

The secret life of shrubs: Biomass allometries for various shrub species in an alley cropping system

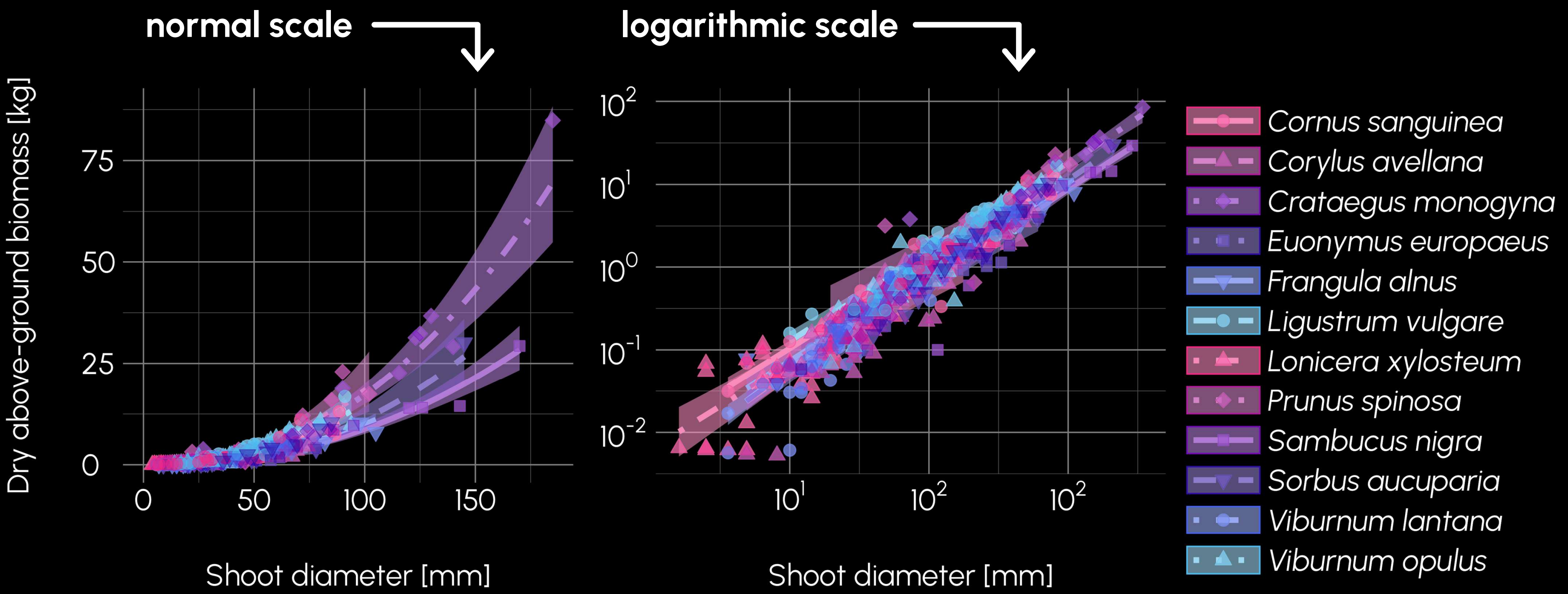
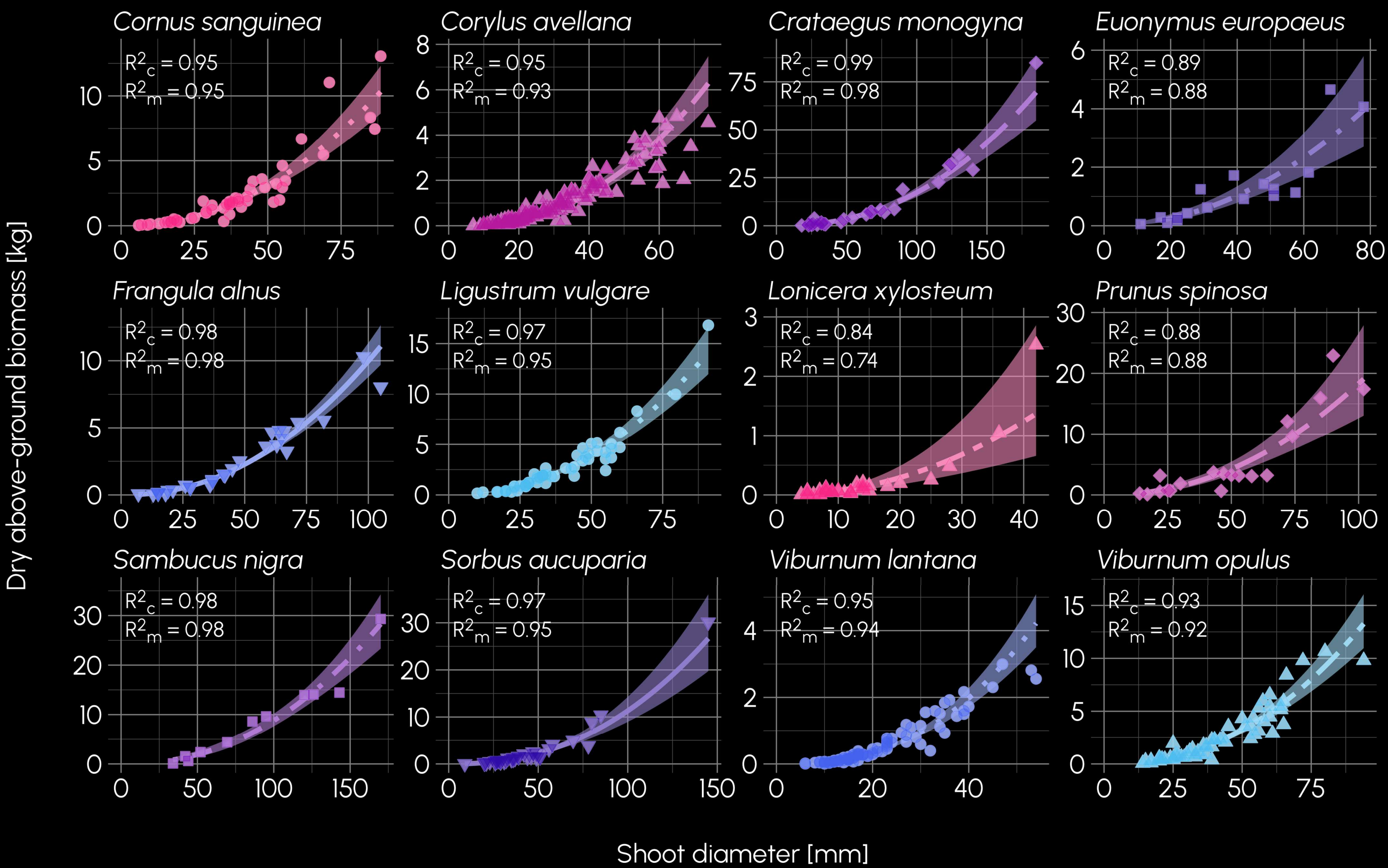
Zoe Schindler^{1*}, Elena Larysch¹, Sven Marhan², Tanja Weinand², Olef Koch³, Robert Linne¹, Christopher Morhart¹

¹ University of Freiburg, Chair of Forest Growth & Dendroecology, Freiburg im Breisgau, Germany
² University of Hohenheim, Department of Soil Biology, Stuttgart, Germany
³ University of Hohenheim, Department of Plant Ecology, Stuttgart, Germany
* Contact: zoe.schindler@wwd.uni-freiburg.de

Introduction

- In Europe, hedgerows on agricultural land are one of the **most common** types of **agroforestry system** (AFS) ^{1,2}
- Hedgerows provide various economic, ecological & cultural **benefits** ³⁻⁵
- While **detailed information** on tree growth has been documented in yield tables already more than 200 years ago ⁶, such information is **scarce** for shrubs ⁷
- Lack of information on shrubs might be due to **low economic importance** & **methodological challenges** ^{7,8}
- Research goal:** gather detailed information on shrub biomass at the level of individual shoots & provide according allometric models

Results

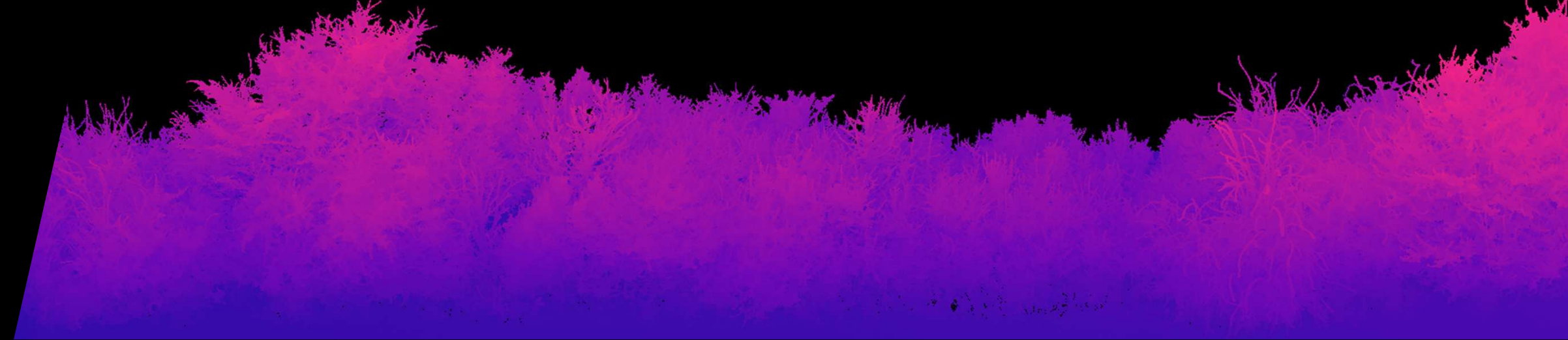


References

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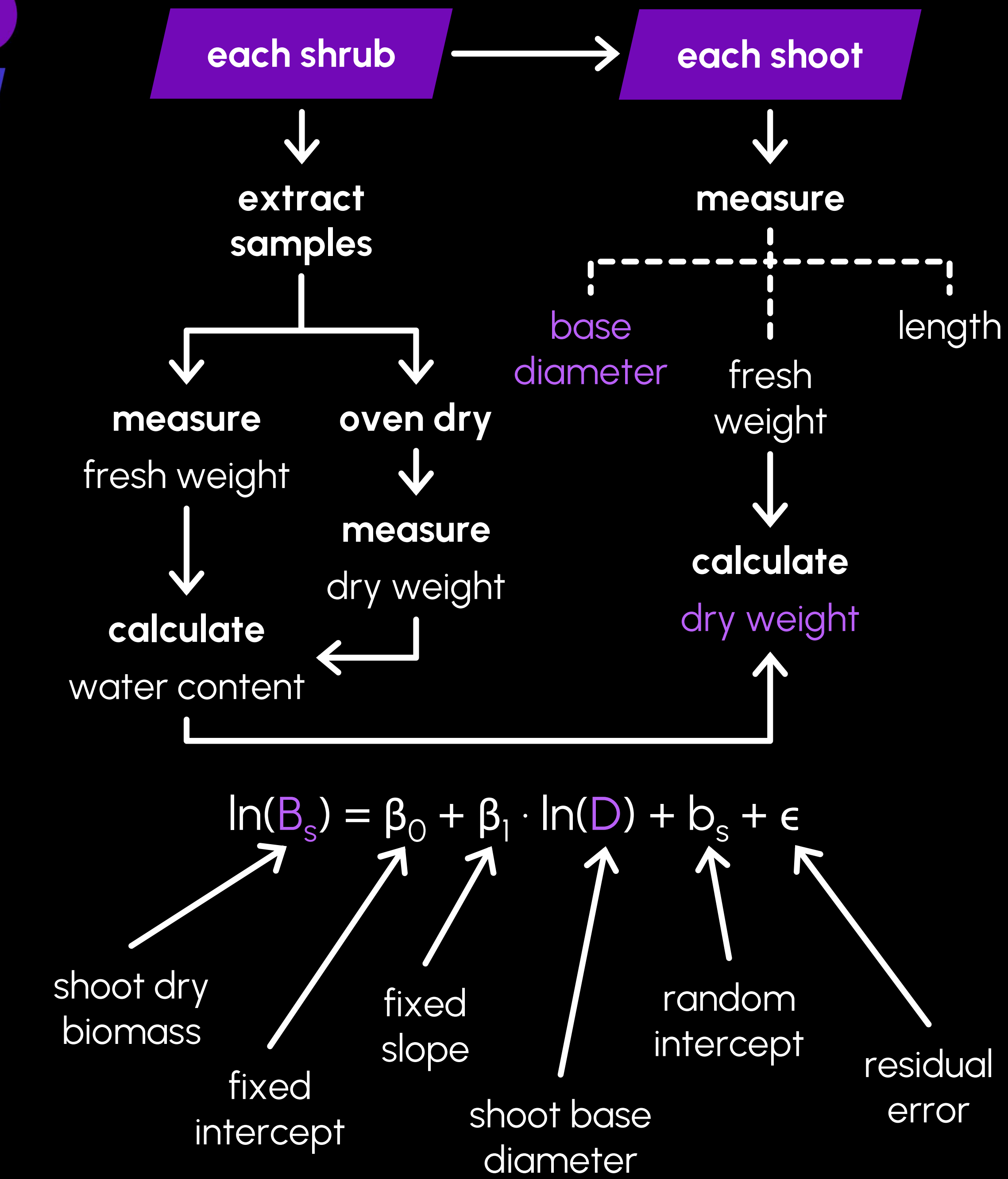
Thanks for reading! This research will be submitted as a paper. Once published, you may find it at www.humax-projekt.de or at www.agroforst-info.de/modema.

point cloud of one of the hedgerows



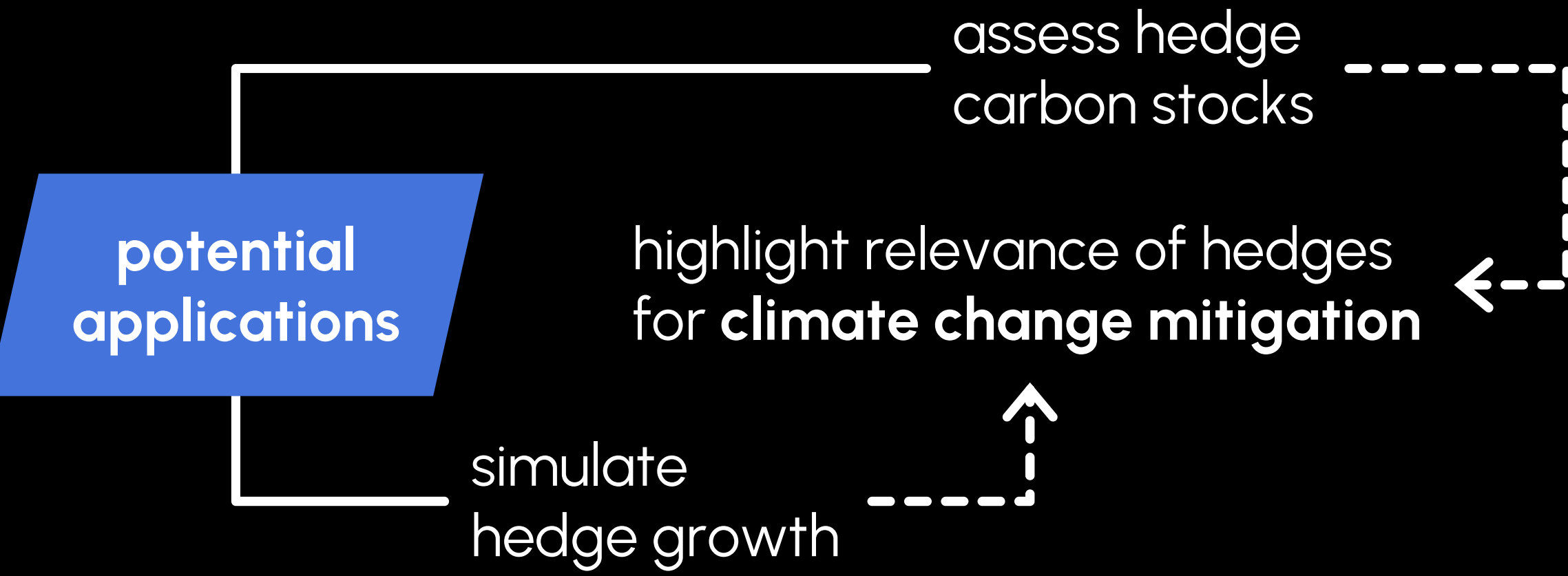
Methods


- Destructive sampling** of shrubs in hedgerows within a temperate alley cropping AFS (Ihinger Hof, University of Hohenheim, Germany) in February 2025
- Each shoot** of the shrubs was cut off close to the ground & measured individually
- Dry above-ground shoot biomass** was modelled for each species from shoot base diameter using power functions



Discussion

- Shoot biomass of shrubs can be **well modelled** using base diameter only ($0.74 \leq R^2_m \leq 0.98$)
- **Exponential relationship** between shoot biomass & diameter, **similar to tree biomass & stem diameter** ⁹



With support from
 Federal Ministry of Agriculture, Food and Regional Identity
 Project manager
Federal Office for Agriculture and Food

This research is a collaborative effort of the HUMAX, MODEMA and MARVIC projects.
The **HUMAX** project is supported by funds of the Federal Ministry of Agriculture, Food and Regional Identity (BMLEH) based on a decision of the Parliament of the Federal Republic of Germany via the Federal Office for Agriculture and Food (BLE) under the Climate protection measure Humus, grant number 2822HUM010.
The **MODEMA** project is supported by funds of the Federal Ministry of Agriculture, Food and Regional Identity (BMLEH) based on a decision of the Parliament of the Federal Republic of Germany via Agency for Renewable Resources (FNR) under the funding programme "Sustainable Renewable Resources", grant number 2222NR061.
The project **MARVIC** is co-funded by the European Union, grant number 101112942. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.