

P. Goliński¹, B. Golińska¹, M. Czerwiński¹, A. Paszkowski¹, K. Dąbrowska-Zielińska²

¹Department of Grassland and Natural Landscape Sciences, Poznan University of Life Sciences, Dojazd 11, 60-632 Poznań, Poland, e-mail: pgolinsk@up.poznan.pl

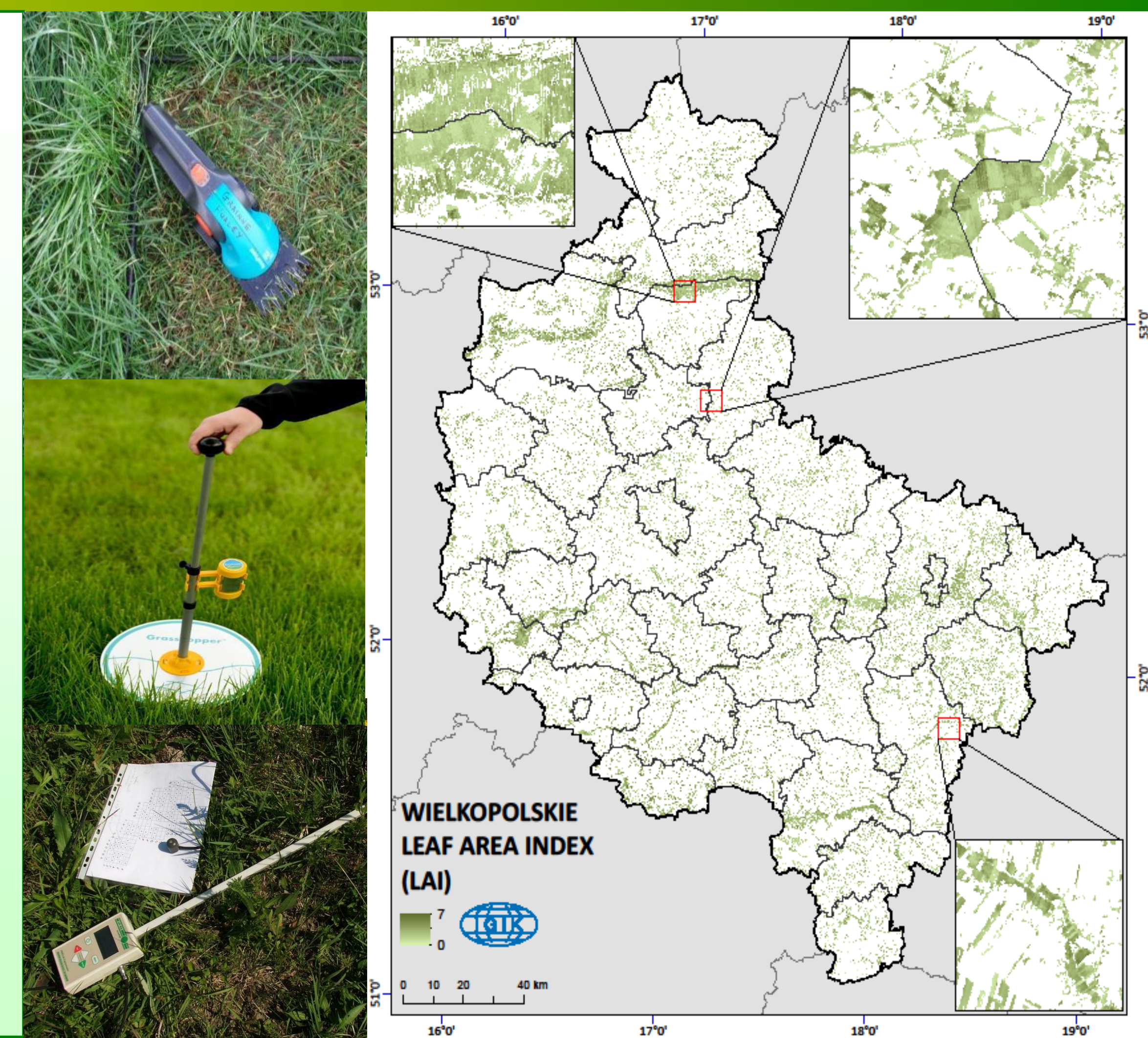
²Institute of Geodesy and Cartography, Remote Sensing Centre, Modzelewskiego 27, 02-679 Warsaw, Poland

INTRODUCTION

The aim of the study was to evaluate the suitability of LAI calculated from satellite data (LAI-sat) for grassland yield prediction based on relations between in-situ ground measured yield indicators and LAI computed from in-situ values (LAI-cept) compared to relations between those indicators and LAI-sat data.

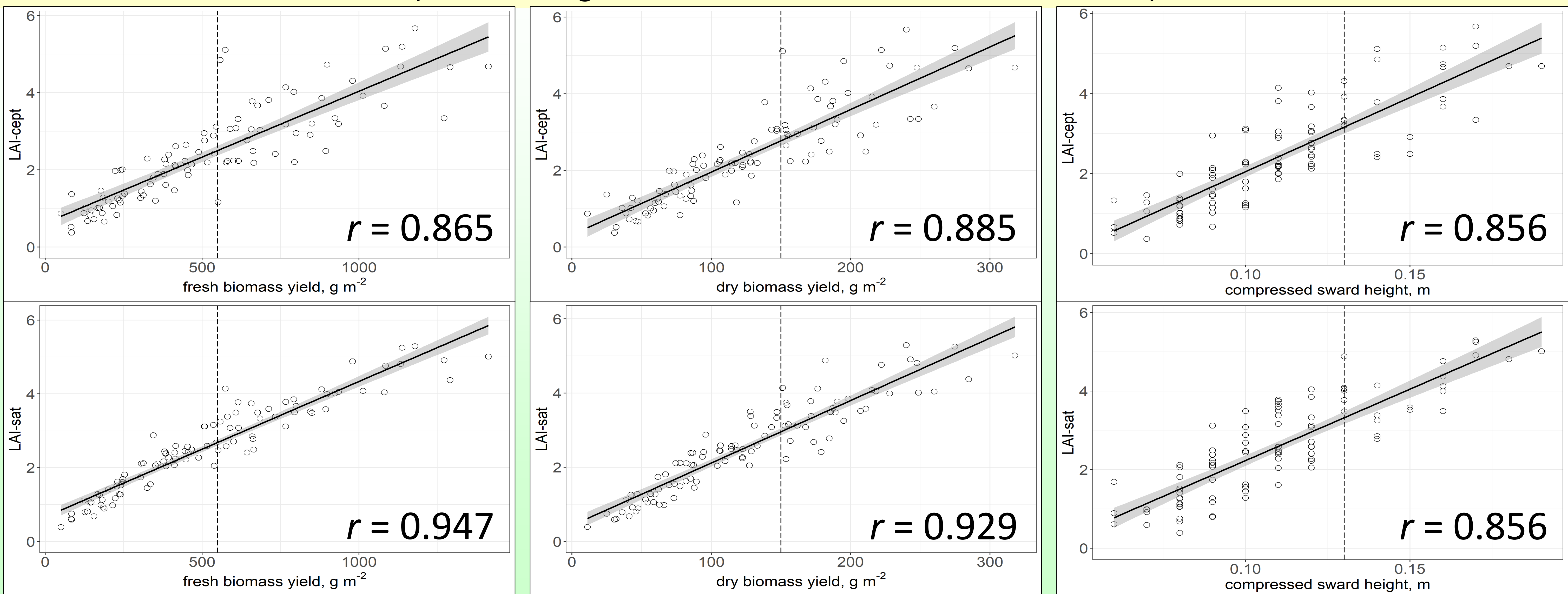
METHODS

- Investigations: 2020-2023 within the project **GrasSAT** (www.grassat.eu)
- Reference data collected on 22 permanent grasslands selected in 10 medium and large dairy farms in the region of central-western Poland.
- On each site, a 30 × 30 m plot was randomly selected for in-situ ground measurements carried out every 2-3 weeks throughout the growing season.
- The yield was represented by aboveground fresh biomass (FM), dry biomass (DM) and compressed sward height (CSH).
- LAI in-situ measured was determined with AccuPAR LP-80 ceptometer.



RESULTS

Correlation between in-situ measured LAI (LAI-cept) and remote sensing-based LAI (LAI-sat) and fresh biomass yield, dry biomass yield and compressed sward height (vertical long-dashed lines illustrate threshold values)



The authors thank the Polish-Norwegian Research Programme for co-financing the GrasSAT project (grant agreement NOR/POLNOR/GrasSAT/0031/2019-00)

CONCLUSIONS

- ❑ There is a high correlation between optically assessed LAI and fresh biomass (FM), dry biomass (DM) and compressed sward height.
- ❑ The strongest correlation coefficient values were obtained for LAI from satellite, with slightly weaker correlation values received for LAI from in-situ.
- ❑ We concluded that remote sensing-based LAI is suitable to predict grassland yields and support grassland management decisions.