Appendix 7
Input parameters and their definition

Abbreviations used in parameter names

No	Acronym	Definition	No	Acronym	Definition
1.	AF	"Agroforestry Zone" – overall design of the system	14.	Mn	Nutrients in Litter Layer
2.	C	Crop (C = Crop, C_N = Crop Nutrient or CW = Crop Water)	15.	Mn2	Nutrients in Soil Organic Matter (SOM)
3.	Ca	Crop Calendar (schedule)	16.	N	Nutrient (currently including N and P)
4.	Cent	Input Output Summary for Litter (based on Century Model)	17.	P	Profitability (economic sector of the model)
5.	Cent2	Input Output Summary for SOM (based on Century Model)	18.	PD	Pest and Disease
6.	Cq	Crop Sequence (crop parameters)	19.	Rain	Rain
7.	E	Erosion	20.	Rt	Root
8.	Evap	Evaporation	21.	S&B	Slash and Burn
9.	G	Grazing	22.	S	Soil Structure
10.	LF	Lateral Flow	23.	T	Tree (T=Tree, T_N=Tree Nutrient or TW=Tree Water)
11.	Light	Light	24.	TF	Tree Fruit (oil Palm Module)
12.	Mc	Carbon in Litter Layer	25.	Temp	Temperature
13.	Mc2	Carbon in Soil Organic Matter (SOM)	26.	W	Water

Note: In **plain** style means CORE modules, in ***italic*** style means ADDITIONAL modules.

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
1.	AF_AnyTrees?	Parameter governing an option to simulate system with trees. Value 0 means system without trees, value 1 means system with trees is possible	dimensionless	0 or 1 (1)	RUN & OUTPUT SECTION
2.	AF_Circ?	Switch to decide on circular versus linear symmetry. 1 = circular system, 0 =linear system	dimensionless	0 or 1 (0)	Agroforestry Zone
3.	AF_Crop?	Parameter governing an option to simulate system with crop. Value 0 means system without crop, value 1 means system with crop	dimensionless	0 or 1 (0)	RUN & OUTPUT SECTION
4.	AF_DeepSubSoil	Equivalent depth of the subsoil below layer 4, that is used to calculate the effective water outflow from the soil column, via S_KsatVDeepSub	m	0 - 10 (3)	Agroforestry Zone
5.	*AF_DepthDynamic?*	*Swicth for making the depth of soil layer 1 on sloping land system a dynamic property*	*dimensionless*	*0 or 1 (0)*	*Agroforestry Zone/Sloping Land and Parkland System*
6.	AF_DepthGroundWater Table	Depth of groundwater table below the bottom of layer 4, expressed in m. For the time being the value is used as a constant in defining 'field capacity'.	m	0 – 10 (0)	Agroforestry Zone
7.	AF_DepthLay*i*[Zone]	Soil depth increment in (= layer thickness of) *i*-th soil layer, *i* = 1, 2, 3, 4. For sloping land systems the value for the layer 1 is used as average topsoil depth at the start of the run; actual depth of layer 1 will be calculated from the two AF_Slope parameters	m	0 - 1 (.05, .15, .3, .5 for *i* = 1,..,4)	Agroforestry Zone

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
8.	*AF_DynPestImpacts?*	*Switch governing an option to simulate system with dynamic pest impact. Value 0 means no dynamic pest impacts, value 1 means dynamic pest impacts is possible.*	*dimensionless*	*0 – 1 (0)*	*RUN & OUTPUT SECTION*
9.	*AF_PlotNumberUphill*	*Number of similar uphill plot neighbors as source of Lateral Inflow & Run-on*	*dimensionless*	*(0)*	*Agroforestry zone*
10.	AF_RunNutLim[SiNut]?	Switch governing an option to simulate system with nutrient limitation. Value 0 means no nutrient limitation, value 1 means nutrient is possible.	dimensionless	0 – 1 (1)	RUN & OUTPUT SECTION
11.	*AF_RunOnFrac*	*Fraction of surface runoff from the area uphill that enters the simulation area as run-on.*	*dimensionless*	*0 – 1 (0)*	*Agroforestry Zone*
12.	AF_RunWatLim?	Parameter governing an option to simulate system with water limitation. Value 0 means no water limitation, value 1 means water limitation is possible.	dimensionless	0 – 1 (1)	RUN & OUTPUT SECTION
13.	*AF_SimulateWeeds?*	*Parameter governing an option to simulate weed growth. Value 0 means no weed growth, value 1 means weed will start growing whenever crop is absent.*	*%*	*0 or 1 (0)*	*RUN & OUTPUT SECTION*
14.	*AF_SlopeInit*	*Slope (expressed as percent elevation increment per horizontal distance) of the soil surface at the start of the simulation; this value can differ from the slope of the soil profile AF_SlopeSoilHoriz, but should not differ too much.*	*%*	*0 – 100 (0)*	*Agroforestry Zone/Sloping Land and Parkland System*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
15.	*AF_SlopeSoilHoriz*	*Slope (expressed as percent elevation increment per horizontal distance) of the soil horizons below the surface, especially that of the topsoil, used to calculate actual topsoil depth per zone.*	*%*	*0 – 100 (0)*	*Agroforestry Zone/Sloping Land and Parkland System*
16.	*AF_StoneFrac [Zone,SoilLayer]*	*Fraction of stone in each soil layer and zone*	*dimensionless*	*0 – 1 (0)*	*Agroforestry Zone*
17.	AF_TreePosit[Tree]	Position of each tree type. It can be in zone 1 (1) or zone 4 (4); if one wants it to be in both, two otherwise equal tree types can be defined.	dimensionless	1 or 4 (1)	Agroforestry Zone
18.	AF_Zone[Zone]	Width of each zone. Width of zone 4 is calculated back from AF_ZoneTot minus the sum of zone 1+2+3	m	0 – 100 (.5, 1,1)	Agroforestry Zone
19.	AF_ZoneTot	Total width of agroforestry system simulated	m	0 – 100 (3.5)	Agroforestry Zone
20.	C_AgronYMoistFrac[Cr]	Standard moisture content for expressing marketable yields of each crop	dimensionless	0 – 1 (.15)	(Crop Library)
21.	*C_ApplyMaintResp?*	*On/Off switch for applying the maintenance respiration; 1 = on, 0 = off*	*dimensionless*	*0 or 1 (0)*	*Maintenance Respiration*
22.	*C_DailyWeedSeedDecay Frac*	*Fraction of the weed seed bank that looses viability and is transferred to the litter pool for decomposition*	*fraction day^{-1}*	*0 – 1 (.02)*	*Management/ Weed Growth*
23.	*C_HostEffForT1[Cr]*	*Effectiveness of crop roots as host for a parasitic tree (T1)*	*cm^3 cm^{-1}*	*(0)*	*Root Parasitism*
24.	*C_RelRespGroRes*	*Relative weighting factor for growth used in calculating daily maintenance respiration*	*dimensionless*	*(.5)*	*Maintenance Respiration*
25.	*C_RelRespRt*	*Relative weighting factor for roots used in calculating daily maintenance respiration*	*dimensionless*	*(.3)*	*Maintenance Respiration*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
26.	*C_RelRespStLv*	*Relative weighting factor for stem & leaves used in calculating daily maintenance respiration*	*dimensionless*	*(.5)*	*Maintenance Respiration*
27.	*C_RelRespYieldCurr*	*Relative weighting factor for developing fruits/Yield as part of total biomass as used for maintenance respiration*	*dimensionless*	*(1)*	*Maintenance Respiration*
28.	*C_ResidRemovalFrac*	*Fraction of crop residue removed from field (not returned as mulch). The same value applies for all zones and all crops used in the simulation*	*fraction*	*0 – 1 (0)*	*Management/ Mulching*
29.	*C_RespperBiom*	*The relative use of resources for maintenance respiration per unit biomass*	*dimensionless*	*0 – 0.2 (.05)*	*Maintenance Respiration*
30.	*C_RespTemp*	*A graphical relation between temperature and maintenance respiration*	*dimensionless*	*(see C_Resp Temp graph)*	*Maintenance Respiration*
31.	*C_WeedGermFrac*	*Fraction of weed seeds in the seed bank that germinates when a new opportunity arises, e.g. at the end of a cropping season*	*fraction*	*0 –1 (.1)*	*Management/ Weed Growth*
32.	*C_WeedSeedBankInit*	*Initial dry weight of weed seeds in seed bank*	*kg m^{-2}*	*0 –1 (.01)*	*Management/ Weed Growth*
33.	*C_WeedSeedExtInflux*	*Daily influx of weed seeds from outside of the plot*	*kg m^{-2} day^{-1}*	*0 – 0.1 (.00001)*	*Management/ Weed Growth*
34.	Ca_CType[Zone]	A graphical input parameter governing the type of crop planted in sequence, with the possibility of having different crops (and/or planting times) in different zones. Associated with type of crop in database. See WaNuLCAS.xls	dimensionless	1 – 5 (2)	(Crop Management)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
35.	Ca_DoYStart	Day of year at which simulation starts	julian days	1 – 365 (300)	RUN & OUTPUT SECTION
36.	Ca_ExtOrgApp?[Type]	Parameter governing an option to have simulation with applying external organic input or not. Value 0 means not applying external organic input, value 1 means applying external organic input	dimensionless	0 or 1 (0)	(Crop Management)
37.	Ca_FertApp?[SiNut]	Parameter governing an option to have simulation with applying fertilizer or not. Value 0 means not applying fertilizer, value 1 means applying fertilizer	dimensionless	0 or 1 (1)	(Crop Management)
38.	Ca_FertOrExtOrgApp Amount[Zone]	Amount of N or P fertilizer or external organic applied. A graphical input parameter.	g m^{-2}	0 – 10 (4.5 for each N and P)	(Crop Management)
39.	Ca_FertOrExtOrgAppDoY [SiNut]	Time of fertilizer or external organic input application. A graphical input parameter.	julian days	1 – 365 (see excel sheet Crop Management)	(Crop Management)
40.	Ca_FertOrExtOrgAppYear [SiNut]	Year of fertilizer or external organic input application. A graphical input parameter.	dimensionless	any integer value (see excel sheet Crop Management)	(Crop Management)
41.	Ca_ImmAmount[P,Zone]	Amount of immobile P fertilizer applied. A graphical input parameter	g m^{-2}	(see Ca_ImmAmount graph)	Management / P Immobile Input
42.	Ca_ImmDOY[P]	Time of immobile P fertilizer application. A graphical input parameter	julian days	1 – 365 (see Ca_ImmDOY graph)	Management / P Immobile Input

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
43.	Ca_ImmY[P]	Year of immobile P fertilizer application. A graphical input parameter	dimensionless	Any integer value (see Ca_ImmY graph)	Management / P Immobile Input
44.	Ca_PlantDoY[Zone]	Day of crop planting for each subsequent crop. A graphical input parameter.	julian days	1 – 365 (see excel sheet Crop Management)	(Crop Management)
45.	Ca_PlantYear[Zone]	Year of planting for each subsequent crop. A graphical input parameter	dimensionless	any integer value (see excel sheet Crop Management)	(Crop Management)
46.	Cq_CHarvAlloc[Cr]	Allocation of biomass to harvested parts (grain, tuber) as a function of crop growth stage.	dimensionless	(see Cq_CHarv Alloc table)	(Crop Library)
47.	Cq_ClosedCan[Cr]	Amount of crop canopy biomass at which canopy is closed and nutrient demand per unit new biomass shifts from Cq_ConcYoung to Cq_ConcOld.	kg m^{-2}	0 – 0.5 (0.2)	(Crop Library / Nutrient Uptake)
48.	Cq_CLWR[Cr]	Crop leaf weight ratio = gram of green leaf area per gram of shoot, for each crop species as a function of crop growth stage.	g m^{-2}	(see Cq_CLWR table)	(Crop Library)
49.	Cq_ConcOld[Cr,SiNut]	Nutrient concentration in crop tissue formed after biomass has reached the Cq_ClosedCan value.	dimensionless	0 – 0.1 (N = .01, P = .0025	(Crop Library / Nutrient Uptake)
50.	Cq_ConcRt[Cr]	N concentration in crop roots	dimensionless	0 – 0.1 (.01)	(Crop Library / Nutrient Uptake)
51.	Cq_ConcYoung[Cr,SlNut]	Nutrient concentration in young crop biomass (before biomass has reached the Cq_ClosedCan value).	dimensionless	0 – 0.1 (N = .015 P = .007)	(Crop Library / Nutrient Uptake)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
52.	*Cq_CovEff[Cr]*	*Crop Cover Efficiency factor, used in calculating erosion (Erosion type 1)*	*dimensionless*	*0 – 1 (1)*	*(Crop Library/ Soil Erosion)*
53.	Cq_CRelLUE[Cr]	Relative light use efficiency (fraction of Cq_GroMax achieved per unit light capture) for each type of crop grown as a function of crop growth stage.	dimensionless	(see Cq_CRelLUE table)	(Crop Library)
54.	Cq_DOYFlwBeg[Cr]	The earliest day in a year when crop start to flowers	julian days	1 – 365 (1)	(Crop Library/ Annual or Perennial?)
55.	Cq_DOYFlwEnd[Cr]	The latest day in a year when crop start to flowers	julian days	1 – 365 (365)	(Crop Library/ Annual or Perennial?)
56.	Cq_GroMax[Cr]	Maximum daily dry matter production rate at full light capture, for each crop species under local conditions	kg m^{-2} day^{-1}	0.001 – 0.1 (.014)	(Crop Library/ Crop Growth)
57.	Cq_Gseed[Cr]	Seed weight (initial C_CarbHydrReserves to be used for growth).	kg m^{-2}	0.001 – 0.1 (.004)	(Crop Library/ Crop Growth)
58.	Cq_HBiomConv[Cr]	Factor for conversion of crop biomass increment (up to crop stage 1) to crop height increment	dimensionless	0.1 – 10 (7)	(Crop Library/ Crop Growth)
59.	Cq_kLight[Cr]	Light extinction coefficient for the crop canopy = efficiency of crop foliage in absorbing light.	dimensionless	0 – 1 (.65)	(Crop Library/ Light Capture)
60.	Cq_LAIMax	Maximum leaf area index for the crop; if more biomass is produced a proportional amount is transferred to the litter layer	dimensionless	(5)	(Crop Library/ Canopy)
61.	Cq_LignResid[Cr]	Lignin concentration of crop residue (eg. 20%=0.2).	dimensionless	0 – 1 (.2)	(Crop Library/ Litter Quality)
62.	Cq_LignRootRes[Cr]	Lignin concentration of crop root residues	dimensionless	0 – 1 (.2)	(Crop Library/ Litter Quality)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
63.	Cq_Lp[Cr]	Hydraulic conductivity of crop roots, reflecting the physiological entry resistance to water per unit root length and unit gradient.	cm day^{-1}	0 – 0.00001 (.00001)	(Crop Library/ Water Uptake)
64.	Cq_MaxRemob[Cr]	Maximum proportion of stem and leaves remobilized per day to the CarbHydrReserves pool, from which it can, for example, be used for growth of the storage component (grain, tuber)	day^{-1}	0 – 0.1 (.05)	(Crop Library/ Crop Growth)
65.	*Cq_MycMaxInf[Cr]*	*Fraction of crop roots infected by mycorrhiza for a soil layer where the Rt_MTInfFrac parameter is 1*	*dimensionless*	*0 – 1 (.25)*	*(Crop Library/ Mycorrhiza Fraction)*
66.	Cq_NFixDayFrac[Cr]	Fraction of current N deficit derived from atmospheric N_2 fixation per day for each crop type, if Cq_NFixVariable = 0 ('false').	day^{-1}	0 – 1 (0)	(Crop Library/ N Fixation)
67.	Cq_NFixDWMaxFrac[Cr]	Maximum fraction of the C_GroRes[Dw] pool that can be respired for N_2 fixation if Cq_NFixVariable = 0 ('false')	day^{-1}	0 – 0.5 (.1)	(Crop Library/ N Fixation)
68.	Cq_NFixDWUnitCost[Cr]	Dry weight cost for respiration per unit N_2 fixation, if Cq_NFixVariable = 0 ('false')	kg [dw] g^{-1} [N]	0 – 1 (.01)	(Crop Library/ N Fixation)
69.	Cq_NFixResp[Cr]	Responsiveness of N_2 fixation to N stress (N in biomass divided by N target), if Cq_NFixVariable = 0 ('false')	dimensionless	0 – 5 (1)	(Crop Library/ N Fixation)
70.	Cq_NFixVariable?[Cr]	Switch (0 = false, 1 = true) to choose between variable (N-stress dependent) versus constant N_2 fixation as fraction of N deficit	dimensionless	0 or 1 (0)	(Crop Library/ N Fixation)
71.	*Cq_NutMobC[Cr,SiNut]*	*Relative rate of transfer, per unit root length density (cm cm^{-3}), from the 'immobile' pool of nutrients to the 'mobile' or sorbed pool, due to Crop root activity*	*m^2 day^{-1}*	*0 – 0.02 (0)*	*Crop Library/ Crop effect on nutrient mobility*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
72.	Cq_PotSuctAlphMax[Cr]	Plant potential where transpiration is (1-Alpha)*potential transpiration,Alpha is a small value (e.g. 0.01). Value could be different depend on crop type.	cm	-6000 – -4000 (-5000)	(Crop Library/ Water Uptake)
73.	Cq_PotSuctAlphMin[Cr]	Plant potential where transpiration is Alpha*potential transpiration, Alpha is a small value (e.g. 0.01). Value could be different depend on crop type.	cm	-16000 – -14000 (-15000)	(Crop Library/ Water Uptake)
74.	Cq_RainWStorCap[Cr]	Rainfall water stored as thin film at leaf surface	mm	0 – 2 (1)	(Crop Library/ Rain Interception)
75.	Cq_RelLightMaxGr[Cr]	Relative light intensity at which shading starts to affect tree growth	dimensionless	0 – 1 (1)	(Crop Library/ Light Capture)
76.	Cq_RhizEffKaPC[Cr]	Proportional reduction of the apparent adsorption constant for P due to root activity of the crop, expressed as fraction of N_KaPdef per unit crop root length density	$m^2\ day^{-1}$	0 – 0.2 (0)	(Crop Library/ Crop effect on nutrient mobility)
77.	Cq_RtAlloc[Cr]	Fraction of crop growth reserves allocated to root biomass in the absence of water or nutrient stress as a function of crop stage (only for Rt_ACType=2).	day^{-1}	(see Cq_RtAlloc table)	(Crop Library)
78.	Cq_RtAllocResp[Cr]	Crop root allocation responsiveness to water or nutrient (the factor currently in minimum supply) stress; 0 = constant root allocation, 1 = linear response to water and nitrogen stress, >1 more-than-proportional response (only for Rt_ACType = 2)	dimensionless	0 – 2 (2)	(Crop Library/Roots)
79.	Cq_RtDiam[Cr]	Crop root diameter. It is used in calculating water and nutrient uptake.	cm	0.05 – 1 (.02)	(Crop Library/Roots)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
80.	Cq_SingleCycle?[Cr]	A parameter deciding what happens after fruits are ripe: 1 = annual that dies back, 0 = perennial that returns to crop stage =1.	dimensionless	0 or 1 (1)	(Crop Library/ Annual or Perennial?)
81.	Cq_SLA[Cr]	Crop specific leaf area = green surface area (one-sided) per unit leaf dry weight, for each crop species as a function of crop growth stage. For Cq_Atype =1, .., 5, default values are provided. Cq_AType = 6, .,10 user defined, as before.	$m^2\ g^{-1}$	(see Cq_SLA table)	(Crop Library)
82.	Cq_TimeGen[Cr]	Length of generative stage for each crop. For Cq_Atype =1, .., 5, default values are provided, but can be modified to adopt the default crop parameters to local conditions.	days	0 – 1000 (30)	(Crop Library/ Crop Stage)
83.	Cq_TimeVeg[Cr]	Length of vegetative stage for each crop. For Cq_Atype =1, .., 5, default values are provided, but can be modified to adopt the default crop parameters to local conditions.	days	0 – 1000 (60)	(Crop Library/ Crop Stage)
84.	Cq_TranspRatio[Cr]	Amount of water needed per unit dry matter production of each crop species. For Cq_Atype =1, .., 5, default values are provided. For Cq_AType=6, .., 10 user defined	$l\ kg^{-1}$	200 – 600 (300)	(Crop Library/ Crop Growth)
85.	*Cq_WeedType*	*Weed type. This is user defined. Weed biomass growth follows the rules of crop growth. It takes the same type of parameters as crop. All the related input parameters are in Excel sheet*	*dimensionless*	*(5)*	*Management/ Weed Growth*
86.	E_BulkDens	Bulk density used in converting soil mass movement to changes in volume of topsoil per zone	$g\ cm^{-3}$	0.5 – 1.6 (1.4)	(Soil Hydraulic)
87.	*E_CovEffT[Tree]*	*Tree cover efficiency factor (per unit tree LAI)*	*dimensionless*	*0 – 1 (.5)*	*(Tree Library/ Erosion Protection)*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
88.	*E_EntrailmentCoeffBare Plot*	*Entrailment coefficient for sediment movement (Rose equation) in the absence of vegetative soil cover*	*kg^{-1} (soil) mm^{-1} m^2*	*0 – 1 (.002)*	*Soil Erosion and Sedimentation*
89.	*E_ErosiType*	*Parameter to decide on model of erosion used. 1 = using USLE, 0 = using Rose Equation*	*dimensionless*	*0 or 1 (0)*	*Soil Erosion and Sedimentation*
90.	*E_IntvPloughPlant*	*Length of ploughing time*	*julian days*	*1 – 365 (10)*	*Management/Tillage*
91.	*E_PloughBefPlant?*	*Paramater governing option to plough before planting (0 = no ploughing, 1 = ploughing before planting)*	*dimensionless*	*0 or 1 (0)*	*Management/Tillage*
92.	*E_PloughDoY*	*Date of ploughing*	*julian days*	*1 – 365 (364)*	*Management/Tillage*
93.	*E_PloughY*	*Year of ploughing*	*dimensionless*	*0 – 100 (100)*	*Management/Tillage*
94.	*E_RainFac*	*A multiplier determining impact of rainfall on soil erosion, for calculation soil loss using USLE*	*dimensionless*	*0 – 10 (1)*	*Soil Erosion and Sedimentation*
95.	*E_SoilMoveperPlough*	*Amount of soil moved per ploughing event, for calculation soil loss using USLE*	*kg m^{-2}*	*0 – 500 (399)*	*Soil Erosion and Sedimentation*
96.	*E_SoilType*	*Type of soil. 1 = medium, 2 = sandy, 3 = clay*	*dimensionless*	*1, 2, 3 (1)*	*Soil Erosion and Sedimentation*
97.	*E_TillZone?[Zone]*	*On/off switch for tilling activity in each zone (0 = no tillage, 1 = with tillage)*	*dimensionless*	*0 or 1 (0, 1, 1, 1)*	*Management/Tillage*
98.	Evap_MulchEffSurfLit	Effect of mulch on the amount of water evaporating from the soil	dimensionless	(1)	Soil Evaporation
99.	*GHG_LitMinMultiplier*	*Multiplier of litter mineralization for quick modifications of nitrogen oxide emission*	*dimensionless*	*(1)*	*Soil Water & Nutrient/ Nox emissions*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
100.	*GHG_N2perNOx*	*Ratio of nitrous and nitric oxide*	*dimensionless*	*See graph GHG_N2perNOx*	*Soil Water & Nutrient / Nox emissions*
101.	*LF_FracGWReleaseAsInflow*	*The fraction of groundwater that flow out that reaches the simulated zone (this depends on subsoil stratification and landscape characteristics beyond the scope of out current model)*	*dimensionless*	*(0)*	*Agroforestry Zone*
102.	*LF_GWReleaseFraction*	*The fraction of the current stock of groundwater that flows out on a daily basis. A stock of groundwater stored uphill depends on the 'number of plots uphill'.*	*dimensionless*	*(.05)*	*Agroforestry Zone*
103.	*LF_SubSurfInflow4*	*Amount of sub surface water inflow in layer 4*	*mm day^{-1}*	*0 – 5 (0)*	*Agroforestry zone*
104.	Mc_Carbon	Proportion of total carbon in plant litter and residue	dimensionless	0 – 0.5 (.42)	Soil Organic Matter and Litter Quality/ Litter Quality
105.	Mc_CExtOrg[type]	Carbon concentration of external input	dimensionless	0 – 1 (.4)	Litter Quality/ Quality of Ext. Organic Input
106.	Mc_CNRatInitMetab[zone]	Initial C:N ratio metabolic pool of litter	dimensionless	(8)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool
107.	Mc_KAct	Decay rate for decomposition of active pool of soil organic matter	dimensionless	(.02)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
108.	Mc_KMetab	Decay rate for decomposition of active pool of soil organic matter	dimensionless	(.05)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
109.	Mc_KPass	Decay rate for decomposition of active pool of soil organic matter	dimensionless	(.0000186)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
110.	Mc_KSlw	Decay rate for decomposition of active pool of soil organic matter	dimensionless	(.000543)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
111.	Mc_KStruc	Decay rate for decomposition of active pool of soil organic matter	dimensionless	(.013429)	Soil Organic Matter and Litter Quality/ Other Factors affecting Decomposition
112.	Mc_LignExtOrg[Type]	Lignin concentration of external input.	dimensionless	0 – 1 (.2)	Soil Organic Matter and Litter Quality/ Quality of Ext. Organic Input
113.	Mc_PolypExtOrg[Type]	Polyphenol concentration of external input	dimensionless	0 – 1 (0)	Soil Organic Matter and Litter Quality/ Quality of Ext. Organic Input

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
114.	Mc2_Clay	Proportion of clay in soil (only for soil organic matter type 2)	dimensionless	0 – 1 (.316)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
115.	Mc2_ClayCoeffCref	Coefficient of clay based on tabulated Cref for soil organic matter type 2	dimensionless	(.94)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
116.	Mc2_CNRatInitMetab [zone]	Initial C:N ratio metabolic pool of soil organic matter	dimensionless	(8)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
117.	Mc2_CorgInitMeth3	Initial soil organic carbon value in soil organic matter pool using Type 3.	gr cm^{-2}	(2)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
118.	Mc2_CorgpCref	Initial soil organic carbon value in soil organic matter pool using Type 3.	gr cm^{-2}	(.8)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
119.	Mc2_CrefMeth3	Initial C-ref value in soil organic matter pool using Type 2.	gr cm^{-2}	(3)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
120.	Mc2_CrefOffset	Constant for C reference tabulated for soil organic matter type 2.	dimensionless	(1.256)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
121.	Mc2_pH	Soil pH (only for soil organic matter type 2)	dimensionless	(5)	Soil Organic Matter and Litter quality/ Other Factors Affecting Decomposition
122.	Mc2_pHCoeffCref	Coefficient of pH based on tabulated of Cref for soil organic matter type 2	dimensionless	(-.156)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
123.	Mc2_RainTransfer[Pool]	Rain factor which control transferring process of litter to SOM pool	dimensionless	(.001)	Soil Organic Matter and Litter Quality Litter → SOM Transfer
124.	Mc2_Silt	Proportion of silt in soil (only for soil organic matter type 2)	dimensionless	0 – 1 (.2)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
125.	Mc2_SiltClayCoeffCref	Coefficient of clay and silt based on tabulated Cref for soil organic matter type 2	dimensionless	(.703219)	Soil Organic Matter and Litter Quality/ Other Factors Affecting Decomposition
126.	Mc2_SoilTillTransfer [Pool]	Soil tillage factor which control transferring process of litter to SOM pool	dimensionless	(1)	Soil Organic Matter and Litter Quality/ Litter → SOM Transfer
127.	Mc2_SOMDistribution [SoilLayer]	Relative distribution of carbon between different soil layers	fraction	0 – 1 (1, .2, .1, .05)	Soil Organic Matter and Litter Quality/ SOM Distribution

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
128.	Mc2_SOMInitType	Parameter defining methods to initialize soil organic matter pool. Three methods are provided for initializing the soil organic matter pools: Type = 1 the user can specify all pool sizes for all zones, Type = 2 the user can specify the size of all pools relative to those for a forest soil (Cref) that is calculated from soil texture data, Type = 3 the user specifies the Corg and Cref directly, but otherwise follows the procedure of Type 2	dimensionless	1, 2, 3 (1)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
129.	Mc2_WormTransfer [Pool]	Worm factor which control transferring process of litter to SOM pool	dimensionless	0.003 – 0.1 (Struc, Metab and Act = .1; Slow = .3; Pass = .003)	Soil Organic Matter and Litter Quality/ Litter → SOM Transfer
130.	Mn_CNAct	C:N ratio of active pools	dimensionless	5 – 10 (8)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
131.	Mn_CNPass	C:N ratio of passive pools	dimensionless	8 – 15 (11)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
132.	Mn_InitAct[Zone]	Initial amount of N in active Litter pool of each zone	mg cm^{-3}	0 – 1 (.00002)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool
133.	Mn_InitMetab[Zone]	Initial amount of N in metabolic Litter pool of each zone	mg cm^{-3}	0 – 1 (0)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
134.	Mn_InitPass[Zone]	Initial amount of N in passive Litter pool of each zone	mg cm^{-3}	0 – 1 (.0001)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool
135.	Mn_InitSlw[Zone]	Initial amount of N in slow Litter pool of each zone	mg cm^{-3}	0 – 1 (.000001)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool
136.	Mn_InitStruc[Zone]	Initial amount of N in structural Litter pool of each zone	mg cm^{-3}	0 – 1 (0)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool
137.	Mn_NutRatAct[P]	Ratio of N to P (N:P) in active organic matter pools	dimensionless	1 – 10 (10)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
138.	Mn_NutRatMetab[P]	Ratio of N to P (N:P) in metabolic organic matter pools	dimensionless	1 – 10 (10)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
139.	Mn_InitSlw[Zone]	Initial amount of N in slow Litter pool of each zone	mg cm^{-3}	0 – 1 (.000001)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool
140.	Mn_InitStruc[Zone]	Initial amount of N in structural Litter pool of each zone	mg cm^{-3}	0 – 1 (0)	Soil Organic Matter and Litter Quality/ Initial C & N in Litter Pool

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
141.	Mn_LatFlowFertKm	Runoff flow that causes half of the (undissolved) surface fertilizer to move to the next zone	mm	(10)	Soil Water & Nutrient/ Fertilizer Movement
142.	Mn_NutRatAct[P]	Ratio of N to P (N:P) in active organic matter pools	dimensionless	1 – 10 (10)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
143.	Mn_NutRatMetab[P]	Ratio of N to P (N:P) in metabolic organic matter pools	dimensionless	1 – 10 (10)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
144.	Mn_NutRatPass[P]	Ratio of N to P (N:P) in passive organic matter pools	dimensionless	1 – 10 (10)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
145.	Mn_NutRatSlw[P]	Ratio of N to P (N:P) in slow organic matter pools	dimensionless	1 – 10 (10)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
146.	Mn_NutRatStruc[P]	Ratio of N to P (N:P) in structural organic matter pools	dimensionless	1 – 10 (10)	Soil Organic Matter and Litter Quality/ C:N Ratio of Litter Pool
147.	Mn2_InitAct[Zone]	Initial amount of N in active SOM pool of each zone	mg cm^{-3}	0 – 1 (.2)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
148.	Mn2_InitMetab[Zone]	Initial amount of N in metabolic SOM pool of each zone	mg cm^{-3}	0 – 1 (0)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
149.	Mn2_InitPass[Zone]	Initial amount of N in passive SOM pool of each zone	mg cm^{-3}	0 – 1 (3.9)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
150.	Mn2_InitSlw[Zone]	Initial amount of N in slow SOM pool of each zone	mg cm^{-3}	0 – 1 (1)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
151.	Mn2_InitStruc[Zone]	Initial amount of N in structural SOM pool of each zone	mg cm^{-3}	0 – 1 (0)	Soil Organic Matter and Litter Quality/ Initial C & N in SOM Pool
152.	*N15_Addi [Zone]*	*Initial amount of N15 in soil layer* i *of each zone*	*mg cm^{-3}*	*(0)*	*N^{15} model sector*
153.	*N_BypassMacroi[Zone]*	*Prefential flows of nutrients in the leachate relative to average concentration * water flow; values < 1 indicates retardation of nutrients due to bypass flow of water in macropores at soil layer* i	*dimensionless*	*0 – 2 (1)*	*Soil Water and Nutrient / Macropore Bypass Flow*
154.	*N_DiffCoef[SiNut]*	*Nitrogen diffusion coefficient*	*cm^2 day^{-1}*	*0 - 1 (N = 1, P = .76896)*	*Soil Water and Nutrient / Diffusivity coefficient*
155.	N_FracNO3*i*[Zone]	Fraction of NO_3 of total N in *i*-th soil layer	dimensionless	0 - 1 (0.4)	Soil Water and Nutrient/Nitrate Fraction

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
156.	*N_ImInit[Zone,SiNut]*	*Initial amount of nutrient in immobile pool of each zone*	*mg cm^{-3}*	*0 – 0.1 (N = .05, P = .01)*	*Soil Water and Nutrient / Initial Immobile Nutrient*
157.	N_NInit*i*[Zone,SiNut]	Initial amount of nutrient in soil layer *i* of each zone. N layer 1 = .003, layer 2 – 4 = .01 ; P layer 1 = .1, layer 2 = .08, layer 3 – 4 = .04	mg cm^{-3}	0 – 0.5 (see definition)	For N in Soil Water and Nutrient / Initial Soil Nutrient, For P in (Phosphorus / Initial P availability Index per Zone and Layer)
158.	N_KaNH4*i*[Zone]	Apparent (instantaneous) adsorption constant or ratio of amount NH_4 adsorbed and amount in solution for *i*-th layer	mg cm^{-3}	0 – 1 (5)	Soil Water and Nutrient / Adsorption constant for N
159.	N_KaNO3*i*[Zone]	Apparent (instantaneous) adsorption constant or ratio of amount NO_3 adsorbed and amount in solution for *i*-th layer	mg cm^{-3}	0 – 1 (.3)	Soil Water and Nutrient / Adsorption constant for N
160.	N_KaPDef*i*[Zone]	Apparent (instantaneous) adsorption constant for inorganic P, or ratio of amount of inorganic P adsorbed ant the amount in soil solution; the adsorption constant depends on the P concentration on soil solution and is read in a tabular form (as graphical input parameter).	mg cm^{-3}	(see N_KaPDefi table)	(Phosphorus / to P sorption data)
161.	*N_Lat4InflowRelConc*	*Nutrient concentrations in the incoming sub-surface flows into zone 4, relative to the current average nutrient concentration in that layer across all zones in the simulated area*	*dimensionless*	*0 – 10 (1)*	*Agroforestry Zone*
162.	*N_NutMobi[SiNut]*	*Relative rate of transfer from the 'immobile' pool of nutrients to the 'mobile' or sorbed pool, due to processes other than root activity in soil layer* i	*day^{-1}*	*0 – 0.02 (0)*	*Soil Nutrient / Nutrient Mobilization*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
163.	N_RtSynloci	Root synlocation, or degree to which roots of the crop and tree are co-occurring within the various soil layers, affecting the way in which benefits of rhizosphere modification are shared; 1 = sharing of rhizosphere modifications by all roots present, based on their share in total root length, 0 = complete monopoly by roots modifying the rhizosphere	dimensionless	0 – 1 (.5)	Roots and Mycorrhiza
164.	N_UseNGassLossEst?	A switch determining simulate system with gaseous N losses. 0 = no gaseous N losses, 1 = with gaseous N losses	dimensionless	(0)	Soil Water & Nutrient
165.	P_BurnLab	Amount of labour involved in burning the field per unit simulated filed	person days ha^{-1}	(see excel sheet Profitability)	(Profitability)
166.	P_CfertPrice[SiNut,Price]	Cost of fertilizer at social and private prices, respectively.	currency unit kg^{-1}	(see excel sheet Profitability)	(Profitability)
167.	P_CHarvLab[Cr]	Amount of labour involved in harvesting crop products per unit dry weight	person days Mg^{-1} per cropping season	(see excel sheet Crop Library)	(Crop Library/ Profitability)
168.	P_CPestContLab[Cr]	Amount of labour involved in pest control per cropping season	person days ha^{-1} per cropping season	(see excel sheet Crop Library)	(Crop Library/ Profitability)
169.	P_CpestContPrice[Price]	Amount of direct costs (outside labour) involved in pest control per cropping season	currency unit per ha^{-1} per cropping season	(see excel sheet Profitability)	(Profitability)
170.	P_CPlantLab[Cr]	Amount of labour involved in planting per cropping season	person days ha^{-1} per cropping season	(see excel sheet Crop Library)	(Crop Library/ Profitability)
171.	P_CropProfThreshold	Threshold value for crop profitability. Relevan to parameter P_UseCropStopRule? = 1	Currency unit	(100000)	Management/ Ending a Crop Cycle

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
172.	P_CSeedPrice[Cr,Price]	Cost of crop seed per kg at social and private prices, respectively.	currency unit kg^{-1}	(see excel sheet Crop Library)	(Crop Library/ Profitability)
173.	P_CWeedLab[Cr]	Amount of labour involved in weeding per cropping season	person days ha^{-1} per cropping season	(see excel sheet Crop Library)	(Crop Library/ Profitability)
174.	P_CyieldPrice[Cr, Price]	Price of crop yield per unit dry weight at social and private prices, respectively.	currency unit kg^{-1}	(see excel sheet Crop Library)	(Crop Library/ Profitability)
175.	P_DiscountRate	Discount rate (% per year) that applies to both social and private prices	% $year^{-1}$	(see excel sheet Profitability)	(Profitability)
176.	P_ExtOrgPrice [Type,Price]	Price of external organic input	currency unit kg^{-1}	(see excel sheet Profitability)	(Profitability)
177.	P_FenceMatCost [Price]	Price of off-farm material used for building or maintaining a fence around the field	currency unit ha^{-1}	(see excel sheet Profitability)	(Profitability)
178.	P_TFruitHarvLab	Amount of labour involved in harvesting fruits per unit dry weight	person days kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)
179.	P_TFruitPrice[Price]	Price of tree fruit yield per unit dry weight at social and private prices, respectively.	currency unit kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)
180.	P_TLatexHarvLab	Amount of labour involved in harvesting latex per unit dry weight	person days kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)
181.	P_TLatexPrice[Price]	Price of tree latex yield per unit dry weight at social and private prices, respectively.	currency unit kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)
182.	P_TPlantLab	Amount of labour involved in planting trees per unit dry weight	person days kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)
183.	P_TPrunLab[Tree]	Amount of labour involved in pruning trees per unit dry weight	person days kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
184.	P_TPrunPrice[Price]	Price of tree prunings harvested from the field per unit dry weight at social and private prices, respectively.	currency unit kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)
185.	P_TSeedPrice[Price]	Costs of tree planting material per unit initial tree biomass at social and private prices, respectively.	currency unit $tree^{-1}$	(see excel sheet Tree Library)	(Tree Library/ Profitability)
186.	P_TWoodHarvLab	Amount of labour involved in harvesting wood products per unit dry weight	person days kg=1	(see excel sheet Tree Library)	(Tree Library/ Profitability)
187.	P_TWoodPrice[Price]	Price of tree wood product yield per unit dry weight at social and private prices, respectively.	currency unit kg^{-1}	(see excel sheet Tree Library)	(Tree Library/ Profitability)
188.	P_UnitLabCost[Price]	Cost per unit labour at social and private prices, respectively	currency unit person $days^{-1}$	(see excel sheet Profitability)	(Profitability)
189.	PD_CeatenBy[Cr,Animals]	Fraction of crop component lost if eaten by animals. Default animals are pigs, monkey, locust, nematode, goat, buffalo and birds	dimensionless	0 – 1 (0)	(Crop Library/ Sensitivity to Pest Damage)
190.	P_UseCropStopRule?	A switch determining the simulation will continue to growth crop or not when the previous crop profitability lower than the threshold value. 0 means continue to growth crop, 1 = stop to growth crop	dimensionless	(0)	Management/ Ending a Crop Cycle
191.	PD_CFrugivore? [Animals]	A switch determining the presence of attack by each default animal. 0 = animals is not a crop frugivore,1 = animal is frugivore	dimensionless	0 or 1 (0)	Pest and Disease
192.	PD_CFrugivory[Cr]	Constant daily fraction of crop fruit biomass removed due to the action of frugivores	dimensionless	0 – 1 (0)	Pest and Diseases
193.	PD_CHerbivore? [Animals]	A switch determining the presence of attack by each default animal. 0 = animals is not a crop herbivore,1 = animal is herbivore	dimensionless	0 or 1 (0)	Pest and Disease

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
194.	PD_CHerbivore?[Animals]	A switch determining the presence of attack by each default animal. 0 = animals is not a crop herbivore,1 = animal is herbivore	dimensionless	0 or 1 (0)	Pest and Disease
195.	PD_CHerbivory[Cr]	Constant daily fraction of crop leaf biomass removed due to the action of herbivores	dimensionless	0 – 1 (0)	Pest and Diseases
196.	PD_CRhizovore?[Animals]	A switch determining the presence of attack by each default animal. 0 = animals is not a crop rhizovore,1 = animal is rhizovore	dimensionless	0 or 1 (0)	Pest and Disease
197.	PD_CRhizovory[Cr]	Constant daily fraction of crop root biomass removed due to the action of rhizovores	dimensionless	0 – 1 (0)	Pest and Diseases
198.	PD_FenceBuildDOY	Schedule for day of fencing for each fencing event. A graphical input.	julian days	(see PD_FenceBuild DOY graph)	Pest and Disease
199.	PD_FenceBuildLab	Amount of labour needed to build fence for each fencing event. A graphical input.	person days	(see PD_FenceBuild Lab graph)	Pest and Disease
200.	PD_FenceBuildY	Schedule for year of fencing for each fencing event A graphical input.	dimensionless	(see PD_FenceBuildY graph)	Pest and Disease
201.	PD_FenceDecK	Daily fractional decay of fence quality	day^{-1}	0 – 1 (.02)	Pest and Diseases
202.	PD_FenceFullQua	Maximum quality of fence	dimensionless	1 – 4 (2)	Pest and Diseases
203.	PD_FenceMaint?	Switch determining fence maintenance. 1 = fence maintenance will be done automatically, 0 = no fence maintenance	dimensionless	0 or 1 (0)	Pest and Disease
204.	PD_FenceMUnit	Unit improvement of fence quality once it falls below the threshold set in PD_FenceQThresh	dimensionless	0 – 2 (.25)	Pest and Disease

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
205.	PD_FenceQThresh	Threshold of (relative) fence quality below which labour will be used to repair the fence	dimensionless	0 – 2 (1.1)	Pests and Disease
206.	PD_HalfFenceTime	Time constant of decay of fence quality: time interval after which quality is reduced by 50%	days	0 – 365 (50)	Pest and Disease
207.	PD_JumptheFence?[animals]	The degree to which animals are deterred by a fence from entering the plot	-	0 – 1 (0)	Pest and Diseases
208.	PD_PopDensOutside[animals]	Population density outside the plot, influencing the presence	-	0 or 1	Pest and Diseases
209.	PD_TEatenBy?[Animals]	A switch determining tree attacks by specific animals. Default animals are pigs, monkey, locust, nematode, goat, buffalo and birds. 0 = no attack, 1 = attacked	0 or 1 (0)	0 – 1 (0)	(Tree parameters/ Pest Impacts)
210.	PD_TFrugivore?[Animals]	A switch determining the presence of attack by each default animal. 0 = animals is not a tree frugivore,1 = animal is frugivore	dimensionless	0 or 1 (0)	Pest and Disease
211.	PD_Tfrugivory&Abort[Tree]	Constant daily fraction of tree fruit biomass removed due to the action of frugivores	-	0 – 1 (0)	Pest and Diseases
212.	PD_THerbivore?[Animals]	A switch determining the presence of attack by each default animal. 0 = animals is not a tree herbivore,1 = animal is herbivore	dimensionless	0 or 1 (0)	Pest and Disease
213.	PD_THerbivory[Tree]	Constant daily fraction of tree leaf biomass removed due to the action of herbivores	-	0 – 1 (0)	Pest and Diseases
214.	PD_TLignivory[Tree]	Constant daily fraction of tree woody stem biomass removed due to the action of lignivores	-	0 – 1 (0)	Pest and Diseases
215.	PD_TLignovore?[Animals]	A switch determining the presence of attack by each default animal. 0 = animals is not a tree lignovore,1 = animal is lignovore	dimensionless	0 or 1 (0)	Pest and Disease

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
215.	*PD_TRhizovore?[Animals]*	*A switch determining the presence of attack by each default animal. 0 = animals is not a tree rhizovore, 1 = animal is rhizovore*	*dimensionless*	*0 or 1 (0)*	*Pest and Disease*
216.	*PD_TRhizovory[Tree]*	*Constant daily fraction of tree root biomass removed due to the action of rhizovores*	-	*0 – 1 (0)*	*Pest and Diseases*
217.	Rain_AType	A number 1, 2 or 3 to decide rainfall rate (1= rainfall rate follows precipitation data from external file, rainfall rate follows tabulated data, 2 = rainfall rate follows random generator, 3= rainfall rate follows tabulated monthly total data)	dimensionless	1, 2 or 3 (1)	Rainfall
218.	Rain_BoundHeaLi	Boundary value between heavy and light rain (only for Rain_AType=1)	mm	20 – 30 (25)	Rainfall
219.	Rain_CoeffVar2	Coefficient variation of rainfall in mm, used in rainfall generated randomly (Rain_Atype=2)	dimensionless	0 – 1 (.05)	Rainfall
220.	Rain_CoeffVar3	Coefficient variation of rainfall in mm, rainfall based on tabulated monthly rainfall (Rain_Atype=3)	dimensionless	0 – 1 (.05)	Rainfall
221.	Rain_Cycle?	Parameter governing ways to read rainfall data. Corresponds to Rain_AType=1 (0 = use multiple year rainfall data, 1 = use 1 year data in cycle/continuously)	dimensionless	0 or 1 (1)	Rainfall
222.	Rain_Data	Actual daily rainfall data. Entered as graphical function or read from WaNuLCAS.XLS (Stella non-CRT users only). Corresponds to Rain_AType=1.	mm	(see table in excel sheet weather)	(WEATHER)
223.	Rain_DayP	Probability of raining each day as a function of Julian day scaled monthly. Corresponds to Rain_AType=2 and 3.	dimensionless	0 – 1 (.32)	Rainfall

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
224.	Rain_GenSeed	Seed Random Generator. For Rain_AType=2 and 3.	dimensionless	1 – 32767 (300)	Rainfall
225.	Rain_Heavy	Average precipitation rate of on a heavy rain day; for Rain_AType=2.	mm day^{-1}	0 – 100 (42)	Rainfall
226.	Rain_HeavyP	Probability of heavy rain; for Rain_AType=2.	dimensionless	0 – 1 (.5)	Rainfall
227.	Rain_IntensCoefVar	Coeficient variance of rain intensity. Rain intensity is a factor affecting water infiltration. It is assumes to follow normal distribution with an average of Rain_IntensMean and standard deviation Rain_IntensMean*Rain_IntensCoefVar	dimensionless	(.3)	Rainfall
228.	Rain_IntensMean	Average rain intensity per hour. Rain intensity is a factor affecting water infiltration. It is assumes to follow normal distribution with an average of Rain_IntensMean and standard deviation Rain_IntensMean*Rain_IntensCoefVar	mm hr^{-1}	(50)	Rainfall
229.	Rain_IntercDripRt	The rate of water dripping from water on interception surface	mm hr^{-1}	(10)	Rainfall
230.	Rain_IntMult	Indicates the maximum temporary storage of water on interception surfaces	dimensionless	(3)	Rainfall
231.	Rain_Light	Average precipitation rate of a light rain day day; for Rain_AType=2.	mm day^{-1}	0 – 40 (9)	Rainfall
232.	Rain_MaxIntDripDur	Maximum value of water interception delay before start to dripping	mm hr^{-1}	(.5)	Rainfall

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
233.	Rain_MonthTot	Tabulated data of monthly rainfall; for Rain_AType=3. Entered as graphical function or read from WaNuLCAS.XLS (Stella non-CRT users only).	mm month^{-1}	(see Rain_MonthTot graph)	Rainfall
234.	Rain_Multiplier	Multiplier of rainfall for quick modifications of rainfall amount	dimensionless	0 – 4 (1)	RUN & OUTPUT SECTION
235.	Rain_PondFlwRt	The rate at which water ponding on the surface will actually flow to a neighbouring zone or plot	mm hr^{-1} per m of zone width	(10)	Rainfall
236.	Rain_PondStoreCp	The storage capacity of water ponding on the surface	mm	(5)	Rainfall
237.	Rain_Weight[Zone]	Input weight value to decide amount of rain falling on each zone relative to other zones (eg. equal rainfall in each zone on area basis means 1:1:1:1)	dimensionless	0 – 10 (1)	Rainfall
238.	Rain_YearStart	Initial year based on rainfall data at which simulation starts	dimensionless	any integer value (0)	Rainfall
239.	Rt_ACType	Parameter governing type of root density data for crop. 0=Lrv data available, 1=Lrv calculated using exponential function model where length root area is constant, 2= Lrv calculated using exponential function model where length root area is derived from root biomass	dimensionless	0, 1, or 2 (0)	Roots and Mycorrhiza/ Crop Root
240.	Rt_ATType	Parameter governing type of root density data for tree. 0=Lrv data available, 1=Lrv is constant calculated using ellipticall function model, 2= Lrv is calculated using elliptical function but dynamically changes according to water or N stress	dimensionless	0, 1 or 2 (0)	Roots and Mycorrhiza/ Tree Root

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
241.	Rt_CDecDepth[Cr]	Parameter governing decrease of crop root with depth; corresponds to Rt_ACType=1 and Cq_AType.	m^{-1}	0 - 10 (7)	(Crop Library/Roots)
242.	Rt_CDistResp[Cr]	Responsiveness of crop root distribution to the depth at which uptake of the currently limiting resource (water, N or P) is most successful. Value 0 = no response to stress, 0 – 1 = mild response, 1 = proportional change to inverse of relative depth of uptake, > 1 = strong response. Only for Rt_ACType = 2.	dimensionless	0 – 3 (1)	(Crop Library/Roots)
243.	Rt_CHalfLife[Cr]	Crop root half-life (only for Rt_ACType=2)	days	30 – 100 (50)	(Crop Library/Roots)
244.	Rt_CLraConst[Cr]	Total root length per unit area. It is used to calculate crop root density in exponential decrease model (Rt_ACType=1). Also corresponds to Cq_AType.	cm cm^{-2}	0 – 150 (100)	(Crop Library/Roots)
245.	Rt_CLrvm*i*[Cr]	Maximum crop root length density in *i*-th soil layer; corresponds to Rt_ACType=0 and Cq_A Type.	cm cm-3	0 – 15 (layer 1 = 5, layer 2 = 3, layer 3 = .3, layer 4 = 0)	(Crop Library/Roots)
246.	Rt_CMultiplier	Multiplier of root for quick modifications of crop root length density	dimensioless	(1)	Root and Mycorrhiza
247.	Rt_CSRL[Cr]	Specific root length (length per unit dry weight) of crop roots	m g^{-1}	50 – 100(200)	(Crop Library/Roots)
248.	Rt_MCHypDiam	Diameter of crop mycorrhizal hyphae	cm	0.001 – 0.05 (.01)	Roots & Mycorrhiza/ Mycorrhiza
249.	Rt_MCHypL	Length of crop mycorrhizal hyphae per unit infected root length	dimensionless	10 – 100 (100)	Roots & Mycorrhiza/ Mycorrhiza

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
250.	Rt_MCInfFrac*i*	Fraction of crop roots that is mycorrhizal (infected) in *i*-th soil layer. Layer 1 =.05, layer 2 =.25, layer 3 = .05, layer 4 = 0	dimensionless	0 – 1 (see definition)	Roots & Mycorrhiza/ Mycorrhiza
251.	Rt_MTHypDiam	Diameter of tree mycorrhizal hyphae	cm	0.001 – 0.05 (.01)	Roots & Mycorrhiza/ Mycorrhiza
252.	Rt_MTHypL	Length of tree mycorrhizal hyphae per unit infected root length	dimensionless	10 – 100 (100)	Roots & Mycorrhiza/ Mycorrhiza
253.	Rt_MTInfFrac*i*[Zone]	Fraction of tree roots that is mycorrhizaal (infected)	dimensionless	0 – 1 (0)	Roots & Mycorrhiza/ Mycorrhiza
254.	Rt_TAlloc[Tree]	Fraction of tree growth reserves allocated to roots in the absence of water or nutrient stress (only for Rt_ATType=2)	dimensionless	0 – 1 (.1)	(Tree Library/Roots)
255.	Rt_TAllocResp[Tree]	Responsiveness of tree root allocation to stress factors; 0 = constant root allocation, 1 = linear response to water and nitrogen stress, >1 more-than-proportional response (only for Rt_ACType = 2),	dimensionless	0 – 2 (2)	(Tree Library/Roots)
256.	Rt_TDecDepthC[Tree]	Parameter governing decrease of tree root with depth ; for Rt_ATType=1	m^{-1}	0 – 10 (3)	(Tree Library/Roots)
257.	Rt_TDistResp[Tree]	Responsiveness of crop root distribution to the depth at which uptake of the currently limiting resource (water, N or P) is most successful. Value 0 = no response to stress, 0 – 1 = mild response, 1 = proportional change to inverse of relative depth of uptake, > 1 = strong response. Only for Rt_ACType = 2.	dimensionless	0 – 5 (2)	(Tree Library/Roots)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
258.	Rt_TDistShapeC[Tree]	Tree root distribution shape for Rt_ATType=1 and 2; for a value of 1 root length density decreases as much with horizontal as with vertical distance to the tree stem	dimensionless	0 – 2 (.05)	(Tree Library/Roots)
259.	Rt_THalfLife[Tree]	Tree root half life (only for Rt_ATType=2)	days	30 – 150 (60)	(Tree Library/Roots)
260.	*Rt_THostEffForT1[Tree]*	*An option for simulation root parasitism tree 1 on others tree root*	*dimensionless*	*(0)*	*Root Parasitism*
261.	Rt_TLengDiam1[Tree]	Length of (branch) roots of a tree root with a proximal (at stem base) diameter of 1 cm; Intercept (a) of allometric equation (RootLength = a StemDiameter^{b}). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	cm	0.01 – 1 (10)	(Tree Library/Roots)
262.	Rt_TLengDiamSlope [Tree]	Power coefficient (b) of allometric equation (RootLength = a StemDiameter^{b}). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	dimensionless	1 – 3 (1.5)	(Tree Library/Roots)
263.	Rt_TLraX0[Tree]	Total root length per unit area at X(distance to tree)=0 (tree stem). for Rt_ATType=1	cm	0 – 150 (1)	(Tree Library/Roots)
264.	Rt_TLrvData*i*[Zone,Tree]	Tree root density in soil layer *i* in each zone; for Rt_ATType=0	cm cm^{-2}	0 – 15 (see excel sheet Tree Library/ Roots)	(Tree Library/Roots)
265.	Rt_TMultiplier	Multiplier of root for quick modifications of tree root length density	dimensioless	(1)	Root and Mycorrhiza

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
266.	Rt_TProxGini	Distribution coefficient of proximal root diameters (CumFreq = (Diam/Diammax)TProxGini of a tree, used in calculation of the specific root length of a tree root system	dimensionless	0.001 – 10 (.3)	(Tree Library/Roots)
267.	Rt_TWghtDiam1[Tree]	Biomass of a (branched) tree root with a proximal (at stem base) diameter of 1 cm; Intercept (a) of allometric equation (Root weight = a StemDiameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	kg	0.01 – 1 (.5)	(Tree Library/Roots)
268.	Rt_TWghtDiamSlope [Tree]	Power coefficient (b) of allometric equation (RootWeight = a StemDiameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	dimensionless	1 – 3 (2.3)	(Tree Library/Roots)
269.	*S&B_2ndFireafterPileup*	*Number of days between puile up and secondary burn event*	*days*	*1 – 100 (5)*	*Management/ Slash and Burn*
270.	*S&B_CritMoist*	*Limit value for internal + adhering (intercepted from rainfall) moisture content of slashed necromass; below this value necromass is categorized as dry and fire can take place*	*$l\ kg^{-1}$*	*0 – 1(.05)*	*Management/ Slash and Burn*
271.	*S&B_DeadWoodFuelFact*	*Temperature of the fire per unit dry weight of fuel in dead wood*	*$^{o}C\ kg^{-1}$*	*0 – 100 (.1)*	*Management/ Slash and Burn*
272.	*S&B_FirImpPSorption*	*Fire impacts on P sorption, as a function of soil surface temperature increase*	*dimensionless*	*(see table in excel sheet Slash& Burn)*	*Management/ Slash and Burn*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
273.	S&B_FirIndPMobiliz	Fire impact on mobilization fraction of P from the inorganic P immobile pool, as a function of soil surface temperature increase	dimensionless	(see table in excel sheet Slash& Burn)	Management / Slash and Burn
274.	S&B_FirMortSeedBank	Fractional mortality in the weed seed bank as a function of soil surface temperature increment	dimensionless	(see table in excel sheet Slash& Burn)	Management / Slash and Burn
275.	S&B_FuelLoadFactor	Temperature of the fire per unit dry weight of fuel in slashed necromass and structural surface litter	$^{o}C\ kg^{-1}$	0 – 100 (10)	Management / Slash and Burn
276.	S&B_MaxDryingPer	The latest time after slashing when fire can occur; if the fuel does not get dry enough before this time, no fire will be occur	days	1 – 200 (30)	Management / Slash and Burn
277.	S&B_MinDryingPer	The earliest time after slashing that fire can occur	days	0 – 100 (20)	Management / Slash and Burn
278.	S&B_NecroBurnFrac	Fraction of surface necromass burnt as a function of fire temperature at the soil surface.	dimensionless	(see table in excel sheet Slash& Burn)	Management / Slash and Burn
279.	S&B_NutVolatFracN	Volatilization fraction of N in the burnt necromass, as a function of soil surface temperature increment	dimensionless	(see table in excel sheet Slash& Burn)	(Slash&Burn)
280.	S&B_NutVolatFracP	Volatilization fraction of P in the burnt necromass, as function of soil surface temperature increment	dimensionless	(see table in excel sheet Slash& Burn)	(Slash & Burn)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
281.	S&B_pHRecFrac	Daily recovery fraction of soil pH in the topsoil from its post-fire towards its pre-fire value	fraction	0.001–0.1 (.01)	Management / Slash and Burn
282.	S&B_PSorpRecFrac	Daily recovery fraction of the P_sorption in the topsoil from its post-fire towards its pre-fire value	fraction	0.001–0.1 (.01)	Management / Slash and Burn
283.	S&B_ScorchWRemFra	Fraction of scorched wood removed after slash and burn event	fraction	0 – 1 (.3)	Management / Slash and Burn
284.	S&B_SlashDOY	A graphical input tabulating day of year at which slashing is performed	julian days	(see S&B_SlashDOY graph)	Management / Slash and Burn
285.	S&B_SlashYear	A graphical input tabulating year at which slashing is performed	dimensionless	any integer value (100)	Management / Slash and Burn
286.	S&B_SOMBurnFrac	Fraction of all SOM pools in the topsoil (Layer 1) respired (C) or mineralized (N & P) as a function of soil surface temperature increment	dimensionless	(see table in excel sheet Slash&Burn)	Management / Slash and Burn
287.	S&B_SurfLitBurnFrac	Fraction of all surface litter respired (C) or mineralized (N & P) as a function of soil surface temperature increment	dimensionless	(see table in excel sheet Slash&Burn)	Management / Slash and Burn
288.	S&B_TimetoPileUp	Number of days between primary burn and pile up (redictribnution across the zones) for a secondary burn	days	1 – 100 (15)	Management / Slash and Burn
289.	S&B_TimetoWoodRem	Number of days between primary burn and removal of scorched wood	days	1 – 50 (10)	Management / Slash and Burn
290.	S&B_TTempTol[Tree]	Maximum fire temperature that a tree can tolerate. Temperature above the value will induce tree mortality	^{o}C	40 – 90 (75)	(Tree Library / Slash&Burn)
291.	S&B_WatRetRecFrac	Daily recovery fraction of soil water retention in the topsoil from its post-fire towards its pre-fire value	fraction	0.001 – 0.1 (0.005)	Management / Slash and Burn

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
292.	*S&B_WetnessTempImp*	*Fractional reduction in fire temperature per unit of moisture content of the fuel*	*fraction*	*0 – 1 (.5)*	*Management / Slash and Burn*
293.	*S_C_RtStrucFormFrac*	*Fraction of contribution of crop root decay on root channels*	*fraction per m*	*(.1)*	*Soil Structure*
294.	S_KSatDefV*i*	Saturated hydraulic conductivity of the soil in the absence of macropore structure, as derived from texture-based pedotransfer functions. Read and calculation from WaNuLCAS.XLS. Input needed to run pedotranfer refer to the sheet pedotranfer. Layer 1 = 319, layer 2 = 54, layer 3 = 45, layer 4 = 40	cm day^{-1}	1 – 500 (see definition)	(Soil Hydraulic)
295.	*S_KsatHperV*i	*Ratio of saturated hydraulic conductivity in horizontal and vertical direction for layer* i	*dimensionless*	*0 – 5 (1)*	*Soil Structure / K Sat ratio*
296.	*S_KSatInitVi[Zone]*	*Saturated hydraulic conductivity of the soil at the macropore structure existing at the start of the simulation. Read and calculation from WANULCAS.XLS. Input needed to run pedotranfer refer to the sheet pedotranfer. Layer 1 = 319, layer 2 = 54, layer 3 = 45, layer 4 = 40*	*cm day-1*	*1 – 500 (see definition)*	*(Soil Hydraulic)*
297.	*S_KSatVDeepSub*	*Saturated hydraulic conductivity of the soil below layer 4, determining the rate of vertical drainage from the soil column*	*cm day-1*	*1 – 100 (20)*	*Soil Structure*
298.	*S_BDBDRefDecay*	*Relative rate of decay of the bulk density, returning the surface infiltration rate toward S_SurfInfiltrPerKsatDef and the saturated hydraulic conductivity towards S_KSatDefV*	*day-1*	*0 – 0.1 (.001)*	*Soil Structure*
299.	*S_RelWormLit*i	*Relative impact of 'worms' (soil fauna) on increase of saturated hydraulic conductivity in each layer*	*dimensionless*	*0 – 1 (1, 0.6, 0.3, 0.1)*	*Soil Structure*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
300.	S_RelWormSurf	Relative impact of 'worms' (soil fauna) increase of infiltration rate of the soil surface	dimensionless	0 – 1 (1)	Soil Structure
301.	S_SoilStructDyn?	Switch determining dynamics of soil structure (0 = false, 1 = true) based on decay and re-creation of macropores by soil fauna above the texture-based default values	day^{-1}	0 or 1 (0)	Soil Structure
302.	S_SurfInfiltrPerKsatDef [Zone]	Ratio of surface infiltration and Ksat for the first soil layer in the default condition of the soil as defined by the pedotransfer function	$mm\ day^{1}$	25 – 10000 (25)	Soil Structure
303.	S_RelSurfInfiltrInit[Zone]	Surface infiltration rate at the start of the simulation relative to its default value	$mm\ day^{1}$	100 – 10000 (1000)	Soil Structure
304.	S_T_RtStrucFormFrac	Fraction of contribution of tree root decay on root channels	fraction per m	(.3)	Soil Structure
305.	S_WormsLikeLitMetab	Activity (in arbitrary units) of soil fauna ("worms") per unit of organic inputs in the litter metabolic pool	$m^2\ kg^{-1}$	0.00001 – 0.1 (.00001)	Soil Structure
306.	S_WormsLikeLitStruc	Activity (in arbitrary units) of soil fauna ("worms") per unit of organic inputs in the litter structural pool	$m^2\ kg^{-1}$	0.0000005 – 0.1 (.0000005)	Soil Structure
307.	S_WormsLikeSOMMetab	Activity (in arbitrary units) of soil fauna ("worms") per unit of organic inputs in the SOM metabolic pool	$m^2\ kg^{-1}$	0.000001 – 0.1 (.000001)	Soil Structure
308.	S_WormsLikeSOMStruc	Activity (in arbitrary units) of soil fauna ("worms") per unit of organic inputs in the SOM structural pool	$m^2\ kg^{-1}$	0.00000005 – 0.1 (.00000005)	Soil Structure
309.	T_ApplyFBA?[Tree]	Switch (1 = yes, 0 = no) to determine whether the allocation of biomass from the canopy to the wood (branches + stem) pools is governed by the fractal branching parameters (allometric equations).	dimensionless	0 or 1 (1)	Tree Parameters

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
310.	*T_ApplyPalm?[Tree]*	*Switch (1 = yes, 0 = no) to determine whether the allocation of biomass to storage pool follows oil palm rule.*	*dimensionless*	*0 or 1 (0)*	*(Tree Library/Fruit)*
311.	T_CanBiomInit[Tree]	Initial amount of biomass in tree canopy (leaf and small stems)	kg m^{-2}	0 – 1 (0)	Tree parameters
312.	T_CanHMax[Tree]	Maximum height of tree canopy	m	0 – 15 (8.2)	(Tree Library/ Canopy)
313.	T_CanShape[Tree]	Factor determining in which part of the tree leaves are concentrated. A value of 1 gives an even spread of tree leaves over the alley, a higher value (eg 2) concentrates tree leaves above the hedgerow	dimensionless	0 – 2 (.567)	(Tree Library/ Canopy)
314.	T_CanWidthMax[Tree]	Maximum tree canopy width, half the canopy width (radius).	m	0 – 10 (4.655)	(Tree Library/ Canopy)
315.	T_ConcFruit[SiNut,Tree]	Nutrient concentration in fruit component	dimensionless	0 – 0.1 (N = .02, P = .002)	(Tree Library/ N-P concentration)
316.	T_ConcGroRes [SiNut,Tree]	Nutrient concentration in carbohydrate reserves	dimensionless	0 – 0.1 (N = .01, P = .0005)	(Tree Library/ N-P concentration)
317.	T_ConcLf[SiNut,Tree]	N concentration in leaf component of tree	dimensionless	0 – 0.1 (N = .0173, P = .0009)	(Tree Library/ N-P concentration)
318.	T_ConcRt[SiNut,Tree]	Nutrient concentration in tree roots (only for Rt_ATType=2)	dimensionless	0 – 0.1 (N = .0122, P = .0006)	(Tree Library/ N-P concentration)
319.	T_ConcTwig[SiNut,Tree]	Nutrient concentration in twig component of tree	dimensionless	0 – 0.1 (N = .00073, P = .0016	(Tree Library/ N-P concentration)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
320.	T_ConcWood [SiNut,Tree]	Nutrient concentration in wood component of tree	dimensionless	0 – 0.1 (N = .0047, P = .0008)	(Tree Library/ N-P concentration)
321.	T_DiamBiom1[Tree]	Biomass of a tree of diameter 1 cm; Intercept (a) of allometric equation (Branch biomass = a StemDiameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	kg	0.01 – 1 (.6513)	(Tree Library/ Allometric branching)
322.	T_DiamBranch1[Tree]	Intercept (a) of allometric equation (Tree branch biomass = a Diameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	kg	0.01 – 1 (.0334)	(Tree Library/ Allometric branching)
323.	T_DiamCumLit1[Tree]	Cumulative litterfall expected for a stem diameter of 1 cm. Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	kg	0.01 – 1 (.0302)	(Tree Library/ Allometric branching)
324.	T_DiamLfTwig1[Tree]	Intercept (a) of allometric equation (Leaf &Twigbiomass = a StemDiameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	kg	0.01 – 1 (.9656)	(Tree Library/ Allometric branching)
325.	T_DiamSlopeBiom[Tree]	Power coefficient (b) of allometric equation (Branch biomass = a StemDiameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	cm^{-1}	0 – 3 (2.0937)	(Tree Library/ Allometric branching)
326.	T_DiamSlopeBranch [Tree]	Power coefficient (b) of allometric equation (Tree branch biomass = a Diameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	cm^{-1}	0 – 3 (2.4195)	(Tree Library/ Allometric branching)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
327.	T_DiamSlopeCumLit [Tree]	Power coefficient (b) of the alloemtric equation describing the increase of cumulative litterfall with stem diameter. Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	cm^{-1}	0 – 3 (3.0937)	(Tree Library/ Allometric branching)
328.	T_DiamSlopeLfTwig [Tree]	Power coefficient (b) of allometric equation (Leaf&Twig biomass = a StemDiameterb). Calculation from Functional Branch Analysis (FBA). Input needed to run FBA refer to tree parameterization	dimensionless	1 – 3 (1.7270)	(Tree Library/ Allometric branching)
329.	*T_DiamTreshHarv[Tree]*	*Tree diameter of timber harvested*	*cm*	*100*	*Management/ Timber Harvesting*
330.	*T_DOY 1 LfFlush[Tree]*	*Day of the first cycle of leaf flush*	*julian days*	*1 – 365 (1)*	*Tree parameters/ Tree leaf phenology)*
331.	*T_DOY 2 LfFlush[Tree]*	*Day of the second cycle of leaf flush*	*julian days*	*1 – 365 (400)*	*Tree parameters/ Tree leaf phenology*
332.	*T_DOY SeaLitFall1Start [Tree]*	*Day when the first season of leaf starts dropdown*	*julian days*	*1 – 365 (400)*	*Tree parameters/ Tree leaf phenology*
333.	*T_DOY SeaLitFall2Start [Tree]*	*Day when the second season of leaf starts dropdown*	*julian days*	*1 – 365 (400)*	*Tree parameters/ Tree leaf phenology*
334.	*T_DOY_Compl1LfFall [Tree]*	*Day when the first season of leaf completely dropdown*	*julian days*	*1 – 365 (400)*	*Tree parameters/ Tree leaf phenology*
335.	*T_DOY_Compl2LfFall [Tree]*	*Day when the second season of leaf completely dropdown*	*julian days*	*1 – 365 (400)*	*Tree parameters/ Tree leaf phenology*
336.	T_DOYFlwBeg[Tree]	The earliest day in a year when tree start to flowers	julian days	1 - 365 (200)	(Tree Library/ Growth stage)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
337.	T_DOYFlwEnd[Tree]	The latest day in a year when tree start to flowers	julian days	1 - 365 (250)	(Tree Library/ Growth stage)
338.	*T_FracSeaLitFall1[Tree]*	*Fraction of tree canopy become litterfall*	*dimensionless*	*0 – 1 (1)*	*(Tree parameter/ Tree leaf phenology)*
339.	*T_FruitAllocMax[Tree]*	*Allocation of biomass to fruit each day*	*kg m^{-2} day^{-1}*	*0 – 1 (0)*	*(Tree Library/Fruit)*
340.	*T_FruitAllocStage[Tree]*	*Graphical input parameter as a function of tree stage that determine how much fruit will produce from maximum fruit allocation*	*dimensionless*	*0 – 1 (see T_FruitAllocStage graph)*	*Management/ Fruit Harvesting*
341.	*T_FruitHarvFrac[Tree]*	*Harvest index for fruit. Constant value for every fruiting season*	*dimensionless*	*0 – 1 (0)*	*Management/ Fruit Harvesting*
342.	*T_FruitMoistFrac[Tree]*	*Standard moisture content for expressing marketable fruit of each tree*	*dimensionless*	*0 – 1 (0)*	*(Tree Library/Fruit)*
343.	*T_GenLitFracMax[Tree]*	*Fraction of fruit will drop*	*dimensionless*	*0 – 1 (.05)*	*Management/ Fruit Harvesting*
344.	*T_GenLitStage[Tree]*	*Graphical input parameter as a function of tree stage that determine how many fruit will drop*	*dimensionless*	*0 – 1 (see T_GenLitStage graph)*	*Management/ Fruit Harvesting*
345.	*T_GraphPhenol?[Tree]*	*Parameter governing an option to simulate tree phenology using graph. Value 0 means tree phenology using phenology parameters, value 1 means tree phenology using graph*	*dimensionless*	*0 or 1 (0)*	*Tree parameter/ Tree leaf phenology*
346.	*T_GroMax[Tree]*	*Maximum growth rate of hedgerows at full canopy closure*	*kg m^{-2} day^{-1}*	*0 – 0.1 (.014)*	*(Tree Library/ Growth)*
347.	*T_GroResFrac[Tree]*	*Fraction of tree carbohydrate reserves converted to biomass during regrowth stage after pruning*	*day^{-1}*	*0 – 0.5 (.025)*	*(Tree Library/ Growth)*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
348.	T_GroResInit[Tree]	Initial amount of tree carbohydrates as reserves of tree potential growth	kg per tree	0 – 1 (0.25)	Tree parameters
349.	*T_HeartWoodAllocAft Pruned?*	*Parameter governing an option to simulate heartwood. Value 0 means after pruning no sapwood biomass that allocated to heartwood biomass, value 1 means after pruning all sapwood biomass allocated to heartwood biomass.*	*dimensionless*	*(0)*	*Tree parameter/ Tree stem (sapwood & heartwood)*
350.	T_InitStage[Tree]	Initial stage of tree when it was planted. If tree already growing at the start of simulation, it is the stage at the start of simulation time	dimensionless	0 – 2 (0)	(Tree Library/ Growth stage)
351.	*T_KillDOY[Tree]*	*Schedule date, day of year to kill tree*	*julian days*	*1 – 365 (1)*	*Management/ Killing Trees*
352.	*T_KillY[Tree]*	*Schedule date, year to kill tree*	*dimensionless*	*any integer value (1000)*	*Management/ Killing Trees*
353.	T_KLight[Tree]	Tree canopy (leaves component) extinction light coefficient = the efficiency of tree foliage in absorbing light	dimensionless	0 – 1 (.7)	(Tree Parameters/ Light Capture)
354.	*T_LatexMoistFrac[Tree]*	*Standard moisture content for expressing marketable latex of each tree*	*dimensionless*	*0 – 1 (0)*	*(Tree Library)*
355.	T_LAIMax[Tree]	Maximum value of LAI in the tree canopy	dimensionless	0 – 5 (4)	(Tree Library/ Canopy)
356.	T_LAIMinMaxRatio[Tree]	Parameter describing canopy thickness/dense. Value 1 is maximum thickness	dimensionless	0 – 1 (1)	(Tree Library/ Canopy)
357.	T_LifallDroughtFrac[Tree]	Fraction of tree biomass becomes litterfall due to drought	day^{-1}	0 – 1 (.01)	(Tree Library/ Litterfall)
358.	T_LifallThreshWStress [Tree]	Threshold value for tree litterfall due to drought	dimensionless	0 – 1 (.7)	(Tree Library/ Litterfall)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
359.	T_LifallWeight[Zone]	Input weight value governing amount of tree litterfall going into each zone relative to other zones (eg. 1:1:1:1 means equal mulch given in each zones on area basis)	dimensionless	0 – 10 (1,1, 1, 1)	Litterfall
360.	T_LignLifall[Tree]	Lignin concentration of tree litterfall (eg. 20%=0.2)	dimensionless	0 – 1 (.43)	(Tree Library/ Litter Quality)
361.	T_LignPrun[Tree]	Lignin concentration of pruned tree biomass (eg. 20%=0.2)	dimensionless	0 – 1 (.4)	(Tree Library/ Litter Quality)
362.	T_LignRt[Tree]	Lignin concentration of tree root	dimensionless	0 – 1 (.4)	(Tree Library/ Litter Quality)
363.	T_LWR[Tree]	Leaf Weight Ratio = leaf dry weight per unit shoot dry weight	dimensionless	0 – 5 (.494)	(Tree Library/ Growth)
364.	*T_MycMaxInf[Tree]*	*Fraction of tree roots infected by mychorrhiza for a soil layer where the Rt_MTInfFrac parameter is 1*	*dimensionless*	*0 – 1 (.3)*	*(Tree Library/ Mycorrhiza*
365.	T_NFixDayFrac[Tree]	Fraction of current N deficit derived from atmospheric N_2 fixation per day for each tree if T_NFixVariable = 1 ('true')	day^{-1}	0 - 1 (.125)	(Tree Library/ N Fixation)
366.	T_NFixDWMaxFrac[Tree]	Maximum fraction of the T_GroRes[Dw] pool that can be respired for N_2 fixation if T_NFixVariable = 0 ('false')	day^{-1}	0 - 0.5 (.05)	(Tree Library/ N Fixation)
367.	T_NFixDWUnitCost[Tree]	Dry weight cost for respiration per unit N_2 fixation, if T_NFixVariable = 0 ('false')	kg [dw] g^{-1} [N]	0 – 1 (0)	(Tree Library/ N Fixation)
368.	T_NfixResp[Tree]	Responsiveness of N_2 fixation to N stress (N in biomass divided by N target), if T_NFixVariable = 0 ('false')	dimensionless	0 – 5 (0)	(Tree Library/ N Fixation)
369.	T_NFixVariable?[Tree]	Switch (0 = false, 1 = true) to choose between variable (N-stress dependent) versus constant N_2 fixation as fraction of N deficit	dimensionless	0 or 1 (0)	(Tree Library/ N Fixation)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
370.	T_NlifallRed [SiNut,Tree]	Reducing factor for nutrient concentration of tree litterfall which depend on type of tree	dimensionless	0 – 2 (.7 for N and P)	(Tree Library/ Litterfall)
371.	*T_NutMobT[SiNut]*	*Relative rate of transfer, per unit root length density (cm cm^{-3}), from the 'immobile' pool of nutrients to the 'mobile' or sorbed pool, due to Crop root activity*	*m^2 day^{-1}*	*0 – 0.02 (0)*	*(Tree Library/Root Impacts on Nutrient Mobility)*
372.	T_PlantDOY[Tree]	Schedule for date of planting time. Entered from WaNuLCAS.XLS	julian days	1 – 365 (see table in excel sheet Tree Management)	(Tree Management)
373.	T_PlantY[Tree]	Schedule for year of planting time. Entered from WaNuLCAS.XLS	dimensionless	any integer value (see table in excel sheet Tree Management)	(Tree Management)
374.	T_PolypLifall[Tree]	Polyphenol concentration of tree litterfall (eg. 3 %=0.03)	dimensionless	0 – 1 (0)	(Tree Library/ Litter Quality)
375.	T_PolypPrun[Tree]	Polyphenol concentration of pruned tree biomass (eg. 3 %=0.03)	dimensionless	0 – 1 (0)	(Tree Library/ Litter Quality)
376.	T_PolypRt[Tree]	Polyphenol concentration of tree root	dimensionless	0 – 1 (0)	(Tree Library/ Litter Quality)
377.	*T_PrunDoY[Tree]*	*Schedule for date of pruning. Entered from WaNuLCAS.XLS*	*julian days*	*1 – 365 (365)*	*(Tree Management)*
378.	*T_PrunFracC[Tree]*	*Fraction of canopy that gets pruned, for T_PrunType = 0. Constant for every pruning*	*dimensionless*	*0 – 1 (0)*	*Managements/ PruningEvents*
379.	*T_PrunFracC[Tree]*	*Fraction of tree canopy gets pruned, for T_PrunFrac? = 0*	*dimensionless*	*0 – 1 (1)*	*Management/ PruningEvents*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
380.	T_PrunFracD[Tree]	Fraction of tree canopy that gets pruned, for T_PrunFrac? = 1	dimensionless	0 – 1 (1)	(Tree Management)
381.	T_PrunHarvFracC[Tree]	Fraction of pruned canopy that harvested (not return to the system), for T_PrunType? = 0. Constant for every pruning.	dimensionless	0 – 1 (0)	Managements/ PruningEvents
382.	T_PrunHarvFracD[Tree]	Fraction of tree pruned biomass harvested. Value changes overtime	dimensionless	0 or 1 (0)	(Tree Management)
383.	T_PrunLimit	Critical total LAI of all trees shadowing the crop zone, triggering a pruning event	dimensionless	0 – 5 (100)	Management/ PruningEvent
384.	T_PrunPlant?[Tree]	Parameter governing pruning decision. 1 = tree is automatically pruned before crop planting, 0 = tree does not automatically pruned	dimensionless	0 or 1 (1)	Management/ PruningEvent
385.	T_PrunRecov[Tree]	Time needed for tree to recover after pruning	days	0 – 30 (14)	Management/ PruningEvent
386.	T_PrunStageLimit[Tree]	The latest crop stage at which automatic pruning is still performed. Corresponds to T_PrunPlant? = 1	dimensionless	1 – 2 (1.8)	Management/ PruningEvent
387.	T_PrunType?	This parameter govern the type of pruning events. 0 = Pruning determined automatically based on canopy denseness (tree LAI). Associated with T_PrunLimit and Tree_StageLimit. 1 = Pruning determined by calender. Assciated with Pruning section in sheet Tree Management, WaNuLCAS.xls	dimensionless	0 (0 or 1)	Managements/ PruningEvents
388.	T_PrunWeight [Zone,Tree]	Input weight value governing amount of tree pruning going into each zone relative to other zones (eg. equal pruned biomass given in each zones on area basis means 1:1:1:1)	dimensionless	0 – 10 (0, 1, 1, 1)	Management/ PruningEvent

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
389.	*T_PrunY[Tree]*	*Schedule for year of pruning. Entered from WaNuLCAS.XLS*	*dimensionless*	*any integer value (100)*	*(Tree Management)*
390.	T_RainWStorCap[Tree]	Rainfall intercepted by tree stored as thin film at leaf surface	dimensionless	(1)	(Tree Library/ Rain Interception)
391.	T_RelLightMaxGr[Tree]	Relative light intensity at which shading starts to affect tree growth	dimensionless	0 - 1 (.5)	(Tree Library/ Light Capture)
392.	T_RhizEffKaPT	Proportional reduction of the apparent adsorption constant for P due to root activity of the crop, expressed as fraction of N_KaPdef per unit tree root length density	$m^2\ day^{-1}$	0 – .2 (0)	(Tree Library/ Root impacts on P mobility)
393.	T_RtDiam[Tree]	Tree root diameter. It is used in calculating water and nutrient uptake. For all root type.	cm	.05 – 3 (.1)	(Tree Library/Roots)
394.	T_SLA[Tree]	Tree specific leaf area = tree leaf surface area per unit leaf dry weight	$m^2\ kg^{-1}$	0 – 30 (7.87)	(Tree Library/ Growth)
395.	*T_SapWoodScaling Rule*	*Power coefficient of conversion of diameter of sapwood to heartwood. Default value 1 means no increasing of diameter heartwood*	*dimensionless*	*0 – 1 (1)*	*Tree parameter/ Tree stem (sapwood & heartwood)*
396.	*T_SlashLabour*	*Amount of labour involved in slashing the field per unit simulated filed as a function of biomass slashed*	*person days*	*(see T_Slash Lab graph)*	*Management/ Slash and Burn*
397.	*T_SlashSelIWoodFrac [Tree]*	*Indicates the fraction of wood that is removed from the plot at the time of slashing the vegetation*	*dimensionless*	*0 – 1 (0)*	*Management/ Slash and Burn*
398.	*T_StageAftPrun[Tree]*	*Tree growth stage after pruning*	*dimensionless*	*0 – 2 (1)*	*(Tree Library/ Growth stage)*
399.	T_TimeGenCycle[Tree]	Length of generative cycles of tree	days	any integer value (150)	(Tree Library/ Growth stage)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
400.	T_TimeVeg[Tree]	Length of vegetative cycles of tree	days	any integer value (720)	(Tree Library/ Growth stage)
401.	T_TranspRatio[Tree]	Amount of water needed per unit dry matter production of tree	l kg^{-1}	0 – 500 (300)	(Tree Library/ Growth)
402.	*T_TranspRatioTime*	*Graphical input parameter as a function of tree stage that determine the dynamic of tree transpiration per unit biomass production*	*-*	*-*	*Tree Parameter*
403.	T_TreesperHa[Tree]	Tree plant density	dimensionless	any integer value (400)	Tree Parameters
404.	T_WoodBiomInit[Tree]	Initial amount of biomass in tree stem	kg m^{-2}	0 – 1 (0)	Tree Parameters
405.	T_WoodDens[Tree]	Wood density of each tree species	kg m^{-3}	(750)	(Tree Library)
406.	*T_WoodFracHRemain*	*Wood height remain after pruning. If you do not want to harvest wood/timber when pruning makes sure this is a high value, eg. 100.*	*m*	*0-100 (100)*	*Management/ Pruning Events/ Other Pruning Parameters*
407.	*T_WoodHarvDOY[Tree]*	*Schedule for date of pruning. Entered from WaNuLCAS.XLS*	*julian days*	*1 – 365 (364)*	*(Tree Management)*
408.	*T_WoodHarvFrac[Tree]*	*Fraction Harvested wood*	*dimensionless*	*0 – 1 (.95)*	*Management/ Timber Harvesting*
409.	*T_WoodHarvY[Tree]*	*Schedule for year of timber harvesting. Entered from WANULCAS.XLS*	*dimensionless*	*Any integer value (100)*	*(Tree Management)*
410.	T_WoodHInit[Tree]	Initial value of tree bare stem height (tree height excluded canopy)	m	0 – 15 (0)	Tree Parameters
411.	*T_WoodMoistFrac[Tree]*	*Standard moisture content for expressing marketable wood of each tree*	*dimensionless*	*0 – 1 (0)*	*(Tree Library)*

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
412.	Temp_AType	A number governing type of soil temperature data used in the simulation(0= constant value of soil temperature , 1 =read from monthly average data,2=read from daily data which is read from external file)	dimensionless	1, 2 or 3 (1)	Soil Temperature
413.	Temp_Cons	Soil temperature throughout the simulation; corresponds to Temp_AType=0	^{o}C	15 – 40 (28)	Soil Temperature
414.	Temp_DailyData	Actual daily data of soil temperature; corresponds to Temp_AType=2. Read from WaNuLCAS.XLS	^{o}C	(see table in excel sheet weather)	(WEATHER)
415.	Temp_DailyPotEvap	Daily potential evaporation. Entered from WaNuLCAS.XLS	mm day^{-1}	(see table in excel sheet weather)	(WEATHER)
416.	Temp_EvapPotConst	Amount of water evaporating from top soil in absence of plant cover	mm day^{-1}	0 – 10 (3)	Soil Evaporation
417.	Temp_MonthAvg	Monthly average of soil temperature; corresponds toTemp_AType=1. Entered as graphical function	^{0}C	(see Temp_Month Avg graph)	Soil Temperature
418.	Temp_PotEvapConst?	Parameter governing type of soil evaporation potential data. 1 = constant throughout simulation, 0 = daily data	dimensionless	0 or 1 (1)	Soil Evaporation
419.	TW_PotSuctAlphMax [Tree]	Plant potential where transpiration is (1-Alpha)*potential transpiration, where Alpha is a small value (e.g. 0.01)	cm	-7000 – -3 000 (-5000)	(Tree Library/ Water Uptake)
420.	TW_PotSuctAlphMin [Tree]	Plant potential where transpiration is Alpha*potential transpiration, where Alpha is a small value (e.g. 0.01)	cm	-30000 – -10000 (-15000)	(Tree Library/ Water Uptake)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
421.	W_FieldCapkCrit*i*[Zone]	Field capacity determined by a threshold rate of subsequent drainage (Kcrit) that is set in the pedotransfer worksheet; the actual field capacity used is the maximum of this value and the field capacity derived from the height above a groundwater table. Read and calculation from WaNuLCAS.XLS (pedotransfer). Input needed to run pedotranfer refer to the sheet pedotranfer	m^3 water m^{-3} soil	(see table in excel sheet Soil Hydraulic)	(Soil Hydraulic)
422.	*W_Hyd?*	*Parameter governing water hydraulic lift application in model. 1 = apply hydraulic lift in overall water balance, 0 = otherwise*	*dimensionless*	*0 – 1 (0)*	*Soil Water and Nutrient*
423.	W_PhiPx*i*[Zone]	Graphs showing relationship between pressure head in *i*-th soil layer of each zone and matrix flux potential (the index x refers to the plants with the highest (H), lowest (L), medium-high (MH) or medium low (ML) rank of root water potential), but the graphs will be identical. Read and calculation from WaNuLCAS.XLS (pedotransfer). Input needed to run pedotranfer refer to the sheet pedotranfer	cm^2 day^{-1}	(see table in excel sheet Soil Hydraulic)	(Soil Hydraulic)
424.	W_PhiTheta*i*[Zone]	Matrix flux potential at a given theta/soil water content in layer *i* of each zone. Read and calculation from WaNuLCAS.XLS (pedotransfer). Input needed to run pedotranfer refer to the sheet pedotranfer	cm^2 day^{-1}	(see table in excel sheet Soil Hydraulic)	(Soil Hydraulic)
425.	W_PTheta*i*[Zone]	Graphs showing relationship between volumetric soil water content and pressure head in *i*-th soil layer of each zone. Read and calculation from WaNuLCAS.XLS (pedotransfer). Input needed to run pedotranfer refer to the sheet pedotranfer	cm	(see table in excel sheet Soil Hydraulic)	(Soil Hydraulic)

No	Acronym	Definition	Dimensions	Range of value (Default value)	Input Section (Link location in Excel)
426.	W_ThetaInacc*i*[Zone]	Amount of volumetric soil water in *i*-th soil layer of each zone not available for plant. It is value of volumetric soil water at pF= 4.2 or P = -16000. Read and calculation from WaNuLCAS.XLS (pedotransfer). Input needed to run pedotranfer refer to the sheet pedotranfer	l m^{-2} day^{-1}	(see table in excel sheet Soil Hydraulic)	(Soil Hydraulic)
427.	*W_Hyd*?	*Parameter governing water hydraulic lift application in model. 1 = apply hydraulic lift in overall water balance, 0 = otherwise*	*dimensionless*	*0 – 1 (0)*	*Soil Water and Nutrient*
428.	W_ThetaInit*i*[Zone]	Initial volumetric soil water content in *i* –th soil layer of each zone. Current values are 1, 0.9, 0.8, 0.7 for layer 1…4, respectively	ml cm^{-3}	0 – 1	Soil Water and N/ Initial Soil Water
429.	W_ThetaP*i*[Zone]	Graphs showing relationship between pressure head in *i*-th soil layer of each zone and volumetric soil water content. Read and calculation from WaNuLCAS.XLS (pedotransfer). Input needed to run pedotranfer refer to the sheet pedotranfer	cm	0 – 0.5 (see table in excel sheet Soil Hydraulic)	(Soil Hydraulic)
430.	W_ThetaPMax[Zone]	Volumetric soil water content at a given maximum soil potential at top layer. Read and calculation from WaNuLCAS.XLS (pedotransfer). Input needed to run pedotranfer refer to the sheet pedotranfer	cm	(see table in excel sheet Soil Hydraulic)	(Soil Hydraulic)