



BIOCHAR'S ADDED VALUE IN SUSTAINABLE LAND USE WITH TARGETED APPLICATIONS IN OPEN-FIELD CULTIVATION

M. Jozefczak¹, S. Vandionant¹, A. Lataf¹, D. Vandamme¹, B. Vandecasteele², A. Cuypers¹

¹Hasselt University, Centre for Environmental Sciences (CMK), Agoralaan Building D, 3590 Diepenbeek, Belgium, marijke.jozefczak@uhasselt.be

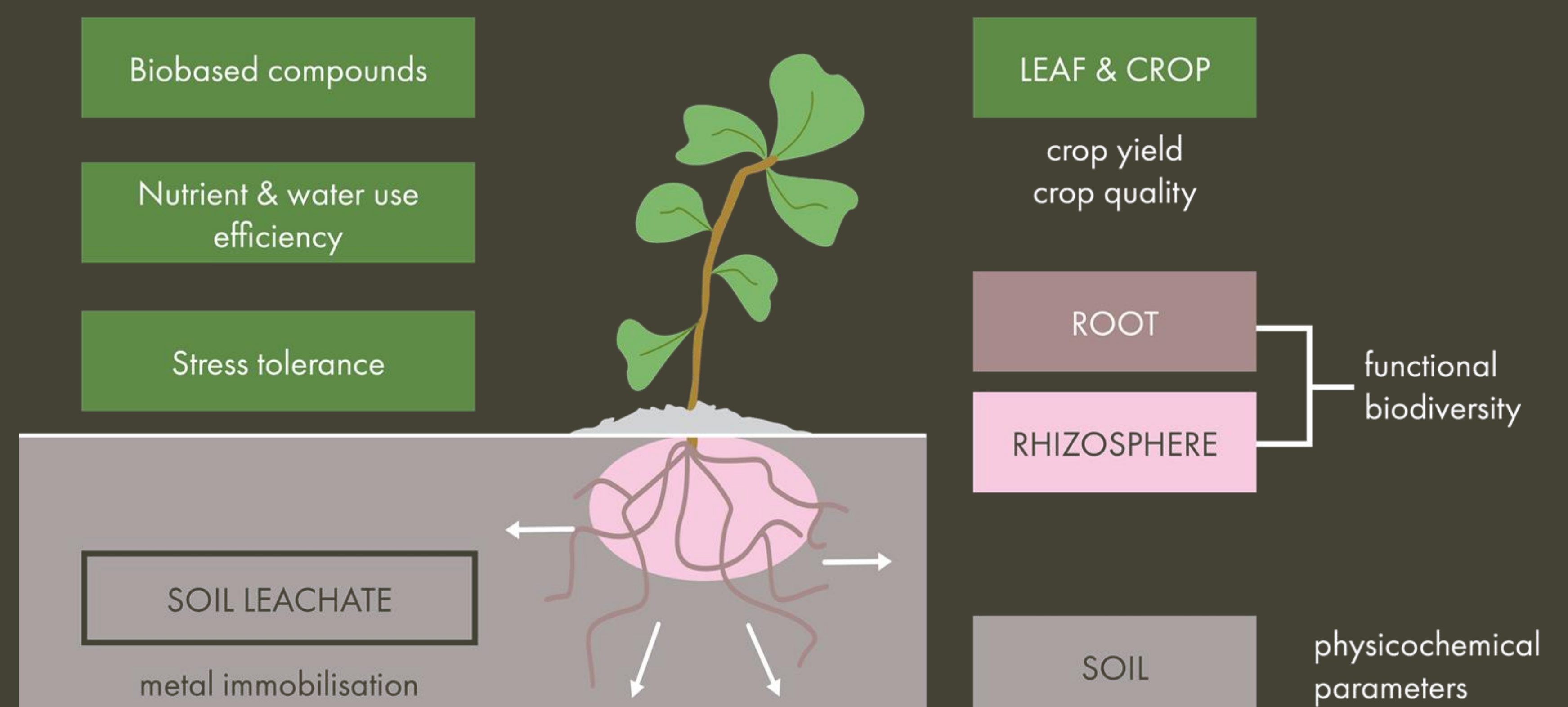
²Research Institute for Agriculture, Fisheries and Food (ILVO), Burgemeester Van Gansberghelaan 92 box 1, 9820 Merelbeke, Belgium

INTRODUCTION

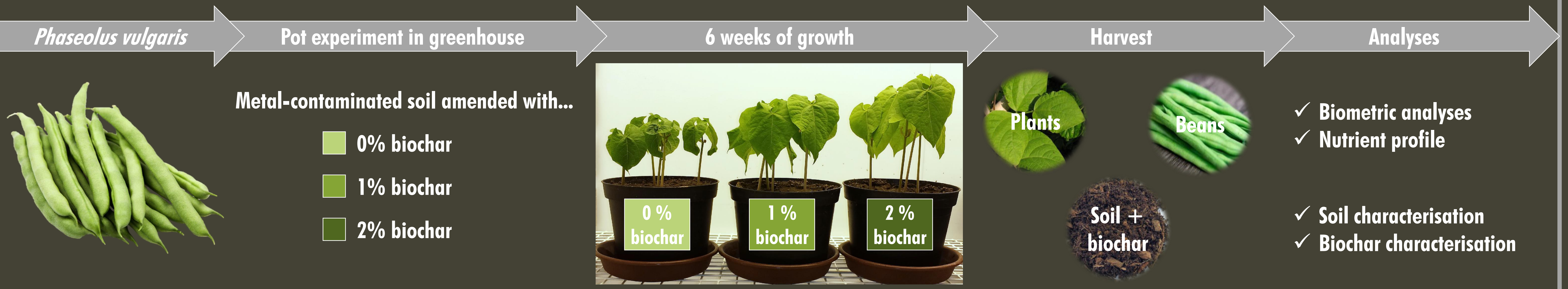
Multiple studies show promising effects of biochar as amendment to soil at the level of soil quality, crop quality and crop productivity.

Biochar is produced from organic residual biomass with low or no economic value using pyrolysis technology.

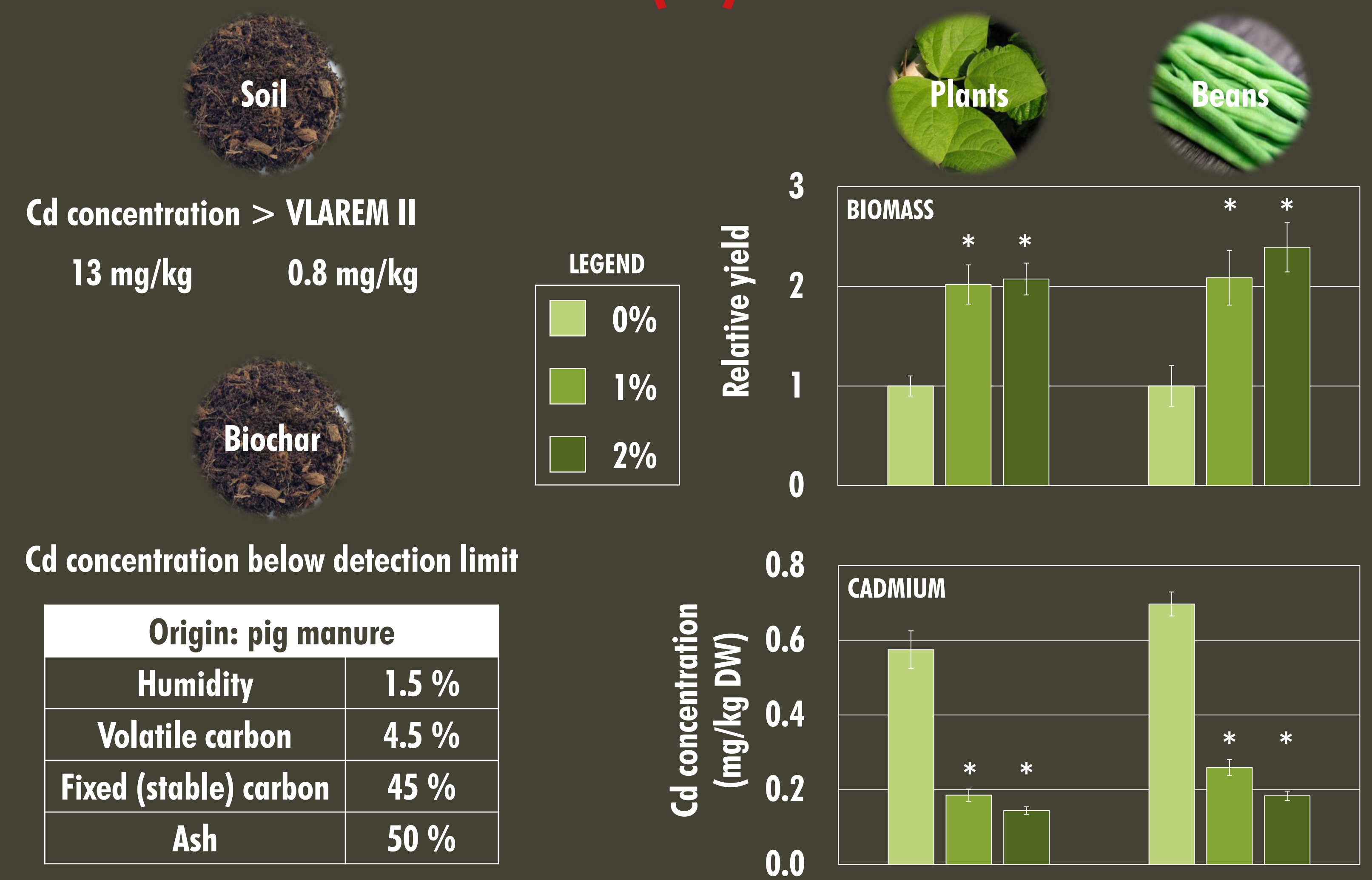
This project aims to produce economically valuable and sustainable end products for targeted applications in manure and biomass processing, growing media and open field cultivation.



EXPERIMENTAL SET-UP



RESULTS – focus on cadmium (Cd)



CONCLUSION

Phaseolus vulgaris grown on a metal-contaminated soil mixed with pig manure-derived biochar shows a higher crop yield than plants grown without biochar. This enhanced growth seems to be dose dependent within the concentration range tested.

In addition, pig manure-derived biochar diminishes Cd translocation to the aboveground parts of the plant.

These results indicate that pig manure-derived biochar could be used to enhance the growth of crops and diminish the uptake and accumulation of Cd.

Although preliminary results are promising, further research is needed to optimise the biochar and its applications (crops, soils, cultivation systems...).