

Low water provision differently affects plant growth and seed mineral profile of kabuli and desi chickpeas (*Cicer arietinum*)

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INTRODUCTION

Chickpeas can be produced by mono-cropping, inclusion in vegetable gardens or intercropping with fruit trees, being an important source of key environmental services and essential micronutrients, such as zinc (Zn). Given the current predictions of more frequent drought events, the identification of resilient varieties is essential to foster biodiversity, promote environmental sustainability and ensure food security in the context of climate change.

GOAL

Explore the impact of low water provision on plant morphology and grain Zn accumulation of distinct chickpea varieties.

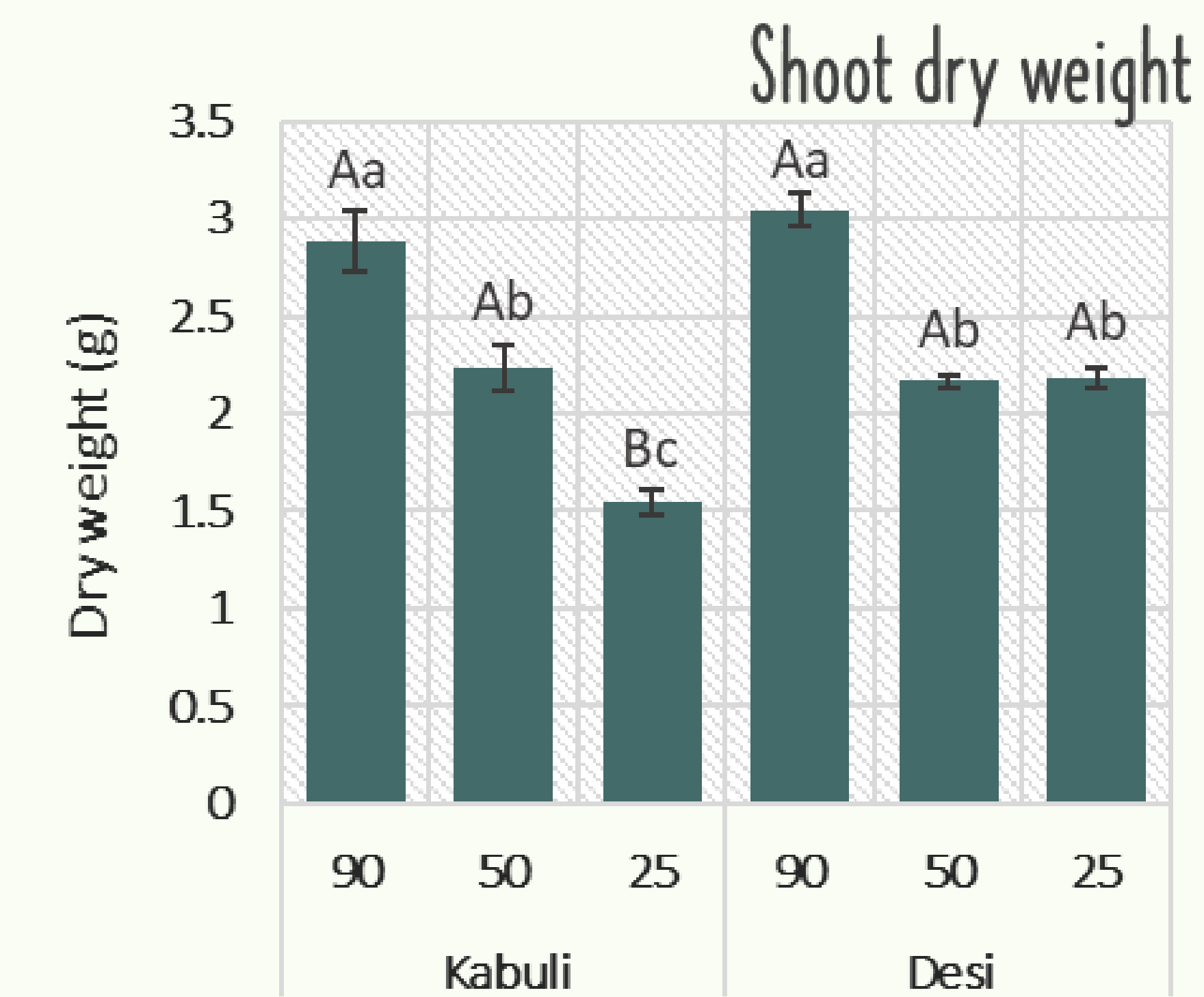
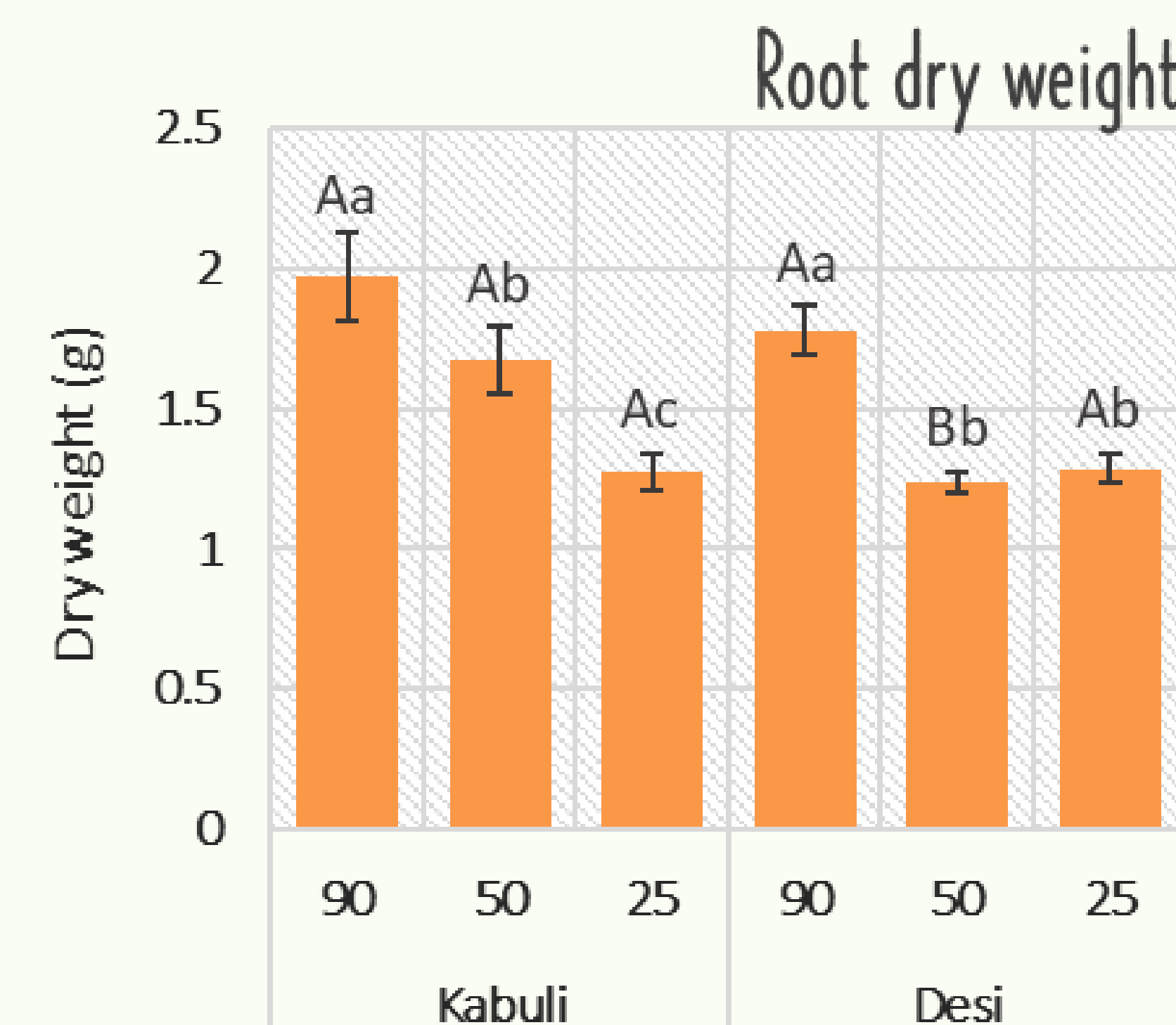
METHODS

C. arietinum varieties kabuli (white chickpea) and desi (black chickpea) were grown at 90%, 50% or 25% of the field capacity (FC).

At plant maturity, plants were analysed for:

- » root and shoot dry weights
- » pod number per plant
- » seed Zn concentration

RESULTS

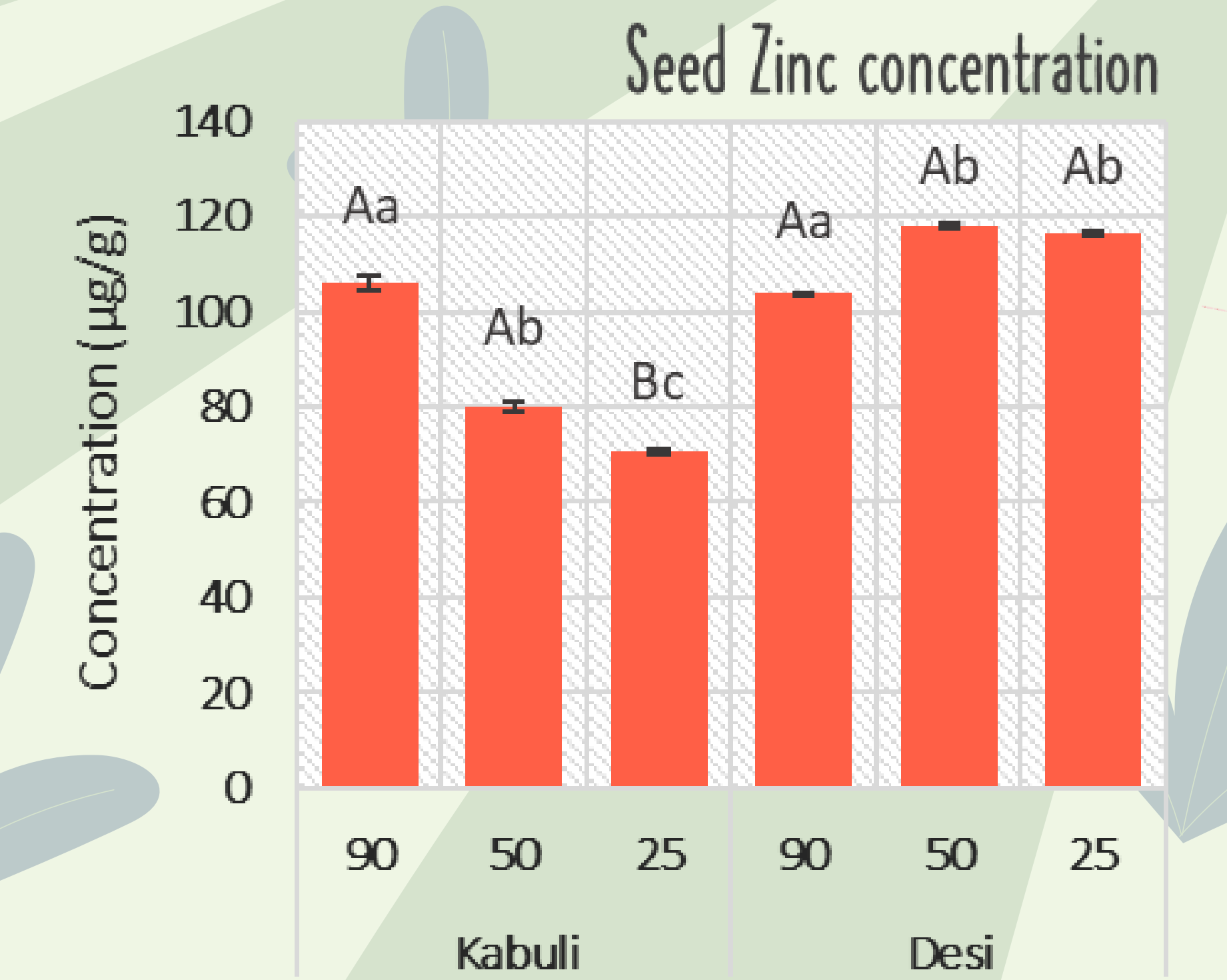
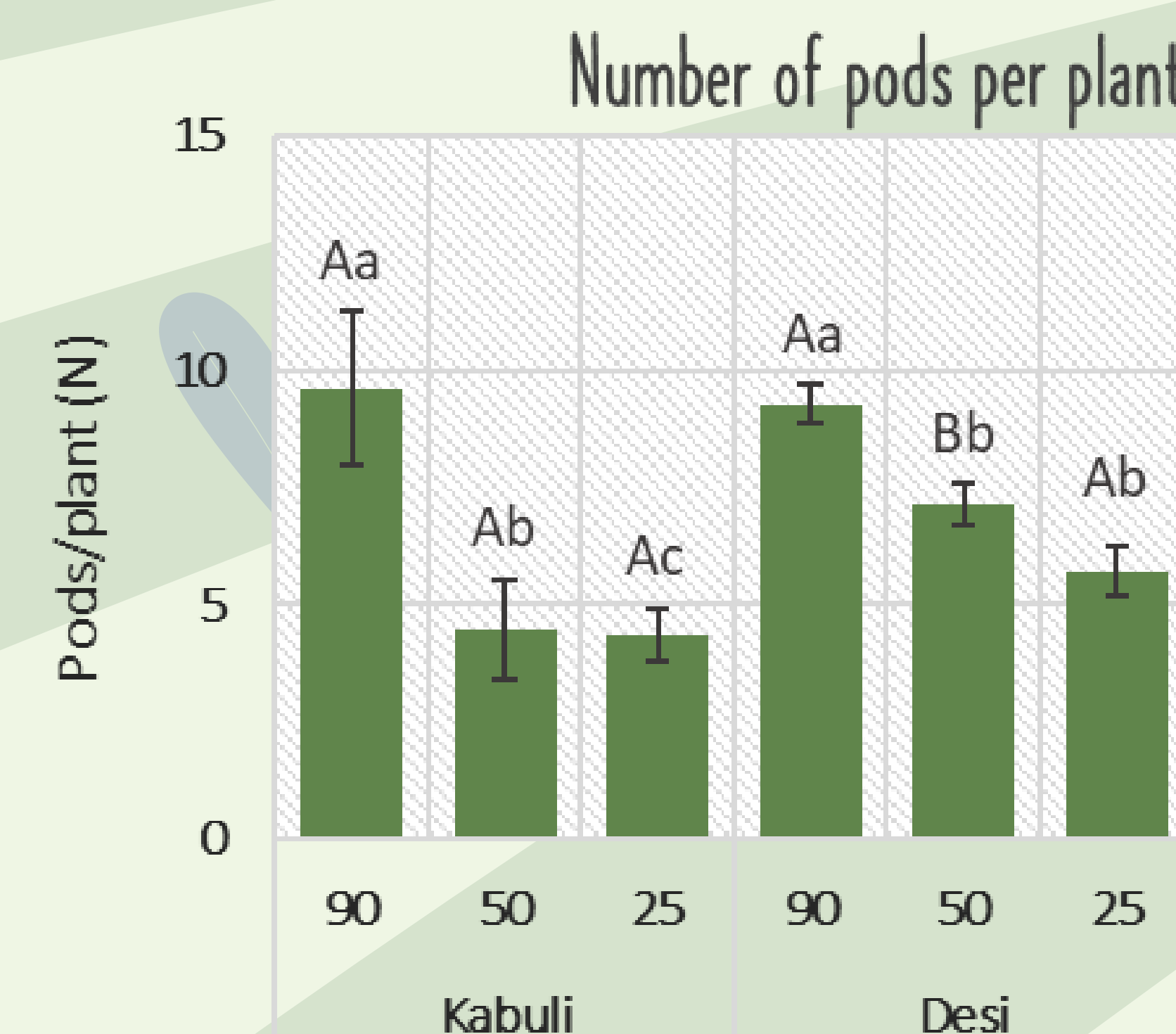


At the lowest water supply:

- ✓ root and stem **dry weight** decreased in both genotypes (up to 48% in roots and 35% in shoots).
- ✓ the desi chickpeas had a higher shoot dry weight (170%) than kabuli.

✓ The **number of seeds** per plant decreased by 54% at 50 and 25% FC in kabuli, and only 23-39% in desi.

✓ Seed **zinc concentration** was 47% and 65% higher in desi at 50 and 25% FC, respectively.



Figures: Values represent the mean \pm standard error of 10 replicates. Different letters denote statistically different means at $p < 0.05$ (ANOVA). Upper case letters compare the same water treatment between different varieties and lower-case letters different water treatments within the same variety.

ACKNOWLEDGEMENTS

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