

Appendix 8.

Other Useful parameters and their definition (parameters which can be input or output which are not yet at users interface layer)

No	Acronym	Definition	Dimensions	Default value	Model Sector
1.	C_GroResMobFrac	Fraction of crop growth reserves that is remobilize into yield and root component	dimensionless	0.95	Crop Growth
2.	C_NDemand	Amount of Nitrogen or Phosphorus demanded by crop per day; for a crop biomass less than 2 Mg/ha demand is based on 5% N, above that (after canopy closure) on 1% N	kg ha ⁻¹	output	Crop Growth
3.	C_NUptTot	Total amount of Nitrogen or Phosphorus in all soil layers potentially available for crop uptake per day	g m ⁻²	output	Crop Growth
4.	C_Tmin	Minimum Air Temperature for Crop	⁰ Celsius	20	Crop Sequence
5.	C_TOpt	Optimum Air Temperature for Crop	⁰ Celsius	21	Crop Sequence
6.	CW_DemandAct	Actual amount of crop water demand per day. Potential demand reduced by plant water potential.	l m ⁻²	output	Crop Water

No	Acronym	Definition	Dimensions	Default value	Model Sector
7.	CW_UptTot	Total amount of water uptake by crop from all soil layers per day in each zone	l m^{-2}	output	Crop Water
8.	C_SeedConc[PlantComp]	Nutrient concentration on seed. Value for DW =1, N = 0.05 and P = 0.005	-	see definition	Crop Growth
9.	Evap_Surf	Amount of water evaporates from top soil per day in each zone	l m^{-2}	output	Soil Evaporation
10.	GHG_GWP_CH4	Global Warming Potential for CH ₄ . Global Warming potential is the warming effect of a trace gas on the atmosphere. It differs between trace gases due to different atmospheric lifetime and different heat absorption capacity. It is expressed per molecule basis relative to CO ₂	-	15	GHG & Denitrification
11.	GHG_GWP_NO2	Global Warming Potential for NO ₂	-	310	GHG & Denitrification
12.	Mc_LitterC	Amount of carbon in dead plant biomass	g m^{-2}	output	Litter C
13.	Mn_LitterNlnpN [Zone,SiNut]	Amount of Nitrogen or Phosphorus in litter layer	g m^{-2}	output	Litter N
14.	N_ExchLittLay1 [Zone,SiNut]	Mineralisation Nitrogen or Phosphorus in litter layer	g m^{-2}	output	N Layer 1
15.	N_SomMini Exch [Zone,SiNut]	Mineralisation of Nitrogen or Phosphorus in soil layer <i>i</i>	g m^{-2}	output	N Layer 2-4
16.	Rt_CLrvt	Crop root growth as a function of time	$\text{cm cm}^{-3} \text{ day}^{-1}$	output	Crop Root
17.	S&B_DailyDeadWoodLitter ransf	Rate of transfer of daily dead wood litter per day	fraction day^{-1}	0.005	Slash and Burn

No	Acronym	Definition	Dimensions	Default value	Model Sector
18.	S&B_DailyNecromLitTransf	Rate of transfer of necromass litter per day	fraction day ⁻¹	0.01	Slash and Burn
19.	S_BDEqPower	Power coefficient (b) of the allometric equation describing the decreasing of bulk density later effect on surface infiltration and saturated hydraulic conductivity	dimensionless	0.5	Soil Structure Dynamic
20.	T_BiomAllTrees	Total amount of aboveground biomass for all trees	kg m ⁻²	output	Tree Growth
21.	T_HarvPrunCum[Tree]	Total pruned tree biomass harvested	kg m ⁻²	output	Tree Growth
22.	T_LifallCum[Tree]	Cumulative amount of tree litterfall	kg m ⁻²	output	Tree Growth
23.	T_PrunCum	Cumulative amount of tree pruned biomass	kg m ⁻²	output	Tree Growth
24.	T_WatStressMem	A parameter influencing the effect of drought on litterfall.	-	0.75	Tree Water Parameter
25.	TF_AbRelSizePow[Tree]	Input parameter in oil palm module	-	2	Tree Fruit
26.	TF_AvgDWpFruit[Tree]	Average dry weight of oilpalm fruit	kg m ⁻²	-	Tree Fruit
27.	TF_FemSinkperBunch	Graphical input parameter in oil palm module as a function of fruit stage	-	-	Tree Fruit
28.	TF_FirstBudtoFlowerInit [Tree]	Number of phyllochron time units before sex determination during flower development	-	25	Tree Fruit
29.	TF_InitFruitpBranch [Tree]	Input parameter in OilPalm module	-	500	Tree Fruit

No	Acronym	Definition	Dimensions	Default value	Model Sector
30.	TF_MaleSinkperBunch	Graphical input parameter in oil palm module as a function of fruit stage	-	-	Tree Fruit
31.	TF_MaleThresh[Tree]	Input parameter in OilPalm module	-	0.17	Tree Fruit
32.	TF_MTrresptoWStress[Tree]	Input parameter in OilPalm module	-	0	Tree Fruit
33.	TF_Phyllocrontime[Tree]	Input parameter in oil palm module	-	15	Tree Fruit
34.	TF_PhysAgeInIt[Tree]	Phyllochron age at time of planting or start of simulation. Input parameter in oil palm module	-	15	Tree Fruit
35.	TF_StageAbortSens	Graphical input parameter in oil palm module as a function of fruit stage	-	-	Tree Fruit
36.	TF_WatStressAbortFrac[Tree]	Input parameter in OilPalm module	-	0.1	Tree Fruit
37.	TW_Alpha	A small value determining plant maximum and minimum transpiration. Plant potential for maximum transpiration' (TW_PotSuctAlphMax, unit in cm) is defined as $(1 - TW_Alpha) \times \text{potential transpiration}$ and plant potential for minimum transpiration' (TW_PotSuctAlphMin, unit in cm) is defined as $TW_Alpha \times \text{potential transpiration}$.	-	0.1	Tree Water
38.	TW_AxResFactor	For a 10 m distance and a demand of 5 mm day ⁻¹ we expect the need for an additional gradient of 2.5 bar = 2500 cm; the factor is thus $5/250 = 0.02$	-	0.02	Tree Water

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39.	TW_L	Coefficient related to tree root conductivity	cm day ⁻¹	10 ⁻⁵	Tree Water
40.	TW_PotSuctBuff	Hydrostatic gradient to overcome transport resistance in wet soil I	cm	0.05	Tree water parameter
41.	W_PMax	Maximum value of soil potential in positive value	cm	0	Water layer 1

