Dear Graham Jewitt,

During the typesetting of the manuscript, we noticed that the numbers given in the abstract on maximum precipitation intensities were not updated before submission and do not match the numbers given in the main body (table 1) of the manuscript. Therefore, I would like to update them accordingly. Additionally, there was a typo on the minimum value given for the range of rainfall events recorded, which we would also like to adapt.

We hope you agree with these minor changes, which do not affect the manuscript content.
Thank you in advance!

Warm regards,

Svenja Hoffmeister and the co-author team

Abstract with changes highlighted in red:

The Western Cape in South Africa is a water scarce region which will likely receive less rainfall and higher air temperatures under projected climate change scenarios. The integration of trees within agricultural systems provides an effective measure for improving water retention on agricultural land. Studying an established and irrigated agroforestry system (AFS) combining alder (*Alnus cordata* (Loisel.) Duby) as a linear windbreak with a blackberry (*Rubus fructicosa* L.) crop, we explore the water use dynamics of the intercrop as influenced by the windbreak element by combining methods from hydrology, soil science and forestry disciplines. Our objective is to explore whether the AFS positively impacts the water balance by combining measurement campaigns to characterise the spatial variability of various key system properties with continuous monitoring.

The campaigns encompassed extensive soil sampling to determine soil characteristics (nutrient concentrations, hydraulic conductivity, texture, water retention) in the laboratory as well as terrestrial laser scans of the field site, especially of the windbreaks. The continuous measurements covered meteorological, soil water content and soil water potential observations over a six-month period (in summer). These were applied to understand soil water dynamics during rainstorms and dry spells, including root water uptake as well as soil water storage. We recorded in total 13 rainfall events delivering 2.5 – 117.6 mm of rainfall with maximum intensities of 4.1 to 82.6 mm h^{-1}. Further analyses showed that infiltration is likely dominated by preferential flow, with root water uptake potentially occurring in two depth zones corresponding to different plant communities. While soil water content varied by depth and was influenced by physical and environmental factors, it was generally higher in the intercrop zone than within the windbreak influence zone. During dry spells, soil water content did not drop below the water content of the permanent wilting point (< -1500 kPa). Values corresponding to soil water tensions above 1000 kPa were recorded on several occasions, these were mitigated by irrigation, and thus, did not result in water stress. Nutrient distribution and soil physical properties differed near the windbreak in comparison to the blackberry crop and the carbon sequestration potential is great in comparison to monoculture farming.

We could demonstrate positive effects of the windbreak on the water balance and dynamics in the blackberry field site, even though questions remain as to the extent of these benefits and how they compared to disadvantageous aspects brought about by the presence of the trees (e.g. increased water usage). Irrigation did, in fact, shift the AFS from a water-limited to an energy-limited system.