

## Plant & Soil Supplementary Information

**Article title:** MetaPhenomics: quantifying the many ways plants acclimate to their abiotic environment, using light intensity as an example.

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**Article acceptance date:**

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**Figs S1-S12.** Each graph shows all normalised data, as well as dose-response curves and 10th, 25th, 50th, 75th and 90th percentiles. Blue and red dots indicate herbaceous and woody species, respectively. The black line connects the median values for the 10 deciles of observations. The brown line shows the fitted dose-response curve, with squares indicating the values at a Daily Light Integral (DLI) of 1 and 50 mol m<sup>-2</sup> d<sup>-1</sup>, which are used for calculation of the plasticity index. A more flexible Loess function is given by the dotted green line.

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The numbers in the figures at the top left indicate the total number of observations (and the % of data for herbaceous species), the number of species, the best-fit model and the change in the Akaike Information Criterion, when compared to the one-but best fitting model, as well as the relative weight  $w_i$  (ranging from 0 - 1) which captures how much likely this model is compared to the other ones. For the fitted model the squared deviations for all points from the fitted line (pseudo- $r^2$ ) as well as the mean absolute error (MAE) are shown, and the Consistency Index CI, which is the percentage of cases (species x experiment combinations) in which the trait was higher for the plants grown at the highest DLI level. The  $PI_{R1}$  values shows the plasticity index PI over the 1 - 50 mol m<sup>-2</sup> d<sup>-1</sup> range, for the selected model.

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The data in the lower left show the range of DLI over which data are present and used for the curve fitting (with cut-off points at 0.1 and 60 mol m<sup>-2</sup> d<sup>-1</sup>). Also shown is the reliability index RI, on a relative scale between 1-10. The numbers in the top-right panel show the fitted values for the parameters of the selected model of the dose-response curve. Numbers at the bottom right show the PI values as fitted for herbaceous and woody species separately, as well as the PI values for the 4-24 mol m<sup>-2</sup> d<sup>-1</sup> range ( $PI_{R2}$ ) and the 6 - 16.9 mol m<sup>-2</sup> d<sup>-1</sup> range ( $PI_{R3}$ ).

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Fig. S1: Volumetric Fraction of Airspaces in the leaves (VoFrAs)

Fig. S2: Stem diameter (SteDia).

Fig. S3: Slenderness Index (SleInd).

30 Fig. S4: Carbon/Nitrogen Ratio of Leaves ( $C/N_L$ ).

Fig. S5: Nitrogen/Phosphorous Ratio of Leaves ( $N/P_L$ )

Fig. S6: Carotenoids/Chlorophyll in the leaves(Caro/Chl)

Fig. S7: Apparent Quantum Yield (ApQuYi).

Fig. S8: Photosynthetic Nitrogen Use Efficiency measured at growth light conditions ( $Phot/N^{GL}$ ).

35 Fig. S9: Discrimination against  $^{13}CO_2$  ( $\Delta^{13}C$ ).

Fig. S10: Instantaneous Water Use Efficiency (iWUE)

Fig. S11: Leaf Respiration Rate per unit leaf Area (Resp/A)

Fig. S12: Time from germination to Flowering (TiToFl)

Fig. S01 : Summary plot of Volumetric Fraction of Airspaces

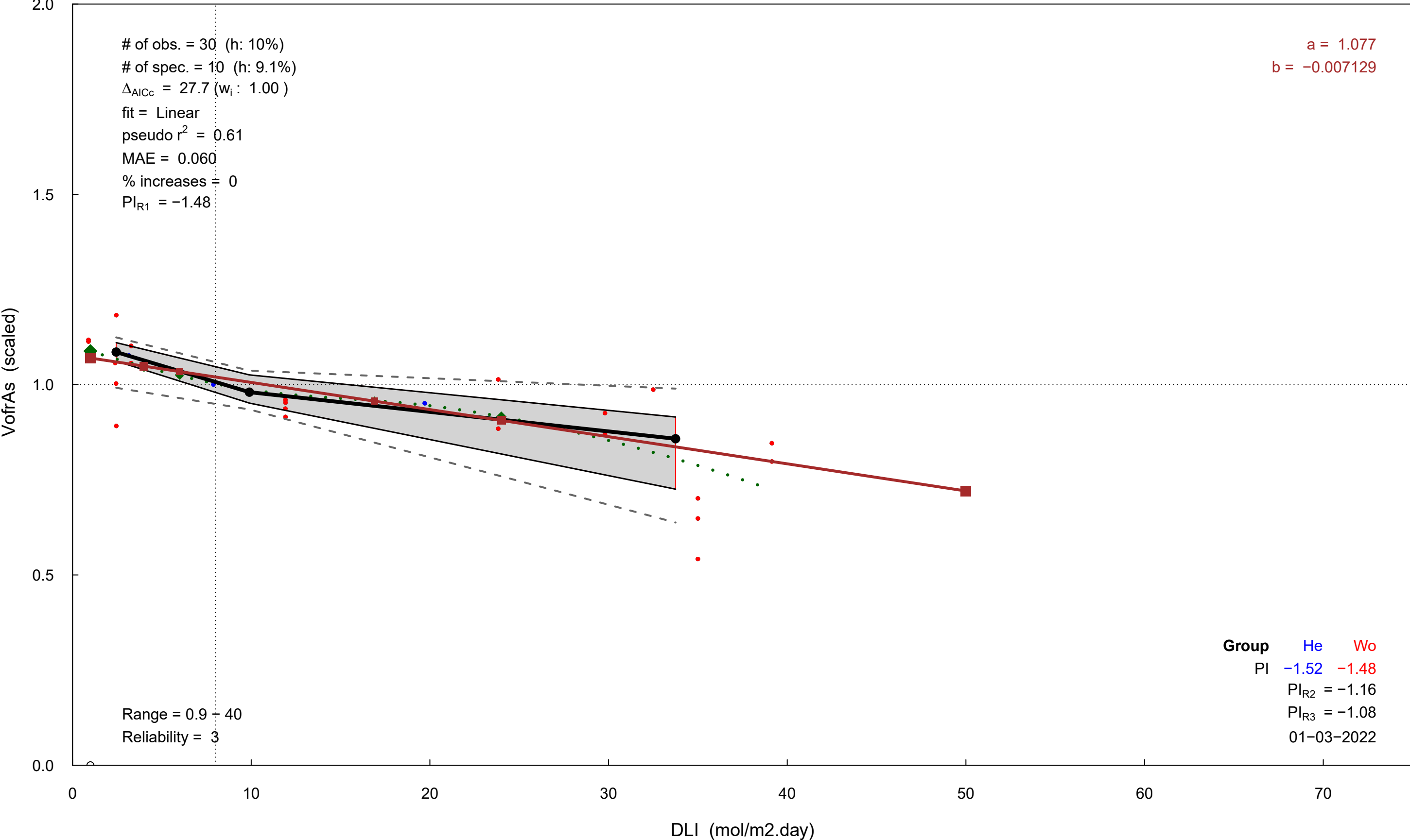


Fig. S02 : Summary plot of Stem Diameter

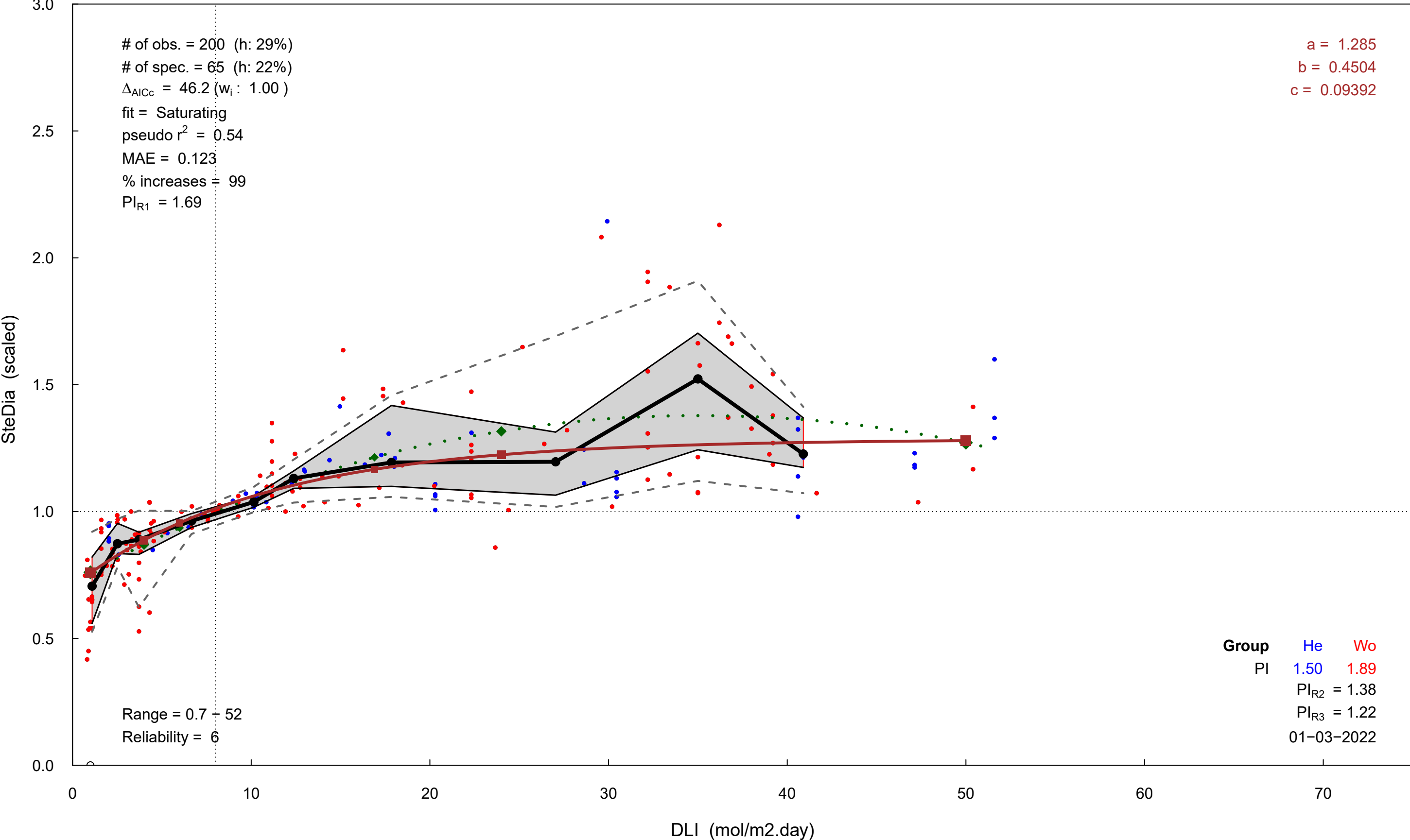


Fig. S03 : Summary plot of Slenderness Index

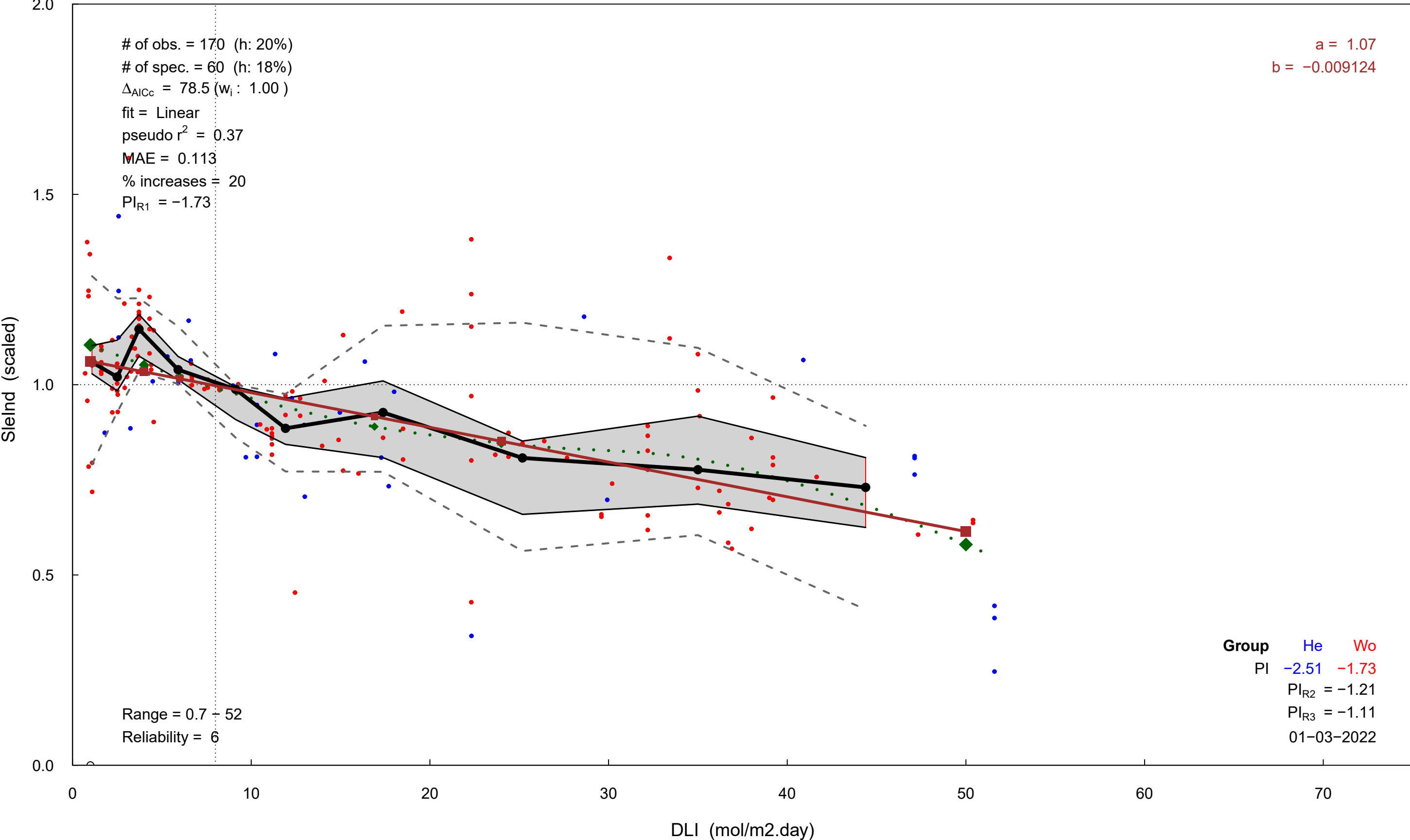


Fig. S04 : Summary plot of Leaf C/N ratio

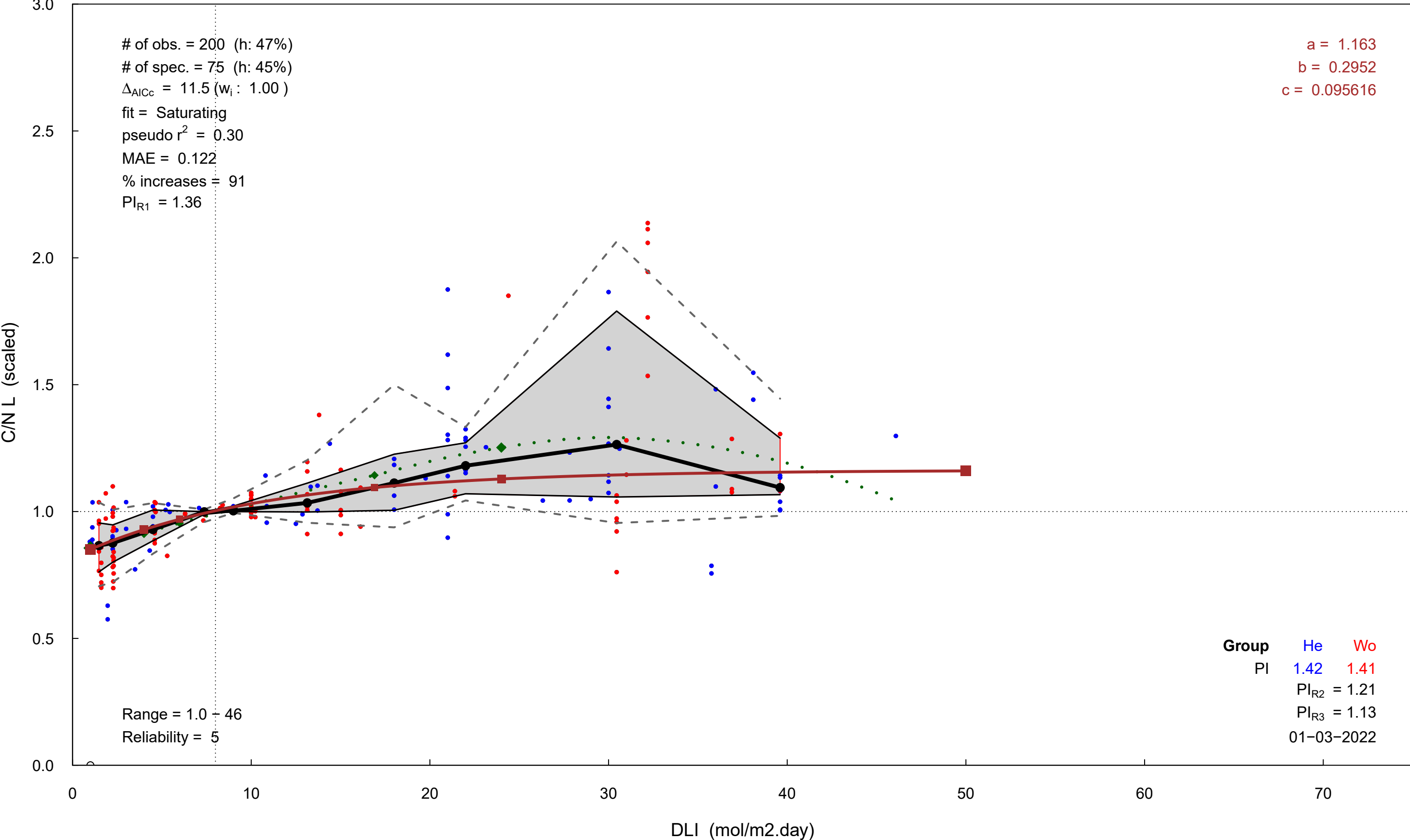


Fig. S05 : Summary plot of Leaf N/P ratio

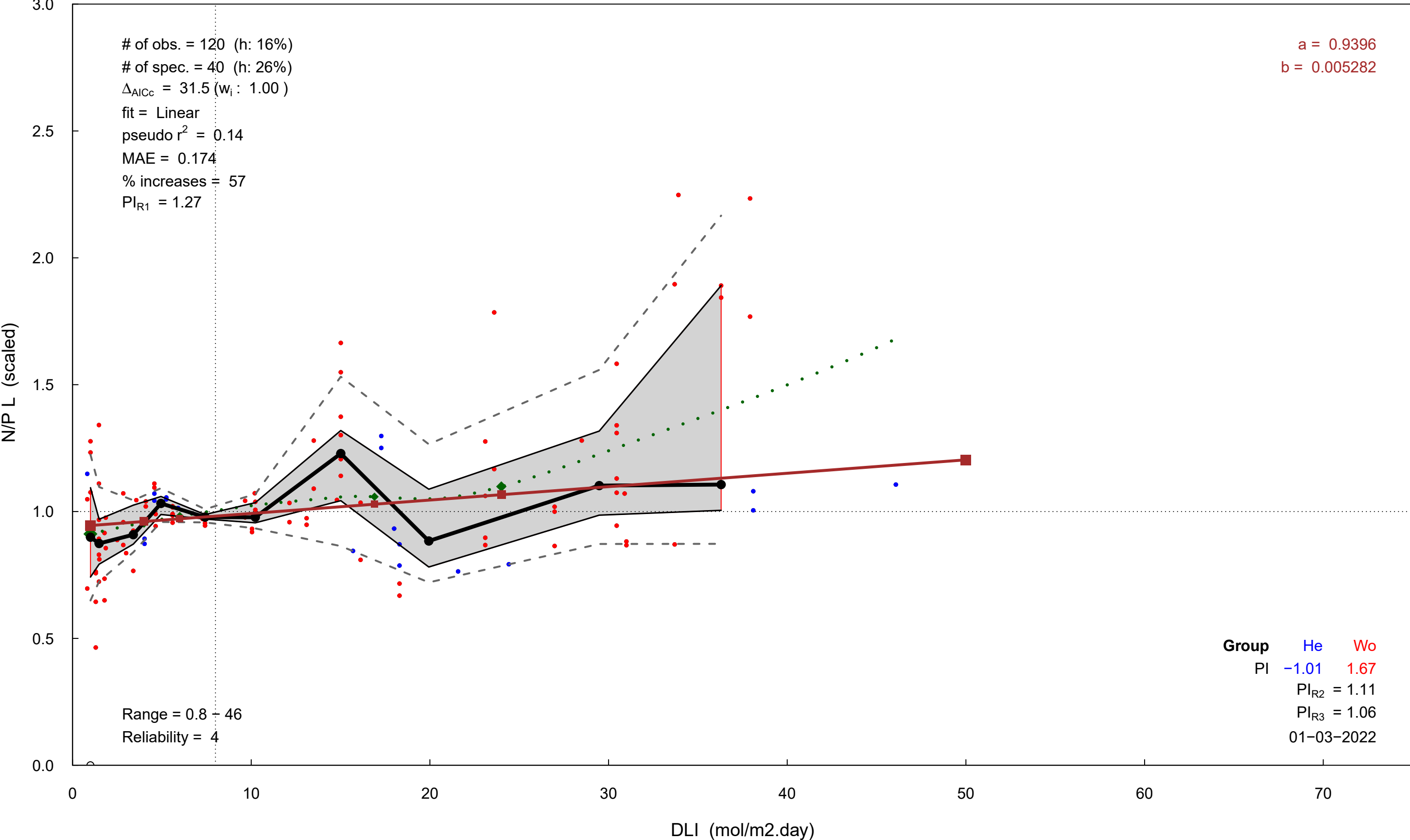


Fig. S06 : Summary plot of Carotenoids / Chlorophylls

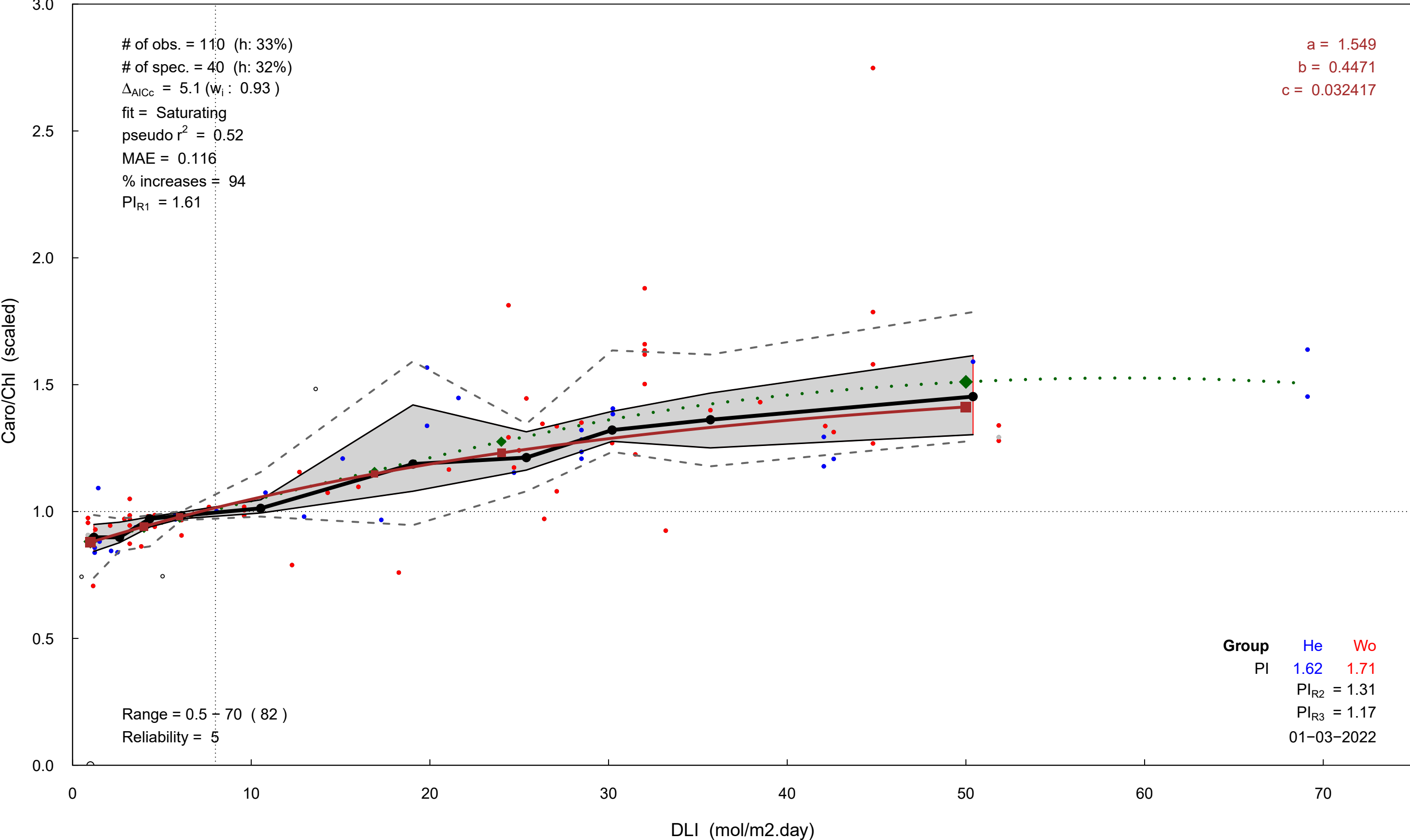


Fig. S07 : Summary plot of Apparent Quantum Yield

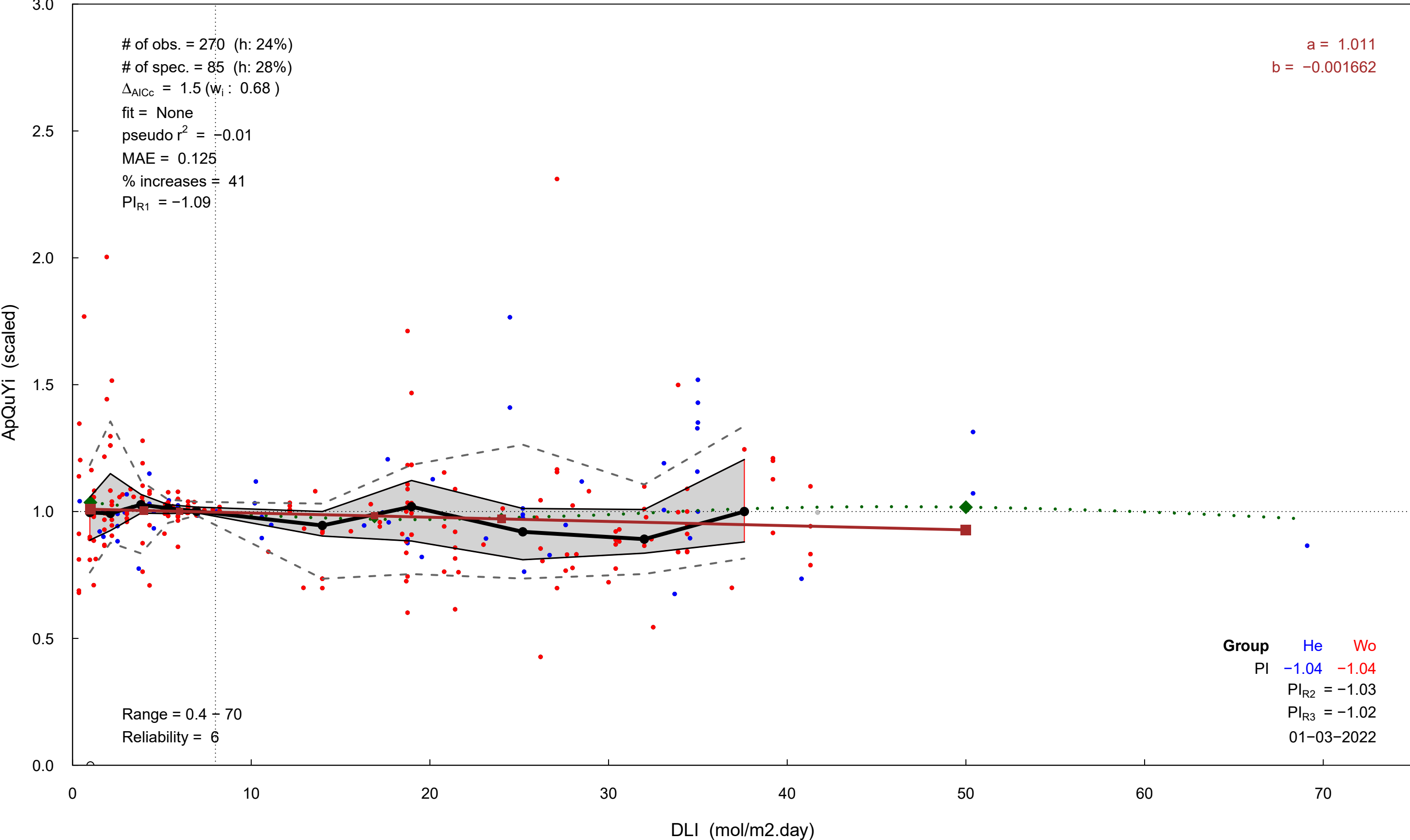


Fig. S08 : Summary plot of Photosynthesis per Nitrogen at Growth Light and [CO2]

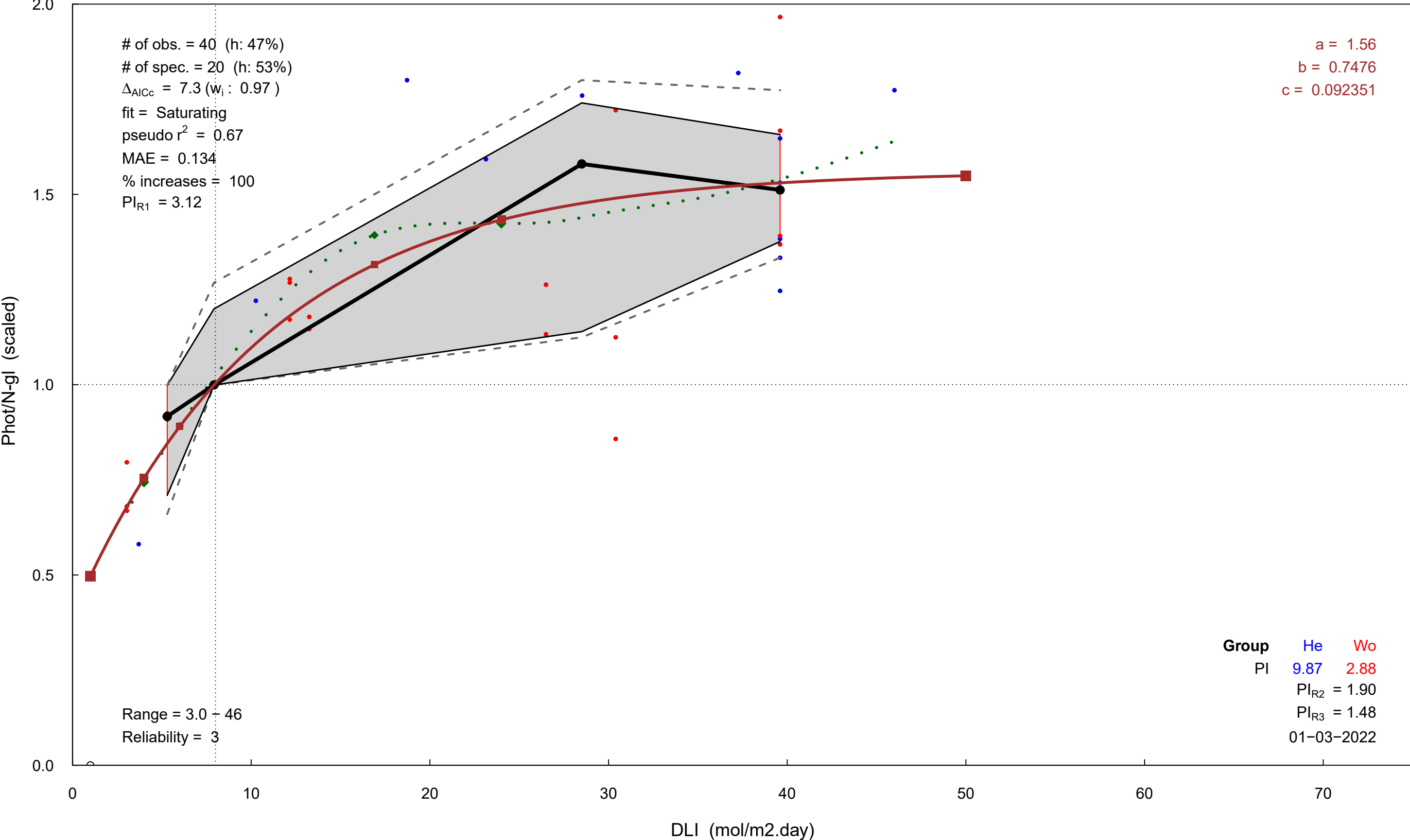


Fig. S09 : Summary plot of 13C discrimination

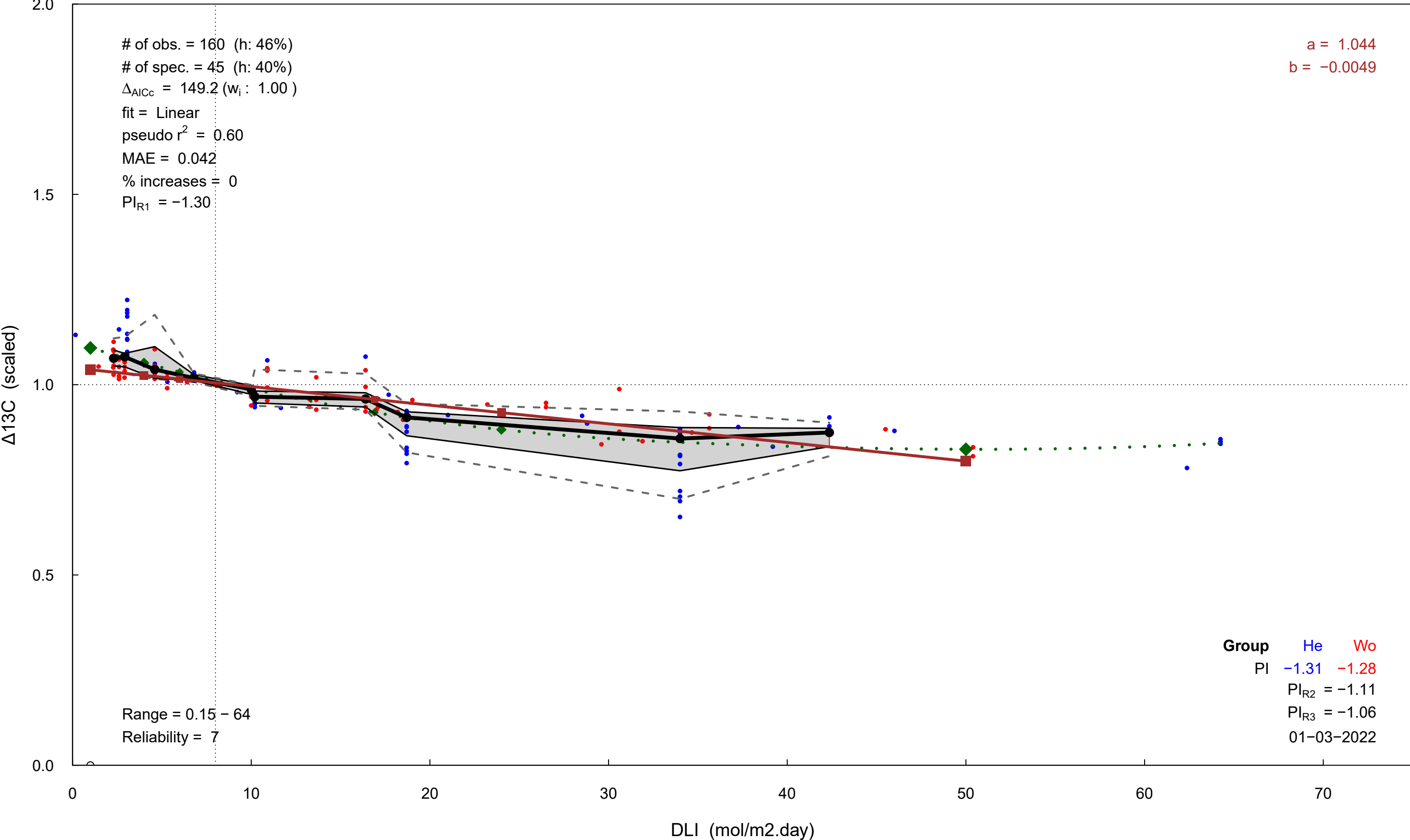


Fig. S10 : Summary plot of intrinsic Water Use Efficiency

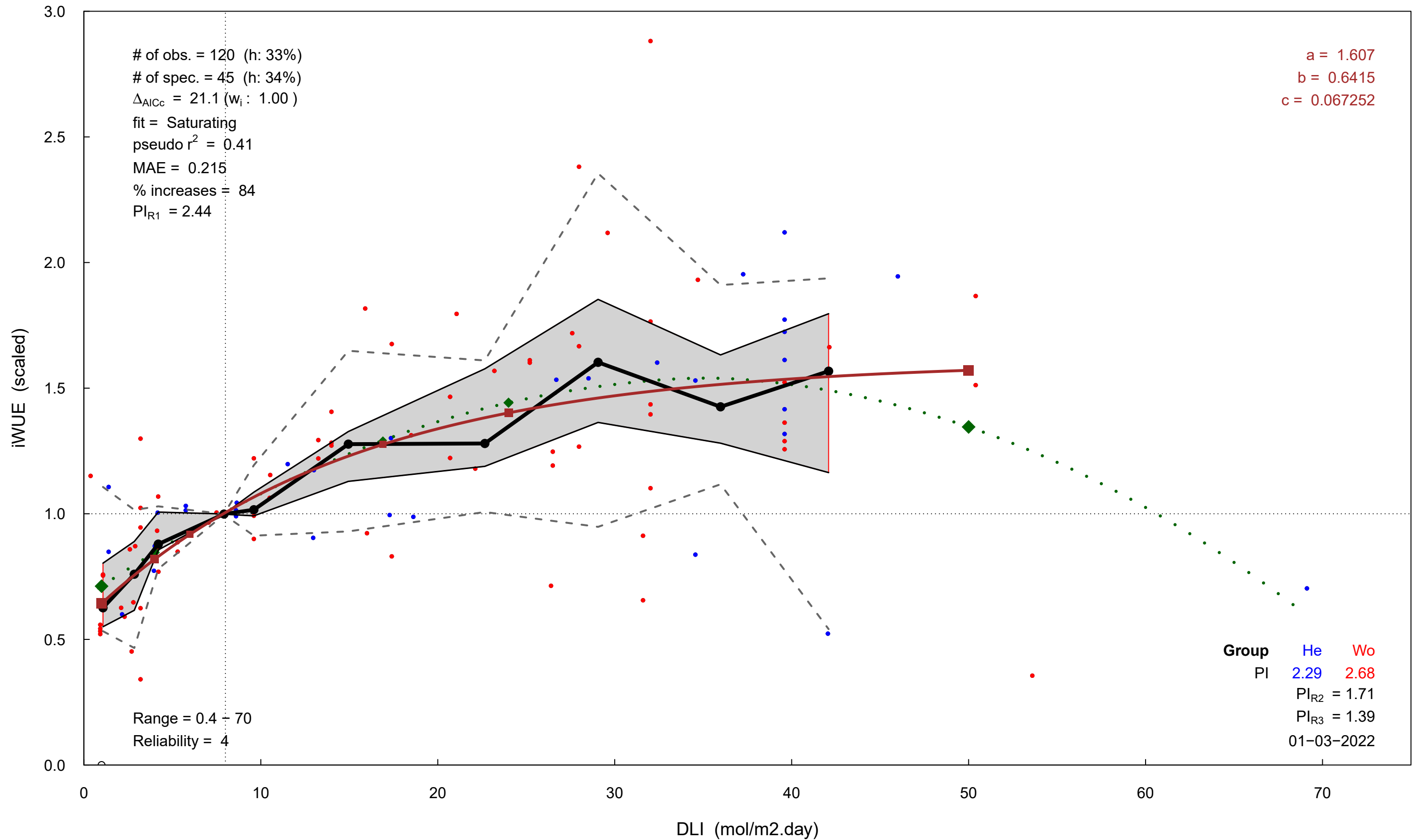


Fig. S11 : Summary plot of Leaf Respiration per Area

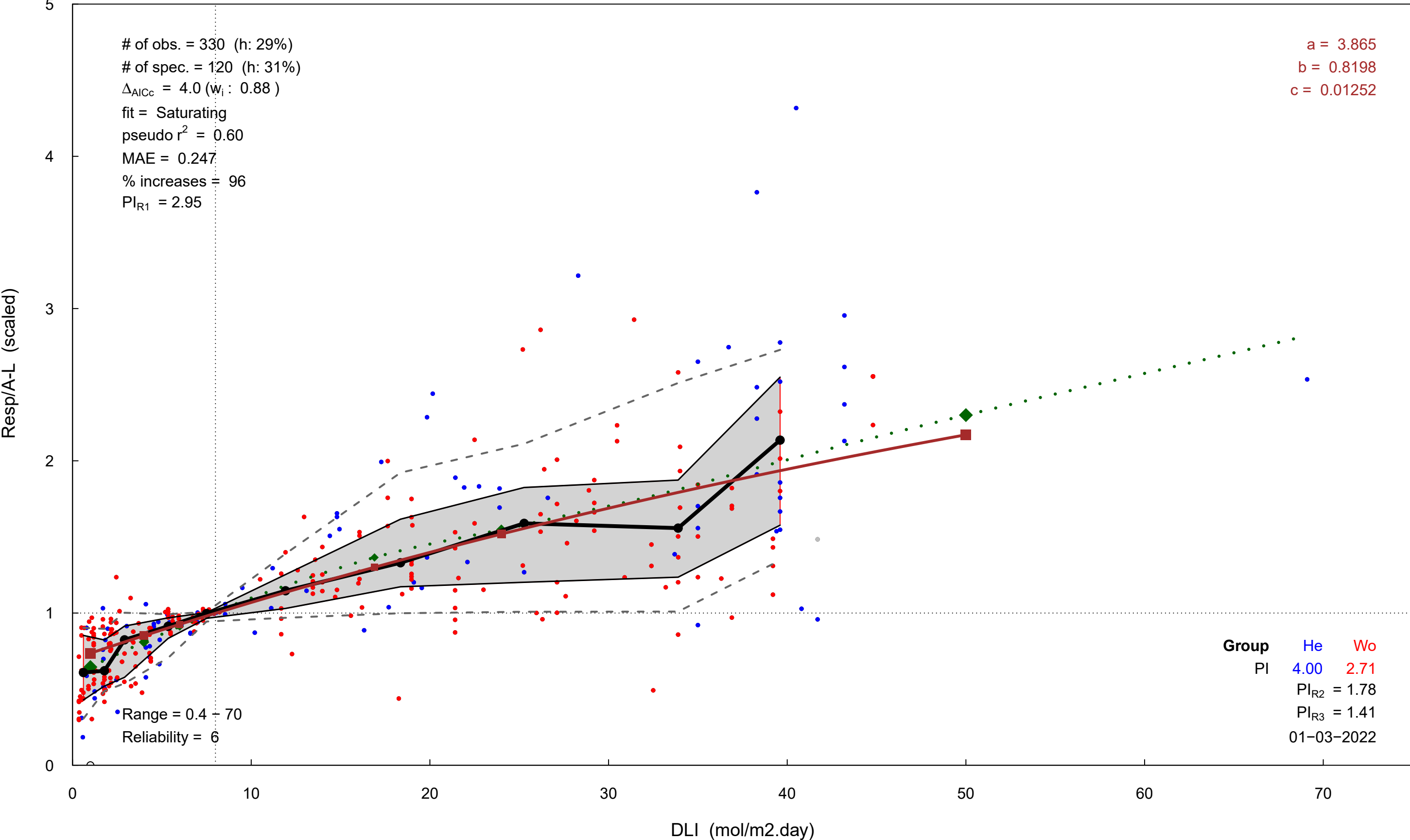


Fig. S12 : Summary plot of Time to Flower

