Making Agroforestry Investable:

FarmTree Platform Demo

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About FarmTree

Wageningen-based Netherlands social enterprise – mission:

“Making Agroforestry Investable”

Quantifying Agroforestry Outcomes:

- Production & Financial returns
- Environmental co-benefits (e.g., carbon capture, soil health)
- Social: labour, livelihoods

Through Expert Support => training => agroforestry modelling platform

Design => Learn => Operate

We help to **better plan, manage, and monitor** agroforestry systems and investments

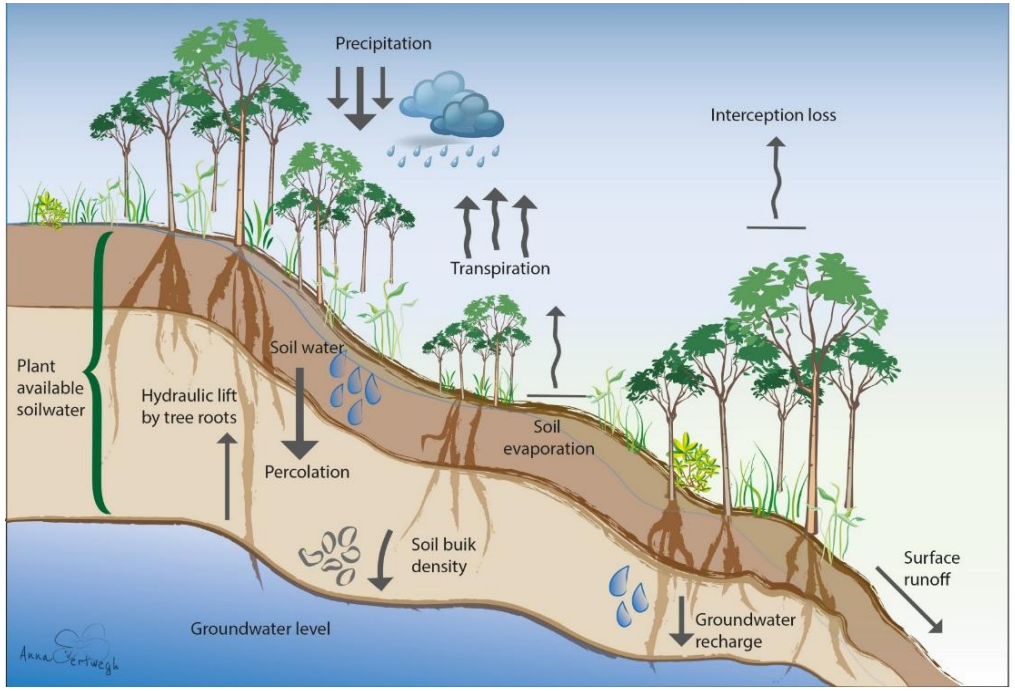
The challenge

Preparing Agroforestry Investment Cases is **complex and costly**.

Different, competing ‘performance demands’

FarmTree is a “**digital lab**” to prepare “**best possible Agroforestry designs**” for farmers, government, investors.

And report on performance with little costs.



FarmTree's core methodology

1. Site information
- Species Cover
- Plot location
- Management practices

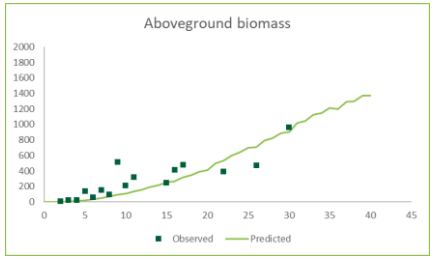
2. Climate, soil, terrain

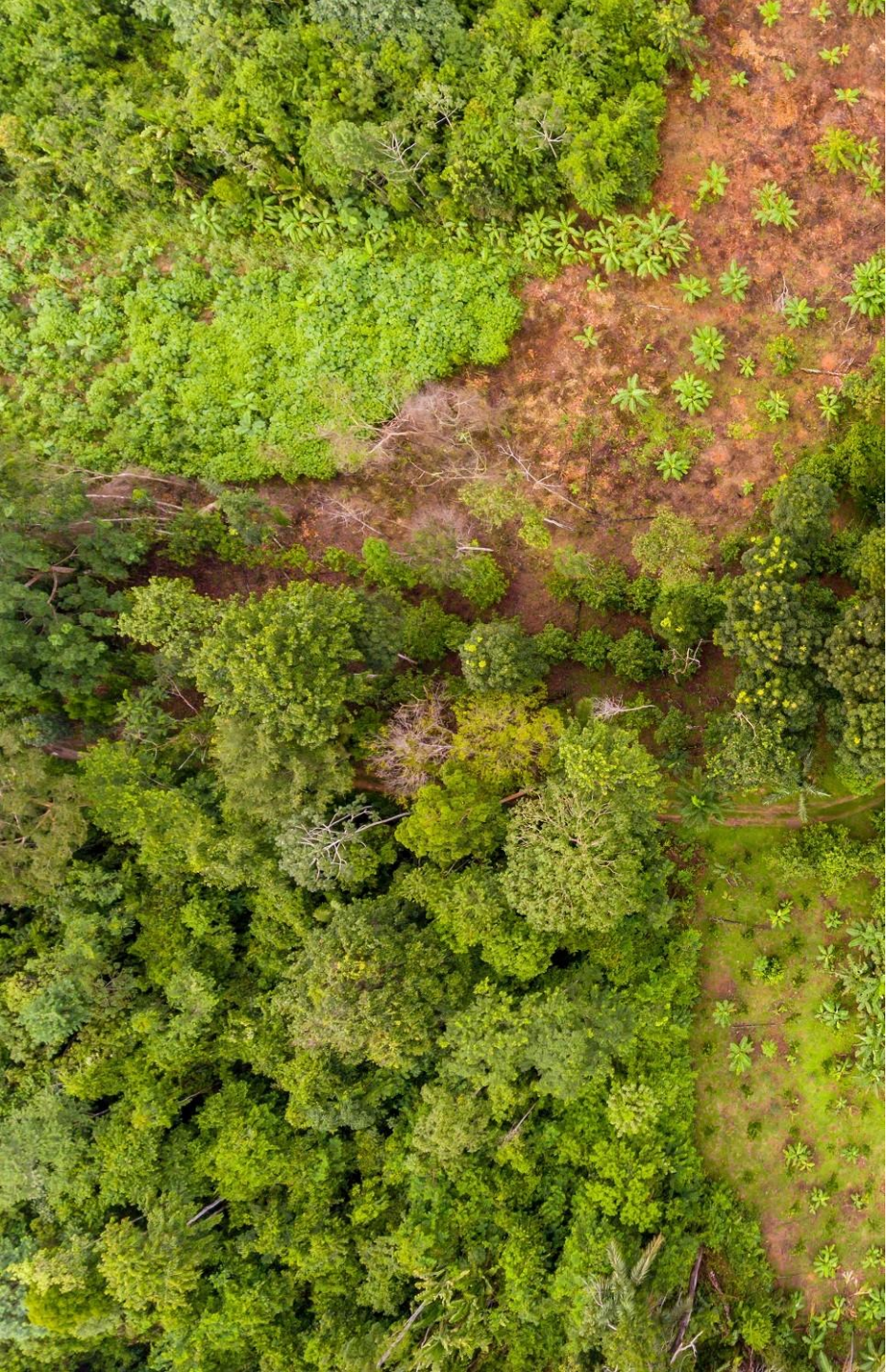
FarmTree Model

Species Database

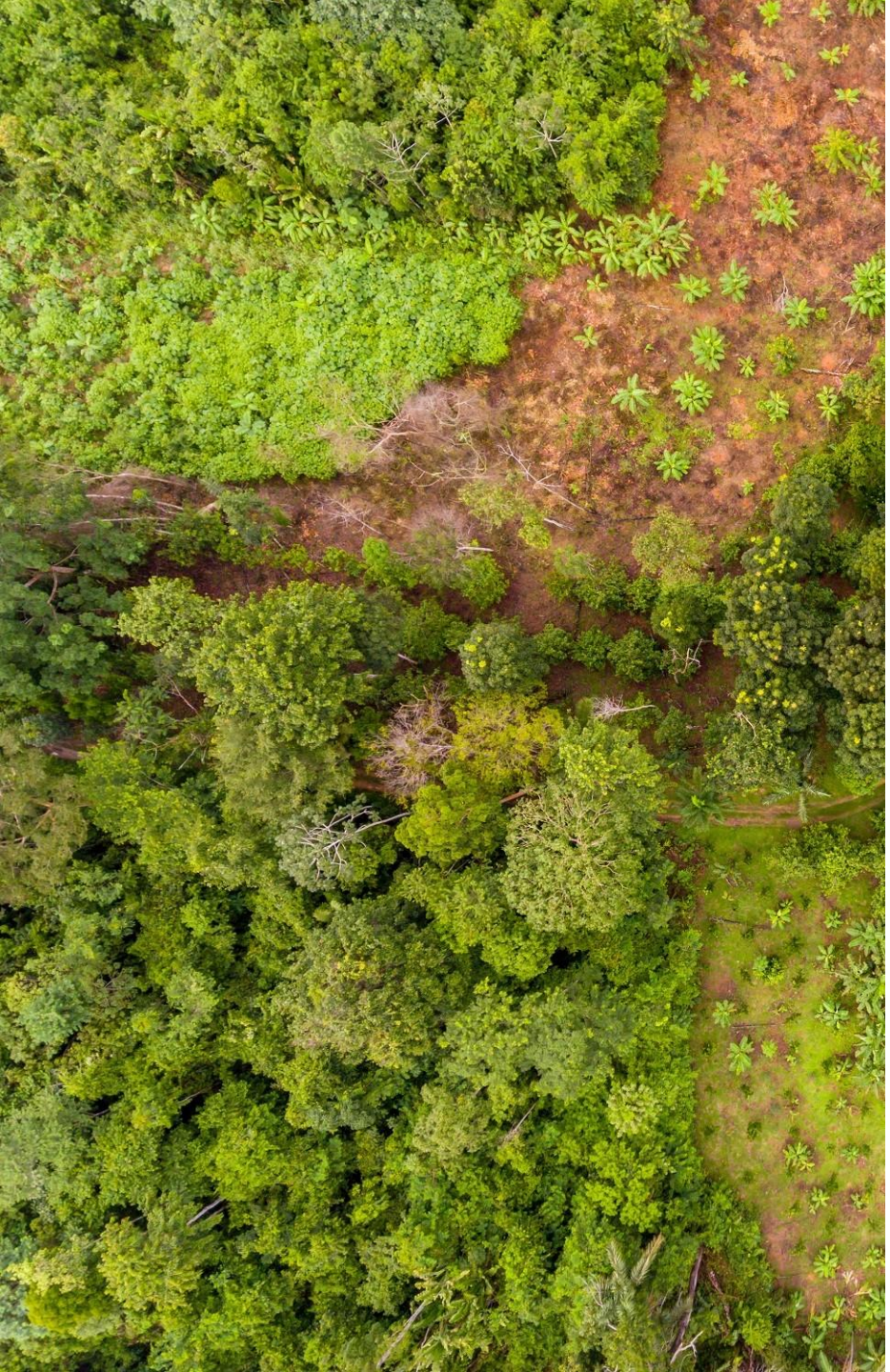
3. 10-50 years Agroforestry projections
- Yields
- Cash flows
- Labour
- Carbon
- ... and more

4. Decision Support
- Comparison
- Multi-Plot => Farm => Landscape
- ... and more





Live demo



FarmTree

Make a free demo account at
www.farmtree.earth

For advanced users:
Access Pricing: ask at
support@farmtree.earth

Available resources

- Overall introduction to FarmTree: www.farmtree.earth

- Some specialised instruction videos can be found at: https://www.farmtree.earth/instructions

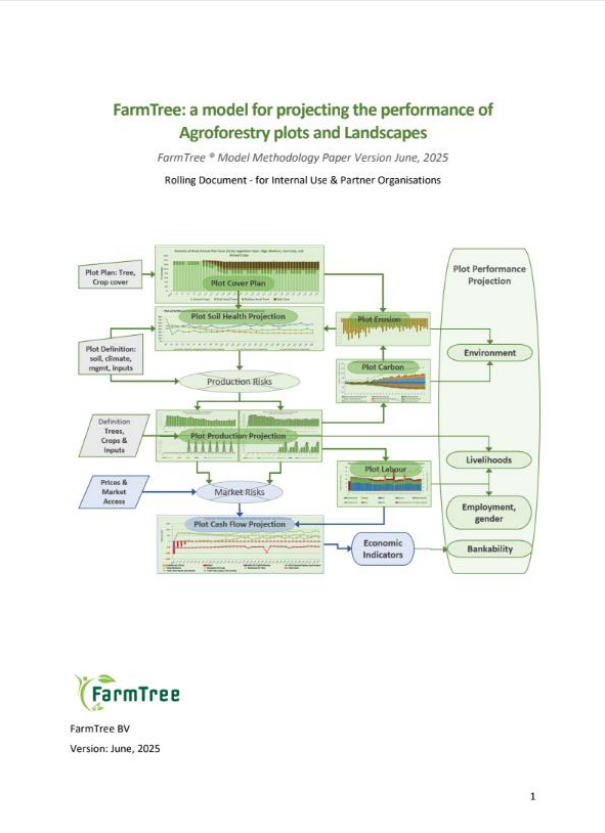
- Documentation and justification of the FarmTree Model: https://drive.google.com/file/d/1YA-25htrIk_8t8I5i-ZHbPw-u85JI__W/view

- Registration for a Demo or Client Account: https://tool.farmtree.earth/Identity/Account/Register

Learn more about our approach

Methodology:

Explains the basis of our tool



FarmTree: a model for projecting the performance of Agroforestry plots and Landscapes

*FarmTree * Model Methodology Paper Version June, 2025*

Rolling Document - for Internal Use & Partner Organisations

FarmTree

FarmTree BV

Version: June, 2025

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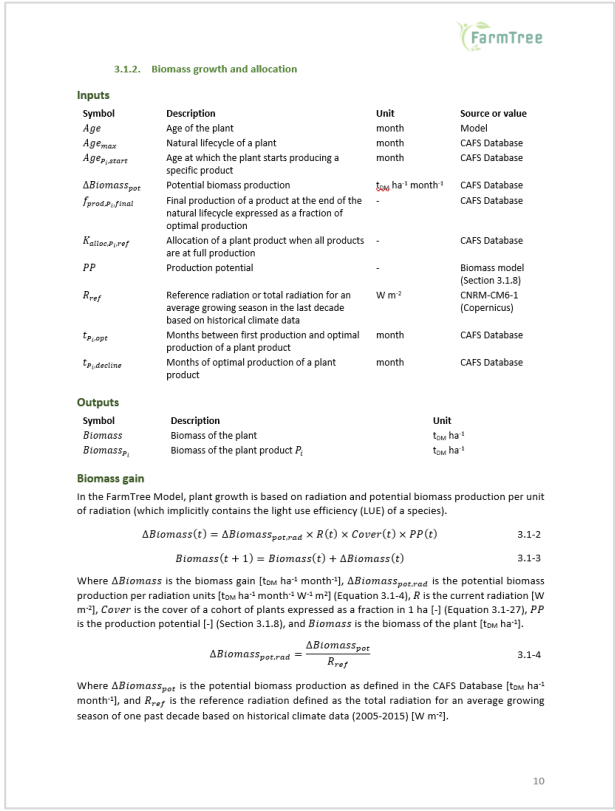
Available at: https://www.farmtree.earth/the-farm-tree-tool

Formulary:

Mathematical equations, parameters, and units



FarmTree

3.1.2. Biomass growth and allocation

Inputs

Symbol	Description	Unit	Source or value
Age	Age of the plant	month	Model
Age_{max}	Natural lifecycle of a plant	month	CAFS Database
$Age_{P_i,start}$	Age at which the plant starts producing a specific product	month	CAFS Database
$\Delta Biomass_{pot}$	Potential biomass production	t_{DM} ha^{-1} month^{-1}	CAFS Database
$f_{prod,P_i,final}$	Final production of a product at the end of the natural lifecycle expressed as a fraction of optimal production	-	CAFS Database
$K_{alloc,P_i,ref}$	Allocation of a plant product when all products are at full production	-	CAFS Database
PP	Production potential	-	Biomass model (Section 3.1.8)
R_{ref}	Reference radiation or total radiation for an average growing season in the last decade based on historical climate data	W m^{-2}	CNRM-CM6-1 (Copernicus)
$t_{P_i,opt}$	Months between first production and optimal production of a plant product	month	CAFS Database
$t_{P_i,decline}$	Months of optimal production of a plant product	month	CAFS Database

Outputs

Symbol	Description	Unit
$Biomass$	Biomass of the plant	t_{DM} ha^{-1}
$Biomass_{P_i}$	Biomass of the plant product P_i	t_{DM} ha^{-1}

Biomass gain

In the FarmTree Model, plant growth is based on radiation and potential biomass production per unit of radiation (which implicitly contains the light use efficiency (LUE) of a species).

$$\Delta Biomass(t) = \Delta Biomass_{pot,rad} \times R(t) \times Cover(t) \times PP(t) \quad 3.1\text{-}2$$

$$Biomass(t+1) = Biomass(t) + \Delta Biomass(t) \quad 3.1\text{-}3$$

Where $\Delta Biomass$ is the biomass gain [t_{DM} ha^{-1} month^{-1}], $\Delta Biomass_{pot,rad}$ is the potential biomass production per radiation units [t_{DM} ha^{-1} month^{-1} W^{-1} m^2] (Equation 3.1-4), R is the current radiation [W m^{-2}], $Cover$ is the cover of a cohort of plants expressed as a fraction in 1 ha [-] (Equation 3.1-27), PP is the production potential [-] (Section 3.1.8), and $Biomass$ is the biomass of the plant [t_{DM} ha^{-1}].

$$\Delta Biomass_{pot,rad} = \frac{\Delta Biomass_{pot}}{R_{ref}} \quad 3.1\text{-}4$$

Where $\Delta Biomass_{pot}$ is the potential biomass production as defined in the CAFS Database [t_{DM} ha^{-1} month^{-1}], and R_{ref} is the reference radiation defined as the total radiation for an average growing season of one past decade based on historical climate data (2005-2015) [W m^{-2}].

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Available upon demand

FarmTree is built on trusted, scientific data

Primary scientific sources

- **Peer-reviewed journal articles, academic theses and other scientific body of work**
- **IPCC Guidelines** (standard biomass allocation ratios and wood density data)
- **Plant databases**

Secondary informative sources

- **Data collected during projects**
- **Growth blogs, commercial growing guides, etc.**