

World Agroforestry Center, Southeast Asia Regional Office

FALLOW: How To Use It?

[A] The first run

- You must install **PCRaster** in your machine, which is freely downloadable from <http://pcraster.geo.uu.nl/>.
- PCRaster works under DOS system. Please, create a batching text file “**autoexec.bat**” file, containing a command to automatically access PCRaster applications from any directory (**Set Path=**) and save it under **C:**. The example of the command if you install PCRaster under **C:\PCRaster\Apps** is: **Set Path=C:\PCRaster\Apps**.
- Create a new folder under **C:** directory and name it as **FALLOW**, thus you should have a directory **C:\FALLOW** in your machine.
- Unzip **FALLOWModel.zip** under **C:\FALLOW**.
- We provide you with datasets from Kalahan, the Philippines. Unzip one of the following datasets under **C:\FALLOW**; **Par_Validation.zip**, containing datasets to validate the model, by simulating datasets from 1989 for 13 years. The datasets are **Par_Baseline.zip**, containing datasets to do baseline simulation, by simulating datasets from 2001 for 30 years; **Par_NTFF2.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the economical value of NTFF is doubled from the baseline; **Par_NTFF6.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the economical value of NTFF is increased 6x from the baseline; **Par_NTFF10.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the economical value of NTFF is increased 10x from the baseline; **Par_OffFarm2.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the economical value of off farm jobs is doubled from the baseline; **Par_OffFarm6.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the economical value of off farm jobs is increased 6x from the baseline; **Par_OffFarm10.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the economical value of off farm jobs is increased 10x from the baseline; **Par_Cacao.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the community has the access to grasslands to practice cacao-based systems with some facilitation in term of extension, subsidy and market; **Par_Coffee.zip** containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the community has the access to grasslands to practice coffee-based systems with some facilitation in term of extension, subsidy and market; and **Par_Mahogany.zip**, containing datasets to do scenario simulation, by simulating datasets from 2001 for 30 years, if the community has the access to grasslands to practice mahogany-based systems with some facilitation in term of extension, subsidy and market.
- Execute the batch file “**run.bat**”. Before it goes to the main part of simulation, some other scripts will be executed to generate some random values at 3 different scales (small, medium, large). Simulation speed is determined by the size of your working maps.
- Execute the batch file “**cover.bat**” to display simulated land cover maps.
- Execute the batch file “**use.bat**” to display simulated land use maps.
- Execute the batch file “**crop.bat**” to display simulated agricultural crop cover maps.
- Execute the batch file “**fire.bat**” to display simulated fire maps. For the case of FALLOW application in Kalahan, fire is used to represent cattle grazing area, which can be considered as fire-like disturbance.
- We provide MS Excel file with macro “**OutputExtract.xls**” to extract non-spatial outputs from the simulation. Go to the sheet “Main”, and execute button “Extract”. Save the file under different file name if you want to keep the result.

- Before you use other datasets, please execute the batch file “**clean.bat**” to clean the current (either spatial or non-spatial) outputs and inputs.

[B] Modifying input data

For your own modification, you should follow this part carefully. Basically, there are two types of inputs for the FALLOW Model: inputs in tab delimited text file formats and inputs in PCRaster map formats.

B.1. Tab delimited text files

For inputs in tab delimited text file formats, you can use MS Excel to modify the values. You should modify it from the existing datasets. Please, refer to the following description as the guidance in parameterizing the model. You should only modify the value part in the text file, and save your change into the same name and format.

B.1.1. Parameter files (*.par)

Most of inputs in the FALLOW Model with text file formats are parameter files (*.par). Most of parameters in *.par files are array data. The following list is brief description on the dimension used in the array data.

Array dimension	Item
Adopter type	Agent1, Agent2
Agroforestry type	AF1, AF2, AF3, AF4, AF5, AF6, AF7, AF8, AF9, AF10
Cattle cohort (not yet operational)	Baby, Juvenile, Adult, Old
Commodity type	Agri1Product, Agri2Product, AFProduct, NonTimber, Timber, PlantProduct1, PlantProduct2, ProjectProduct, Cattle
Crop type	Crop1, Crop2, Crop3, Crop4, Crop5, Crop6, Crop7, Crop8, Crop9, Crop10
Forest type	NonForest, Deciduous, Evergreen, Pine Dipterocarp
Functional group	PioneerSuccessional, EarlySuccessional, MediumSuccessional, LateSuccessional
Land cover type	Settlement, Agriculture, Forest1, Forest2, Forest3, Forest4, Logged1, Logged2, Logged3, Logged4, AgroForest1, AgroForest2, AgroForest3, AgroForest4, PlantationA1, PlantationA2, PlantationA3, PlantationA4, PlantationB1, PlantationB2, PlantationB3, PlantationB4
Land use type	Settlements, Agric, NaturalForest, LoggedForest, AgroForest, PlantationA, PlantationB
Livelihood type	CropAgriculture, NTFP, Logging, Agroforestry, MonoculturePlantationA, MonoculturePlantationB, Pasture, Project, OffFarm
Spatial cost type	LabourCost1, LabourCost2, Control,

FALLOW: How To Use It?

Array dimension	Item
	TransportCost, ProjectSite
Subcatchment	Sub1,...,Sub50
Village	Village1, Village2, Village3

The following list should be used as the guidance in modifying the model's parameters in *.par files:

File name	Parameters	Unit	Array dimension
addcost.par	Additional costs for establishment	%	2-D: livelihood type, village
addcrst.par	Additional costs for agricultural establishment	%	2-D: crop type, village
afbiom.par	Asymptotic parameters to estimate aboveground biomass of agroforestry systems as function of plot age (max, beta, gama, eta)	Mg.ha-1	1-D: agroforestry type
afbiomin.par	Asymptotic parameters to estimate aboveground biomass increment of agroforestry systems as function of relative plot biomass to the reference (max, beta, gama, eta)	Mg.ha-1.yr-1	1-D: agroforestry type
afcomb.par	Combustibility of agroforestry systems	[]	1-D: agroforestry type
afexkl1.par	Knowledge of extension agent about payoffs to labour from agroforestry systems	Currency.person-1.day-1	1-D: agroforestry type
afexkl2.par	Knowledge of extension agent about payoffs to land from agroforestry systems	Currency.ha-1	1-D: agroforestry type
afharvpr.par	Harvesting productivity in agroforests plots	Mg.person-1.day-1	2-D: agroforestry type, land cover type
afinfo.par	Credibility of information from agroforestry activities	[]	1-D: agroforestry type
afintxld.par	Initial expected payoffs to land in agroforestry systems	Currency.ha-1	3-D: agroforestry type, village, adopter type
afintxpo.par	Initial expected payoffs to labour in agroforestry systems	Currency.person-1.day-1	3-D: agroforestry type, village, adopter type
afmargin.par	Marginal threshold in agroforestry system	years	1-D: agroforestry type
afnontim.par	Asymptotic parameters to estimate non timber	Mg.ha-1	1-D: agroforestry type

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
	yield growth in agroforestry systems as function of plot age (max, beta, gama, eta)		
afquality.par	Relative quality of agroforestry products	[]	2-D: agroforestry type, land cover type
afsoil.par	Sensitivity of agroforestry to soil fertility	[]	1-D: land cover type
afsub.par	Subsidy for investment on agroforestry	Currency.ha-1	2-D: agroforestry type, village
aftreeyn.par	Is timber harvested from agroforests plots?	[]	1-D: agroforestry type
afweat.par	Sensitivity of agroforestry to weather	[]	1-D: agroforestry type
afxcrd.par	Credibility of extension agent on agroforestry systems	[]	3-D: agroforestry type, village, adopter type
afxpo.par	Exposure fraction to extension on agroforestry systems	[]	3-D: agroforestry type, village, adopter type
afzone.par	Zone of agroforests plots	[]	1-D: land cover type
agricom.par	Is agriculture commercial?	[]	1-D: village
bdprob.par	Probability of occurrence	[]	2-D: land cover type, functional group
bdrich.par	Species richness	species	1-D: functional group
big3.par	Asymptotic parameters to estimate fraction of big trees from total aboveground biomass (max, beta, gama, eta)	[]	non-array
bigcrop.par	Crop type in large-scale agriculture	[]	non-array
biom2c.par	Converter from biomass to carbon	[]	non-array
biomgrow.par	Asymptotic parameters to estimate aboveground biomass as function of plot age (max, beta, gama, eta)	Mg.ha-1	1-D: land use type
biomincr.par	Asymptotic parameters to estimate aboveground biomass increment as function of relative plot biomass to the reference (max, beta, gama, eta)	Mg.ha-1.yr-1	1-D: land use type
burnt.par	Burnt scar area threshold	pixel	[]

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
catage.par (not yet operational)	Cattle age	years	1-D: cattle cohort
catpop.par (not yet operational)	Initial cattle stock	cattle	2-D: cattle cohort, village
clearfrac.par	Land clearing fraction	[]	non-arrays
clearlab.par	Land clearing labor	persons.days.ha-1	3-D: livelihood type, village, adopter type
cognitiv.par	Cognitive parameters (knowledge updating fraction, collective wisdom fraction, prioritization scale, investment allocation fraction)	[]	2-D: village, adopter type
combust.par	Combustibility	[]	1-D: land use type
convpref.par	Land convertibility due to tenure or knowledge on tree-site matching	[]	2-D: livelihood type, land cover type
crdelib.par	Revaluation multiplier to actual payoffs from agriculture	[]	3-D: crop type, village, adopter type
cremnant.par	Remnant fraction of harvested biomass in agricultural systems	[]	1-D: crop type
crexkl1.par	Knowledge of extension agent on crop yield	Mg.ha-1	1-D: crop type
crexkl2.par	Knowledge of extension agent on payoffs to land from agricultural systems	Currency.ha-1	1-D: crop type
crexkl3.par	Knowledge of extension agent on payoffs to labour from agricultural systems	Currency.person-1.day-1	1-D: crop type
crfiredg.par	Statistic of damage fraction by fire on agricultural crop (mean, sd)	[]	1-D: crop type
crintxld.par	Initial expected payoffs to land from agricultural systems	Currency.ha-1	3-D: crop type, village, adopter type
crintxpo.par	Initial expected payoffs to labour from agricultural systems	Currency.person-1.day-1	3-D: crop type, village, adopter type
crintxyd.par	Initial expected yields from agricultural systems	Mg.ha-1	3-D: crop type, village, adopter type
crmargi.par	Cropping time	years	1-D: crop type
cropcomb.par	Combustibility of crop	[]	1-D: crop type
cropeff.par	Asymptotic parameters to estimate crop conversion efficiency as function of soil organic	[]	1-D: crop type

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
	matter (max, beta, gama, eta)		
cropfert.par	Soil fertility depletion rate due to cropping	[]	1-D: crop type
crophist.par	Statistic on initial cropping history (mean, sd)	years	1-D: crop type
cropid.par	Crop type id in maps	[]	1-D: crop type
cropinfo.par	Credibility of information from agricultural activities	[]	1-D: crop type
cropmart.par	Accessibility to agricultural crop market	[]	2-D: crop type, village
cropsens.par	Sensitivity of crop to weather	[]	1-D: crop type
cropsup.par	Subsidy for investment on agriculture	Currency.ha-1	2-D: crop type, village
cropwght.par	Rice weight equivalent of agricultural commodities	[]	1-D: crop type
cropxcrd.par	Credibility of extension agent on agricultural systems	[]	3-D: crop type, village, adopter type
cropxxpo.par	Exposure fraction to extension on agricultural systems	[]	3-D: crop type, village, adopter type
crpclear.par	Land clearing labour	persons.days.ha-1	3-D: crop type, village, adopter type
delib.par	Revaluation multiplier to actual payoffs	[]	3-D: livelihood type, village, adopter type
exlabor.par	External labour	persons.days	2-D: livelihood type, village
exland.par	Initial expected payoffs to land	Currency.ha-1	3-D: livelihood type, village, adopter type
expayoff.par	Initial expected payoffs to labour	Currency.person-1.day-1	3-D: livelihood type, village, adopter type
extenscr.par	Credibility of extension agent	[]	3-D: livelihood type, village, adopter type
extensex.par	Exposure fraction to extension	[]	3-D: livelihood type, village, adopter type
extensk1.par	Knowledge of extension agent on payoffs to labour	Currency.person-1.day-1	3-D: livelihood type, village, adopter type
extensk2.par	Knowledge of extension agent on payoffs to land	Currency.ha-1	3-D: livelihood type, village, adopter type
forbiom.par	Relative aboveground biomass of each forest type to the reference forest (e.g. natural forests)	[]	1-D: forest type
forcpref.par	Convertibility of each forest type due to tenure or knowledge on tree-site matching	[]	2-D: livelihood type, forest type

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
forestid.par	Forest type id in maps	[]	1-D: forest type
forsed1.par	Relative sediment yield of each forest type to the reference forest (e.g. natural forests)	[]	1-D: forest type
forsed2.par	Relative maximum sediment filtering capacity of each forest type to the reference forest (e.g. natural forests)	[]	1-D: forest type
forwat.par	Relative water use of each forest type to the reference forest (e.g. natural forests)	[]	
fertdyn.par	Fertilizer application parameters (is apply fertilizer applied?, fertilizer effect on depletion rate)	[]	1-D: land use type
firectrl.par	Asymptotic parameters to estimate fire control probability as function of distance from settlements (max, beta, gama, eta)	[]	non-array
firedmg.par	Statistic on damage fraction by fire (mean, sd)	[]	1-D: land cover type
firefsrc.par	Asymptotic parameters to estimate fire spread probability from source (max, beta, gama, eta)	[]	non-array
firefx.par	Statistic on maximum fire control effectiveness (mean, sd)	[]	non-array
fireigni.par	Fire ignition probability	[]	1-D: land cover type
fireprob.par	Asymptotic parameters to estimate fire spread probability as function of fuel biomass (max, beta, gama, eta)	[]	non-array
firescal.par	Fire weighting factor to 3 nested scales (small, medium, large)	[]	non-array
foodstck.par	Food stocking time target	years	2-D: village, adopter type
foodstor.par	Food store parameters (food requirement per capita, food store loss fraction, food transaction loss)	Mg.capita-1, [], []	1-D: village
fuelgrnd.par	Fuel biomass availability fraction on the ground	[]	1-D: land cover type

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
humanpop.par	Human population parameters (initial human population, labour fraction, fraction of adopter type 1, annual growth rate of population)	persons, [], [], []	1-D: village
hydro.par	Ground water properties (initial ground water storage, maximum ground water storage, ground water flow fraction, ground water recharge flow fraction)	mm, mm, [], []	non-array
infiltr.par	Asymptotic parameters to estimate infiltration fraction as function of soil physical quality / slope (max, beta, gama, eta)	[]	non-array
initage.par	Limit of initial land cover age (minimum, maximum)	years	1-D: land cover type
initfin.par	Initial financial capital	Currency	1-D: village
initlog.par	Initial logging zone fraction	[]	1-D: village
initntfp.par	Initial NTFP harvesting zone fraction	[]	1-D: village
intercst.par	Cost for intercropping	Currency.ha-1	1-D: land cover type
interlab.par	Intercropping labour	persons.days.ha-1	1-D: land cover type
interrev.par	Revenue from intercropping	Currency.ha-1	1-D: land cover type
landcvid.par	Land cover type id in maps	[]	1-D: land cover type
landtime.par	Land cover time bound	years	1-D: land cover type
landusid.par	Land use type id in maps	[]	1-D: land use type
liveinfo.par	Credibility of information	[]	1-D: livelihood type
loghrv.par	Logging productivity	m3.person-1.day-1	1-D: land cover type
logsoil.par	Sensitivity of timber production to soil fertility	[]	1-D: land cover type
logweat.par	Sensitivity of timber production to weather	[]	1-D: land cover type
margin.par	Marginal threshold	years	1-D: livelihood type
market.par	Accessibility to market	[]	2-D: commodity type, village
minsom.par	Minimum initial soil organic matter	Mg.ha-1	non-array
mo1qual.par	Relative quality of monoculture plantation type 1 products	[]	1-D: land cover type
mo1zone.par	Zone of monoculture plantation type 1 plots	[]	1-D: land cover type
mo2qual.par	Relative quality of	[]	1-D: land cover type

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
	monoculture plantation type 2 products		
mo2zone.par	Zone of monoculture plantation type 2 plots	[]	1-D: land cover type
mono1hrv.par	Harvesting productivity of monoculture plantation type 1	Mg.person-1.day-1	1-D: land cover type
mono1sol.par	Sensitivity of monoculture plantation type 1 to soil fertility	[]	1-D: land cover type
mono1wth.par	Sensitivity of monoculture plantation type 1 to weather	[]	1-D: land cover type
mono2hrv.par	Harvesting productivity of monoculture plantation type 2	Mg.person-1.day-1	1-D: land cover type
mono2sol.par	Sensitivity of monoculture plantation type 2 to soil fertility	[]	1-D: land cover type
mono2wth.par	Sensitivity of monoculture plantation type 2 to weather	[]	1-D: land cover type
nontimb.par	Asymptotic parameters to estimate non timber yields as function of plot age (max, beta, gama, eta)	[]	1-D: land use type
ntfphrv.par	Harvesting productivity of NTFP	Mg.person-1.day-1	1-D: land cover type
ntfpqual.par	Relative quality of NTFP	[]	1-D: land cover type
ntfpzone.par	Zone of NTFP plots	[]	1-D: land cover type
ntsoil.par	Sensitivity of NTFP to soil fertility	[]	1-D: land cover type
ntweat.par	Sensitivity of NTFP to weather	[]	1-D: land cover type
orginput.par	Asymptotic parameters to estimate soil organic matter input as function of aboveground biomass (max, beta, gama, eta)	[]	non-array
orgmod.par	Modifier to soil organic matter input	[]	1-D: land cover type
project.par	CDM project commitment period	years	non-array
proyn.par	Is included in CDM project?	[]	1-D: livelihood type
qchange.par	Asymptotic parameters to estimate soil physical quality change as function of plot age (max, beta, gama, eta, start)	[]	1-D: land use type
qinit.par	Statistic on soil physical	[]	non-array

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
	quality variability (mean, sd) at plot-scale and at landscape-scale		
qlocal.par	Spatial independence of initial soil physical quality	□	1-D: subcatchment
rainfall.par	Statistic on rainfall variability (mean, sd) at plot-scale and at landscape-scale	mm	non-array
ranscal1.par	Replicate 1 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal2.par	Replicate 2 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal3.par	Replicate 3 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal4.par	Replicate 4 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal5.par	Replicate 5 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal6.par	Replicate 6 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal7.par	Replicate 7 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal8.par	Replicate 8 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
ranscal9.par	Replicate 9 of spatial random weighting factor for rainfall at 3 scales (small, medium, large)	□	non-array
rnlocal.par	Spatial independence of rainfall	□	1-D: subcatchment
seconfrac.par	Secondary consumption fraction	□	2-D: village, adopter type
sedfilt.par	Asymptotic parameters to estimate sediment filtering capacity as function of plot age	□	1-D: land use type

FALLOW: How To Use It?

File name	Parameters	Unit	Array dimension
	(max, beta, gama, eta)		
sedyield.par	Asymptotic parameters to estimate sediment yield as function of plot age (max, beta, gama, eta)	□	1-D: land use type
soilloss.par	Soil organic matter fraction in soil loss	□	non-array
sominit.par	Asymptotic parameters to estimate initial soil organic matter as function of aboveground biomass (max, beta, gama, eta)	□	non-array
sommult.par	Multiplier for soil organic matter	□	1-D: land cover type
spatexp.par	Effects of spatial determinants on land expansion	□	3-D: spatial cost type, livelihood type, village
subid.par	Subcatchment id in maps	□	1-D: subcatchment
subsidy.par	Subsidy for investment	Currency.ha-1	2-D: livelihood type, village
tenexp.par	Effect of tenure on land expansion	□	2-D: livelihood type, village
tenure.par	Tenure recognition in this system?	□	1-D: land use type
timqual.par	Relative quality of timber	□	1-D: land cover type
timzone.par	Zone of logging plots	□	1-D: land cover type
treeconv.par	Converter for tree standing stock biomass Mg.ha-1 to m3.ha-1	□	1-D: land use type
treefrac.par	Asymptotic parameters to estimate fraction of tree biomass as function of aboveground biomass (max, beta, gama, eta)	□	1-D: land use type
treevol.par	Cylindrical factor to estimate tree volume	□	non-array
villagid.par	Village id in maps	□	non-array
villearn.par	Fraction of information from other village	□	2-D: village, village
vmartaf.par	Accessibility to agroforestry market	□	2-D: agroforestry type, village
wateruse.par	Asymptotic parameters to estimate water use as function of plot age (max, beta, gama, eta)	mm	1-D: land use type
weather.par	Statistic on weather variability (mean, sd) at plot-scale and at landscape-scale	□	non-array

File name	Parameters	Unit	Array dimension
workday.par	Working days	days	1-D: village, adopter type
wthlocal.par	Spatial independence of weather	[]	1-D: village
z.par	Normal critical value for classifying field attractiveness	[]	non-array

B.1.2. Time series files (*.tss)

Time series files (*.tss) are tab delimited text files for inputting time series data.

File name	Parameters	Unit
afprc1.tss	Price of agroforestry product type 1	Currency.Mg-1
afprc2.tss	Price of agroforestry product type 2	Currency.Mg-1
catprice.tss (not yet operational)	Price of cattle	Currency.Mg-1
crpprc01.tss	Price of agricultural product type 1	Currency.Mg-1
crpprc02.tss	Price of agricultural product type 2	Currency.Mg-1
extaf1.tss	Extension on agroforestry type 1	[]
extaf2.tss	Extension on agroforestry type 2	[]
extcrop1.tss	Extension on agriculture type 1	[]
extcrop2.tss	Extension on agriculture type 2	[]
extlog.tss	Extension on logging	[]
extmo1.tss	Extension on monoculture plantation type 1	[]
extmo2.tss	Extension on monoculture plantation type 2	[]
extntfp.tss	Extension on NTFP	[]
extoff.tss	Extension on off farm jobs	[]
extpas.tss	Extension on pasture management	[]
extpro.tss	Extension on CDM project	[]
fertcost.tss	Fertilizer cost	Rice equivalent
fireigni.tss	Fire ignition probability	[]
foodprice.tss	Price of rice (staple food)	Currency
martaf01.tss	Accessibility to agroforestry product type 1 market	[]
martaf02.tss	Accessibility to agroforestry product type 2 market	[]
martcat.tss (not yet operational)	Accessibility to cattle market	[]
martmo1.tss	Accessibility to monoculture plantation product type 1 market	[]
martmo2.tss	Accessibility to	[]

File name	Parameters	Unit
	monoculture plantation product type 2 market	
martntfp.tss	Accessibility to NTFP market	[]
marttim.tss	Accessibility to timber market	[]
mono1prc.tss	Price of monoculture plantation product type 1	Currency.Mg-1
mono2prc.tss	Price of monoculture plantation product type 2	Currency.Mg-1
mrtcrp01.tss	Price of agricultural product type 1	Currency.Mg-1
mrtcrp02.tss	Price of agricultural product type 2	Currency.Mg-1
ntfpprc.tss	Price of NTFP	Currency.Mg-1
offwage.tss	Labour wage rate	Currency.person-1.day-1
subaf01.tss	Subsidy to agroforestry type 1 development	[]
subaf02.tss	Subsidy to agroforestry type 2 development	[]
subcrp01.tss	Subsidy to agriculture type 1 development	[]
subcrp02.tss	Subsidy to agriculture type 1 development	[]
sublog.tss	Subsidy to logging	[]
submon1.tss	Subsidy to monoculture plantation type 1 development	[]
submon2.tss	Subsidy to monoculture plantation type 2 development	[]
subntfp.tss	Subsidy to NTFP	[]
suboff.tss	Subsidy to off farm jobs	[]
subpas.tss	Subsidy to pasture management	[]
subpro.tss	Subsidy to CDM project development	[]
timprice.tss	Price of timber	Currency.m-3

B.1.3. Look up files (*.lut)

Look up files (*.lut) are tab delimited text files for inputting look up table. All *.lut files in this model has the same x (in the first column), which is plot age.

File name	Parameters	Unit
afcost01.lut	Production cost of agroforestry plots type 1 by plot age	Currency.ha-1
afcost02.lut	Production cost of agroforestry plots type 2 by plot age	Currency.ha-1
crpcst01.lut	Production cost of	Currency.ha-1

	agriculture plots type 1 by plot age	
crpcst02.lut	Production cost of agriculture plots type 2 by plot age	Currency.ha-1
logcost.lut	Production cost of logging plots by plot age	Currency.ha-1
mono1cst.lut	Production cost of monoculture plantation plots type 1 by plot age	Currency.ha-1
mono2cst.lut	Production cost of monoculture plantation plots type 2 by plot age	Currency.ha-1
ntfpcst.lut	Production cost of NTFP by plot age	Currency.ha-1

B.1.4. Legend files (*.lgd)

Legend files (*.lgd) are tab delimited text files for displaying user-defined legend in simulated maps: crop maps, land cover maps, land use maps, and fire maps.

File name	Description
cover.lgd	Legend of land cover maps
crop.lgd	Legend of crop maps
fire.lgd	Legend of fire maps
use.lgd	Legend of land use maps

B.1.5. Colour palettes files (*.pal)

Colour palettes files (*.pal) are tab delimited text files for displaying user-defined colour palette in simulated maps: crop maps, land cover maps, land use maps, and fire maps.

File name	Description
cover.pal	RGB composition of land cover maps
crop.pal	RGB composition of crop maps
fire.pal	RGB composition of fire maps
use.pal	RGB composition of land use maps

B.2. PCRaster maps

Please refer to PCRaster Manual on how to prepare PCRaster maps properly. All maps required for the FALLOW Model must have the same attributes and must contain the same patterns of missing-value. Save your maps using the default extension in PCRaster, *i.e.* *.map.

Map	Type
CDM project boundary	boolean
Leakage estimation boundary at project scale to run scenario without project	boolean
Leakage estimation boundary at landscape scale to run scenario without project	boolean
Distance to river	scalar
Distance to road	scalar
Distance to settlement	scalar
Forest reserve zone	boolean
Initial agricultural crop cover	scalar
Initial forest cover	scalar
Initial fraction of agroforestry type 1 in mix agroforest	scalar
Initial fraction of agroforestry type 2 in mix agroforest	scalar
Initial land cover	scalar
Initial private land	boolean
Local drain direction map	ldd
River map	boolean
Slope	scalar
Subcatchment boundary	scalar
Village boundary	scalar
Working area	scalar

After you have all the maps, execute the batch file “**map.bat**”. Change the bold file in the following command according to the file names of your maps:

```
copy afspfr01.map afspfr01.xxx
copy afspfr02.map afspfr02.xxx
copy area.map area.xxx
copy cdm.map cdm.xxx
copy crop89.map crop.xxx
copy driver.map driver.xxx
copy droad.map droad.xxx
copy dset.map dset.xxx
copy for89.map forcov.xxx
copy forres.map forres.xxx
copy initten.map initten.xxx
copy knowzone.map knowzone.xxx
copy lagr.map lagr.xxx
copy land89.map land.xxx
copy ldd.map ldd.xxx
copy leakage1.map leakage1.xxx
copy leakage2.map leakage2.xxx
copy river.map river.xxx
```

copy **slope.map** slope.xxx
copy **subcatch.map** subcatch.xxx

[C] Adjusting simulation time

Execute the batch file “**backup.bat**”, modify the values of EndSimulation (maximum = 50 years) at the beginning of the script in the bold part only:

```
# Simulation parameters  
EndSimulation=12;
```

Save the file with the same name.

[D] Developers

Meine Van Noordwijk (m.vannoordwijk@cgiar.org), Betha Lusiana (b.lusiana@cgiar.org) and Desi Ariyadhi Suyamto (d.suyamto@cgiar.org). For technical support, please contact: d.suyamto@cgiar.org.