



Article

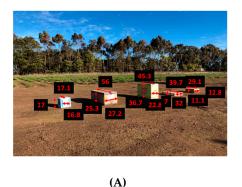
Design of an Unmanned Ground Vehicle and LiDAR Pipeline for High-Throughput Phenotyping of Biomass in Perennial Ryegrass

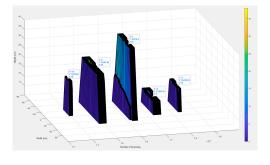
Phat Nguyen ^{1,2*}, Pieter E. Badenhorst ², Fan Shi ³, German C. Spangenberg ^{1,3}, Kevin F. Smith ^{2,4} and Hans D. Daetwyler ^{1,3}

- ¹ School of Applied System Biology, La Trobe University, Bundoora, Victoria 3086, Australia; Phat.Nguyen@agriculture.vic.gov.au (P.N.); Hans.Daetwyler@agriculture.vic.gov.au (H.D.); German.Spangenberg@agriculture.vic.gov.au (G.S.)
- ² Agriculture Victoria, Hamilton, Victoria 3300, Australia; Pieter.Badenhorst@agriculture.vic.gov.au (P.B.)
- ³ Agriculture Victoria, AgriBio, Centre for AgriBioscience, Bundoora, Victoria 3083, Australia; Fan.Shi@agriculture.vic.gov.au (F.S.)
- ⁴ Faculty of Veterinary and Agricultural Science, The University of Melbourne, Victoria 3010, Australia; Kfsmith@unimelb.edu.au (K.S.)
- * Correspondence: Phat.Nguyen@agriculture.vic.gov.au; Tel.: +61-04-1429-3693

Supplementary Materials

Figure S1. (**A**) The experiment with five different rectangular cardboard boxes placed in a line on field terrain is to define the accuracy and quality of LiDAR measurements due to driving at a speed of 4.3 km/h. All dimension of boxes was measured by a ruler and attached to each box on a picture. (**B**) The three-dimension (3D) view of these five boxes in MATLAB software is used to manually measure all three dimensions of each box to compare with manual measurements from a ruler.





(B)

Figure S2. The drawn polygons of rows with row Identity (ID) numbers were obtained from an aerial image of the trial and presented by light pink rectangular polygons on the QGIS software.

