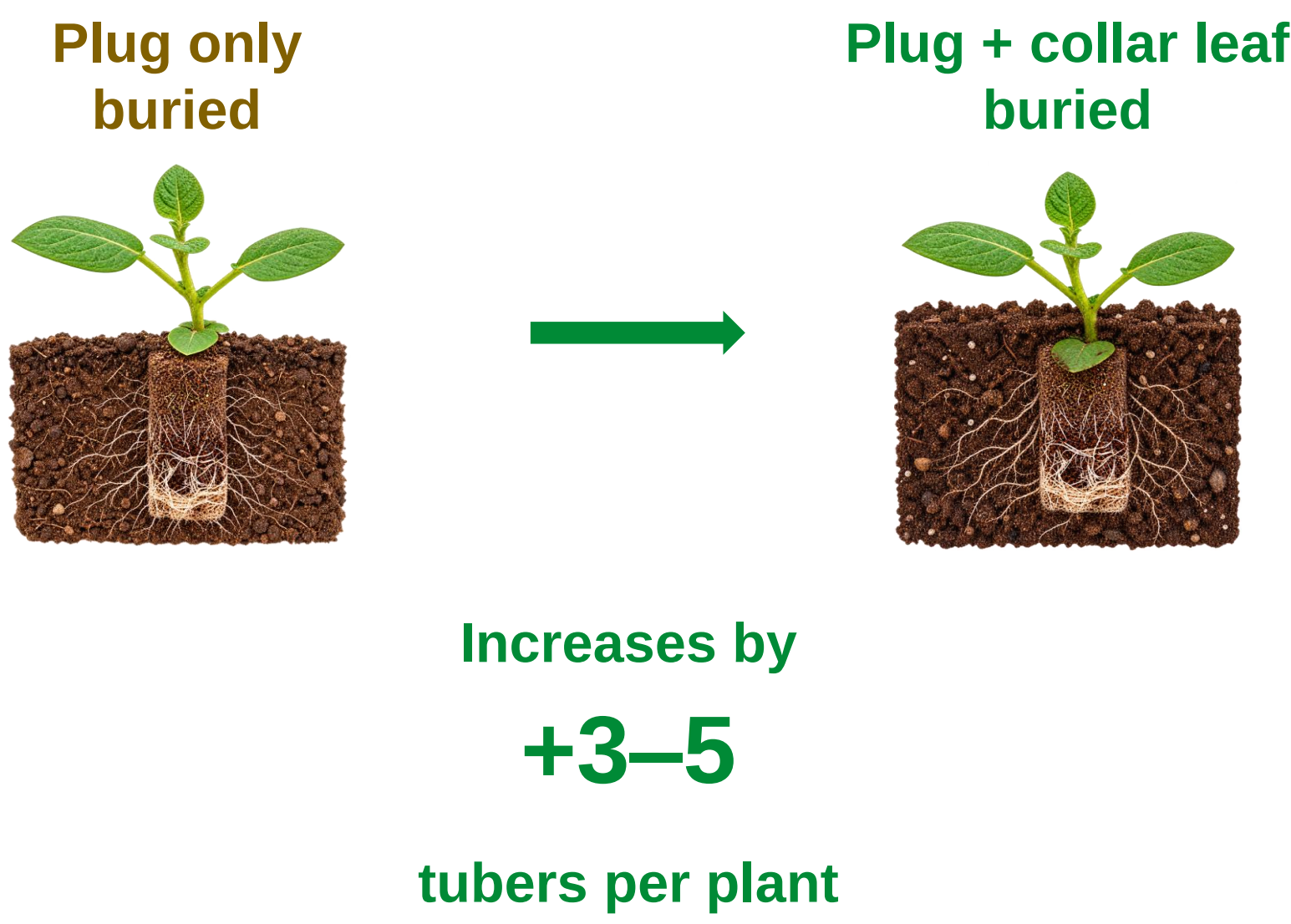
Good-quality rooted cuttings from simple mother plants, correct planting depth, DAP and WonderGro, timely hilling and adequate rainfall are hypothesized to sustain high tuber numbers and productivity.



* Produced from mother plants in the juvenile phase with uncompounded (simple) leaves.
* To learn how to produce good-quality cuttings, see Poster X. QR destination to follow.

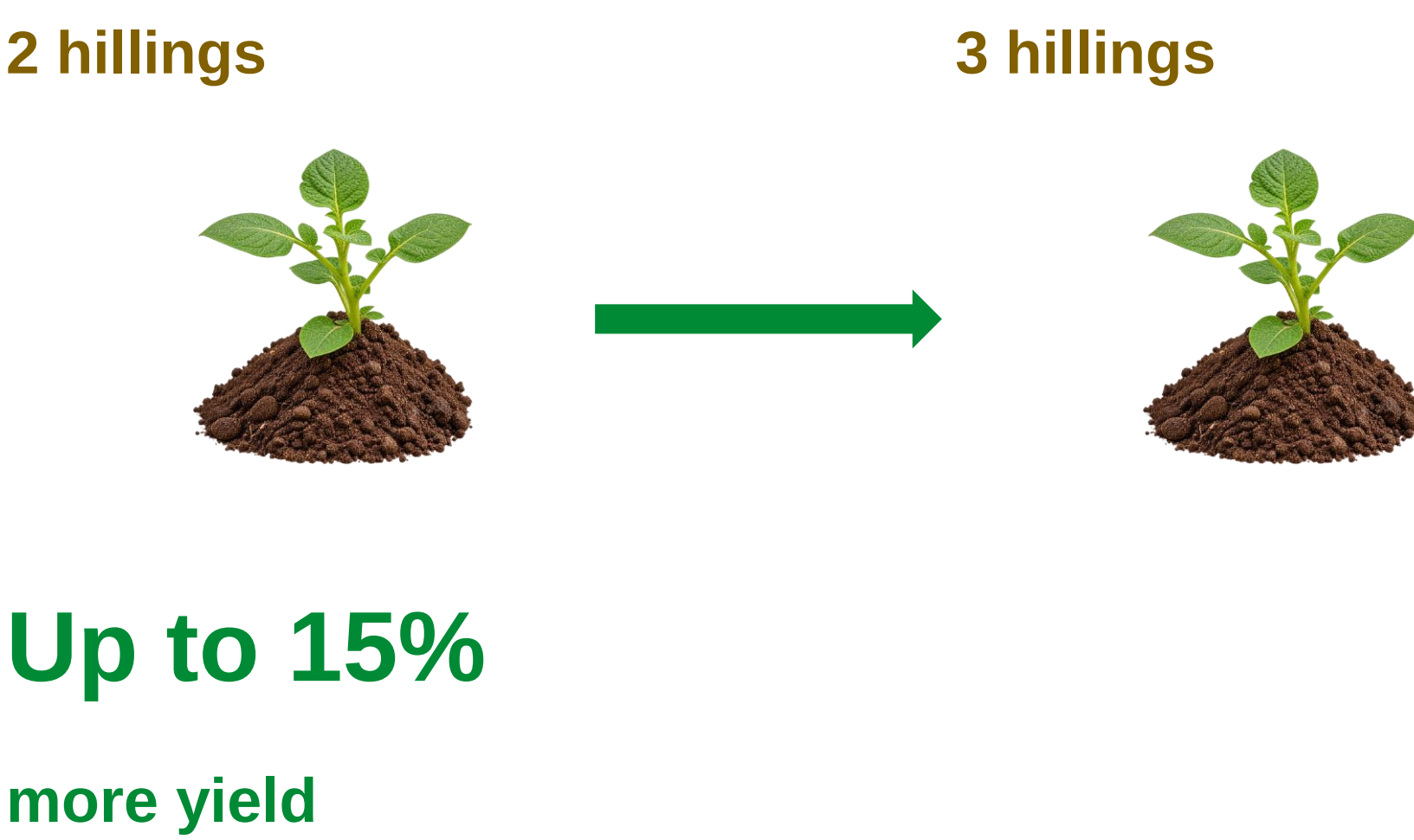
Findings

3a Method of planting



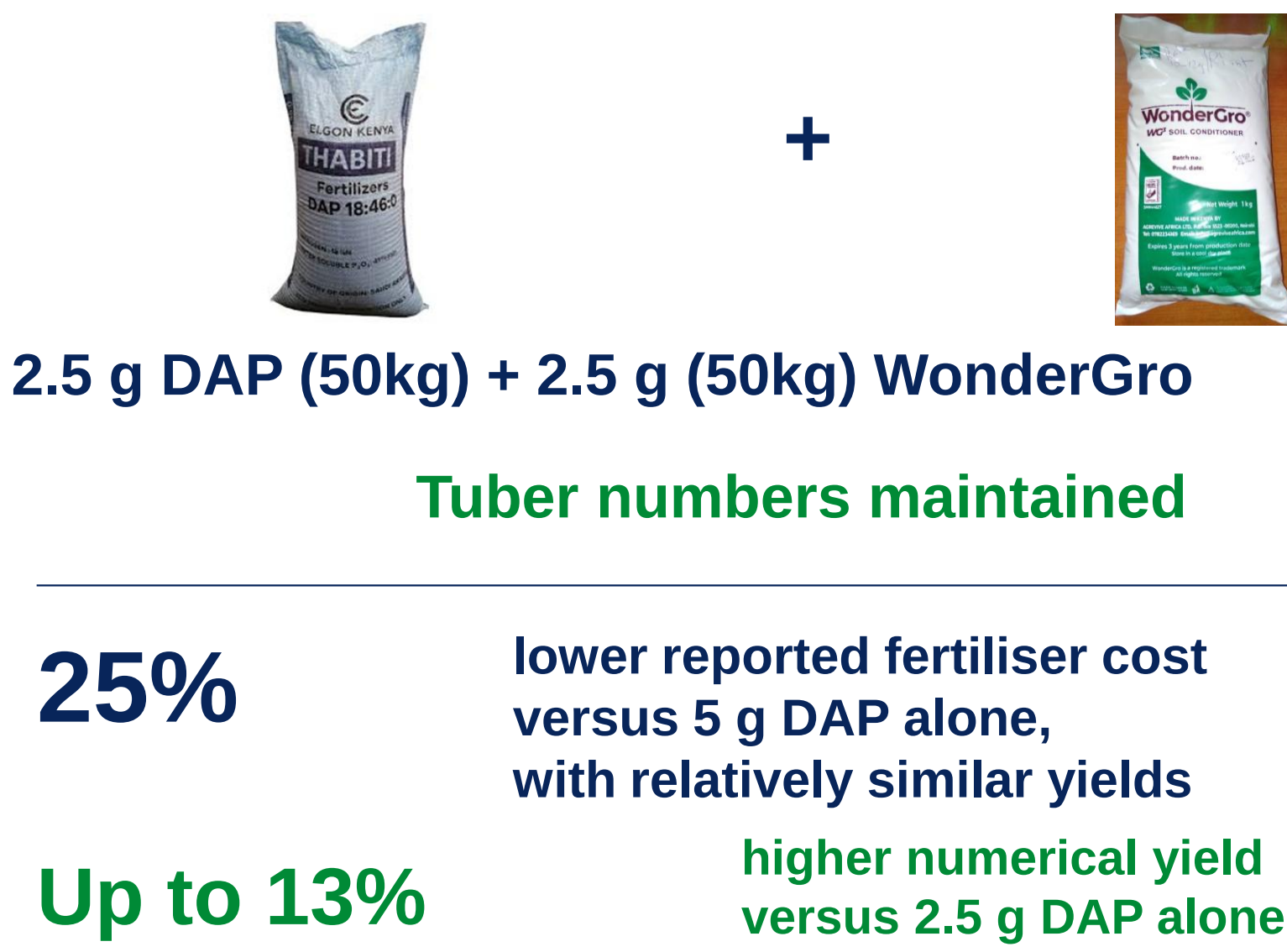
Deeper burial of the cutting plug mimics hilling, placing the first node underground.

3b Hilling practices



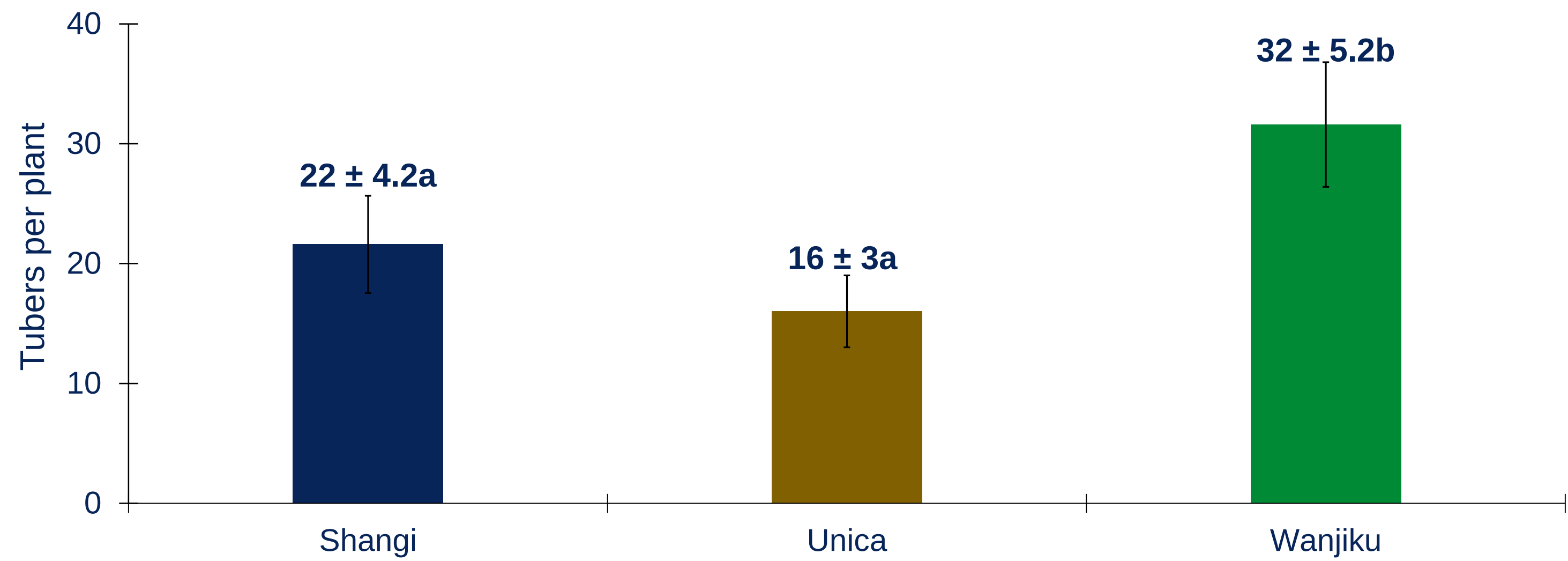
Three hillings increased yield compared with the conventional two.

3c Fertiliser and yield



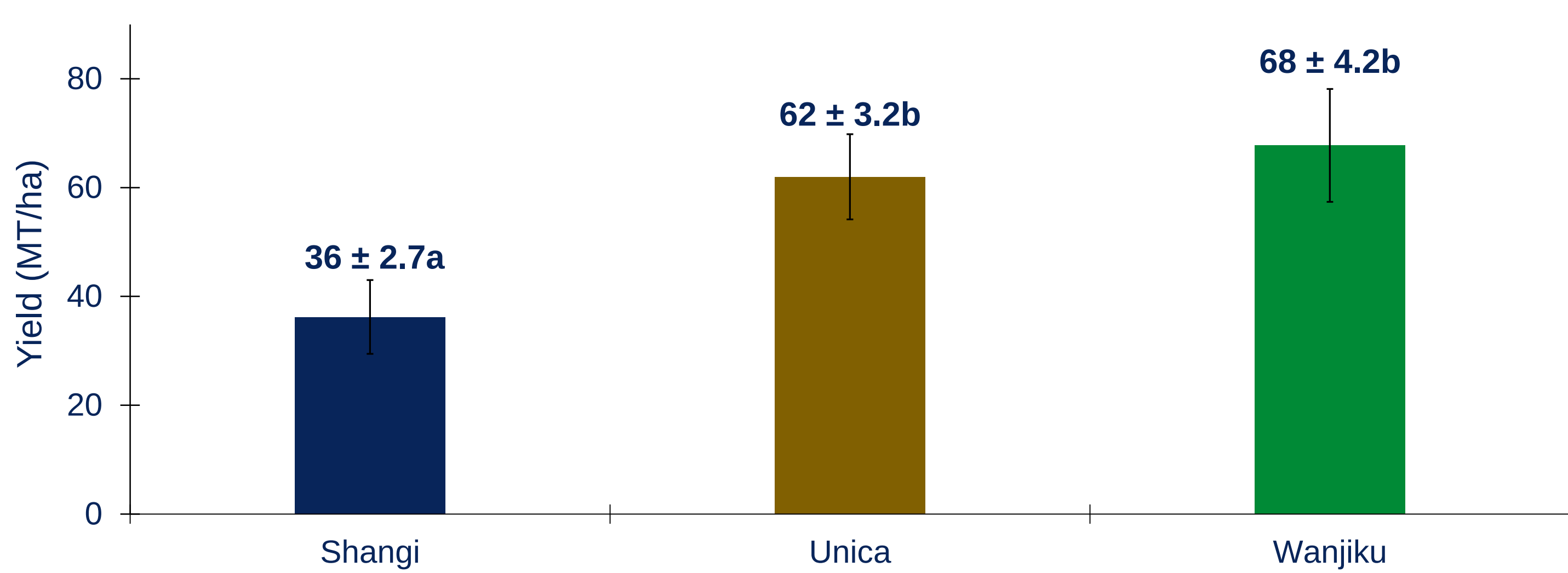
Reported responses. Cost basis and trial details to confirm.

4a Number of tubers per plant



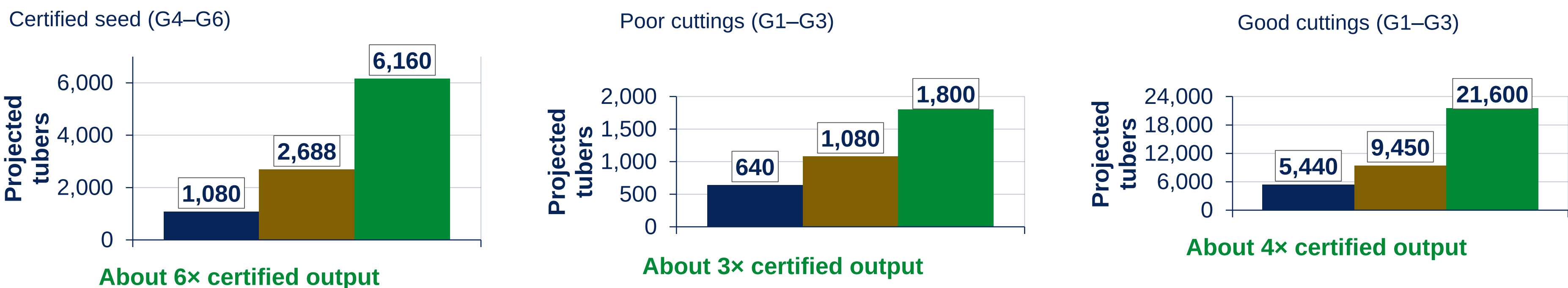
Mean tubers per plant: Wanjiku 32, Shangi 22 and Unica 16. Bars show mean ± SD.

4b Yield by variety (MT/ha)



Mean yield: Wanjiku 68, Unica 62 and Shangi 36 MT/ha. Bars show Mean ± SD.

5 Seed multiplication over three seasons



Projected tubers per starting plant after three seasons, assuming full replanting with no losses or rejection. Potential compounded output, not measured cumulative harvest. Axes differ by variety.

6 Conclusion

Good-quality PRACs, optimal planting depth, balanced nutrition (50 kg DAP + 50 kg WonderGro per acre), timely hilling, and adequate rainfall can support high tuber numbers and yields of 36–68 MT/ha. Wanjiku achieved 68 MT/ha, approximately 41% above the North American benchmark of 48 MT/ha. These findings highlight the potential of quality PRACs combined with improved agronomic practices to narrow potato productivity gaps in Kenya and across Africa.

Acknowledgements

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