

Literal stick for crop phenotyping

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Literal by Hiphen :

A stick for phenotyping :

The Literal stick was developed by Hiphen, Arvalis. It's a new imaging solution for high resolution field phenotyping on any crop.

The proposed solution is developing through an agile approach.

Two main sensors with high spatial resolution (~0.36 mm at 1.8 m height)



Currently available traits :

Green/plant covers, plant height, biovolume, wheat head density, LAI, vegetation indices (NDVI, FAPAR, VARI ...).

Data acquisition :

The data acquisition is easy and divided in different steps :

- predefine the plot map corresponding to the trial design; and
- capture the images on the field.



Trial design loaded in the Literal stick..



data acquisition on a plot.

For more information:



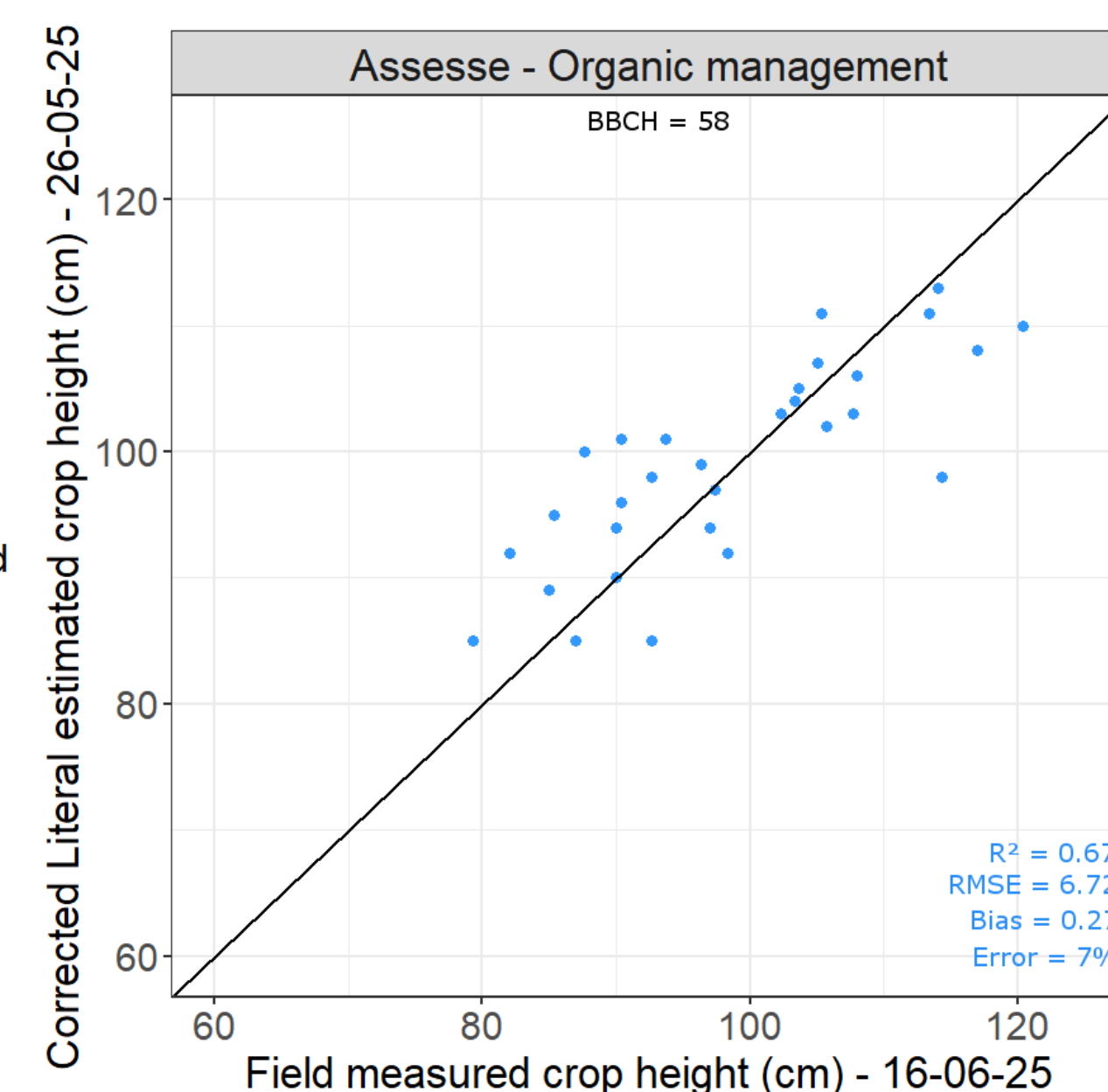
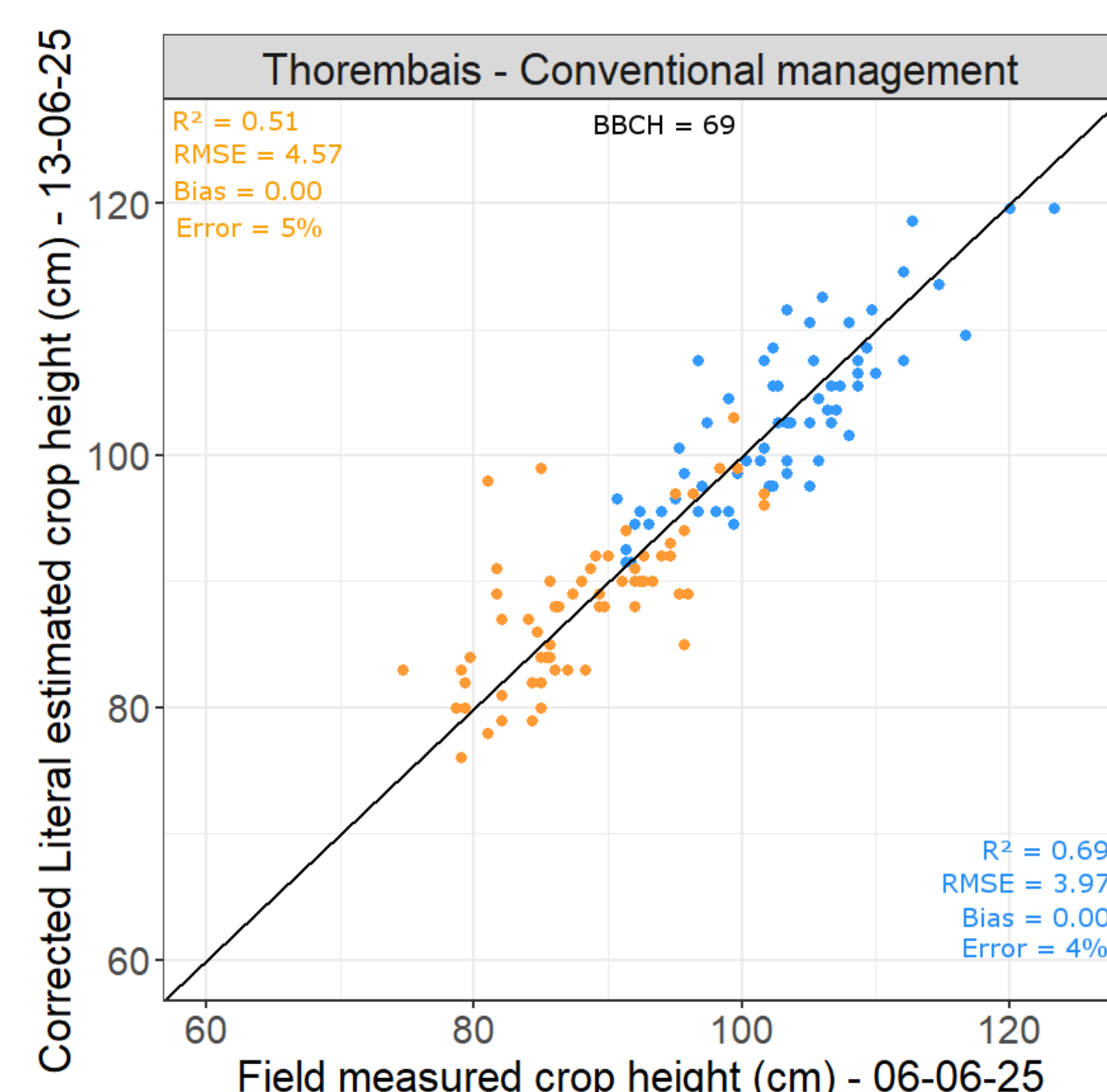
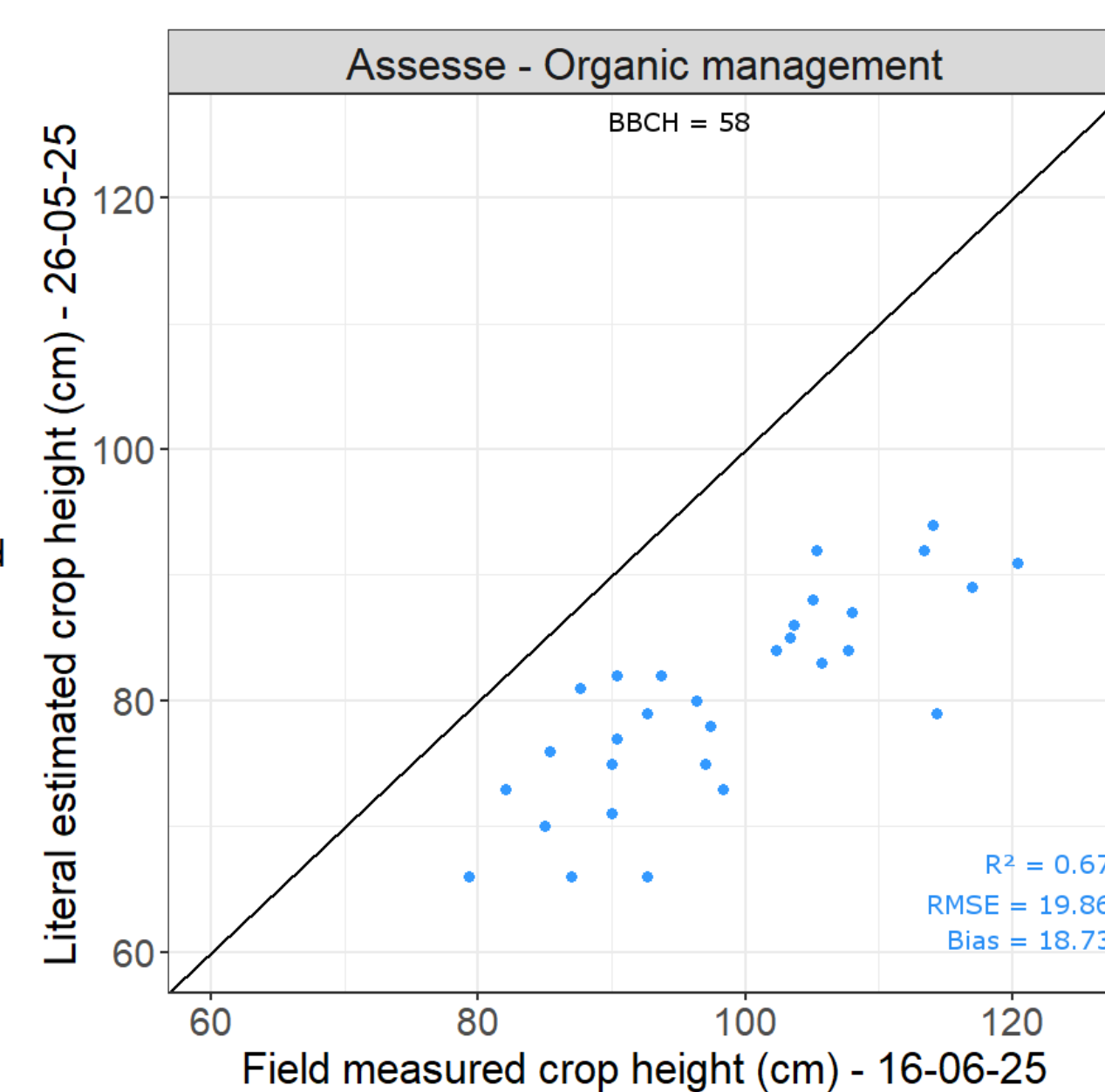
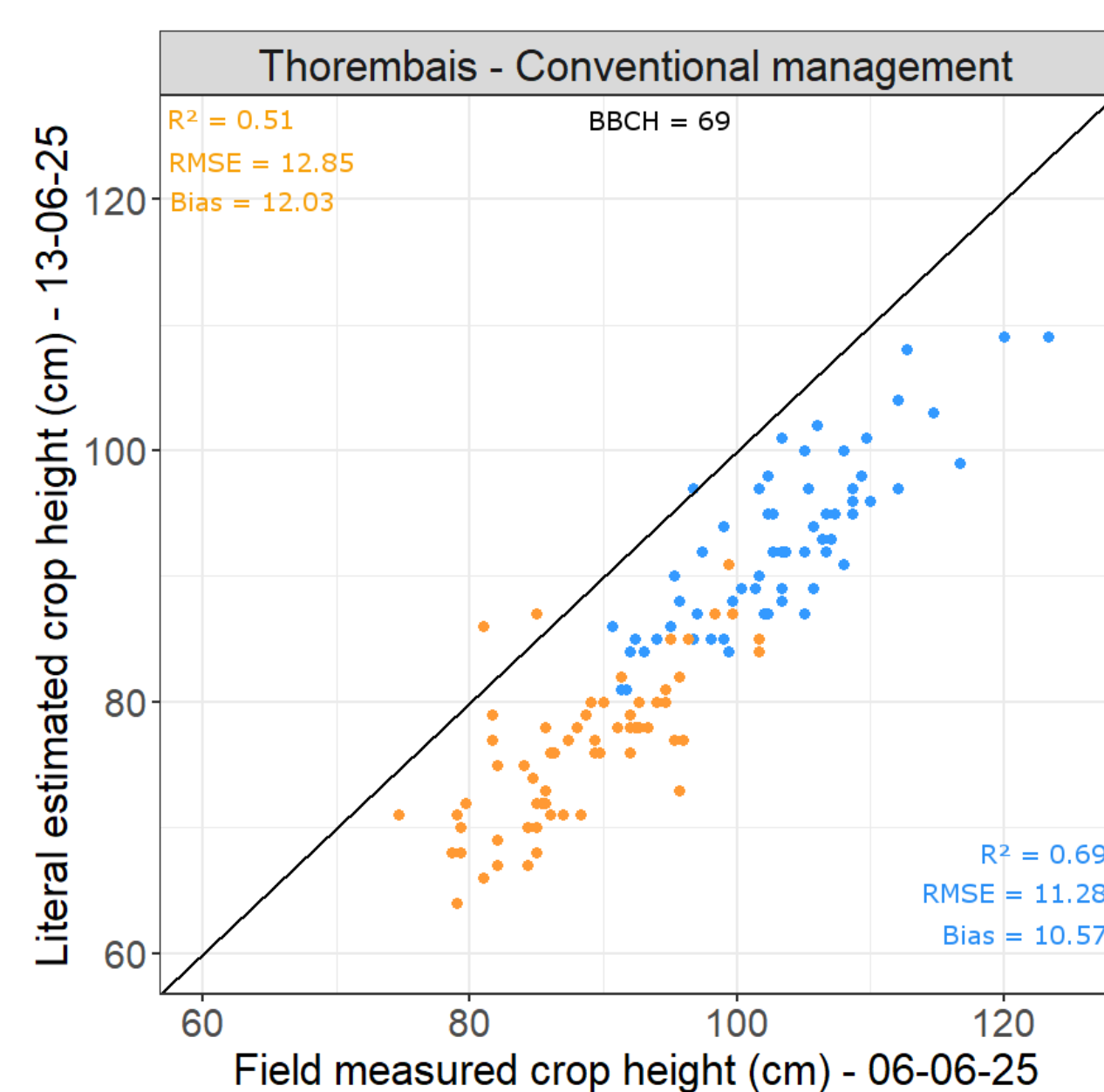
Data processing :

The acquired data are loaded in the CloverField platform to be processed by Hiphen. Results are available in few hours.

Literal use cases in CRA-W :

Crop canopy height :

- Winter wheat;
- 2 variety trials under conventional and organic management practices;
- Crop height measured on the field using a height measuring stick.
- Results :

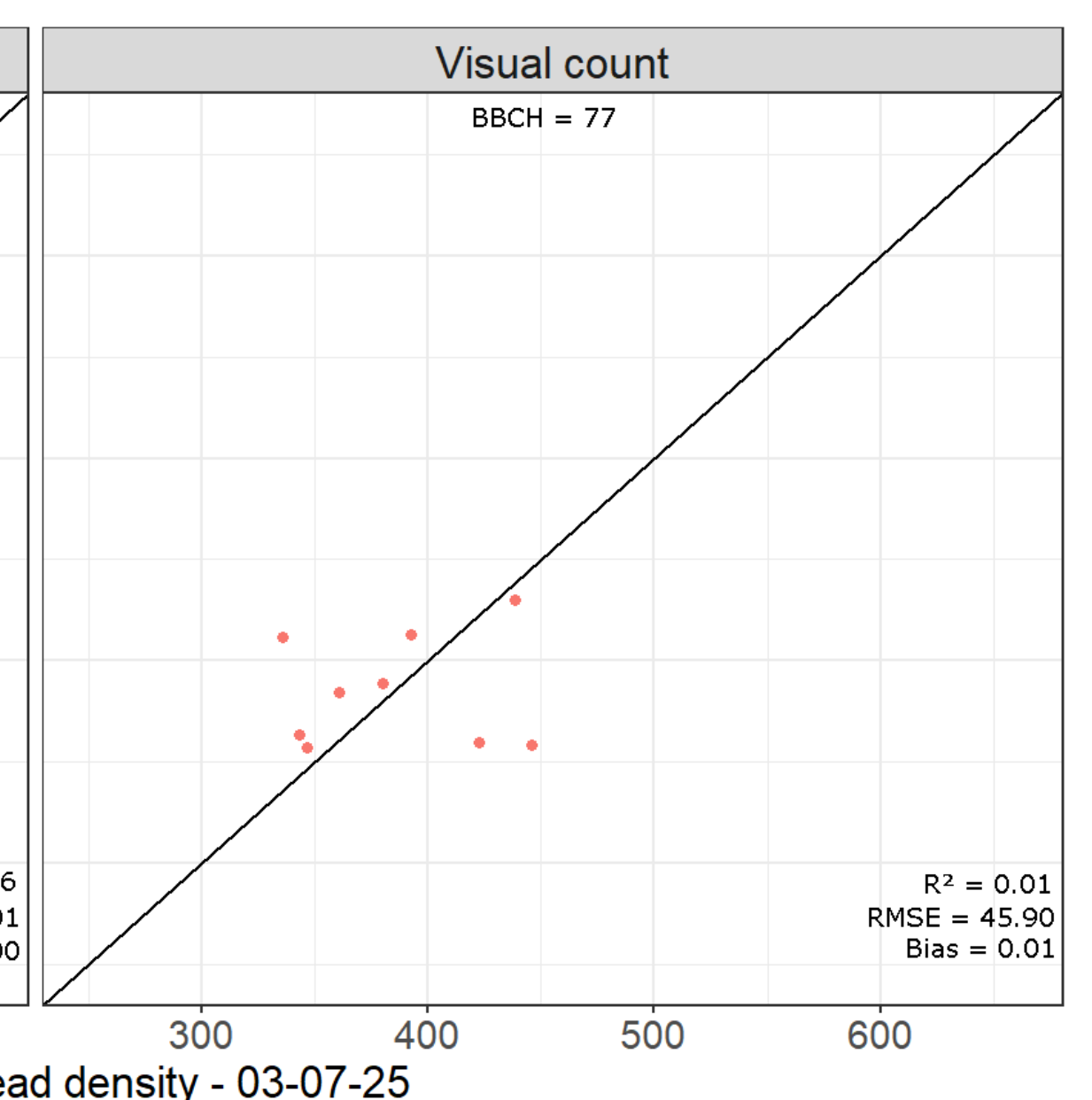
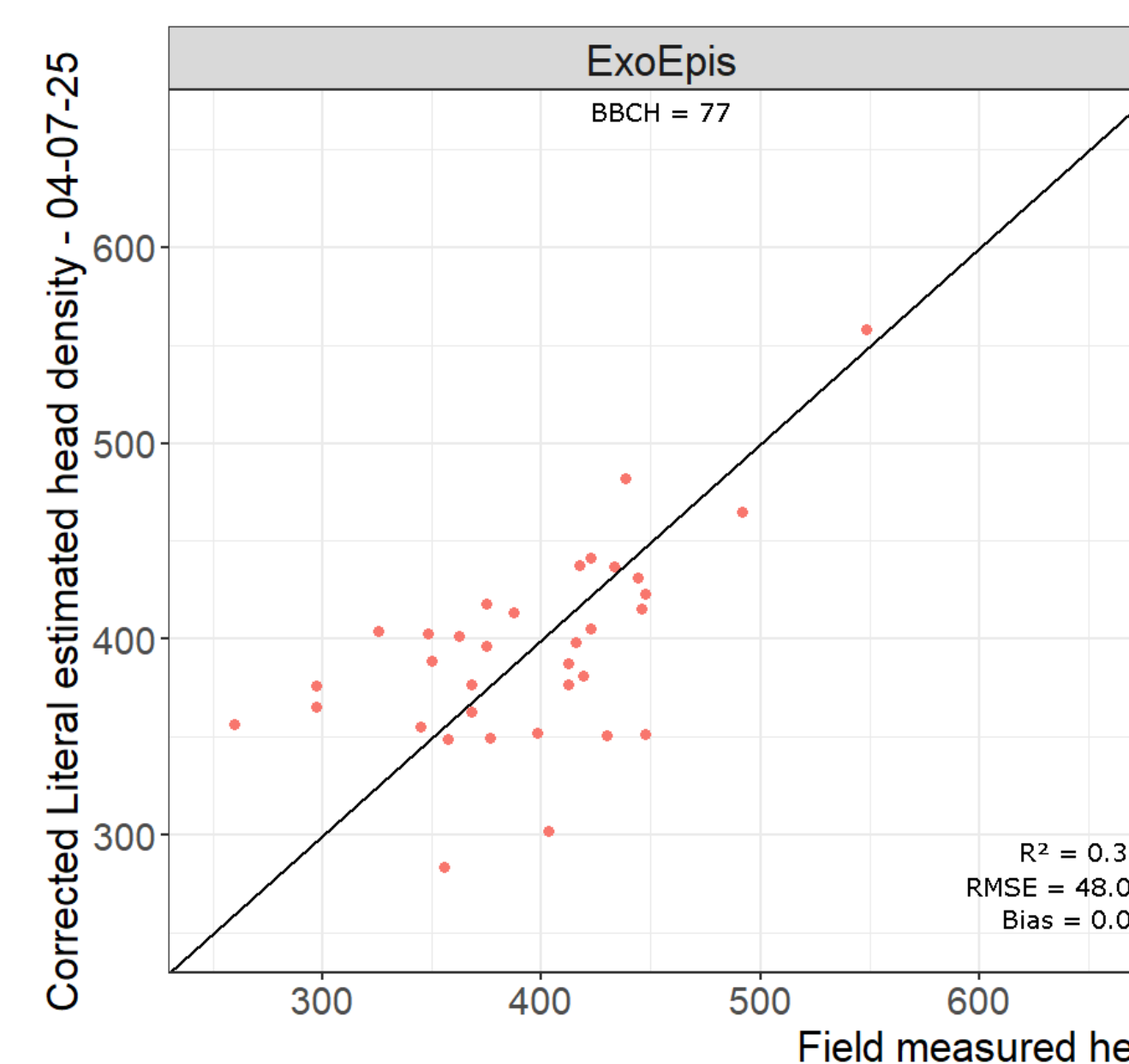
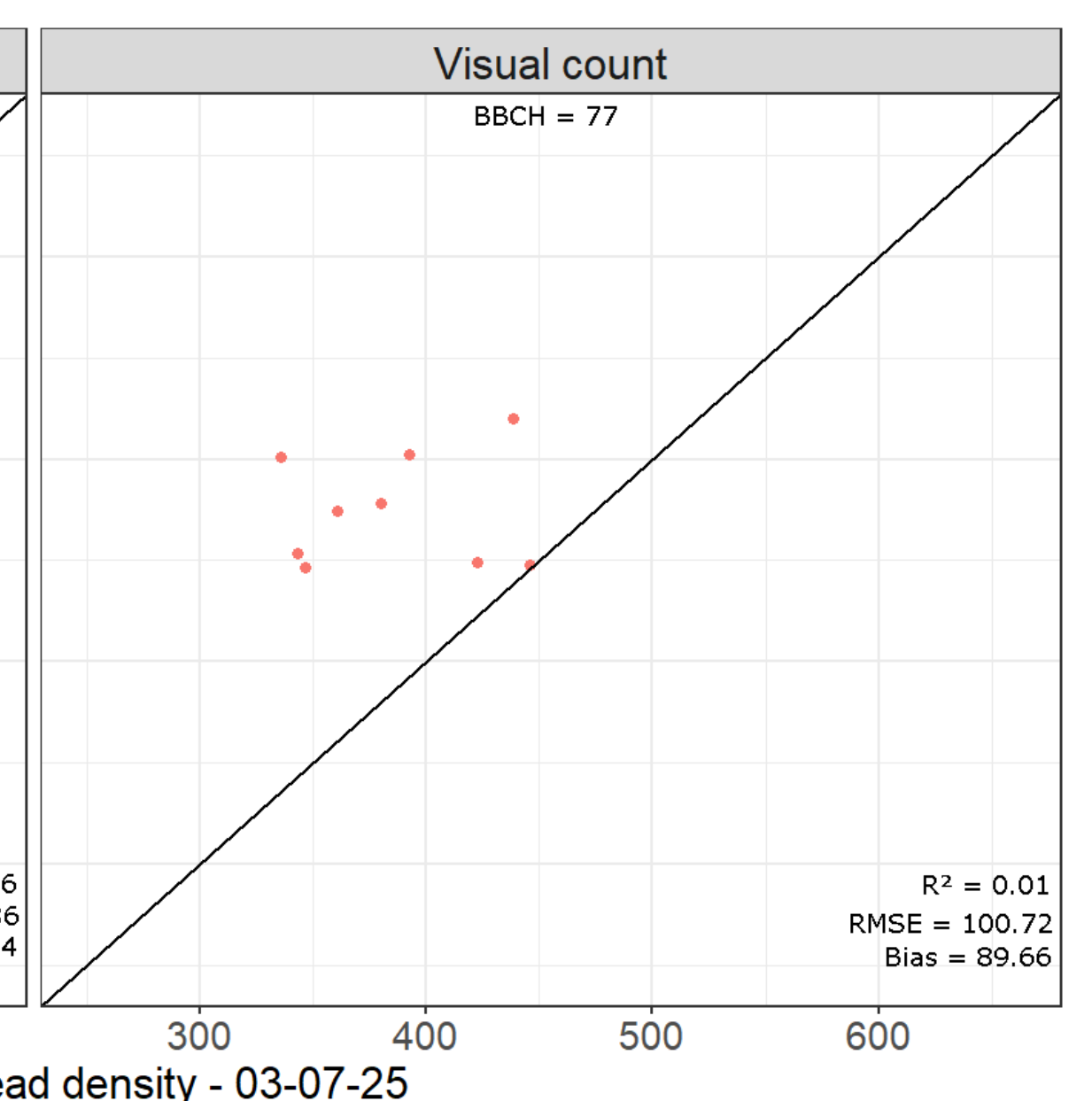
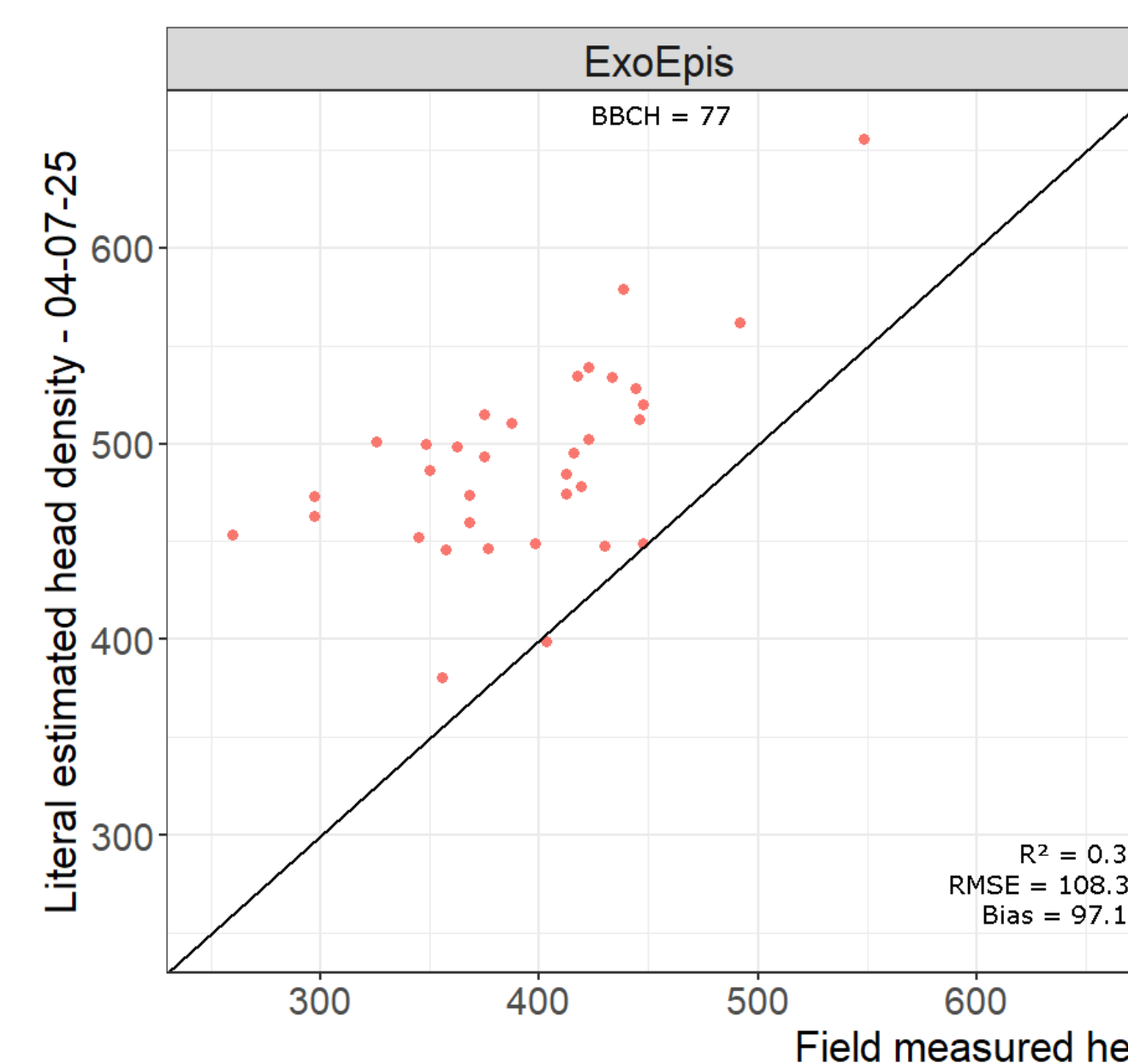


Conclusion :

Crop canopy height is under-estimated using the Literal stick. The height bias is variable according to the growing development stage ranging from 10 to 20 cm.

Head density :

- Winter wheat;
- 1 variety trial for the assessment of fusarium head blight;
- Head density measurement on the field:
 - Visual count;
 - ExoEpis application (RGB images).
- Results :



Conclusion :

Head density is over-estimated using the Literal stick. The bias could be high ranging from 90 to 97 heads.