Errata - Acorn Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry

Overview of changes

Original Text	New Text	Justification
"If aboveground biomass in a plot … and is determined during model development" (7.2.2. Estimating change in tree biomass between two points in time - page 19).	*"The uncertainty value per project is calculated … the appropriate uncertainty adjustment factor (U_{adjF}) - equation 7."*	*The text provides a more precise description of the calculation of confidence interval and uncertainty adjustment factor.*
$U_y = \frac{\sqrt{(u_{y-1} \cdot AGB_{y-1})^2 + (u_y \cdot AGB_y)^2}}{\lvert(AGB_y - AGB_{y-1})\rvert}$ (Equation 7 – page 19)	$U = \frac{CI_\sigma}{AGB_{\Delta x}}$ (Equation 7 – page 19)	*The newly proposed equation reduces the ambiguity regarding repetition associated with calculation of confidence interval value. In addition, it allows for the uncertainty calculation to be applied for all ranges of biomass. The previously proposed approach is still correct, however only applicable to projects with significantly large delta biomass. Any projects with low delta biomass, especially when close to average of zero, results in infinite value of uncertainty.*
$u_y = \frac{CI_y}{AGB_y}$ (Equation 8 – page 19)	$CI_\sigma = 1.645 \frac{\sigma}{\sqrt{n}}$ (Equation 8 – page 19)	*Clarification on Confidence interval calculation*
N.A.	$U_{adjF} = 0.25^* (U-0.5)$ (Equation 9 – page 20)	*This equation replaces the table used in Acorn Methodology (2021). It is in line with the accepted Plan Vivo standard for uncertainty, allowing more dynamic uncertainty assessment.*
Table for uncertainty adjustment factor values (Table 5 – page 20)	N.A.	*Replaced by Equation 9.*
"Model performance must be assessed by calculating model performance (R2), and model error (MAPE and RMSE) based on a	"Model performance must be assessed by calculating model performance (R^2), and model error (n-RMSE) based	*MAPE has been removed as measurement value and replace by R2 and n-RSME*

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testing set of sample plots that are not used for model calibration. The mean absolute percentage error (MAPE) is calculated as shown in Equation 5". Equation 5 is removed.	on a testing set of sample plots that are not used for model calibration"	

Uncertainty adjustment

The uncertainty value per project is calculated by dividing the confidence interval value for individual project by the change in above ground biomass within one measuring period (Equation 7). Equation 10 is applied only to the plots with positive change in ABG within a measuring period. At least 500 plots (n) with positive change in AGB are required per project in order to calculate the uncertainty value. If the number of plots with positive change in AGB within a project is below 500, the uncertainty adjustment factor cannot be applied. Therefore, a default value of 0 uncertainty adjustment will be applied until the project reaches the desired number of plots. If adjustments need to be applied thereafter, the value will be applied on a project level in the following measuring periods.

$$U = \frac{CI_{\sigma}}{AGB_{\Delta x}}$$

Equation 7

Where:

U	= Project uncertainty for positive change of AGB within a measuring period
CI_{σ}	= Half-width of a 90% confidence interval
$AGB_{\Delta x}$	= The mean positive change in aboveground biomass for n number of plots

Confidence interval (CI) is calculated following Equation 8.

$$CI_{\sigma} = 1.645\frac{\sigma}{\sqrt{n}}$$

Equation 8

Where:

σ	= Standard deviation of positive change in AGB within a measuring period.
CI_{σ}	= Half-width of a 90% confidence interval
n	= refers to number of plots.

For U values greater than 50%, the following formula is applied in order to determine the appropriate uncertainty adjustment factor (U_{adjF}) - equation 9.

$$U_{adjF} = 0.25^{*} (U-0.5)$$

Equation 9

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