

# **StandsSIM**

**Forest Management Approaches (FMA)  
Prescriptions and more**

**Forest Models Course**

**Forest Models and Simulators to Support Sustainable Forest  
Management in a Global Change Context**

2019-2020

# Summary

Tree species in Portugal

sIMfLOR platform and its forest simulators

StandsSIM.md structure

StandsSIM.md inputs

FMA & Prescription concepts

Running StandsSIM.md in sIMfLOR

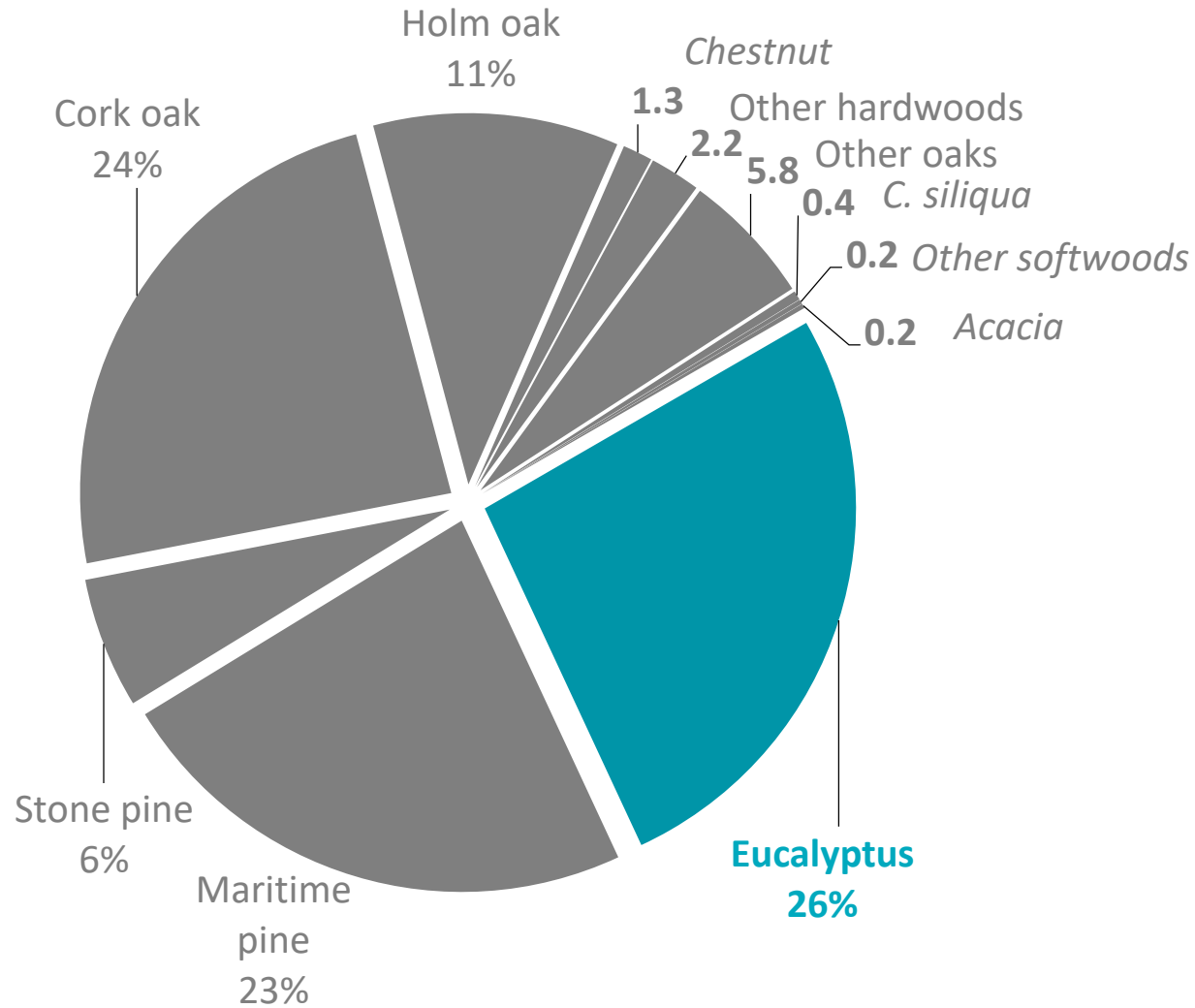
Generating and importing inputs

Running StandsSIM

The outputs

Exercises

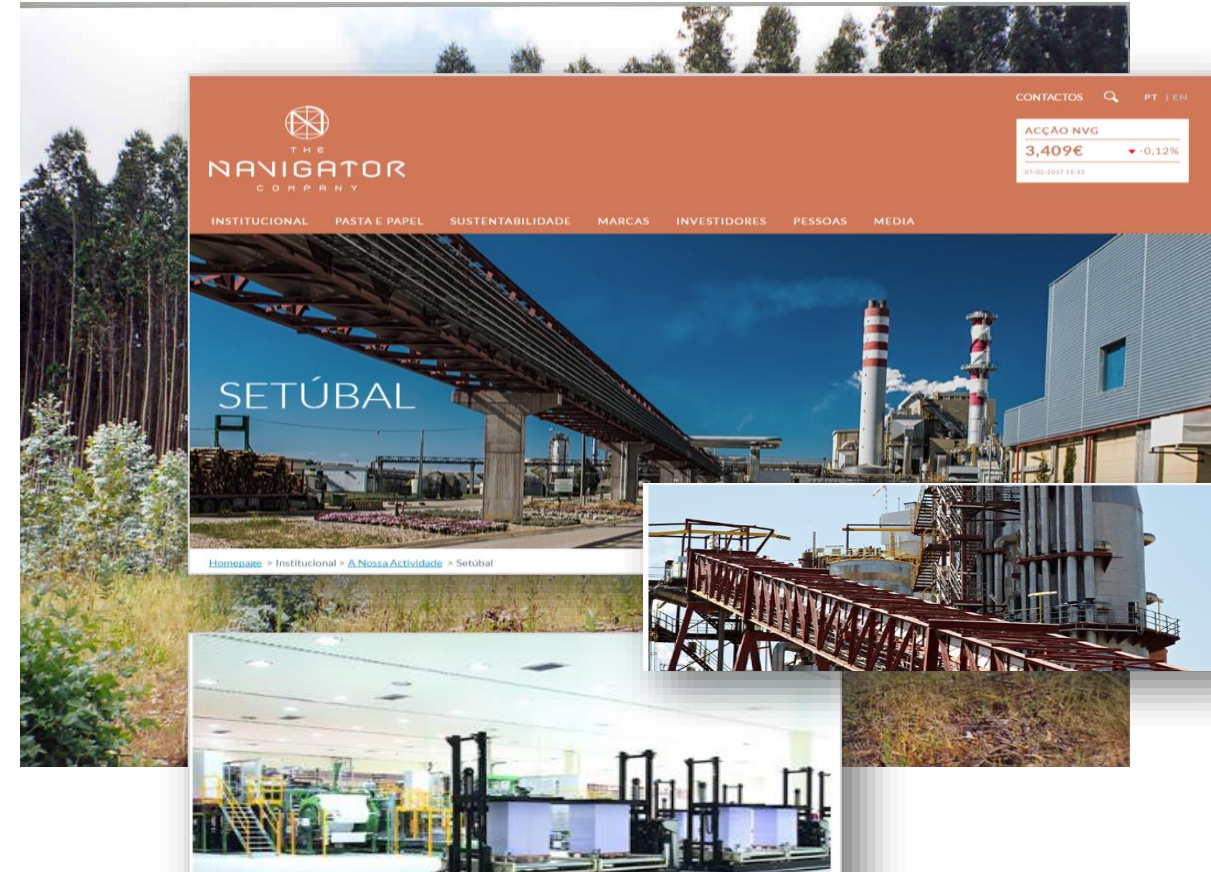
# Tree species in Portugal



## Management

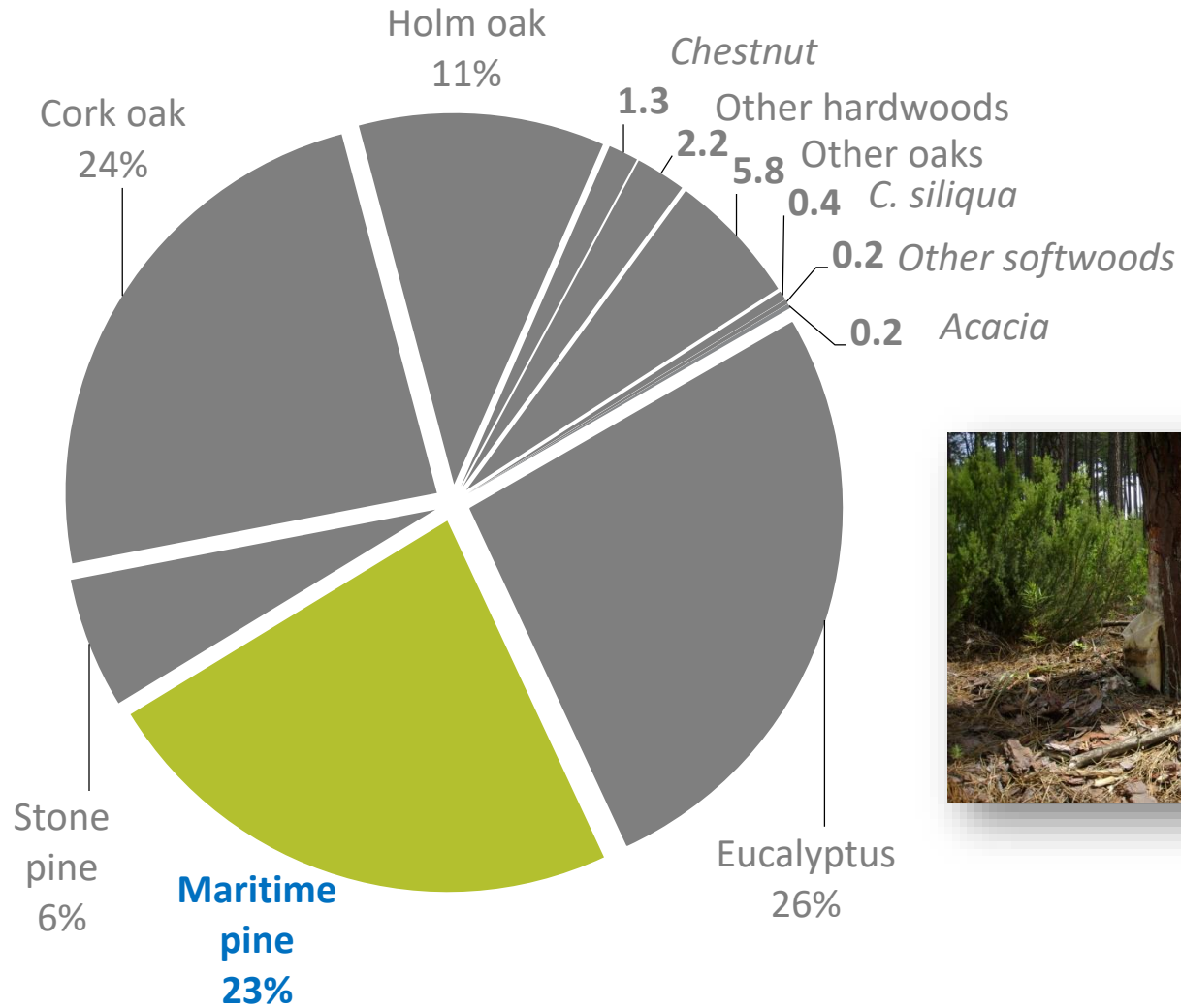
Pulp :

1 plantation (1250 trees ha<sup>-1</sup>) + 2 coppices  
harvest around 10 yr





# Tree species in Portugal



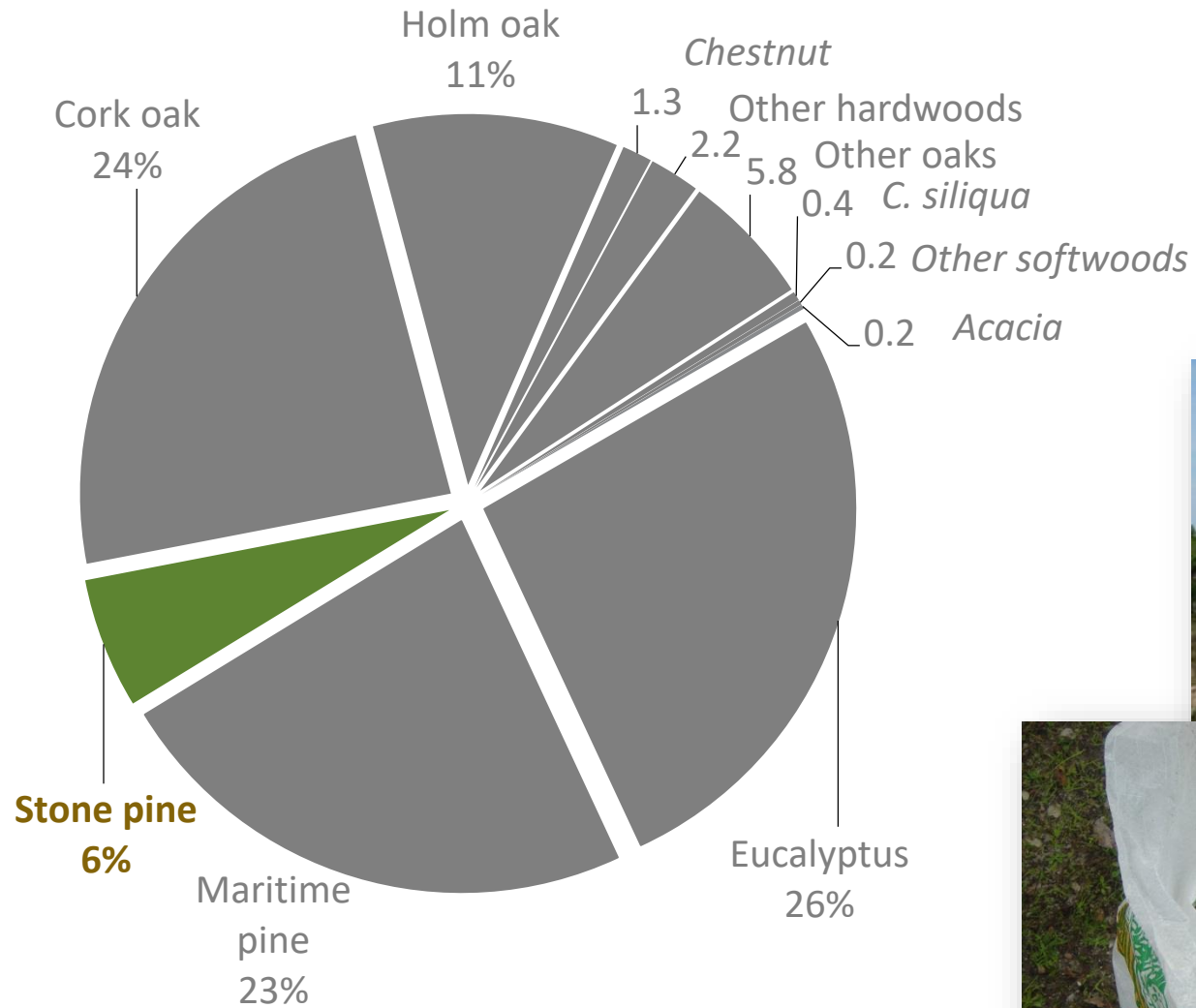
## Management

Wood (and resin) :  
1 plantation (1667 trees ha<sup>-1</sup>)  
harvest around 35 yr





# Tree species in Portugal



## Management

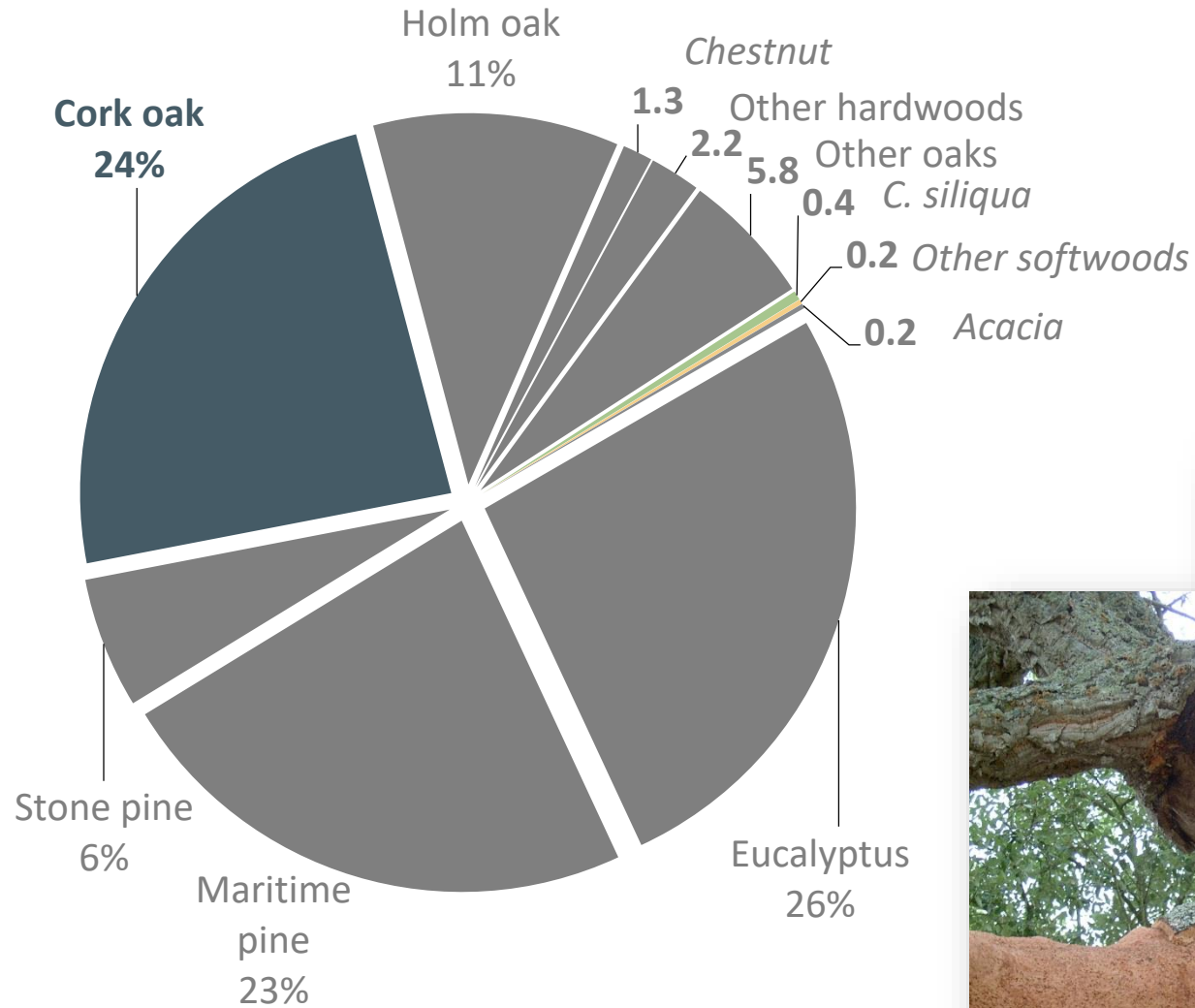
Pine nuts

Plantations  
Usually grafted





# Tree species in Portugal



## Management

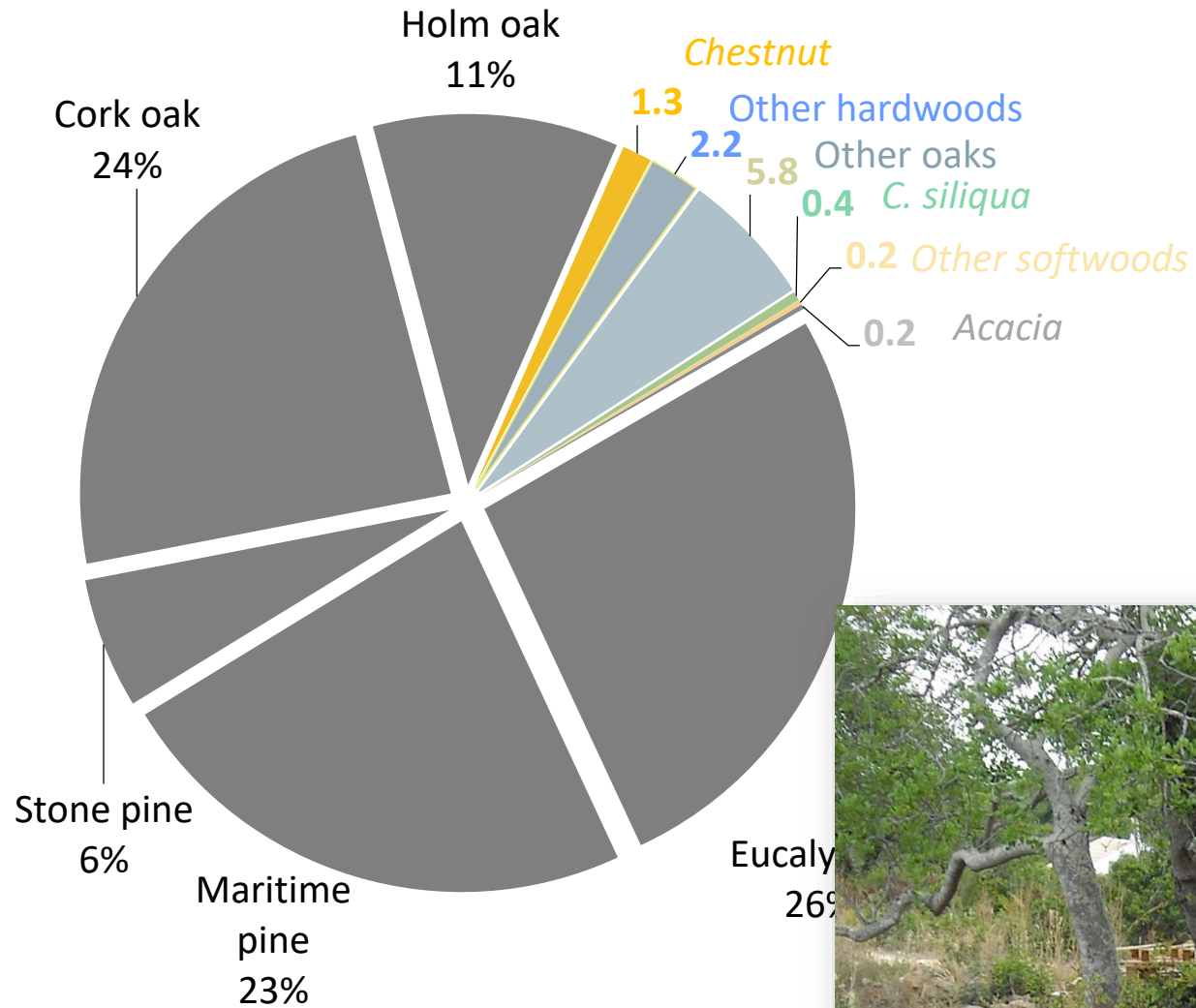
Cork:

uneven aged  
Debarking every 9 yrs  
difficult to regenerate  
forbidden to harvest





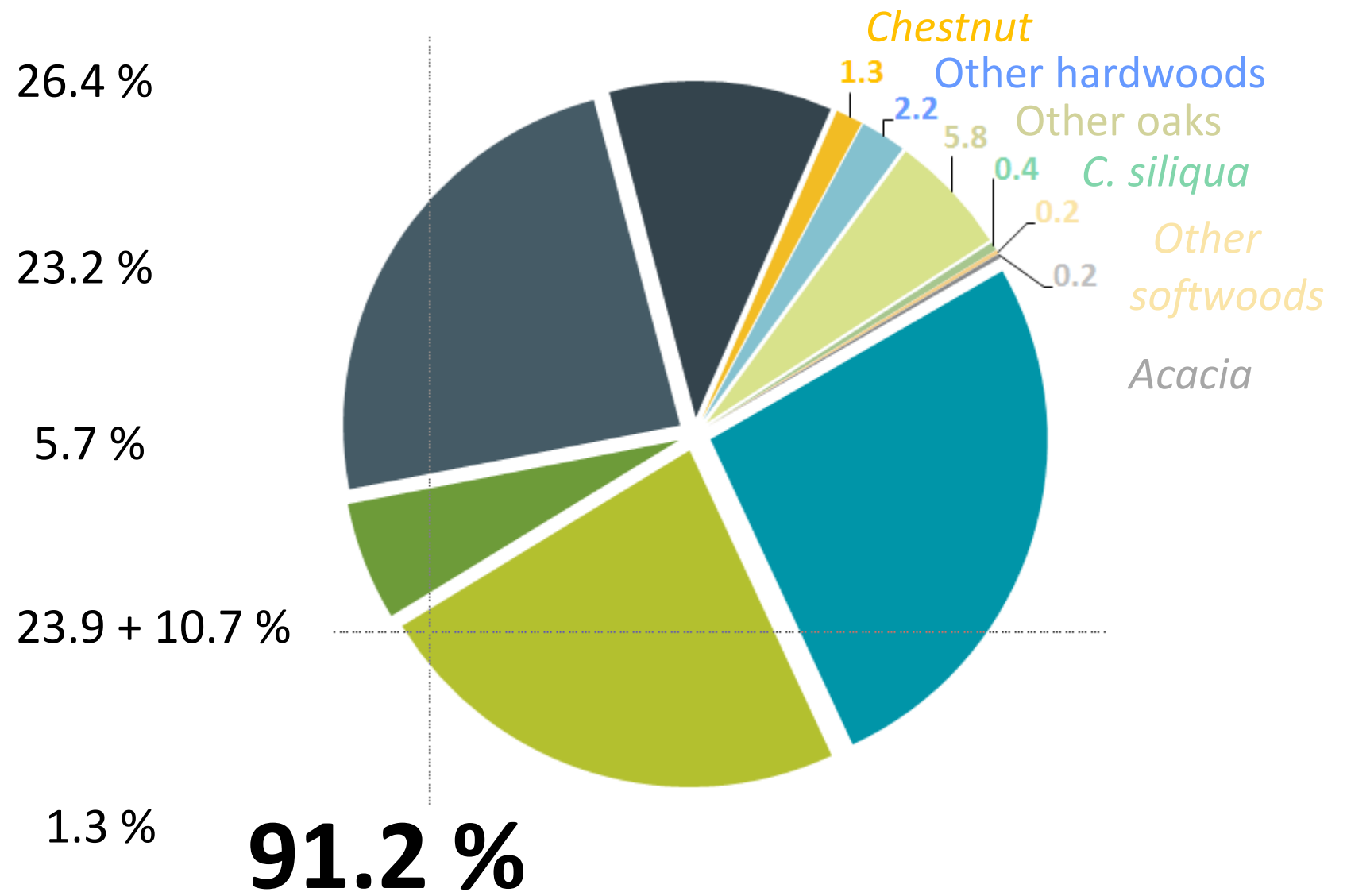
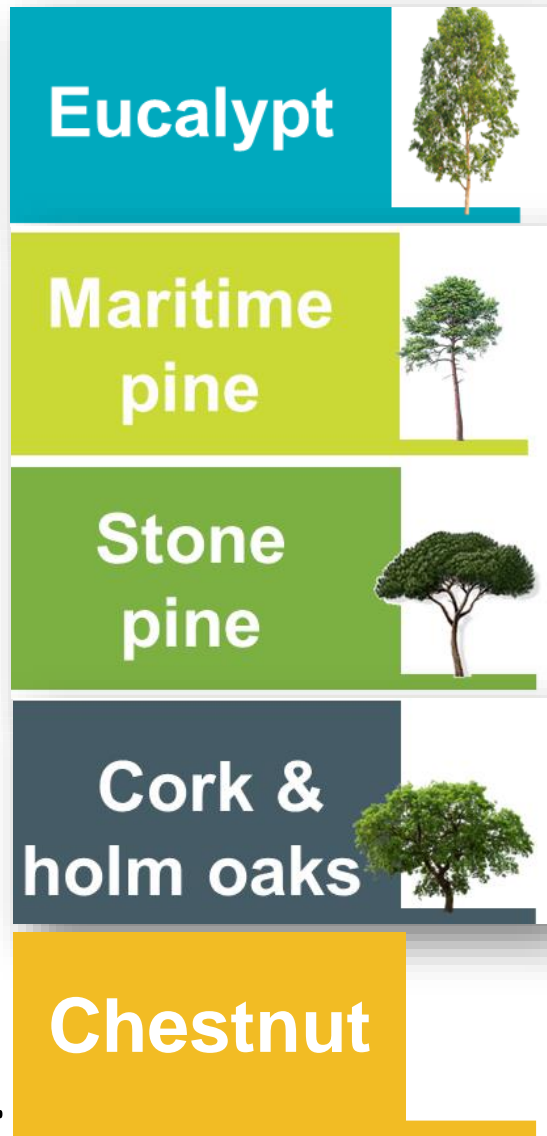
# Tree species in Portugal



## Management

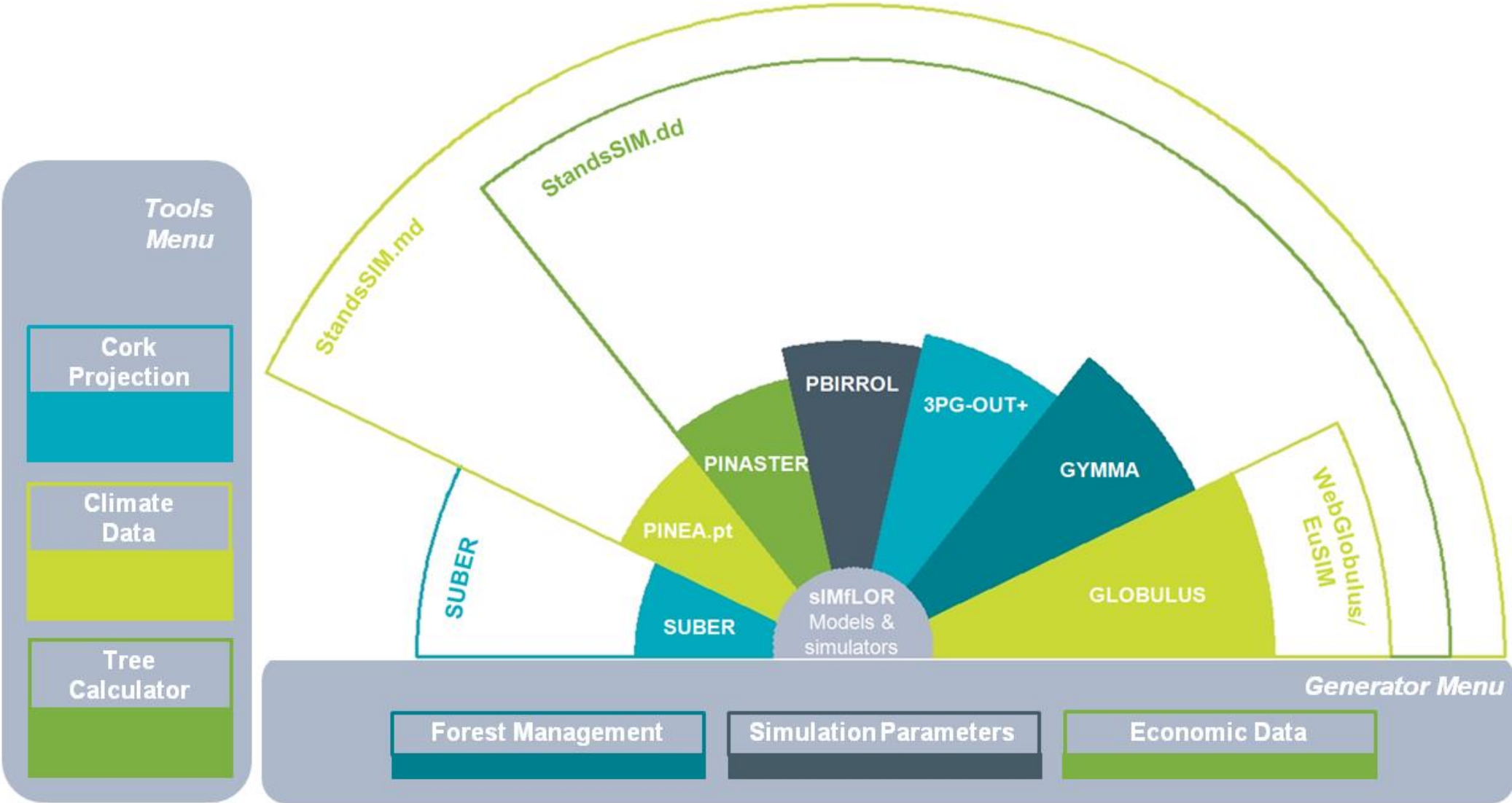


# Tree species in sIMfLOR

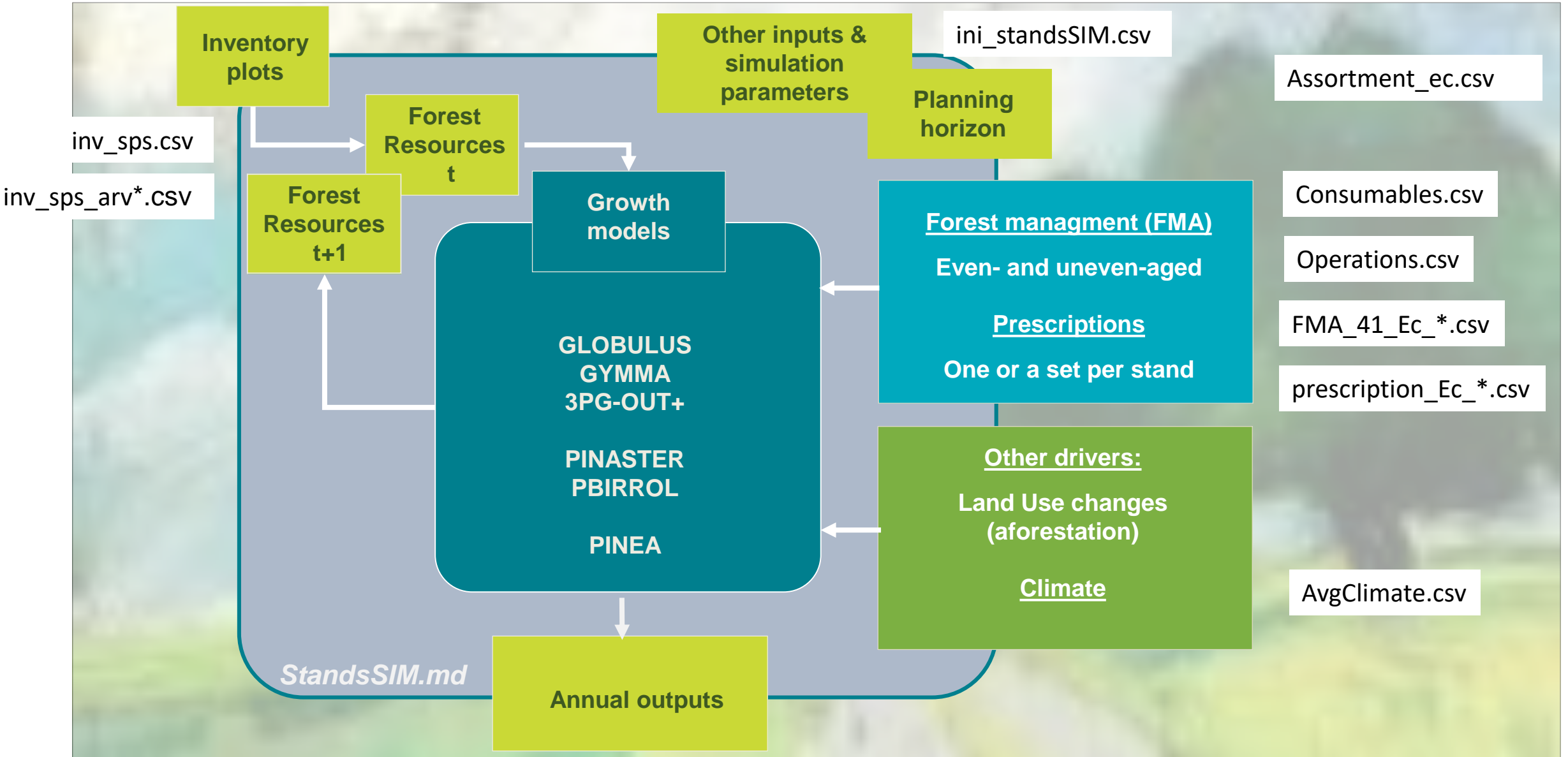




# sIMfLOR platform and its forest simulators



# StandsSIM.md structure





# Simulator inputs

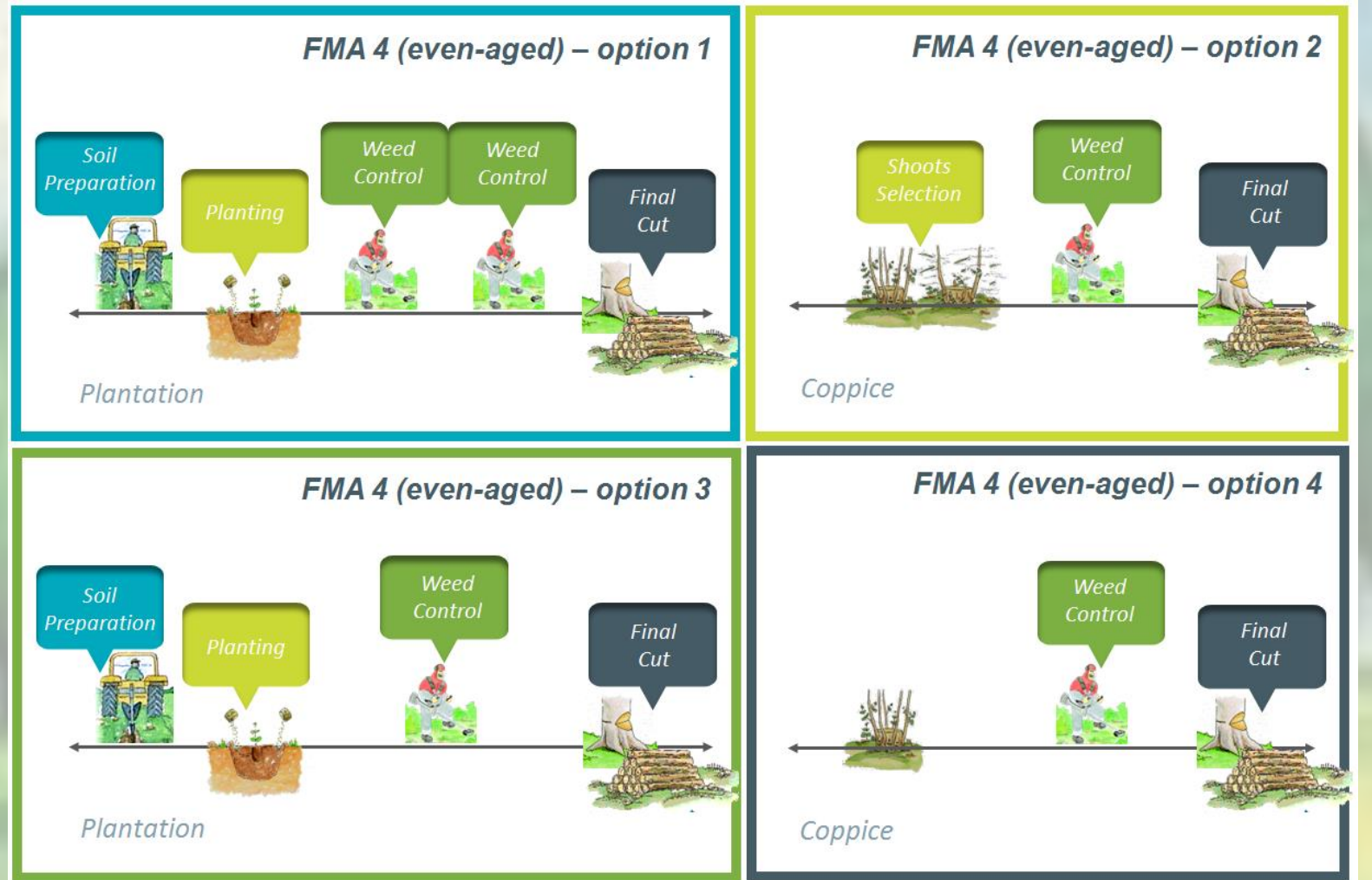
- **Stand input:**  
Data from forest inventory and site characterization
- **Forest management approach (FMA):**  
Implementation of a silvicultural system, expressed by a sequence of silvicultural operations during a rotation

# Forest management approach (FMA):

Describes silvicultural operations from stand regeneration up to final cut

Must be defined up to the maximum harvest age (even-aged stands) or for the rotation period (uneven-aged stands)

Several options can be considered under each FMA type, where options differ in terms of sets of operations considered and/or their distribution over time



# Simulator inputs

- **Stand input:**

Data from forest inventory and site characterization

- **Forest management approach (FMA):**

Implementation of a silvicultural systems, expressed by a sequence of silvicultural operations during a rotation

- **Prescription:**

Sequence of FMAs and transition between FMAs that are applied to a stand during the projection period/planning horizon



# Prescription:

The set of cycles from regeneration until final cut can be built of:

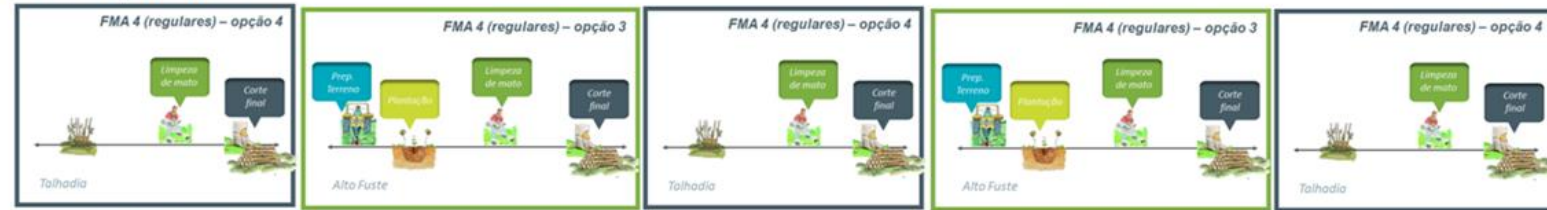
Sequence of different FMAs/options (Prescriptions A & B)

Sequence of the same FMA/option (Prescription C)

## Prescription A



## Prescription B



## Prescription C



## Prescription D



Planning Horizon

# Prescription:

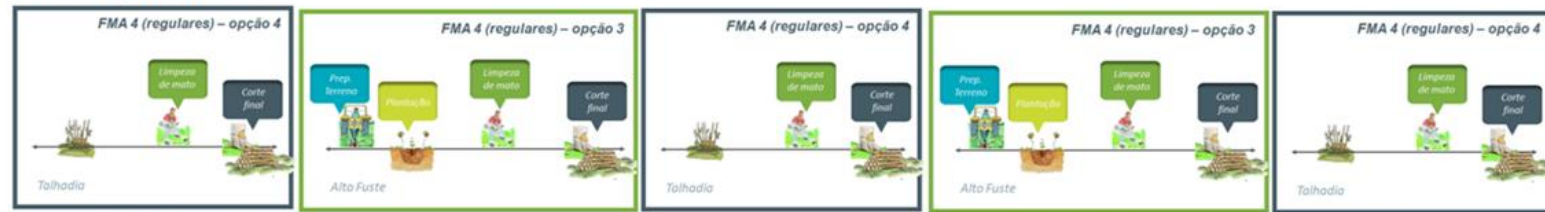
can have a single cycle if the FMA is defined for a number of years greater than the planning horizon  
(*Prescription D*)

Incomplete prescriptions will stop the stand from being simulated  
(*Prescription B*)

## Prescription A



## Prescription B



## Prescription C



## Prescription D



Planning Horizon



# Simulator inputs

- **Stand input:**

Data from forest inventory and site characterization

- **Forest management approach (FMA):**

Implementation of a silvicultural systems, expressed by a sequence of silvicultural operations during a rotation

- **Prescription:**

Sequence of FMAs and transition between FMAs that are applied to a stand during the projection period

- **Scenario:**

Conditions present during the projection period (climate, forest policy measures, management alternatives, etc)





# sIMfLOR platform and FCTools



## FCTools - ForChange Tools

Home > ForChange Group  Search

### ForChange Group

The [ForChange](#) group works in the areas of forest resources inventory and modeling. As a result of several

everal  
ent of

<http://www.isa.ulisboa.pt/cef/forchange/fctools/en/home> level  
t only  
could

th the

tools  
ons of

- StandsSIM.md
- StandsSIM.dd
- Generator

the models and simulators developed for the main tree species in Portugal

For more information [contact us](#).

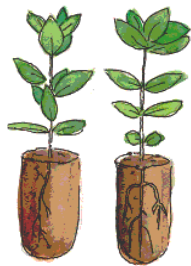
# sIMfLOR platform and its forest simulators

## StandsSIM.md

### Required inputs

Forest  
characterization

New  
stand  
(yield table)



Existing  
Stand



Several  
Stands





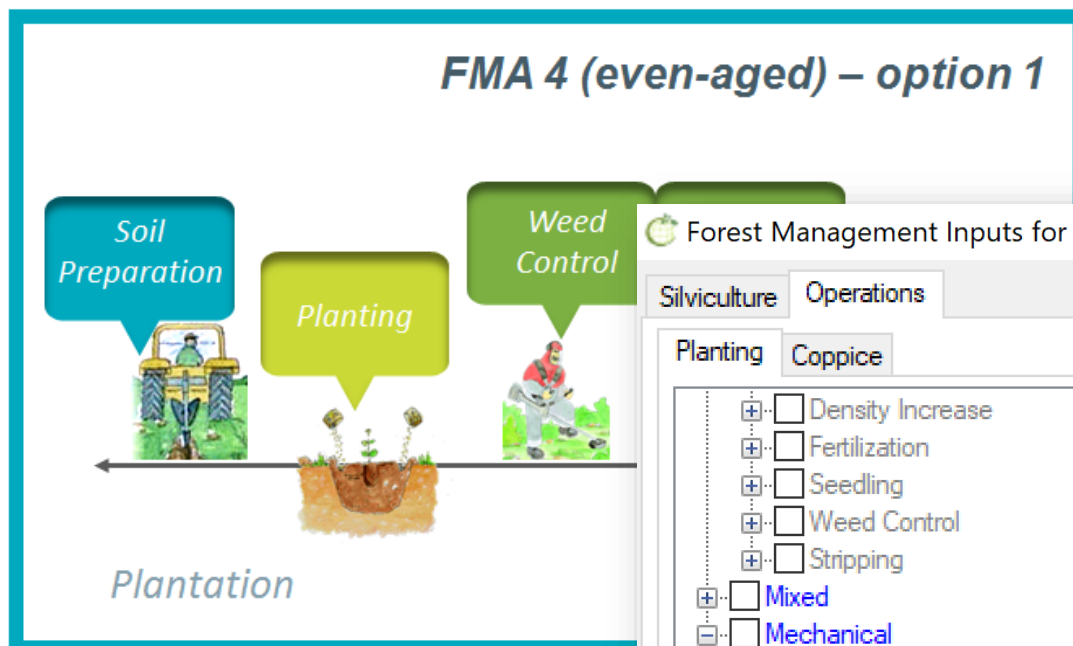
# sIMfLOR platform and its forest simulators

StandsSIM.md

Required inputs

Forest  
characterization

Forest  
Management  
Approaches (FMA)



Forest Management Inputs for Blue Gum

Silviculture Operations

Planting Coppice

- Density Increase
- Fertilization
- Seedling
- Weed Control
- Stripping
- Mixed
- Mechanical
  - Weed Control
    - Cleaning - corta matos de facas ou correntes
    - Cleaning - corta matos de martelos
    - Cleaning - grade de discos
    - Weed Control - mechanical
- Soil Mobilization
- Others
- Fertilization

Operação	1	2	3	4	5	6	7	8	9	10	11	12	13
Plantation - deciduous trees with bare-r...	X												
Weed Control - mechanical			X			X							

# sIMfLOR platform and its forest simulators

## StandsSIM.md

## Required inputs

Forest  
characterization

Forest  
Management  
Approaches (FMA)

## Prescriptions

Yield table for Eucalyptus globulus

General Stand Site Prescription

Import prescription file

Define prescription

ID  Number of cycles

NrCycle	Sp	FMA	NyFMA	rot	tcut
3	Ec	41 - FMA41_...	10	1	10
3	Ec	41 - FMA41_...	10	2	10
3	Ec	41 - FMA41_...	10	3	10





# Exercises

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**Eucalypt**



**Maritime  
pine**



**Stone  
pine**

Go to FCTools:  
<http://www.isa.ulisboa.pt/cef/forchange/fctools/en/home>











Register &  
Download SIMfLOR  
platform

Regional settings of  
your computer in  
English

# You have successfully downloaded sIMfLOR

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\...\ SIMFLOR\_2017

<input type="checkbox"/> Name	Date modified	Type
 CALIBRE	12/07/2017 10:38	File folder
 en	12/07/2017 10:38	File folder
 EXAMPLES	12/07/2017 10:38	File folder
 files	12/07/2017 10:38	File folder
 GENERATOR	12/07/2017 10:38	File folder
 INPUTS	25/06/2017 23:45	File folder
 pt	12/07/2017 10:38	File folder
 STANDSSIM	12/07/2017 10:38	File folder
 SUBER	12/07/2017 10:38	File folder
 C:\lib\lll	07/11/2016 11:39	Application extension



# You have successfully downloaded sIMfLOR

\...\SIMFLOR\_2017

 OFFICE.dll	20/04/2007 10:55	Application Extension
 README	06/06/2017 16:42	Text Document
 simflor	10/07/2017 22:46	Application Manifest
 simflor	10/07/2017 22:46	Application
 simflor.config	27/10/2009 22:46	CONFIG File
 simflor.exe.manifest	10/07/2017 22:46	MANIFEST File
 simflor.pdb	10/07/2017 22:46	PDB File
 simflor.vshost	10/07/2017 22:46	Application Manifest
 simflor.vshost	05/06/2017 20:12	Application

# You have successfully downloaded sIMfLOR

sIMfLOR - Portuguese Forest Simulators

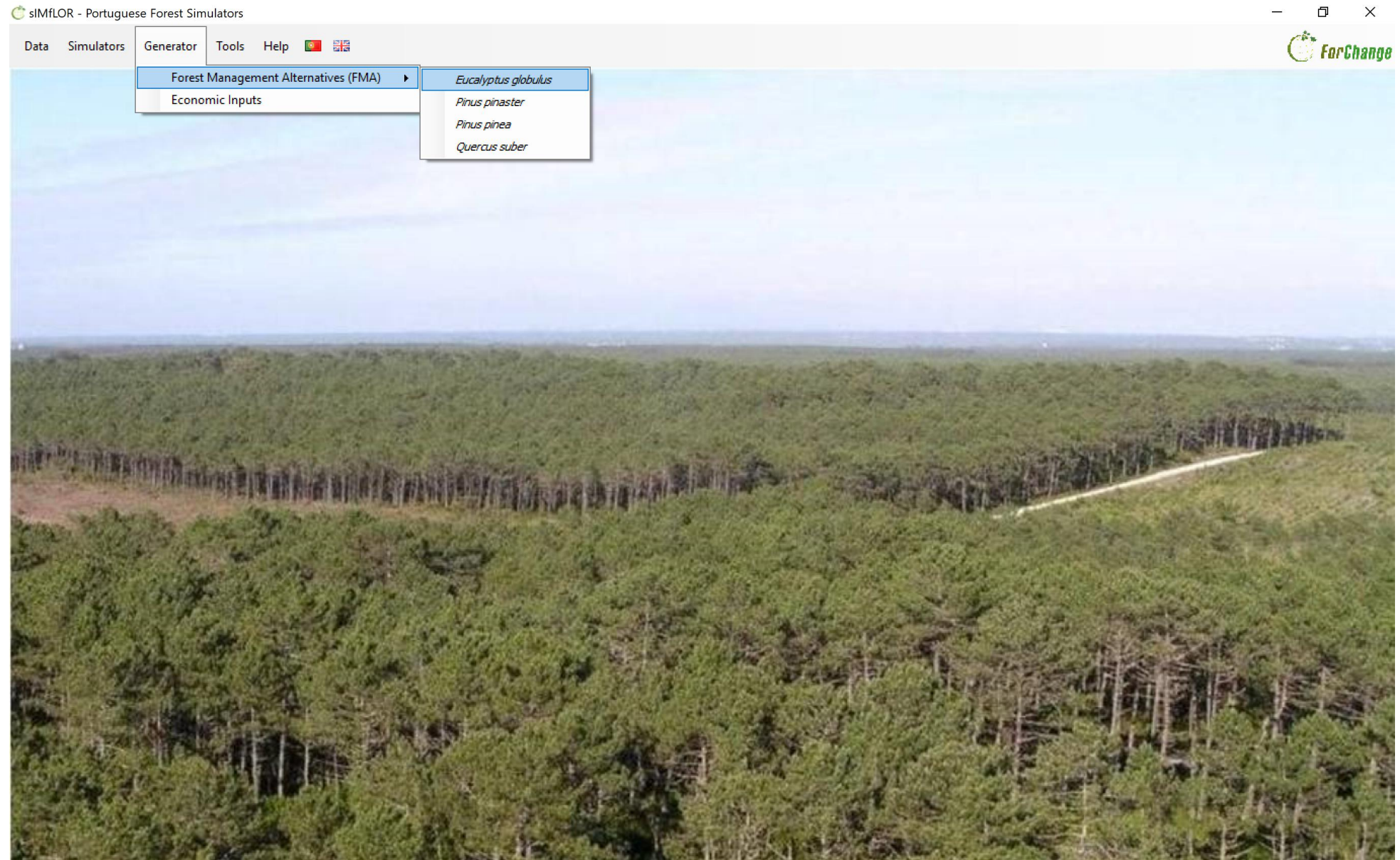


Data Simulators Generator Tools Help





# Let's define an FMA





Loaded DLLs: Stand.dll SuberStand.dll FMA.dll FMA.dll Economics.dll calibre.dll map.dll map.dll



# Let's define an FMA

simfLOR - Portuguese Forest Simulators

Data Simulators Generator Tools Help  



Forest Management Inputs for Blue Gum

Silviculture

Silvicultural Model

- Even-Aged Forestry (EAF)
- Uneven-Aged Forestry (UAF)
- Dendro-Biomass Production (DB)

Regeneration Type

- Seeding
- Planting
- Coppice
- Natural Regeneration

Maximum number of years for the rotation

Next >

Save



# FMA file

	A	B	C	D	E	F	G	H	I
1	4	FMA							
2	2	Planting and Coppice							
3	20	Maximum rotation age							
T	Npl	Mortality	BeatUp	ShootSel	DensIncr	Striplncr	Prunn	Th_type	
5	1	1250	0	15	0	0	0	0	
6	2	0	0	0	0	0	0	0	
7	3	0	0	0	0	0	0	0	
8	4	0	0	0	0	0	0	0	
9	5	0	0	0	0	0	0	0	
10	6	0	0	0	0	0	0	0	
11	7	0	0	0	0	0	0	0	
12	8	0	0	0	0	0	0	0	
13	9	0	0	0	0	0	0	0	
14	10	0	0	0	0	0	0	0	
15	11	0	0	0	0	0	0	0	
16	12	0	0	0	0	0	0	0	
17	13	0	0	0	0	0	0	0	
18	14	0	0	0	0	0	0	0	
19	15	0	0	0	0	0	0	0	
20	16	0	0	0	0	0	0	0	
21	17	0	0	0	0	0	0	0	
22	18	0	0	0	0	0	0	0	
23	19	0	0	0	0	0	0	0	
24	20	0	0	0	0	0	0	0	
25	1	0	0	0	0	0	0	0	
26	2	0	0	0	0	0	0	0	
27	3	0	0	0	1.6	0	0	0	
28	4	0	0	0	0	0	0	0	
29	5	0	0	0	0	0	0	0	
30	6	0	0	0	0	0	0	0	
31	7	0	0	0	0	0	0	0	

Forest Management Inputs for Blue Gum

Silviculture

Silvicultural Model

- Even-Aged Forestry (EAF)
- Uneven-Aged Forestry (UAF)
- Dendro-Biomass Production (DB)

Regeneration Type

- Seeding
- Planting
- Coppice
- Natural Regeneration

Wood / Biomass Production

Non-Wood Goods and Services

Dendro-biomass (DB)

Even-aged Forestry (EAF)

Combined Objective Forestry (COF)

Close to Nature (CN)

Natural reserves (NC)

FMA5 FMA4 FMA3

Maximum number of years for the rotation: 20

Next >

Save



# FMA file

## Silvicultural operations' details

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	4																			
2	2																			
3	20														1	2	3	4	5	6
T	Npl	Mortality	BeatUp	ShootSel	DensIncr	Striplncr	Prunn	Th_type	ThGres	ThGren										
5	1	1250	0	15	0	0	0	0	0	0										
6	2	0	0	0	0	0	0	0	0	0										
7	3	0	0	0	0	0	0	0	0	0										
8	4	0	0	0	0	0	0	0	0	0										
9	5	0	0	0	0	0	0	0	0	0										
10	6	0	0	0	0	0	0	0	0	0										
11	7	0	0	0	0	0	0	0	0	0										
12	8	0	0	0	0	0	0	0	0	0										
13	9	0	0	0	0	0	0	0	0	0										
14	10	0	0	0	0	0	0	0	0	0										
15	11	0	0	0	0	0	0	0	0	0										
16	12	0	0	0	0	0	0	0	0	0										
17	13	0	0	0	0	0	0	0	0	0										
18	14	0	0	0	0	0	0	0	0	0										
19	15	0	0	0	0	0	0	0	0	0										
20	16	0	0	0	0	0	0	0	0	0										
21	17	0	0	0	0	0	0	0	0	0										
22	18	0	0	0	0	0	0	0	0	0										
23	19	0	0	0	0	0	0	0	0	0										
24	20	0	0	0	0	0	0	0	0	0										
25	1	0	0	0	0	0	0	0	0	0										
26	2	0	0	0	0	0	0	0	0	0										
27	3	0	0	0	1.6	0	0	0	0	0										
28	4	0	0	0	0	0	0	0	0	0										
29	5	0	0	0	0	0	0	0	0	0										
30	6	0	0	0	0	0	0	0	0	0										
31	7	0	0	0	0	0	0	0	0	0										

Forest Management Inputs for Blue Gum

Silviculture Operations Silviculture Details

Number of trees/ha at Planting: 1250

Max Diameter (cm) for Regeneration Cut: 90

Beating Up

Pruning

Shoot Selection

Year	Iv/shoot
3	1.6

Density Increase

Thinning

- Basal Area Residual (m2/ha)
- Basal Area Removed (%)
- Wilson Factor
- Crown Cover (%)



Forest Management Alternatives (FMA) ▶

Economic Inputs

*Eucalyptus globulus**Pinus pinaster**Pinus pinea**Quercus suber*It is **RECOMMENDED** to save it in:**SIMFLOR\_2017 \ EXAMPLES \ Ec \ FMA**

Forest Management Inputs for Blue Gum

Silviculture

Silvicultural Model

- Even-Aged Forestry (EAF)
- Uneven-Aged Forestry (UAF)
- Dendro-Biomass Production (DB)

Regeneration Type

- Seeding
- Planting
- Coppice
- Natural Regeneration

Maximum number of years for the rotation 

Save

Forest Management Inputs for Blue Gum

Silviculture Operations

Planting Coppice

Forest Management Inputs for Blue Gum

Silviculture Operations

Save the Management Alternative file as ...



Organize ▼

New folder

Classes\_2017-2018

5\_StandsSIM

Assignments

Bibliography

Bureaucracy

CAOF

docs\_from\_stanssim

Exam

FotosStandsSim

PBRAVO

SIMFLOR\_2017

Name

CALIBRE

en

EXAMPLES

files

GENERATOR

INPUTS

inputs\_smb

pt

STANDSSIM

SUBER

Date modified

27/09/2017 15:

27/09/2017 15:

12/02/2018 15:

27/09/2017 15:

25/10/2019 10:

04/12/2017 11:

20/11/2017 18:

27/09/2017 15:

29/10/2019 18:

27/09/2017 15:

Forest Management Inputs for Blue Gum

Silviculture Operations Silviculture Details

Number of trees/ha at Planting Max Diameter (cm) for  
Regeneration Cut 

Beating Up

Pruning

Shoot Selection

Year Iv/shoot

3

1.6

Thinning

- Basal Area Residual (m2/ha)
- Basal Area Removed (%)
- Wilson Factor
- Crown Cover (%)

Density Increase

&lt; Back

Save

File name: Save as type: 

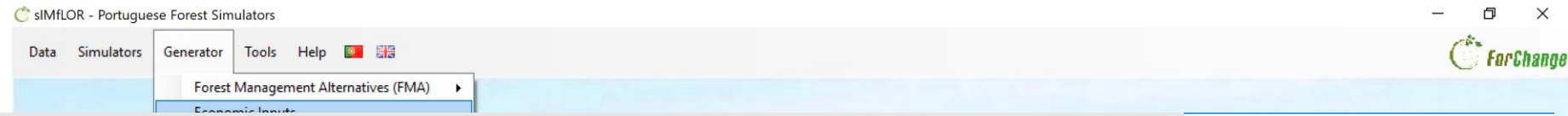
Hide Folders

Save

Cancel

# Operations/economics file

Number of additional discount rates to be tested



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O			
1	Discount Rate'	3	3	3	4	5	Additional discount rates to be tested											
2	Costs Maint	5	Maintenance costs (€ yr)															
3	Nr operations	68																
4	'TYPE'	'OPERATION'	'unit_jorna'	'OP_eur_tr'	'OP_eur_kr'	'OP_eur_m'	'OP_eur_ha'	'MA_labou'	'MA_labou'	'MA_energ'	'WAGExp_I'	'WAGExp_F'	'WAGNExp'	'WAGNExp'	'OtherCosts'			
5		1 'Protection	225	0.24	0	0	0	0	0	0	0	0	1	0	0			
6		2 'Formation	105	0.59	0	0	0	0	0	0	1	0	0	0	0			
7		3 'Pruning y	145	0.43	0	0	0	0	0	0	1	0	0	0	0			
8		4 'Getting the	250	0.22	0	0	0	0	0	0	0	0	1	0	0			
9		5 'Burning fo	20	2.69	0	0	0	0	0	0	0	0	1	0	0			
10		6 'Plantation	200	0.27	0	0	0	0	0	0	0	0	0	1	0			
11		7 'Plantation	112.5	0.48	0	0	0	0	0	0	0	0	0	1	0			
12		8 'Beating up	200	0.27	0	0	0	0	0	0	0	0	0	1	0			
13		9 'Beating up	112.5	0.48	0	0	0	0	0	0	0	0	0	1	0			
14		10 OPMan_Ad	0	0	0	0	0	0	0	0	0	0	0	0	0			
15		11 OPMan_AC	0	0	0	0	0	0	0	0	0	0	0	0	0			
16		12 'Fertilizatio	600	0.09	0	0	0	0	0	0	0	0	0	1	0			
17		13 'Placing pla	175	0.31	0	0	0	0	0	0	0	0	0	1	0			
18		14 'Seedling -	275	0.2	0	0	0	0	0	0	0	0	0	1	0			
19		15 'Seedling -	1.5	0	0	0	80.8	0	0	0	0	0	0	1	0			
20		16 'Open plant	115	0.47	0	0	0	0	0	0	0	0	1	0	0			
21		17 'Open plant	55	0.98	0	0	0	0	0	0	0	0	1	0	0			
22		18 'Selection c	1	0	0	0	82.3	0	0	0	1	0	0	0	0			
23		19 'Marking na	1.25	0	0	0	67.34	0	0	0	0	0	1	0	0			
24		20 'Control inv	4.5	0	0	0	242.42	0	0	0	0	0	0	1	0			
25		21 'Fire contro	3	0	0	0	273.3	0	0	0	1	0	0	0	0			
26		22 'Fire contro	2.5	0	0	0	227.75	0	0	0	1	0	0	0	0			
27		23 'Marking ou	1.25	0	0	0	67.34	0	0	0	0	0	1	0	0			
28		24 'Cork stripp	0	0	0	0	0	0	0	0	1	0	0	0	0			
29		25 'Cork stripp	0	0	0	0	0	0	0	0	1	0	0	0	0			

? X

Machinery

Discount Rate  
3.0

Reference Matrix  
 2010    2012

Load Economic default file

Save Economic input file

Med	Unit
0.26	€/un
0.64	€/un
0.46	€/un
0.23	€/un
2.9	€/un
0.29	€/un
0.36	€/un
0.29	€/un
0.36	€/un
0.29	€/un
0.36	€/un
0.1	€/un
0.33	€/un
0.21	€/un



# Consumables file

simFLOR - Portuguese Forest Simulators

Data Simulators Generator Tools Help

Forest Management Alternatives (FMA) Economic Inputs

Economic Data

Operations Values Other Values Wood Products Non-Wood Products Help

Manual Economic Data

Operation Type

- Protection tree tube
- Formation pruning i
- Pruning young tree
- Getting the earth clo
- Burning formation pr
- Plantation - evergree
- Plantation - deciduo
- Beating up - evergre
- Beating up - deciduo
- Density increasing b
- Density increasing b
- Manual fertilization
- Plants protection
- Seedling - nits
- Reference Matrix CA

Operations Values Other

Manual Mix

Operation Type

- Sanitary pruning
- Pruning adult trees
- Formation pruning
- Shoot selection
- Thinning broadleaved star
- Thinning stone pine stand
- Thinning coniferous stand
- Thinning coniferous stand
- Cleaning - motomçadora
- Weed Control - plantation
- Weed Control
- Weed Control - invasive p
- Thinning in young stands

Reference Matrix CAOF 2

Consumables Others Wages

Description	Value	Unit
Eucalypt Seedlings	0.12	€/un
Atlantic pine Seedlings	0.18	€/un
Cork oak Seedlings	4	€/un
Atlantic pine Seeds	22.5	€/kg
Cork oak Seeds	3.3	€/kg
Fertilizer for manual application	0.25	€/kg
Fertilizer for mechanical application	0.3	€/kg
Fertilizer for mechanical application	0.3	€/kg
Plant Protectors	0.27	€/un
Pesticides	0.27	€/l
Diesel	1.4	€/l
Petrol	1.6	€/l

	A	B	C	D	
1	Ncons:	24			
2	'Description'	'eur_tree'	'eur_kg'	'eur_l'	'eur'
3	'Atlantic pine Seedlings'	0.18	0	0	
4	'Eucalypt Seedlings'	0.2	0	0	
5	'Cork oak Seedlings'	0.35	0	0	
6	'Atlantic pine Seeds'	0	22.5	0	
7	'Cork oak Seeds'	0	3.3	0	
8	'Fertilizer for manual application (slow release)'	0	1.3	0	
9	'Fertilizer for mechanical application'	0	0.25	0	
10	'Fertilizer for mechanical application (subsoil)'	0	0.3	0	
11	'Plant Protectors'	0.27	0	0	
12	'Pesticides'	9999	0	0	
13	'Diesel'	0	0	1	
14	'Petrol'	0	0	1.2	
15	'Maintenace annual costs'	0	0	0	
16	'Fencing'	0	0	0	
17	'Game additional costs (licences)'	0	0	0	
18	'Game guard'	0	0	0	
19	'Cost of red deer male'	0	0	0	
20	'Cost of red deer female'	0	0	0	
21	'Game trophy'	0	0	0	
22	'Game meat'	0	1	0	
23	'Specialized male labour cost'	0	0	0	
24	'Non-specialized male labour cost'	0	0	0	
25	'Specialized female labour cost'	0	0	0	
26	'Non-specialized female labour cost'	0	0	0	
27	End of file				



# Assortments file

simFLOR - Portuguese Forest Simulators

Data Simulators Generator Tools Help

Forest Management Alternatives (FMA) Economic Inputs

Economic Data

Operations Values Other Values Wood Products Non-Wood Products

Manual Economic Data

Operation Type

- Protection tree tube
- Formation pruning
- Pruning young trees
- Getting the earth close
- Burning formation pruning
- Plantation - evergreen
- Plantation - deciduous
- Beating up - evergreen
- Beating up - deciduous
- Density increasing by thinning
- Density increasing by pruning
- Manual fertilization
- Plants protection
- Seedling - nuts
- Reference Matrix CAOF 2

Operations Values

Manual

Operation Type

- Sanitary pruning
- Pruning adult trees
- Formation pruning
- Shoot selection
- Thinning broadleaved stands
- Thinning stone pine stands
- Thinning coniferous stands
- Thinning coniferous stands
- Cleaning - motorçadora
- Weed Control - plantation
- Weed Control
- Weed Control - invasive plants
- Thinning in young stands

Operations Values

Consumables

Description

- Eucalypt Seedling
- Atlantic pine Seedling
- Cork oak Seedling
- Atlantic pine Seedling
- Cork oak Seeds
- Fertilizer for manual
- Fertilizer for mechanical
- Fertilizer for mechanical
- Plant Protectors
- Pesticides
- Diesel
- Petrol

1.4 €/l

1.6 €/l

Economic Data

Operations Values Other Values Wood Products Non-Wood Products Help

Select species *Eucalyptus globulus*

Residuals (€/kg) 0

Number of wood assortments 2

ID	Label	Diameter(cm)	Length(m)	Value(€/m3)
1	pulp	6	2	29
2	energy	0	999	0

Nuts (€/kg) 0

Resin (€/kg) 0

Discount Rate 3.0

Reference Matrix 2010 2012

Load Economic default file

Save Economic input file

Operations Values

Manual

Operation Type

- Sanitary pruning
- Pruning adult trees
- Formation pruning
- Shoot selection
- Thinning broadleaved stands
- Thinning stone pine stands
- Thinning coniferous stands
- Thinning coniferous stands
- Cleaning - motorçadora
- Weed Control - plantation
- Weed Control
- Weed Control - invasive plants
- Thinning in young stands

Operations Values

Consumables

Description

- Eucalypt Seedling
- Atlantic pine Seedling
- Cork oak Seedling
- Atlantic pine Seedling
- Cork oak Seeds
- Fertilizer for manual
- Fertilizer for mechanical
- Fertilizer for mechanical
- Plant Protectors
- Pesticides
- Diesel
- Petrol

1.4 €/l

1.6 €/l

	A	B	C	D	E
1	'Nr_Assortments:'	2			
2	label	diameter	length	Dbark	value'
3	madeira'	6	2	1	29
4	energia'	0	999	1	0
5	'Bark:'	1			
6	'Branches:'	1			
7	'Top:'	1			
8	'Topbranches:'	0			
9	'T_corte:'	10			

Data Simulators Generator Tools Help

Forest Management Alternatives (FMA)

Economic Inputs

Economic Data ? ×

Operations Values Other Values Wood Products Non-Wood Products Help

Manual Mixed Mechanical Infrastructures Labour Machinery

Discount Rate  
3.0

Operation Type Min Max Med Unit

Protection tree 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Formation prun 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Pruning young 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Getting the ear 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Burning format 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Plantation - ev 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Plantation - de 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Beating up - ev 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Beating up - de 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Density increa 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Density increa 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Manual fertiliza 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Plants protecti 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Seedling - nits 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>Reference Ma 0.10 0.20 0.20 0.20 €/m<sup>3</sup>

Economic Data ? ×

Operations Values Other Values Wood Products Non-Wood Products Help

Consumables Others Wages

Discount Rate  
3.0

Description Value Unit

Eucalypt Seedling 0.12 €/m<sup>3</sup>Atlantic pine 0.12 €/m<sup>3</sup>Cork oak Se 0.12 €/m<sup>3</sup>Atlantic pine 0.12 €/m<sup>3</sup>Cork oak Se 0.12 €/m<sup>3</sup>Atlantic pine 0.12 €/m<sup>3</sup>Cork oak Se 0.12 €/m<sup>3</sup>Atlantic pine 0.12 €/m<sup>3</sup>Fertilizer for 0.12 €/m<sup>3</sup>Fertilizer for 0.12 €/m<sup>3</sup>Fertilizer for 0.12 €/m<sup>3</sup>Plant Protec 0.12 €/m<sup>3</sup>Pesticides 0.12 €/m<sup>3</sup>Diesel 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>Petrol 0.12 €/m<sup>3</sup>

Economic Data ? ×

Operations Values Other Values Wood Products Non-Wood Products Help

Select species *Eucalyptus globulus*

Number of wood assortments 2

ID	Label	Diameter(cm)	Lenght(m)	Value(€/m <sup>3</sup> )
1	pulp	6	2	29
2	energy	0	999	0

Nuts (€/kg) 0

Resin (€/kg) 0

Residuals (€/kg)

0

 Bark Branches Top Top+BranchesDiscount Rate  
3.0Reference Matrix  
 2010  2012Load Economic  
default fileSave Economic input  
file

Automatically saved in :









SIMFLOR\_2017 \ EXAMPLES

Automatically saved in :

SIMFLOR\_2017 \ EXAMPLES \ Ec

# Default files as those produced with the “Generator” are @:

\...\ SIMFLOR\_2017 \ EXAMPLES





<input type="checkbox"/> Name	Date modified	Type
 Ec - <i>Eucalyptus globulus</i> (Eucalyptus)	12/07/2017 10:38	File folder
 Pb - <i>Pinus pinaster</i> (maritime pine)	12/07/2017 10:38	File folder
 Pm - <i>Pinus pinea</i> (stone pine)	12/07/2017 10:38	File folder
 Sb - <i>Quercus suber</i> (cork oak)	12/07/2017 10:38	File folder
 AvgClimate	26/07/2016 13:35	Microsoft Excel Com...
 Consumables	23/08/2016 10:13	Microsoft Excel Com...
 OneIM_Climate	01/06/2017 17:36	Microsoft Excel Com...
 Operations	21/08/2016 16:37	Microsoft Excel Com...



# Default files as those produced with the “Generator” are @:

---


\...\ SIMFLOR\_2017 \ EXAMPLES \ EC

<input type="checkbox"/> Name	Date modified	Type
 FMA	12/07/2017 10:38	File folder
 Inventario	12/07/2017 10:38	File folder
 Prescricao	12/07/2017 10:38	File folder
 Assortments_Ec	19/08/2016 16:15	Microsoft Excel Com...

# Default files as those produced with the “Generator” are @:

---

\...\ SIMFLOR\_2017 \ EXAMPLES \ EC \ FMA

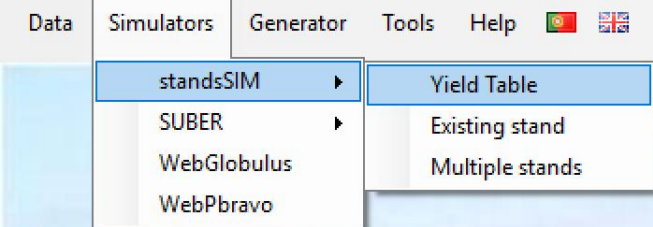
<input type="checkbox"/> Name	Date modified	Type
 FMA31_Ec_IRRegular	08/05/2017 15:33	Microsoft Excel Com...
 FMA41_Ec_Regular	08/05/2017 15:34	Microsoft Excel Com...

- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus Multiple stands
- WebPbravo

# Running a Yield Table







Yield table for Eucalyptus globulus

General Stand Site Prescription

Species: Ec Model Type: Stand

Available Models for simulation: GLOBULUS, GYMMA

Planning Horizon: 30

Select file of economic data for:

Operations: Operations.csv

Consumables: Consumables.csv

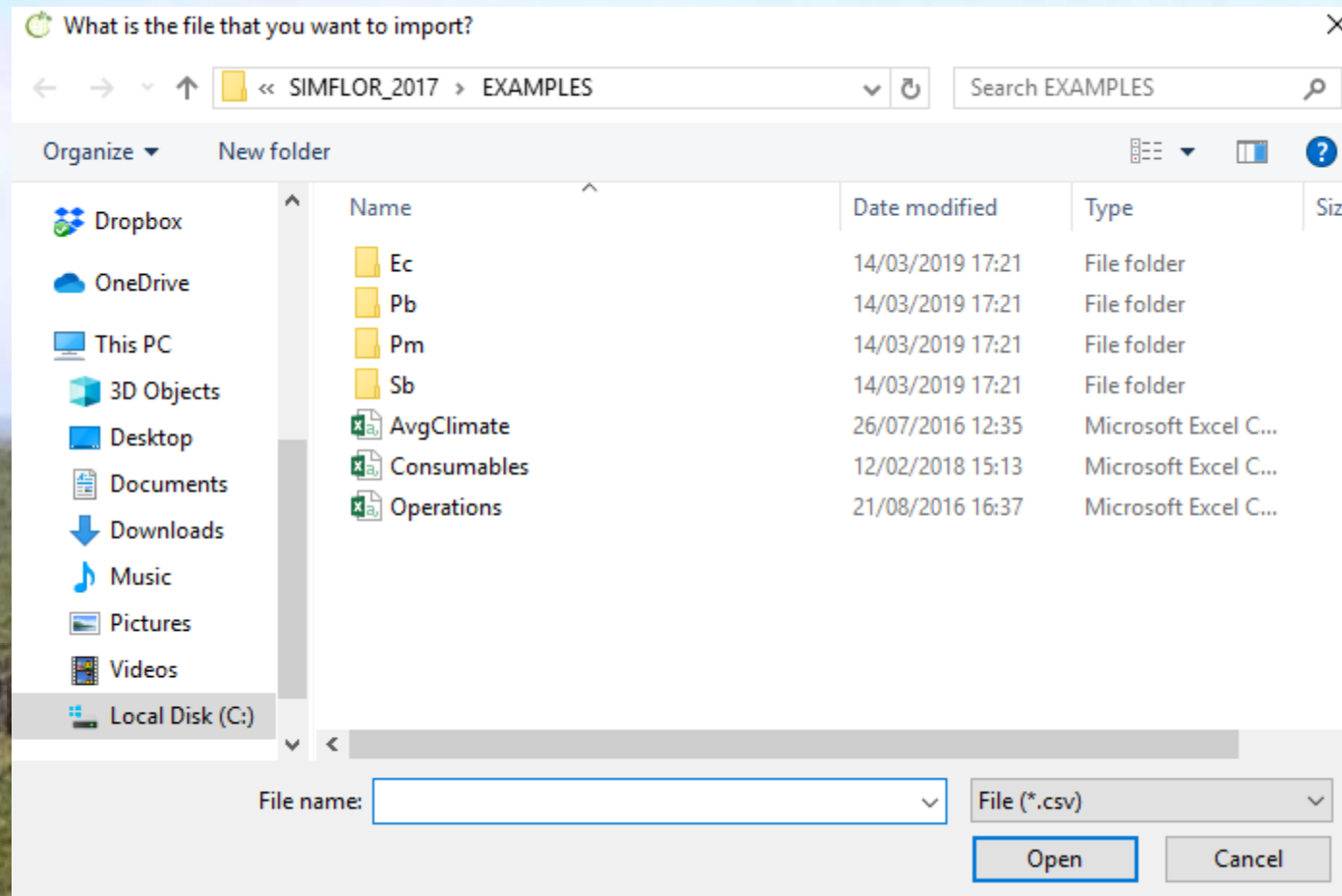
Assortments: Assortments\_Ec.csv

Select file of silviculture for:

Uneven-aged: [ ]



Even-aged: [ ]

Next >



Because this is the predefined path to get a different **economics/operations** file when running the simulator

The content of this tab is automatically saved in:

Data Simulators Generator Tools Help  

- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus Multiple stands
- WebPbravo

Yield table for Eucalyptus globulus

General Stand Site Prescription

Topographic data

Altitude

Coordinate

Coordinate

Site Index

NUT III  Local

SI Classes

SI Value (m)

Clima

Type

Climatic Station

Import

Insert Data

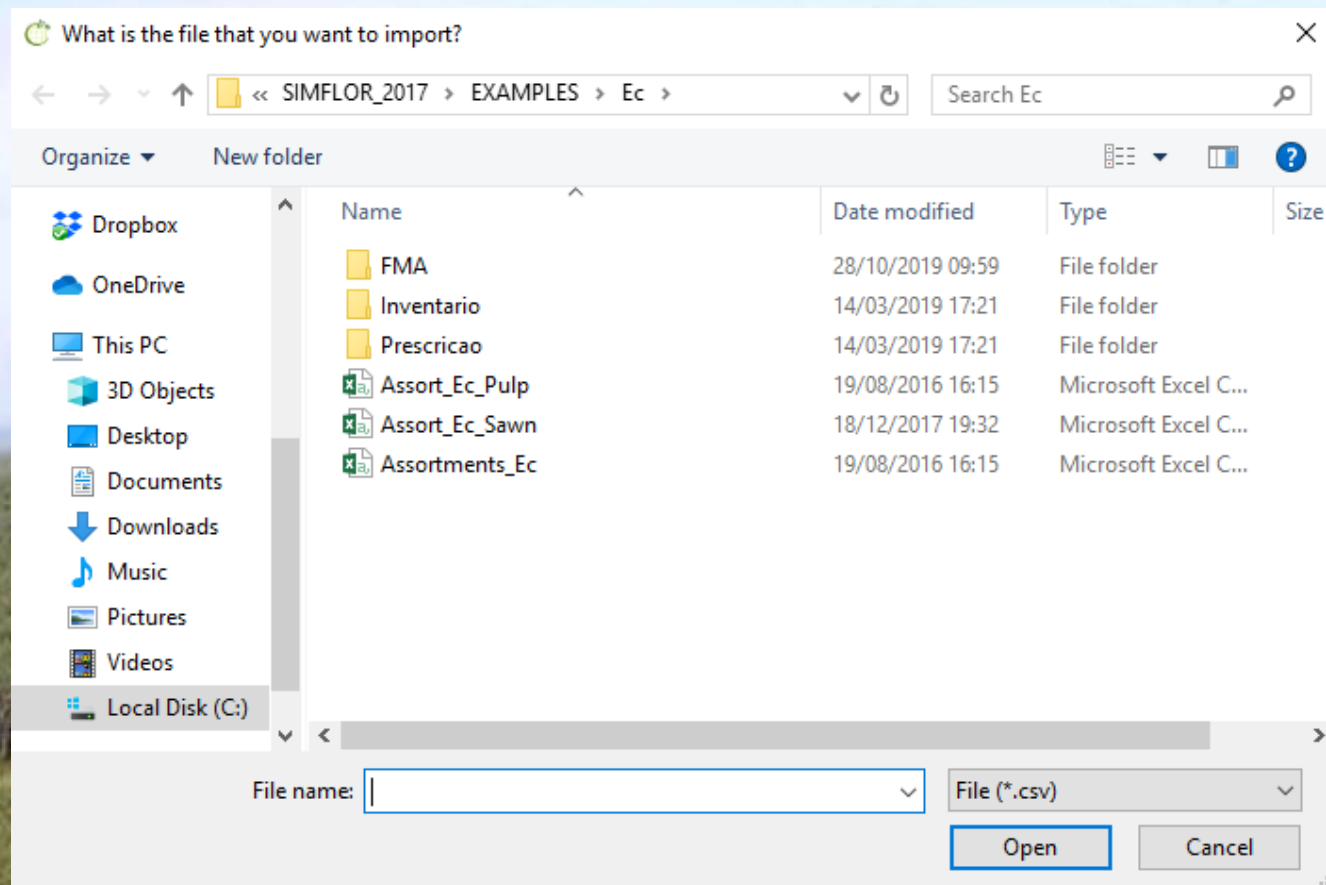
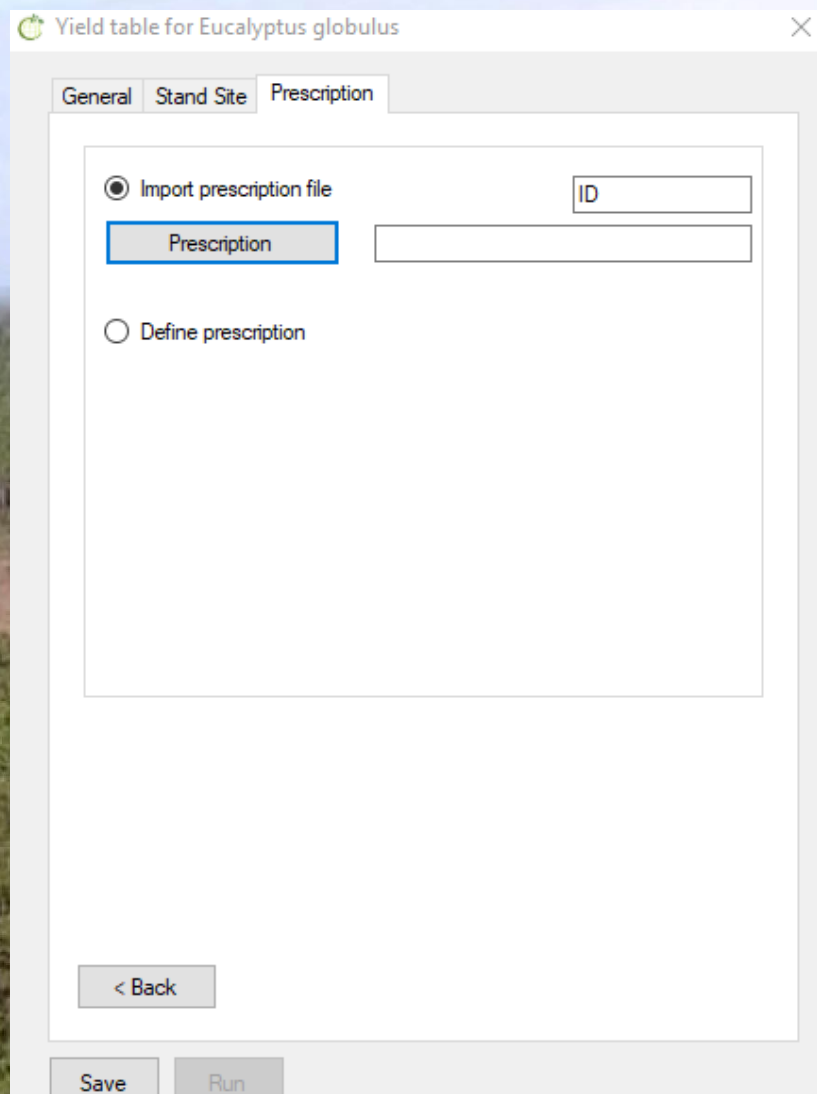
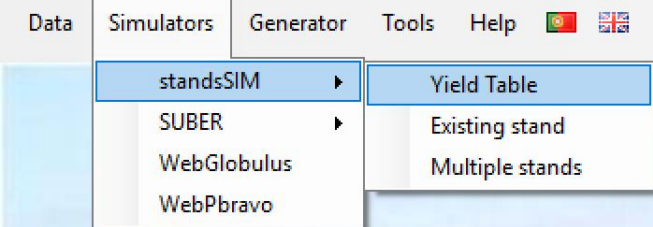
< Back Next >

input\_stand.csv - Excel

Formulas Data Review View  Tell me what you want to do...

	G	H	I	J	K	L	M	N	O	P	Q	R
dy_met	altitude	year	month	posit	tot_Typ	Sp1	Sp2	structur	S	rot	t	
	174	14	2019	0	0	pov	Ec	Ec	R	15	1	0

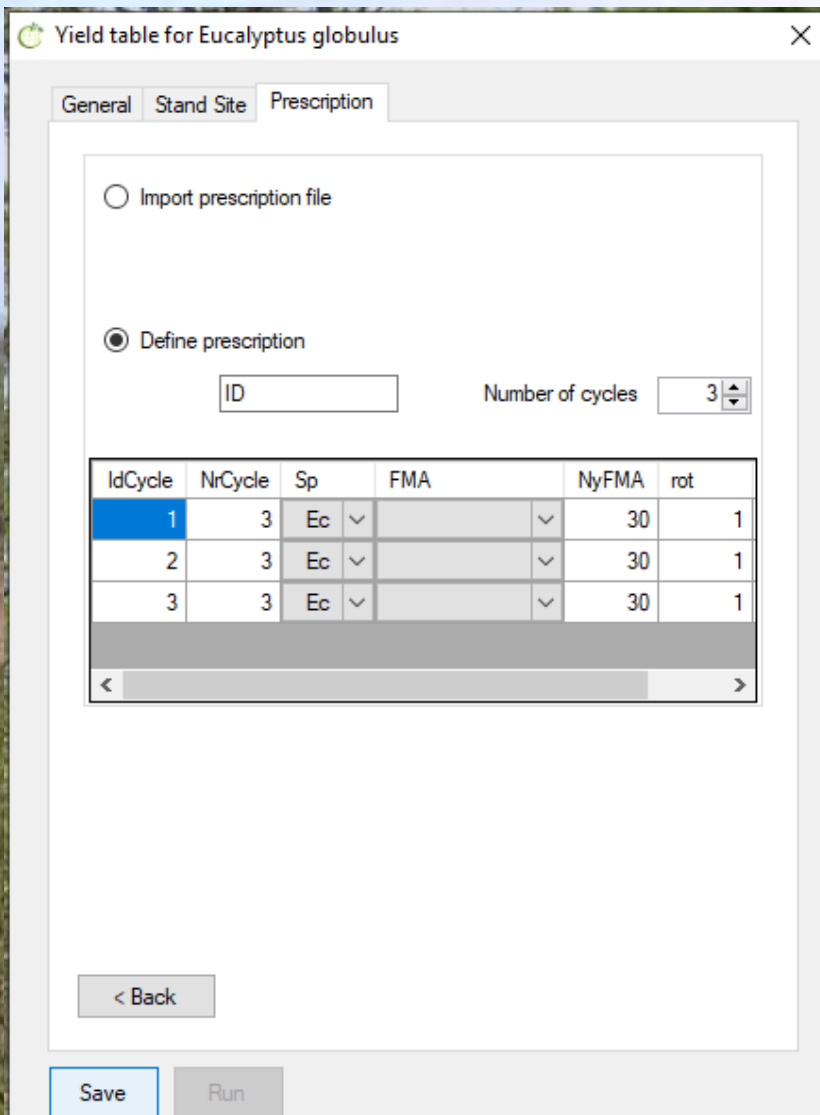
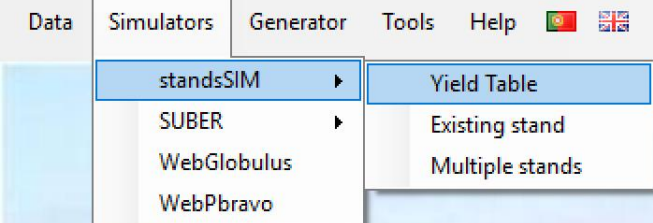
The content of this tab is automatically saved in:  
**SIMFLOR\_2017 \ STANDSSIM \ Ec**



**When importing an existing prescription, you're directed to SIMFLOR\_2017 \ EXAMPLES \ Ec \ PRESCRICOES**

(usually not a good idea unless you are sure the prescription matches what you intent to simulate)





By clicking on **Save**

the file is automatically saved in the folder corresponding to the tree species. For example:

When defining the prescription for:

- **eucalyptus**, the **input\_prescr.csv** file will be found in the **GLOBULUS** folder
- **maritime pine**, the **input\_prescr.csv** file will be found in the **PINASTER** folder









etc

# Simulation Runs' Results can be found at:

---

\...\ SIMFLOR\_2017 \STANDSSIM \ OUTPUT

Name

-  compara\_SawnPulp
-  output\_annual
-  output\_dd
-  output\_NPV
-  output\_NPV\_Pulp
-  output\_NPV\_Sawn
-  output\_TotalAnnual
-  output\_YieldTable

The **most important output** is the **output\_YieldTable.csv**

Remember to always **close this file before you initiate the next simulation** run otherwise you'll get a text message and the program won't run

If you want to save the output file, please **rename this** otherwise the program will write the results of the next run over the results from the previous



- standsSIM ▶
  - Yield Table
  - Existing stand
  - Multiple stands
- SUBER ▶
- WebGlobulus
- WebPbravo



# Running an Existing Stand



standsSIM ▶ Yield Table  
SUBER ▶ Existing stand  
WebGlobulus  
WebPbravo

Stand simulator for Pinus pinaster

General Stand Site Prescription

Species Model Type Structure  
Pb Tree Even-aged

Available Models for simulation: PINASTER

Planning Horizon 31

Select file of economic data for

Operations Operations.csv

Consumables Consumables.csv

Assortments Assortments\_Pb.csv

Select file of silviculture for

Uneven-aged SSB310.csv

Even-aged

Select file of inventory data

Tree data SSB310.csv

Next &gt;

Save

Run

Stand simulator for Pinus pinaster

General Stand Site Prescription

Topographic data

Altitud 553

Coordinate 0

Coordinate 0

Clima

Type Annual average

 Climatic Station

Viseu

 Import

Climate data

 Insert Data

Stand Variables

Plot SSB310

Rotation 1

Area 1000

nr trees 344

t 19.0

thinning 0.0

&lt; Back

Next &gt;

Save

Run

**Please note that:**

The plot ID in this tab has to be the same as the stand ID in [SSB310.csv](#)

The area of the inventory plot has to be provided in m2

The number of trees measured in the plot, the number of trees inside [SSB310.csv](#) (not the number of trees per hectare!)

- standsSIM ▶
  - Yield Table
  - Existing stand
  - Multiple stands
- SUBER ▶
- WebGlobulus
- WebPbravo

**Please note that:**

Information from both these tabs will be saved in the *input\_stand.csv* file

Stand simulator for Pinus pinaster

General Stand Site Prescription

Species: **Pb** Model Type: Tree Structure: **Even-aged**

Available Models for simulation: PINASTER

Planning Horizon: 31

Select file of economic data for:

Operations: Operations.csv

Consumables: Consumables.csv

Assortments: Assortments\_Pb.csv

Select file of silviculture for:

Uneven-aged: SSB310.csv

Even-aged:

Select file of inventory data:

Stand simulator for Pinus pinaster

General Stand Site Prescription

Topographic data

Altitud: **553**

Coordinate: 0

Coordinate: 0

Clima

Type: Annual average

Climatic Station

**Viseu**

Import

Insert Data

Climate data

Stand Variables

Plot: **SSB310**

Rotation: 1

Area: **1000**

nr trees: **344**

t: **19.0**

thinning: 0.0

input\_stand - Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	id_stand	Area ug	id_presc	tlag	CoordX	CoordY	id_meteo	Altitude	year	month	Composit	Plot_Type	Sp1	Sp2	Structure	S	Rotation	t	tst	tsd	Aplot	nrwp
2	<b>SSB310</b>	1	ID	0	0	0	<b>75</b>	<b>553</b>	<b>1981</b>	0	0	pov	Pb	<b>Pb</b>	<b>R</b>	0	1	<b>19</b>	0	0	<b>1000</b>	<b>344</b>



- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus
- WebPbravo

Stand simulator for Pinus pinaster

General Stand Site Prescription

Species  Model Type  Structure

Available Models for simulation: PINASTER

Planning Horizon 

Select file of economic data for

Select file of silviculture for

Select file of inventory data

Next &gt;

Save

Run

Stand simulator for Pinus pinaster

General Stand Site Prescription

Topographic data

Altitud Coordinate Coordinate 

Clima

Type  Climatic Station Import Insert Data

Stand Variables

Plot Rotation Area nr trees t thinning 

&lt; Back

Next &gt;

Save

Run

Stand simulator for Pinus pinaster

General Stand Site Prescription

 Import prescription file Define prescriptionNumber of cycles 

NrCycle	Sp	FMA	NyFMA	rot	tcut
1	Pb	41 - pb_FMA...	51	1	51

&lt; Back

Save

Run



standsSIM ▶ Yield Table  
 SUBER ▶ Existing stand  
 WebGlobulus Multiple stands  
 WebPbravo

Sta C:\BACKUP\Susana\Aulas\Classes\_2017-2018\SIMFLOR\_2017\STANDSSIM\standsimulator.exe

Stand simulator for Pinus pinaster

Climate data used by standsSIM:

Climate data:

C:\BACKUP\Susana\Aulas\Classes\_2017-2018\SIMFLOR\_2017\standsimulator\clima.csv

SUMMARY of the simulations:

stand	presc	Nyears	S	NPV
SSB310	ID	31	20.0	658.8

Total number of plots simulated: 1

even-aged plots: 1

uneven-aged plots: 0

Total volume harvested (m3) : 79.6

Annual volume harvested (m3): 2.6

Press ENTER to finish

Stand simulator for Pinus pinaster

General Stand Site Prescription Results [output](#)

ID	t	rot	hdom	dg	Nst
SSB310 ...	32	1	15.1	15.4	2810
SSB310 ...	33	1	15.4	15.8	2780
SSB310 ...	34	1	15.8	16	2770
SSB310 ...	35	1	16.1	16.3	2750
SSB310 ...	36	1	16.4	16.6	2720
SSB310 ...	37	1	16.7	16.9	2690
SSB310 ...	37	1	16.7	19.2	1560
SSB310 ...	38	1	17	19.6	1550
SSB310 ...	39	1	17.2	20	1550
SSB310 ...	40	1	17.5	20.3	1550
SSB310 ...	41	1	17.8	20.6	1540
SSB310 ...	42	1	18.1	20.9	1540
SSB310 ...	43	1	18.3	21.2	1540
SSB310 ...	44	1	18.6	21.5	1530
SSB310 ...	45	1	18.8	21.8	1520
SSB310 ...	46	1	19.1	22.2	1500
SSB310 ...	47	1	19.3	22.4	1500
SSB310 ...	48	1	19.6	22.6	1500
SSB310 ...	49	1	19.8	22.9	1500
SSB310 ...	50	1	20	23.2	1480

Save Run Table Graphs Distribution

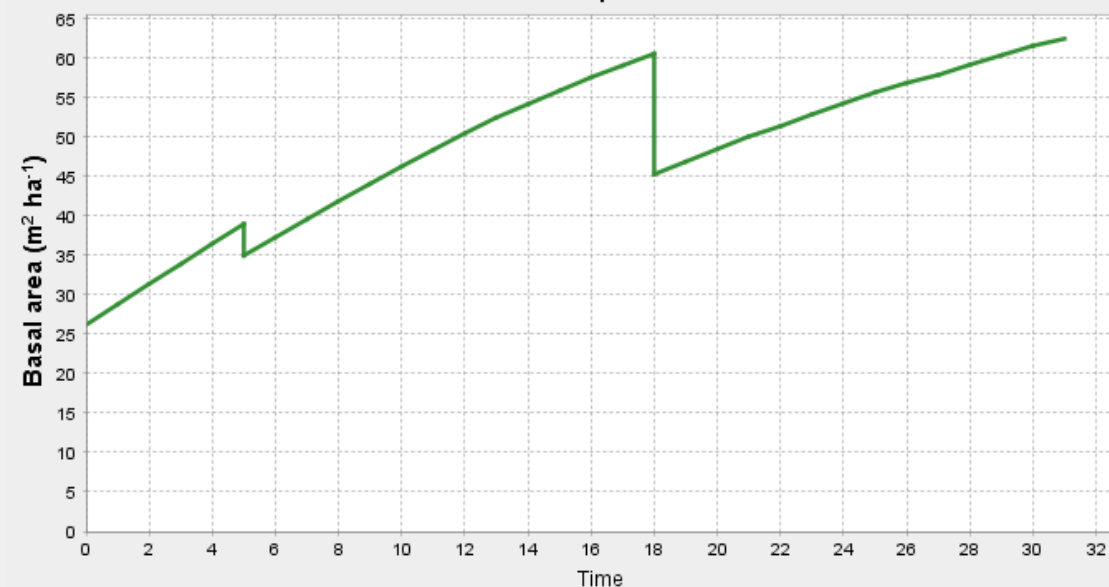
General Stand Site Prescription

StandsSIM Graphs SSB310 - ID

File

Volume Volume Increment Volume Harvested Biomass Stem Biomass  
 Dominant Height Number of Stumps Number of Trees Basal Area Quadratic Mean Diameter

stand: SSB310 presc: ID



Next >

< Back

Save Run

Save Run

Save Run



- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus Multiple stands
- WebPbravo

# Planning Horizon, prescription Tcut and cycles

Real Data

year of

a)

48 49 50

29 30 31

e of 50)

ate 12 years

n the stand

thinning

Stand simulator for Pinus pinaster

General Stand Site Prescription

Species: Pb Model Type: Tree Structure: Even-aged

Available Models for simulation: PINASTER

Planning Horizon: 31

Select file of economic data for:

Operations: Operations.csv

Consumables: Consumables.csv

Assortments: Assortments\_Pb.csv

Select file of silviculture for:

Uneven-aged: SSB310.csv

Even-aged:

Select file of inventory data:

Tree data: SSB310.csv

Next >

thinning

Stand simulator for Pinus pinaster

General Stand Site Prescription

Topographic data:

Altitud: 553

Coordinate: 0

Coordinate: 0

Clima:

Type: Annual average

Climatic Station: Viseu

Import

Insert Data

Stand Variables:

Plot: SSB310

Rotation: 1

Area: 1000

nr trees: 344

t: 19.0

thinning: 0.0

< Back

thinning

Stand simulator for Pinus pinaster

General Stand Site Prescription

Import prescription file

Define prescription

ID: Number of cycles: 1

NrCycle	Sp	FMA	NyFMA	rot	tcut
1	Pb	41 - SSB310.cs	31	1	31

< >

< Back



- standsSIM ▶
  - Yield Table
  - Existing stand
  - Multiple stands
- SUBER ▶
- WebGlobulus
- WebPbravo

# Plan Tcut and cycles

C:\BACKUP\Susana\Aulas\Classes\_2017-2018\SIMFLOR\_2017\STANDSSIM\standsimulator.exe

```

*****
Climate data used by standsSIM:
Climate data:
C:\BACKUP\Susana\Aulas\Classes_2017-2018\SIMFLOR_2017\STANDSSIM\PINASTER\i
clima.csv
*****
SUMMARY of the simulations:
stand  presc  Nyears      S      NPV      EAA      maiv  Vhar
SSB310  ID      12      20.0  3925.1  223.2  11.0  264.5
Total number of plots simulated:      1
      even-aged plots:      1
      uneven-aged plots:      0
Total volume harvested (m3) :      264.5
Annual volume harvested (m3):      8.5
    
```

**Year of simulation = 12!**

Stand simulator for Pinus pinaster

ID	t	rot	hdom	dg	Net	N
SSB310 ...	19	1	10	9.9	3440	3
SSB310 ...	20	1	10.5	10.3	3440	3
SSB310 ...	21	1	10.9	10.8	3440	3
SSB310 ...	22	1	11.4	11.2	3440	3
SSB310 ...	23	1	11.8	11.6	3440	3
SSB310 ...	24	1	12.2	12	3440	3
SSB310 ...	25	1	12.6	12.4	3430	3
SSB310 ...	26	1	13	12.7	3430	3
SSB310 ...	27	1	13.4	13.1	3430	3
SSB310 ...	28	1	13.7	13.4	3430	3
SSB310 ...	29	1	14.1	13.7	3410	3
SSB310 ...	30	1	14.5	14.1	3380	3
SSB310 ...	31	1	14.8	14.4	3370	3
SSB310 ...	31	1	0	0	0	3

**Stand age after 12 years of simulation = 31!**

Real Data

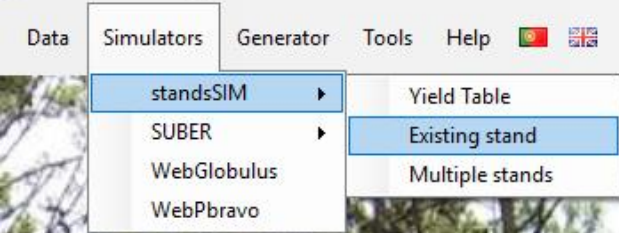
Stand si

General

year of

a)

49	50
30	31
years	
tand	



# Planning Horizon, prescription Tcut and cycles

*For more details see the excel:*

***HELP\_Simulations.xlsx***

*(Course Materials \ PowerPoints)*

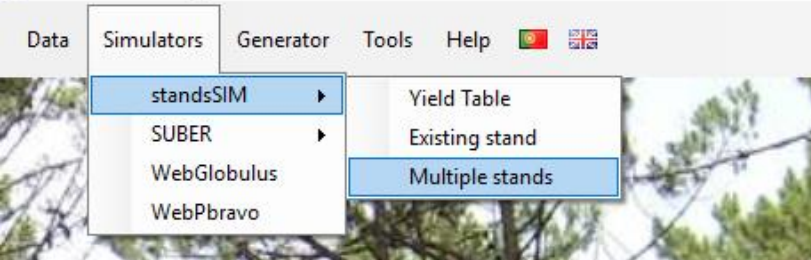


- standsSIM ▶
  - Yield Table
  - Existing stand
  - Multiple stands
- SUBER ▶
- WebGlobulus
- WebPbravo



# Running Multiple Stands





Simulator for Multiple Stands of Pinus pinaster

General Prescription

Species: Pb Model Type: Tree  
Available Models for simulation: PINASTER, PBIRROL  
Planning Horizon: [ ]

Select file of economic data for:

Operations: Operations.csv  
Consumables: Consumables.csv  
Assortments: Assortments\_Pb.csv

Select file of silviculture for:

Uneven-aged: [ ]  
Even-aged: [ ]

Select file of inventory data:

Annual average: AvgClimate.csv  
Stand data: [ ]  
Tree data: [ ]

Next >

Save Run

Import as many FMAs as you will use in the prescription(s).

Please note that the order by which you import the FMAs will determine the FMA option id, these will be assigned when generating the prescription

All the stands you want to run will have to be characterized in the same *input\_stand\*.csv* file

The list of trees in the *input\_tree\*.csv* have to include the lists of trees in each of the stands in the *input\_stand\*.csv* file

**Please make sure that:**

- 1) The id of the stand in the *input\_stand\*.csv* file and in the *input\_tree\*.csv* are the same
- 2) The stands are in the same order in both files
- 3) The ids of the prescriptions in the *input\_stand\*.csv* file exist in the *input\_prescr\*.csv* file
- 4) The number of trees said to exist in each stand/plot in the *input\_stand\*.csv* file corresponds to the tree lists for each plot contained in the the *input\_tree\*.csv* file

- standsSIM ▸
  - Yield Table
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input\_stand - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do...

AA6

	A	C	G	H	I	N	O	P	Q	R	S	U	V
	id_stand	id_presc	id_meteo	Altitude	year	Sp2	Structure	S	Rotation	t	tst	Aplot	narvp
1	SSB309	ID_9	75	553	1981	Pb	R	0	1	19	0	1000	327
2	SSB310	ID_10	75	553	1981	Pb	R	0	1	19	0	1000	344
3	SSB311	ID_11	75	553	1981	Pb	R	0	1	19	0	1000	314
4	SSB312	ID_12	75	553	1981	Pb	R	0	1	19	0	1000	339
5													
6													

input\_prescr - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do...

O16

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	IdPrescr	NrCiclos	sp1	sp2	sp3	FMA	Opt	NyFMA	tlag	Npl	rot	tcut	nsprouts	t_nsprouts	in_type
1	ID_9	1	Pb	Pb	Pb	4	1	51	0	0	1	51	0	0	0
2	ID_10	1	Pb	Pb	Pb	4	2	51	0	0	1	51	0	0	0
3	ID_11	1	Pb	Pb	Pb	4	3	51	0	0	1	51	0	0	0
4	ID_12	1	Pb	Pb	Pb	4	4	51	0	0	1	51	0	0	0
5															

SSB30912 - Excel

Tell me what you want to do...

S	T	U	V	W	X	Y
id_plot	id_arv	especie	d	h	arv_dom	cod_est
SSB309	1	Pb	0.6	0	0	0
SSB309	2	Pb	0.7	0	0	0
SSB309	3	Pb	0.7	0	0	0
SSB309	4	Pb	1	0	0	0
SSB309	5	Pb	1.1	0	0	0
SSB309	6	Pb	1.6	0	0	0
SSB309	7	Pb	1.75	0	0	0
SSB309	8	Pb	1.9	0	0	0
SSB309	9	Pb	1.9	0	0	0
SSB309	10	Pb	2.1	0	0	0
SSB309	11	Pb	2.1	0	0	0
SSB309	12	Pb	2.1	0	0	0
SSB309	13	Pb	2.5	0	0	0
SSB309	14	Pb	2.2	0	0	0
SSB309	15	Pb	2.25	4.15	0	0
SSB310	1	Pb	3.745	0	0	0
SSB310	2	Pb	3.8	0	0	0
SSB310	3	Pb	4.11	0	0	0
SSB310	4	Pb	4.26	0	0	0
SSB310	5	Pb	4.745	0	0	0
SSB310	6	Pb	4.3	0	0	0
SSB310	7	Pb	4.975	0	0	0
SSB310	8	Pb	4.975	0	0	0
SSB310	9	Pb	5.02	0	0	0
SSB310	10	Pb	5.02	0	0	0
SSB310	11	Pb	5.15	0	0	0
SSB310	12	Pb	5.15	7	0	0
SSB310	13	Pb	5.35	0	0	0
SSB310	14	Pb	5.35	0	0	0
SSB310	15	Pb	5.375	0	0	0
SSB311	1	Pb	2.085	0	0	0
SSB311	2	Pb	3.625	0	0	0
SSB311	3	Pb	3.79	0	0	0
SSB311	4	Pb	4.05	0	0	0
SSB311	5	Pb	4.505	0	0	0
SSB311	6	Pb	4.505	0	0	0
SSB311	7	Pb	4.505	0	0	0
SSB311	8	Pb	4.94	0	0	0
SSB311	9	Pb	4.985	0	0	0
SSB311	10	Pb	5.125	0	0	0
SSB311	11	Pb	5.175	0	0	0
SSB311	12	Pb	5.715	0	0	0
SSB311	13	Pb	5.715	0	0	0
SSB311	14	Pb	6.145	0	0	0
SSB311	15	Pb	6.395	0	0	0
SSB312	1	Pb	1.11	0	0	0
SSB312	2	Pb	2.645	0	0	0
SSB312	3	Pb	2.71	0	0	0
SSB312	4	Pb	3.19	0	0	0
SSB312	5	Pb	3.245	0	0	0
SSB312	6	Pb	3.305	0	0	0
SSB312	7	Pb	3.305	0	0	0







- standsSIM ▶
  - Yield Table
  - Existing stand
  - Multiple stands
- SUBER ▶
- WebGlobulus
- WebPbravo

Simulator for Multiple Stands of Pinus pinaster

General Prescription

Species: Pb Model Type: Tree  
 Available Models for simulation: PINASTER, PBIRROL  
 Planning Horizon: 31

Select file of economic data for:

Operations: Operations.csv  
 Consumables: Consumables.csv  
 Assortments: Assortments\_Pb.csv

Select file of silviculture for:

Uneven-aged: pb\_FMA09.csv, pb\_FMA10.csv, pb\_FMA11.csv, pb\_FMA12.csv  
 Even-aged:

Select file of inventory data:

Annual average: AvgClimate.csv  
 Stand data: input\_stand.csv  
 Tree data: SSB30912.csv

Next > Save Run

Simulator for Multiple Stands of Pinus pinaster

General Prescription

Import prescription file  
 Prescription: input\_prescr.csv  
 Define prescription

C:\BACKUP\Susana\Aulas\Classes\_2017-2018\SIMFLOR\_2017\STANDSSIM\standsimulator.exe

< Back Saved! Run

```

Climate data used by standsSIM:
Climate data:
C:\BACKUP\Susana\Aulas\Classes_2017-2018\SIMFLOR_2017\EXAMPLES\AvgClimate.csv

*****
SUMMARY of the simulations:

```

stand	presc	Nyears	S	NPV	EAA	maiV	Vharv
SSB309	ID_9	31	22.5	0.0	0.0	19.1	0.0
SSB310	ID_10	31	20.0	0.0	0.0	16.8	0.0
SSB311	ID_11	31	21.5	-21.0	-1.2	18.8	9.1
SSB312	ID_12	31	20.9	-340.2	-19.3	17.1	0.0

```











Total number of plots simulated: 4
    even-aged plots: 4
    uneven-aged plots: 0

Total volume harvested (m3) : 9.1
Annual volume harvested (m3): 0.3
    
```

# Default files as those produced with the “Generator” are @:

---

\...\ SIMFLOR\_2017 \ STANDSSIM

Name	Date modified	Type	Size
 3PG	14/03/2019 17:21	File folder	
 GLOBULUS	28/10/2019 09:59	File folder	
 OUTPUT	28/10/2019 09:59	File folder	
 PINASTER	14/03/2019 17:21	File folder	
 PINEA	14/03/2019 17:21	File folder	
 graphs	08/07/2017 18:16	Executable Jar File	1 893 KB
 Graphs_DD	09/07/2017 16:24	Executable Jar File	1 889 KB
 ini_standsSIM	25/10/2019 11:05	Microsoft Excel C...	2 KB
 ini_standsSIM_Ec	23/11/2017 13:49	Microsoft Excel C...	2 KB
 ini_standsSIM_JR	23/11/2017 14:18	Microsoft Excel C...	2 KB

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	V
1	id_stand	S	AreaUG	id_presc	FMA	opt	year	ttotal	t	rot	FinalCut	Thinning	Debark	hdom	Nst	N	Ndead	N_ing	Fw	G	dg	Vu_st	Vb_st	Vst	V	V_as1	V_as2	V
2	SSB309	22.45	1	ID_9	4	1	1981	0	19	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
3	SSB309	22.45	1	ID_9	4	1	1982	1	20	1	0	0	0	12.5	3270	3270	0	0	0.14	26.4	10.7	105.5	45.4	4.1	155	0	0	
4	SSB309	22.45	1	ID_9	4	1	1983	2	21	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
5	SSB309	22.45	1	ID_9	4	1	1984	3	22	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
6	SSB309	22.45	1	ID_9	4	1	1985	4	23	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
7	SSB309	22.45	1	ID_9	4	1	1986	5	24	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
8	SSB309	22.45	1	ID_9	4	1	1987	6	25	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
9	SSB309	22.45	1	ID_9	4	1	1988	7	26	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
10	SSB309	22.45	1	ID_9	4	1	1989	8	27	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
11	SSB309	22.45	1	ID_9	4	1	1990	9	28	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
12	SSB309	22.45	1	ID_9	4	1	1991	10	29	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
13	SSB309	22.45	1	ID_9	4	1	1992	11	30	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
14	SSB309	22.45	1	ID_9	4	1	1993	12	31	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
15	SSB309	22.45	1	ID_9	4	1	1994	13	32	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
16	SSB309	22.45	1	ID_9	4	1	1995	14	33	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
17	SSB309	22.45	1	ID_9	4	1	1996	15	34	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
18	SSB309	22.45	1	ID_9	4	1	1997	16	35	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
19	SSB309	22.45	1	ID_9	4	1	1998	17	36	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
20	SSB309	22.45	1	ID_9	4	1	1999	18	37	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
21	SSB309	22.45	1	ID_9	4	1	2000	19	38	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
22	SSB309	22.45	1	ID_9	4	1	2001	20	39	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
23	SSB309	22.45	1	ID_9	4	1	2002	21	40	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
24	SSB309	22.45	1	ID_9	4	1	2003	22	41	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
25	SSB309	22.45	1	ID_9	4	1	2004	23	42	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
26	SSB309	22.45	1	ID_9	4	1	2005	24	43	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
27	SSB309	22.45	1	ID_9	4	1	2006	25	44	1	0	0	0	12	3270	3270	0	0	0.15	26.9	10.2	94	40.9	3.7	138.6	0	0	
28	SSB309	22.45	1	ID_9	4	1	2007	26	45	1	0	0	0	21.2	1330	1330	70	0	0.13	62.6	24.3	409.1	133.3	8.6	533.2	0	0	
29	SSB309	22.45	1	ID_9	4	1	2008	27	46	1	0	0	0	21.5	1310	1310	50	0	0.13	63.2	24.8	418.3	137.8	8.7	564.8	0	0	
30	SSB309	22.45	1	ID_9	4	1	2009	28	47	1	0	0	0	21.7	1230	1230	100	0	0.13	62.5	25.4	420.5	137.7	8.6	566.8	0	0	
31	SSB309	22.45	1	ID_9	4	1	2010	29	48	1	0	0	0	22	1200	1200	30	0	0.13	63.1	25.9	429.2	139.9	8.7	577.9	0	0	
32	SSB309	22.45	1	ID_9	4	1	2011	30	49	1	0	0	0	22.2	1140	1140	70	0	0.13	63.2	26.6	436.1	141.3	8.7	586.2	0	0	
33	SSB309	22.45	1	ID_9	4	1	2012	31	50	1	0	0	0	22.5	1090	1090	60	0	0.13	63.2	27.2	441.8	142.4	8.7	593	0	0	
34	SSB310	20.02	1	ID_10	4	1	1981	0	19	1	0	0	0	10	3440	3440	0	0	0.17	26.2	9.9	78.7	36.8	3.7	119.2	0	0	
35	SSB310	20.02	1	ID_10	4	1	1982	1	20	1	0	0	0	10.5	3440	3440	0	0	0.16	28.8	10.3	88.3	41	4	133.2	0	0	

**Please Note** that when running for several stands the `output_yieldtable.csv` will contain the simulation runs, but the graphs option will not be available under this simulation mode

If you want to see the graphs for each of the plots you will have to:

- 1) copy the `output_yieldtable.csv` file and save it with a different name (ex<sup>o</sup> `output_yieldtable_allPlots.csv`)
- 2) then leave only the simulation run results for the plot you want to make the graphs for deleting the remaining plots in the `output_yieldtable.csv`
- 3) Then click on the **graphs.jar** program in: `C:\...\SIMFLOR_2017\STANDSSIM`
- 4) For the diameter distribution graphs click on the **graphs\_DD.jar** program

The graphs will be made for the plot you left inside the `output_yieldtable.csv`. You can replace the content of this file by as many plots you want to build the graphs for.



standsSIM ▶  
SUBER ▶  
WebGlobulus  
WebPbravo

Yield Table  
Existing stand  
Multiple stands

# Exercise Solutions

Blue gum: 1, 2, 3, 4 & 5

Maritime pine: 1, 2 & 5

# Blue gum - Exercise 1 solution

SIMFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

- standsSIM
- SUBER
- WebGlobulus
- WebPbravo

### Yield Table

#### Yield table for Eucalyptus globulus

General Stand Site Prescription

Species: Ec Model Type: Stand  
Available Models for simulation: GLOBULUS, GYMMA  
Planning Horizon: 30

Select file of economic data for:

Operations	Operations.csv
Consumables	Consumables.csv
Assortments	Assortments_Ec.csv

Select file of silviculture for:

Uneven-aged	FMA41_Ec_Regular.csv
<b>Even-aged</b>	

Next >

Save Run

### Yield table for Eucalyptus globulus

General Stand Site Prescription

Topographic data: Altitud: 14, Coordinate: 0, Coordinate: 0

Site Index:  NUT III  Local  
SI Classes:   
 SI Value (m): 15.0

Clima: Type: Annual average  
 Climatic Station: Coruche  
 Import: Climate data  
 Insert Data

< Back Next >

Save Run

### Yield table for Eucalyptus globulus

General Stand Site Prescription

Import prescription file  
 Define prescription  
ID: Number of cycles: 3

NrCycle	Sp	FMA	NyFMA	rot	tcut
3	Ec	41 - FMA41_...	10	1	10
3	Ec	41 - FMA41_...	10	2	10
3	Ec	41 - FMA41_...	10	3	10

< Back

**Saved!** Run



# Blue gum - Exercise 1 solution

simfLOR - Portuguese For C:\BACKUP\Susana\Aulas\Classes\_2017-2018\SIMFLOR\_2017\STANDSSIM\standsimulator.exe

Data Simulators Gen

- standsSIM
- SUBER
- WebGlobulus
- WebPbravo

```
*****
Climate data used by standsSIM:
Climate data:
C:\BACKUP\Susana\Aulas\Classes_2017-2018\SIMFLOR_2017\STANDSSIM\GLOBULUS\input_
clima.csv
*****

SUMMARY of the simulations:

stand      presc      Nyears      S      NPV      EAA      maiV      Vharv
1          ID          30         15.0    -1066.6   -61.7     6.3       165.7

Total number of plots simulated:      1
      even-aged plots:      1
      uneven-aged plots:      0

Total volume harvested (m3) :      165.7
Annual volume harvested (m3):      5.5

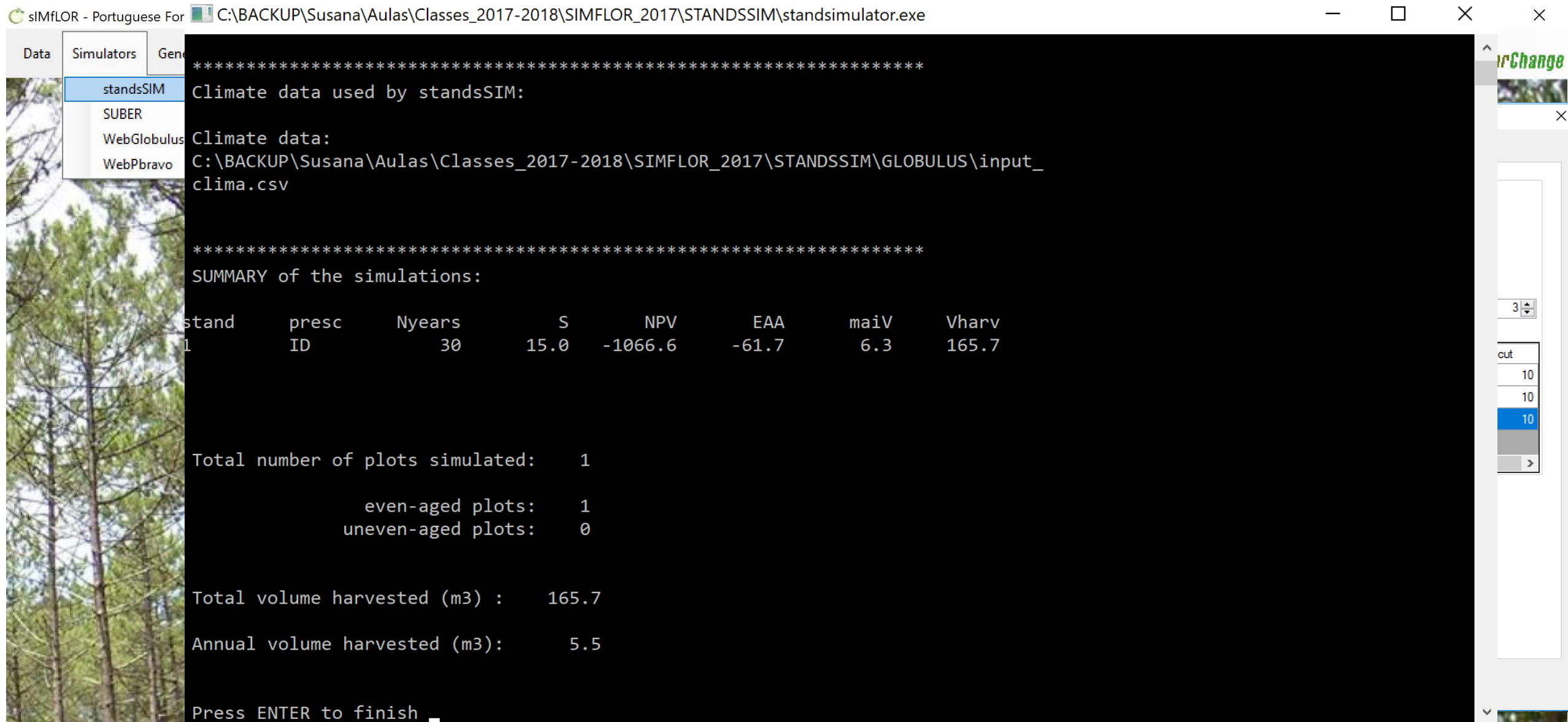
Press ENTER to finish
```

3

cut

- 10
- 10
- 10

>





# Blue gum - Exercise 1 solution

simfLOR - Portuguese Forest Simulators

output\_YieldTable - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do... Sign in Share

standsSIM Yield Table  
 SUBER Existing stand  
 WebGlobulus Multiple stands  
 WebPbravo

StandsSIM Graphs 1 - ID

StandsSIM Graphs 1 - ID

Yield table for Eucalyptus globulus

ID	t	rot	hdom	dg	Nst
1	0	1	0	0	1250
1	1	1	1.2	1.1	1250
1	2	1	3.6	2.9	1250
1	3	1	5.7	4.5	1250
1	4	1	7.6	5.8	1233
1	5	1	9.2	7	1217
1	6	1	10.7	8	1201
1	7	1	11.9	8.8	1185
1	8	1	13.1	9.6	1169
1	9	1	14.1	10.3	1153
1	10	1	15	11	1138
1	10	1	0	0	0
1	1	2	1.2	0.7	899
1	2	2	3.6	2.2	889
1	3	2	5.7	3.6	878
1	3	2	5.7	4.1	878
1	4	2	7.6	5.3	867
1	5	2	9.2	6.3	857
1	6	2	10.7	7.2	846
1	7	2	11.9	8	836

stand: 1 presc: ID

Basal area (m<sup>2</sup> ha<sup>-1</sup>)

Time

Biomass Stem Biomass

N	hdom	Nst
0	0	
0	1.2	
0	3.6	
0	5.7	
0	7.6	
0	9.2	
0	10.7	
0	11.9	
0	13.1	
0	14.1	
0	15	
0	0	
0	1.2	
0	3.6	
0	5.7	
0	5.7	
0	7.6	
0	9.2	

Save Run Table Graphs Distribution

# Blue gum - Exercise 2 solution

SIMFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus ▶ Multiple stands
- WebPbravo

Yield table for Eucalyptus globulus

General Stand Site Prescription

Species: Ec Model Type: Stand

Available Models for simulation: GLOBULUS, GYMMA

Planning Horizon: 30

Select file of economic data for:

Operations: Operations.csv

Consumables: Consumables.csv

Assortments: Assortments\_Ec.csv

Select file of silviculture for:

Even-aged: FMA41\_Ec\_Regular.csv

Next >

Save Run

Yield table for Eucalyptus globulus

General Stand Site Prescription

Topographic data:

Altitud: 14

Coordinate: 0

Coordinate: 0

Clima:

Type: Annual average

Climatic Station: Coruche

Site Index:

NUT III Local

SI Classes:

SI Value (m): 15.0

Import Import

Insert Data

Climate data

< Back Next >

Save Run

Yield table for Eucalyptus globulus

General Stand Site Prescription

Import prescription file

Define prescription

ID: Number of cycles: 3

NrCycle	Sp	FMA	NyFMA	rot	tcut
3	Ec	41 - FMA41_...	12	1	12
3	Ec	41 - FMA41_...	9	2	9
3	Ec	41 - FMA41_...	9	3	9

< Back

Save Run

Yield table for Eucalyptus globulus

General Stand Site Prescription Results

ID	t	rot	hdom	dg	Nst
1	0	1	0	0	1250
1	1	1	1.2	1.1	1250
1	2	1	3.6	2.9	1250
1	3	1	5.7	4.5	1250
1	4	1	7.6	5.8	1233
1	5	1	9.2	7	1217
1	6	1	10.7	8	1201
1	7	1	11.9	8.8	1185
1	8	1	13.1	9.6	1169
1	9	1	14.1	10.3	1153
1	10	1	15	11	1138
1	11	1	15.8	11.6	1123
1	12	1	16.6	12.1	1108
1	12	1	0	0	0
1	1	2	1.2	0.7	876
1	2	2	3.6	2.2	865
1	3	2	5.7	3.6	855
1	3	2	5.7	4.1	855
1	4	2	7.6	5.3	844
1	5	2	9.2	6.3	834

Save Run Table Graphs Distribution

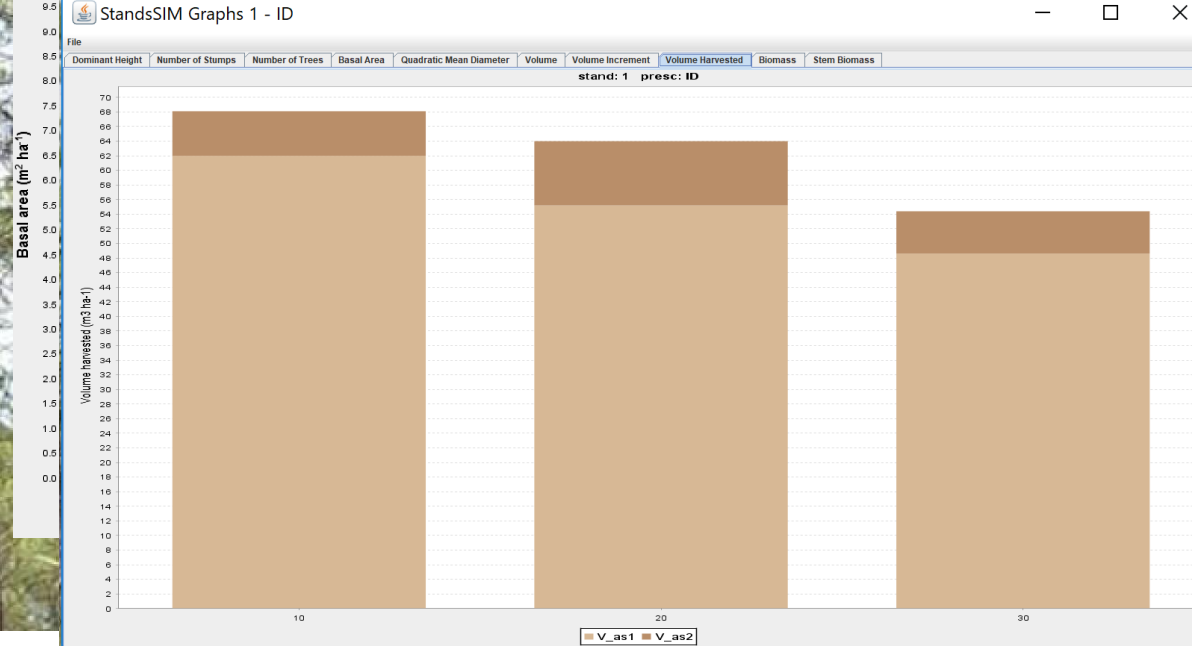
# Blue gum - Exercise 2 solution

SIMFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus
- WebPbravo





# Blue gum - Exercise 3 solution (option a)

Yield table for Eucalyptus globulus

General Stand Site Prescription

Species: Ec Model Type: Stand  
Available Models for simulation: GLOBULUS, GYMMA  
Planning Horizon: 60

Select file of economic data for:

Operations: Operations.csv  
Consumables: Consumables.csv  
Assortments: Assortments\_Ec.csv

Select file of silviculture for:

Uneven-aged: FMA41\_Ec\_Regular.csv  
Even-aged: **Even-aged**

Next >

Save Run

Yield table for Eucalyptus globulus

General Stand Site Prescription

Topographic data: Altitud: 14, Coordinate: 0, Coordinate: 0

Site Index: NUT III Local, SI Classes, SI Value (m): 15.0

Clima: Type: Annual average, Climatic Station: Coruche, Import, Insert Data

Climate data

< Back Next >

Save Run

Yield table for Eucalyptus globulus

General Stand Site Prescription

Import prescription file  
Define prescription: ID, Number of cycles: 6

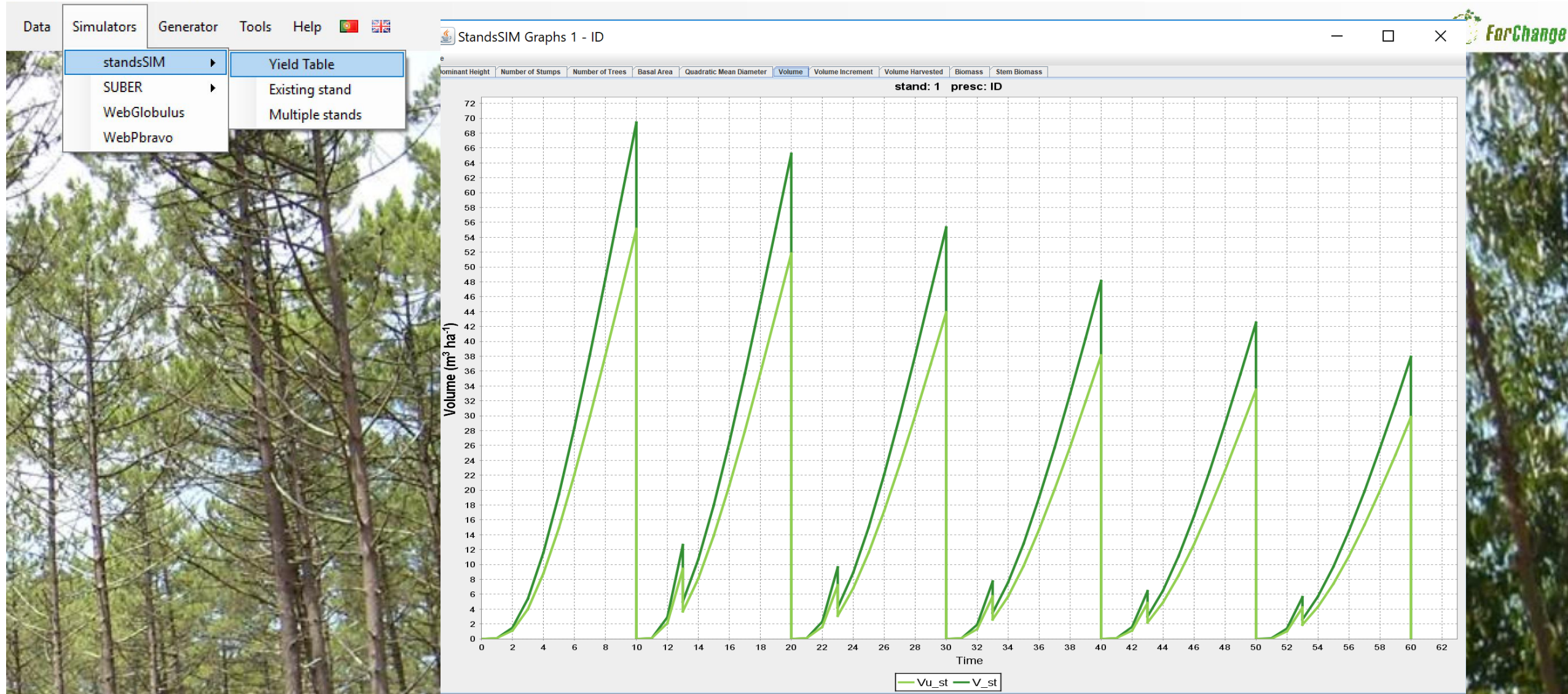
Cycle	Sp	FMA	NyFMA	rot	tcut
6	Ec	41 - FMA41_...	10	1	10
6	Ec	41 - FMA41_...	10	2	10
6	Ec	41 - FMA41_...	10	3	10
6	Ec	41 - FMA41_...	10	4	10

< Back

Save Run

# Blue gum - Exercise 3 solution (option a)

sIMfLOR - Portuguese Forest Simulators



# Blue gum - Exercise 3 solution (option b)

Yield table for Eucalyptus globulus

General Stand Site Prescription

Species: Ec Model Type: Stand  
Available Models for simulation: GLOBULUS, GYMMA  
Planning Horizon: 60

Select file of economic data for

Operations: Operations.csv  
Consumables: Consumables.csv  
Assortments: Assortments\_Ec.csv

Select file of silviculture for

Uneven-aged: FMA41\_Ec\_Regular.csv, FMA41\_Ec\_Reg\_stump.csv  
Even-aged:

Next >

Save Run

Yield table for Eucalyptus globulus

General Stand Site Prescription

Topographic data  
Altitud: 14  
Coordinate: 0  
Coordinate: 0

Site Index  
 NUT III  Local  
SI Classes:  
 SI Value (m): 15.0

Clima  
Type: Annual average  
 Climatic Station: Conuche  
 Import: Climate data  
 Insert Data

< Back Next >

Save Run

Yield table for Eucalyptus globulus

General Stand Site Prescription

Import prescription file  
 Define prescription  
ID: Number of cycles: 6

Cycle	Sp	FMA	NyFMA	rot	tcut
6	Ec	41 - FMA41_...	10	1	10
6	Ec	41 - FMA41_...	10	2	10
6	Ec	41 - FMA41_...	10	3	10
6	Ec	41 - stp_FMA...	10	1	10

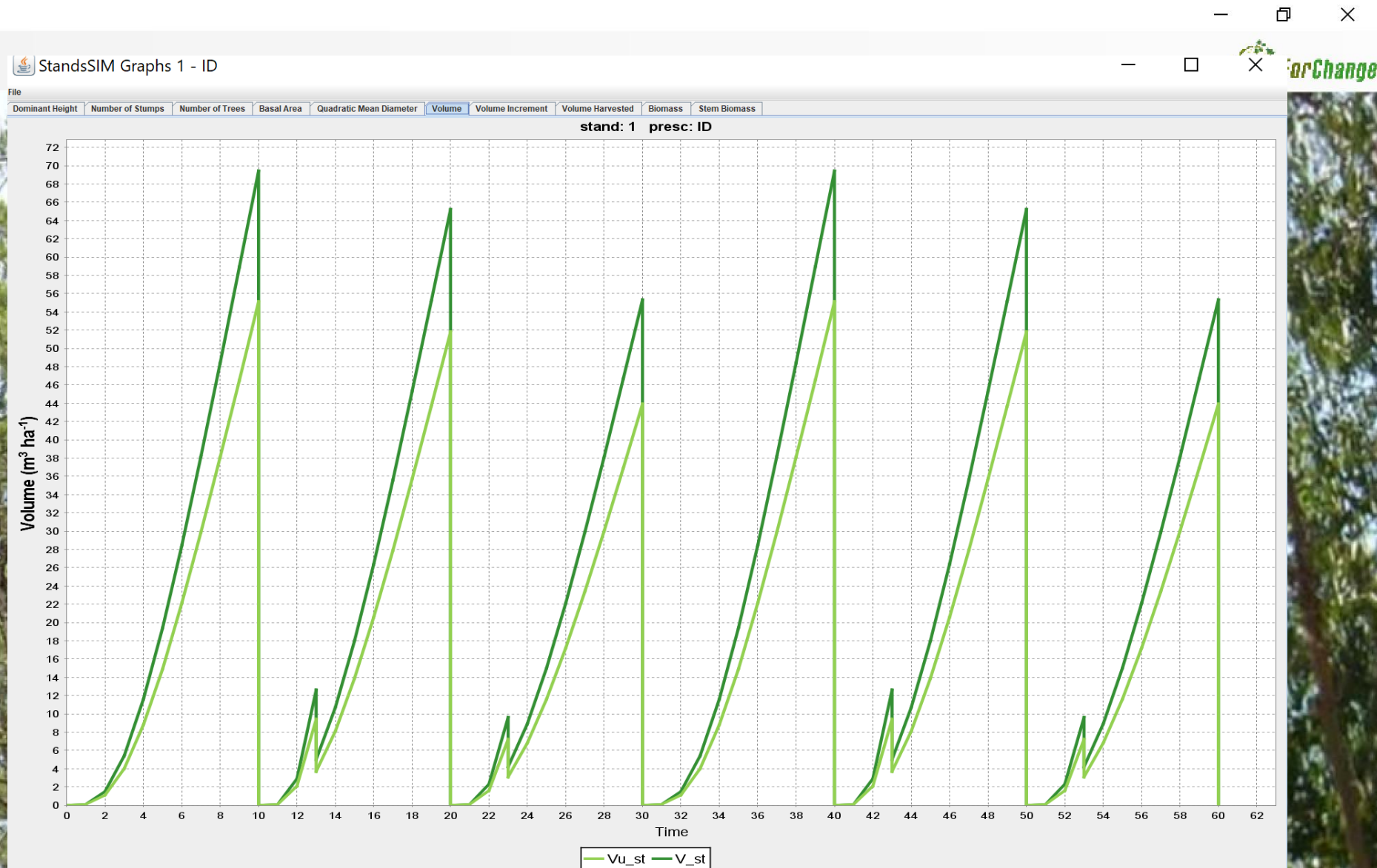
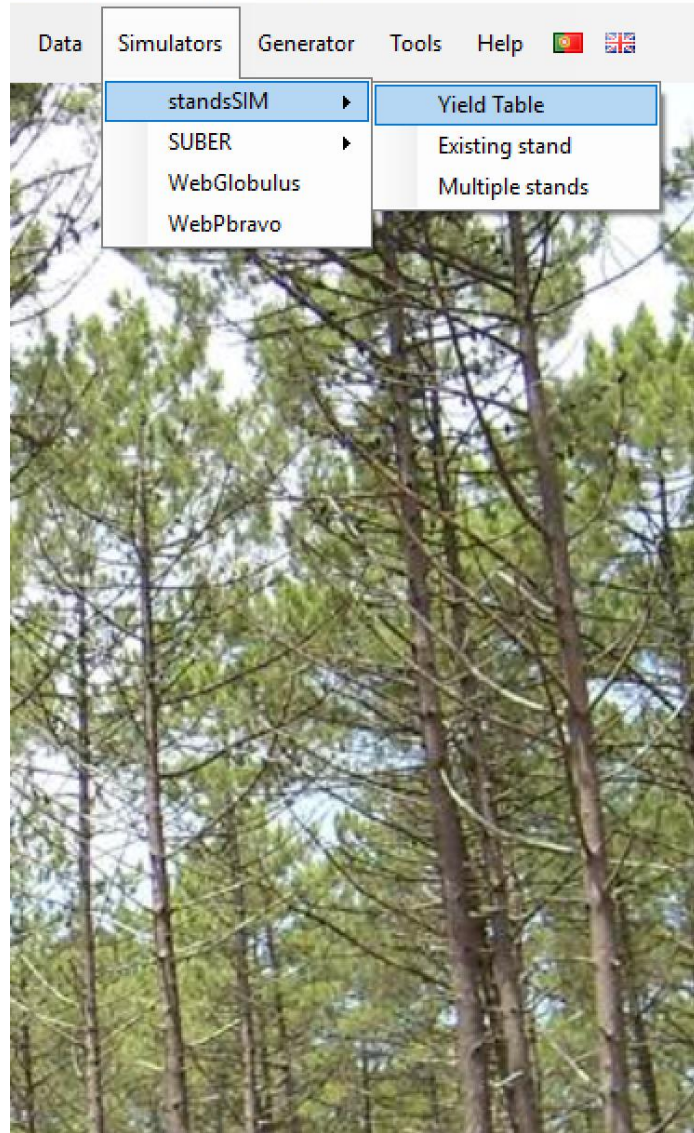
< Back

Save Run



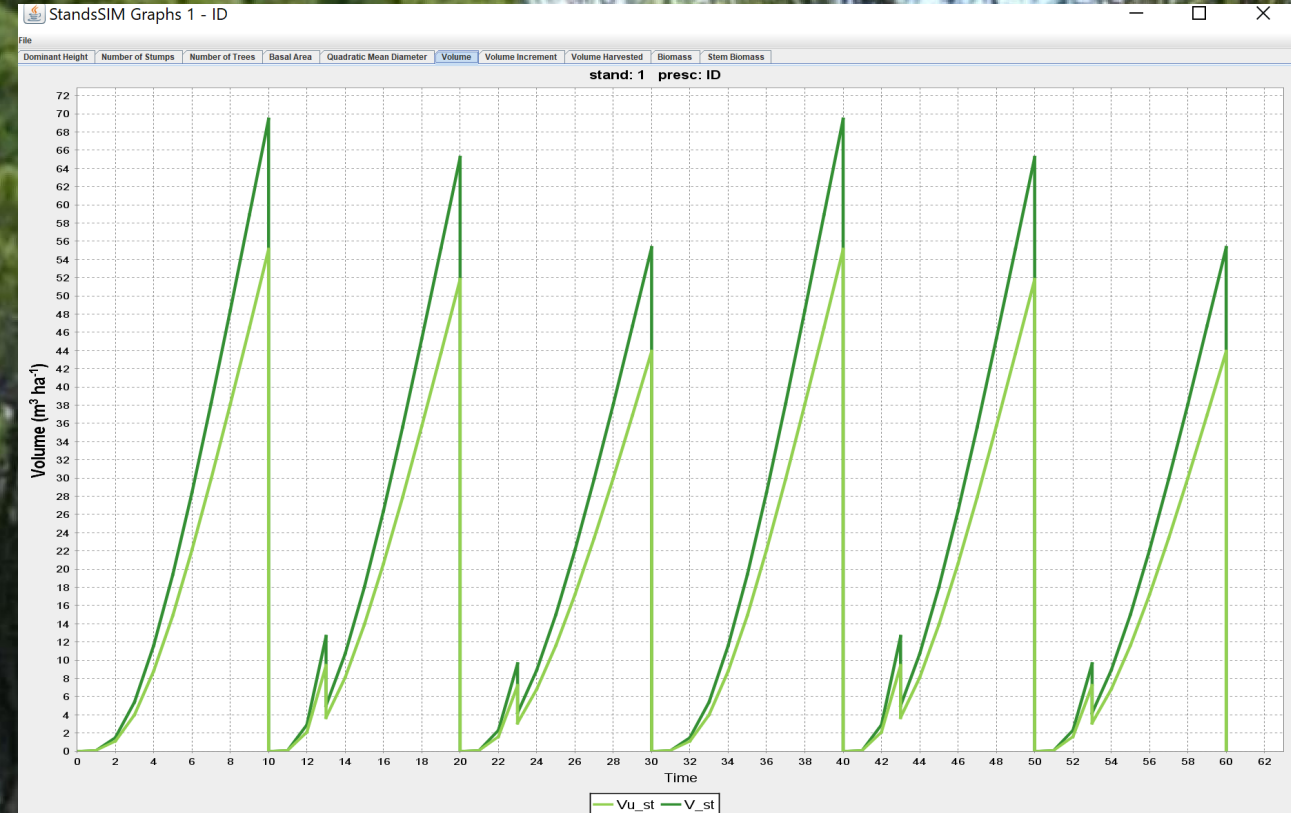
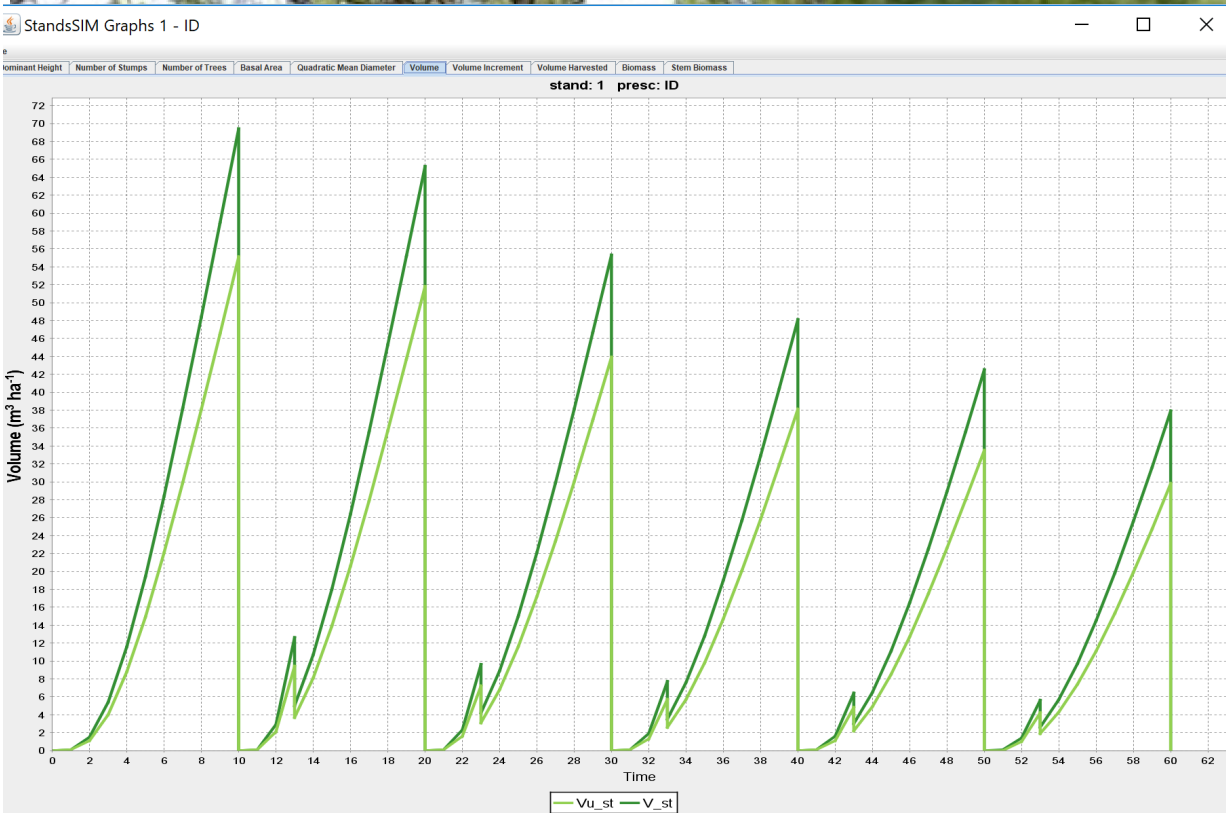
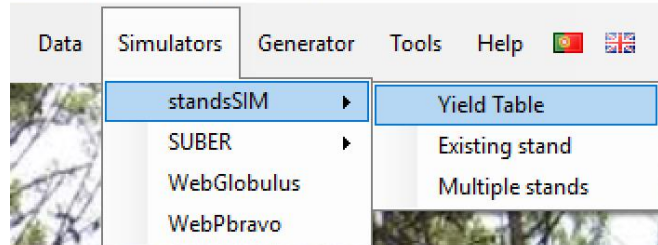
# Blue gum - Exercise 3 solution (option b)

sIMFLOR - Portuguese Forest Simulators



# Blue gum - Exercise 3 solution (options a & b)

SIMFLOR - Portuguese Forest Simulators





# Blue gum - Exercise 4 solution

simFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

standsSIM

Yield Table

SUBER

Existing stand

Stand simulator for Eucalyptus globulus

Stand simulator for Eucalyptus globulus

Yield table for Eucalyptus globulus

General Stand Site Prescription

Species: Ec Model Type: Stand Structure: Even-aged

Available Models for simulation: GLOBULUS

Planning Horizon: 30

Select file of economic data for

Operations: Operations.csv

Consumables: Consumables.csv

Assortments: Assortments\_Ec.csv

Select file of silviculture for

Uneven-aged: FMA41\_Ec\_Regular.csv

Even-aged: [empty]

Next >

General Stand Site Prescription

Topographic data

Altitud: 14

Coordinate: 0

Coordinate: 0

Clima

Type: Annual average

Climatic Station

Conche

Import

Climate data

Insert Data

Stand Variables

Plot: ID

Rotation: 1

Nst (/ha): 980

N (/ha): 980

t: 7.0

hdom (m): 12.0

G (m2/ha): 0.0

Vu (m3/ha): 0.0

Vb (m3/ha): 0.0

Vs (m3/ha): 0.0

< Back

Next >

Save

Run

General Stand Site Prescription

Import prescription file

Define prescription

ID

Number of cycles: 3

NrCycle	Sp	FMA	NyFMA	rot	tcut
3	Ec	41 - FMA41_...	10	1	10
3	Ec	41 - FMA41_...	10	2	10
3	Ec	41 - FMA41_...	10	3	10

< Back

Saved!

Run

Save

Run



# Maritime pine - Exercise 1 solution

sIMfLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

standsSIM

Yield Table

Yield table for Pinus pinaster

General Stand Site Prescription

Species: Pb Model Type: Tree

Available Models for simulation: PINASTER, PBIRROL

Planning Horizon: 50

Select file of economic data for:

Operations: Operations.csv

Consumables: Consumables.csv

Assortments: Assortments\_Pb.csv

Select file of silviculture for:

Uneven-aged: FMA41\_Pb\_025\_REGular.csv

Even-aged: [ ]

Next >

Save Run

Yield table for Pinus pinaster

General Stand Site Prescription

Topographic data

Altitud: 35

Coordinate: 0

Coordinate: 0

Site Index

SI Value (m): 18.0

Clima

Type: Annual average

Climatic Station: São Pedro de Moel

Import

Climate data

Insert Data

< Back Next >

Save Run

Yield table for Pinus pinaster

General Stand Site Prescription

Import prescription file

Define prescription

ID: [ ] Number of cycles: 1

NrCycle	Sp	FMA	NyFMA	rot	tcut
1	Pb	41 - FMA41_Pb	50	1	50

< Back

Save Run

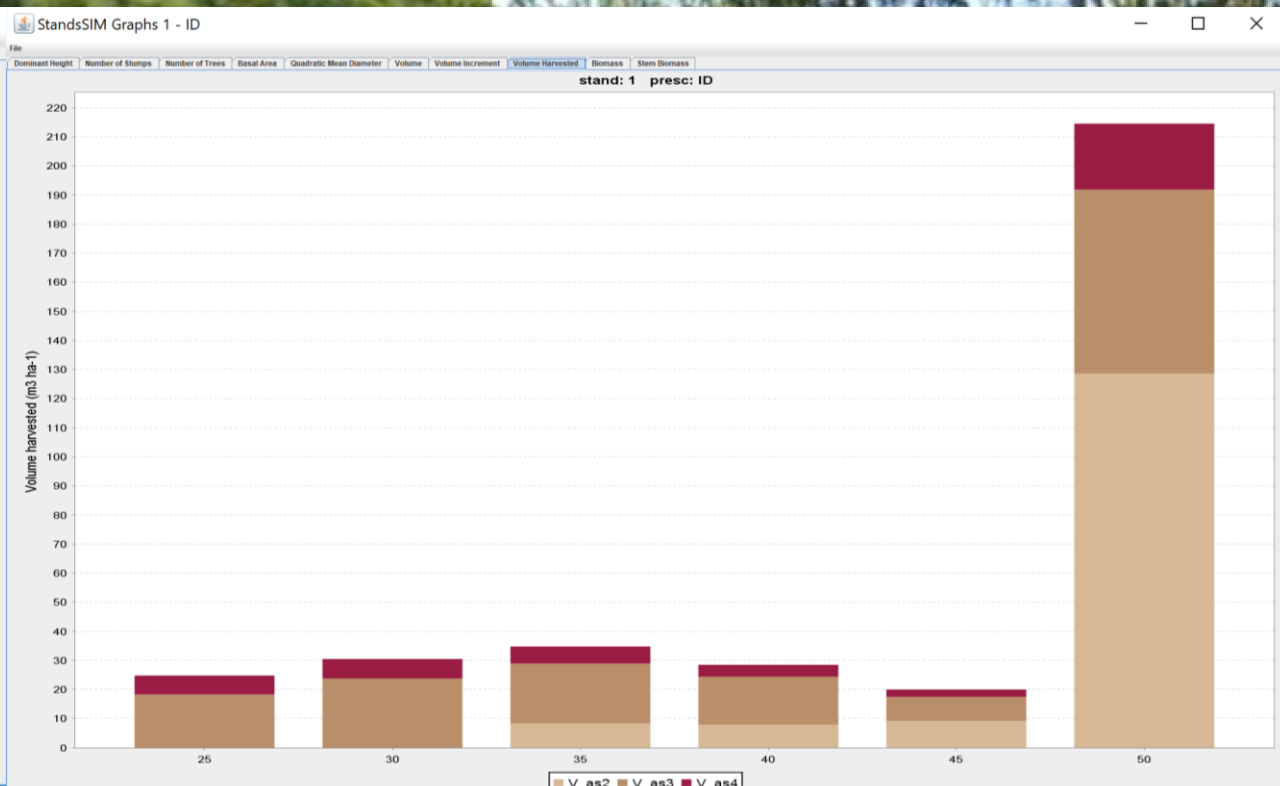
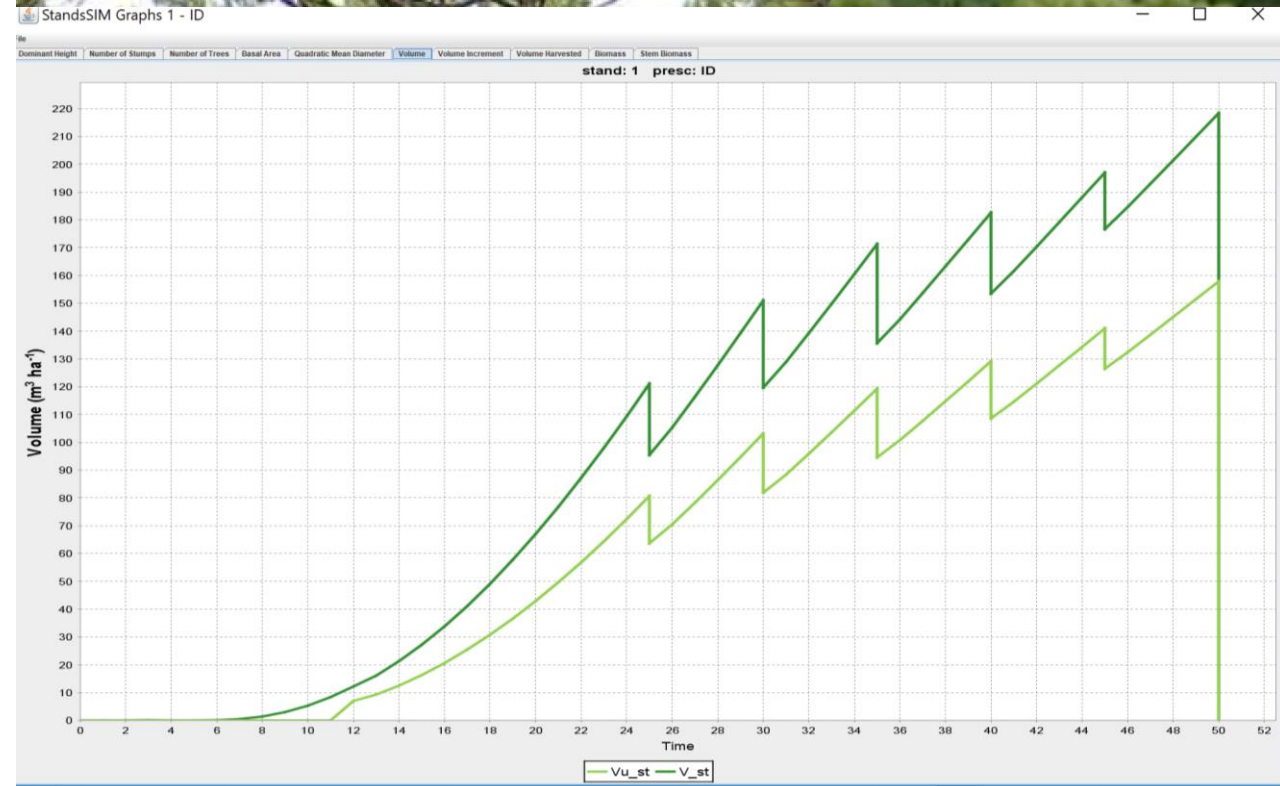
# Maritime pine - Exercise 1 solution

SIMFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus ▶ Multiple stands
- WebPbravo



# Maritime pine - Exercise1 solution

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1		4																	
2		1																	
3		80																	
4	T	Npl	Mortality	BeatUp	ShootSel	DensIncr	Striplncr	Prunn	ThType	ThGres	ThGrem	ThFv							
5		1	2500	0	0	0	0	0	0	0	0	0							
6		2	0	0	0	0	0	0	0	0	0	0							
7		3	0	0	0	0	0	0	0	0	0	0							
8		4	0	0	0	0	0	0	0	0	0	0							
9		5	0	0	0	0	0	0	0	0	0	0							
10		6	0	0	0	0	0	0	0	0	0	0							
11		7	0	0	0	0	0	0	0	0	0	0							
12		8	0	0	0	0	0	0	0	0	0	0							
13		9	0	0	0	0	0	0	0	0	0	0							
14		10	0	0	0	0	0	0	0	0	0	0							
15		11	0	0	0	0	0	0	0	0	0	0							
16		12	0	0	0	0	0	0	0	0	0	0							
17		13	0	0	0	0	0	0	0	0	0	0							
18		14	0	0	0	0	0	0	0	0	0	0							
19		15	0	0	0	0	0	0	0	1	0	0							
20		16	0	0	0	0	0	0	0	0	0	0							
21		17	0	0	0	0	0	0	0	0	0	0							
22		18	0	0	0	0	0	0	0	0	0	0							
23		19	0	0	0	0	0	0	0	0	0	0							
24		20	0	0	0	0	0	0	0	2	0	0							
25		21	0	0	0	0	0	0	0	0	0	0							
26		22	0	0	0	0	0	0	0	0	0	0							
27		23	0	0	0	0	0	0	0	0	0	0							
28		24	0	0	0	0	0	0	0	0	0	0							
29		25	0	0	0	0	0	0	0	3	0	0							
30		26	0	0	0	0	0	0	0	0	0	0							
31		27	0	0	0	0	0	0	0	0	0	0							
32		28	0	0	0	0	0	0	0	0	0	0							
33		29	0	0	0	0	0	0	0	0	0	0							

Forest Management Inputs for Maritime pine

Silviculture

Silvicultural Model

- Even-Aged Forestry (EAF)
- Uneven-Aged Forestry (UAF)
- Dendro-Biomass Production (DB)

Regeneration Type

- Seeding
- Planting
- Coppice
- Natural Regeneration

Maximum number of years for the rotation

Next >

Save



# Maritime pine - Exercise1 solution

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1		4																	
2		1																	
3		80																	
4	T	Npl	Mortality	BeatUp	ShootSel	DensIncr	Striplncr	Prunn	ThType	ThGres	ThGrem	ThFv							
5		1	2500	0	0	0	0	0	0	0	0	0							
6		2	0	0	0	0	0	0	0	0	0	0							
7		3	0	0	0	0	0	0	0	0	0	0							
8		4	0	0	0	0	0	0	0	0	0	0							
9		5	0	0	0	0	0	0	0	0	0	0							
10		6	0	0	0	0	0	0	0	0	0	0							
11		7	0	0	0	0	0	0	0	0	0	0							
12		8	0	0	0	0	0	0	0	0	0	0							
13		9	0	0	0	0	0	0	0	0	0	0							
14		10	0	0	0	0	0	0	0	0	0	0							
15		11	0	0	0	0	0	0	0	0	0	0							
16		12	0	0	0	0	0	0	0	0	0	0							
17		13	0	0	0	0	0	0	0	0	0	0							
18		14	0	0	0	0	0	0	0	0	0	0							
19		15	0	0	0	0	0	0	0	1	0	0							
20		16	0	0	0	0	0	0	0	0	0	0							
21		17	0	0	0	0	0	0	0	0	0	0							
22		18	0	0	0	0	0	0	0	0	0	0							
23		19	0	0	0	0	0	0	0	0	0	0							
24		20	0	0	0	0	0	0	2	0	0	0							
25		21	0	0	0	0	0	0	0	0	0	0							
26		22	0	0	0	0	0	0	0	0	0	0							
27		23	0	0	0	0	0	0	0	0	0	0							
28		24	0	0	0	0	0	0	0	0	0	0							
29		25	0	0	0	0	0	0	0	3	0	0							
30		26	0	0	0	0	0	0	0	0	0	0							
31		27	0	0	0	0	0	0	0	0	0	0							
32		28	0	0	0	0	0	0	0	0	0	0							
33		29	0	0	0	0	0	0	0	0	0	0							

Forest Management Inputs for Maritime pine

Silviculture

Planting

- Manual
  - Others
  - Pruning
  - Soil Mobilization
  - Plantation
    - Plantation - evergreen or deciduous trees in containers
    - Plantation - deciduous trees with bare-root
  - Beating Up
  - Density Increase
  - Fertilization
  - Seedling
  - Weed Control
  - Stripping
- Mixed
  - Pruning

Operação	11	12	13	14	15	16	17	18	19	20	21	22	23
Plantation - evergreen or deciduous tre...													
Thinning coniferous stands with more t...				X					X				

< Back      Next >

# Maritime pine - Exercise1 solution

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1		4																	
2		1																	
3		80																	
4	T	Npl	Mortality	BeatUp	ShootSel	DensIncr	Striplncr	Prunn	ThType	ThGres	ThGrem	ThFv							
5		1	2500	0	0	0	0	0	0	0	0	0							
6		2	0	0	0	0	0	0	0	0	0	0							
7		3	0	0	0	0	0	0	0	0	0	0							
8		4	0	0	0	0	0	0	0	0	0	0							
9		5	0	0	0	0	0	0	0	0	0	0							
10		6	0	0	0	0	0	0	0	0	0	0							
11		7	0	0	0	0	0	0	0	0	0	0							
12		8	0	0	0	0	0	0	0	0	0	0							
13		9	0	0	0	0	0	0	0	0	0	0							
14		10	0	0	0	0	0	0	0	0	0	0							
15		11	0	0	0	0	0	0	0	0	0	0							
16		12	0	0	0	0	0	0	0	0	0	0							
17		13	0	0	0	0	0	0	0	0	0	0							
18		14	0	0	0	0	0	0	0	0	0	0							
19		15	0	0	0	0	0	0	0	1	0	0							
20		16	0	0	0	0	0	0	0	0	0	0							
21		17	0	0	0	0	0	0	0	0	0	0							
22		18	0	0	0	0	0	0	0	0	0	0							
23		19	0	0	0	0	0	0	0	0	0	0							
24		20	0	0	0	0	0	0	0	2	0	0							
25		21	0	0	0	0	0	0	0	0	0	0							
26		22	0	0	0	0	0	0	0	0	0	0							
27		23	0	0	0	0	0	0	0	0	0	0							
28		24	0	0	0	0	0	0	0	0	0	0							
29		25	0	0	0	0	0	0	0	3	0	0							
30		26	0	0	0	0	0	0	0	0	0	0							
31		27	0	0	0	0	0	0	0	0	0	0							
32		28	0	0	0	0	0	0	0	0	0	0							
33		29	0	0	0	0	0	0	0	0	0	0							

Forest Management Inputs for Maritime pine

Silviculture

Forest Management Inputs for Maritime pine

Plan

Silviculture Operations Silviculture Details

Number of trees/ha at Planting: 2500

Max Diameter (cm) for Regeneration Cut: 90

Beating Up

Pruning

Shoot Selection

Thinning

- Basal Area Residual (m2/ha)
- Basal Area Removed (%)
- Wilson Factor
- Crown Cover (%)

Year	Intensity	Type
15	0.25	Low
20	0.26	Low

Low

Selective

Mechanical

Alegria2004

User

< Back

# Maritime pine – Exercise 2 solution

SIMFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

standsSIM

Yield Table

SUBER

Existing stand

Yield table for Pinus pinaster

General Stand Site Prescription

Species Model Type

Pb Tree

Available Models for simulation: PINASTER, PBIRROL

Planning Horizon 50

Select file of economic data for

Operations

Operations.csv

Consumables

Consumables.csv

Assortments

Assortments\_Pb.csv

Select file of silviculture for

Uneven-aged

FMA41\_Pb\_G25\_REGular.csv

Even-aged

Next >

Save

Run

Yield table for Pinus pinaster

General Stand Site Prescription

Topographic data

Altitud 35

Coordinate 0

Coordinate 0

Site Index

SI Value (m) 18.0

Clima

Type Annual average

Climatic Station

São Pedro de Moel

Import

Climate data

Insert Data

< Back

Next >

Save

Run

Yield table for Pinus pinaster

General Stand Site Prescription

Import prescription file

Define prescription

ID

Number of cycles 1

NrCycle	Sp	FMA	NyFMA	rot	tcut
1	Pb	41 - FMA41_Pb	50	1	50

< Back

Save

Run



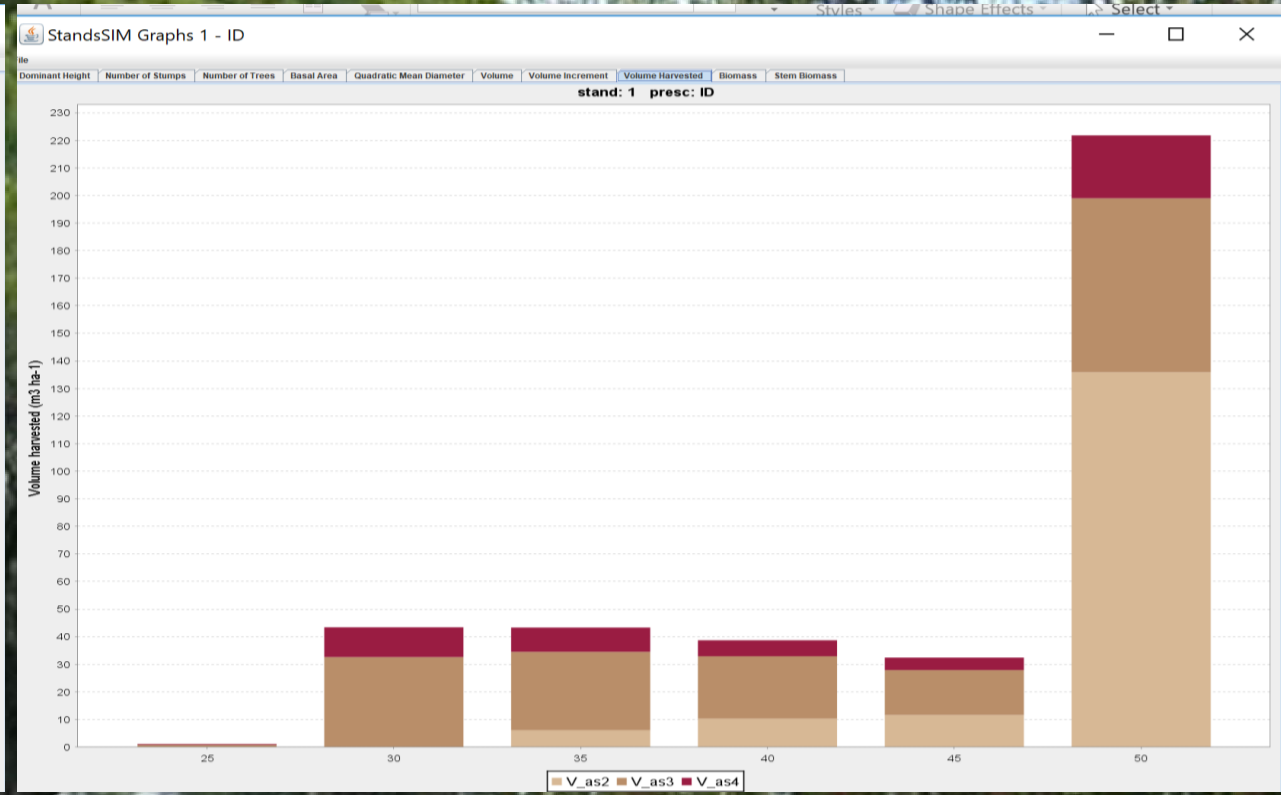
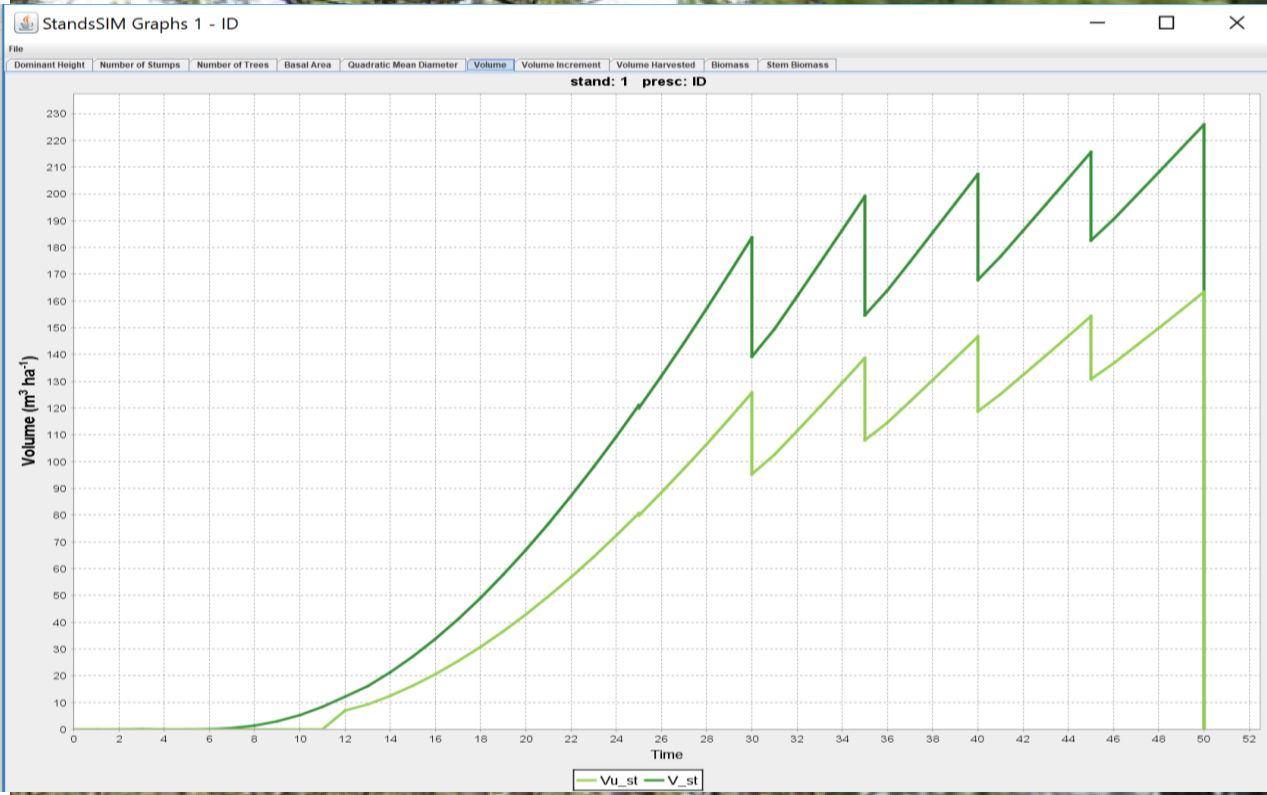
# Maritime pine – Exercise 2 solution

sIMFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobulus
- WebPbravo



# Maritime pine – Exercise 5 solution

SIMFLOR - Portuguese Forest Simulators



Data Simulators Generator Tools Help

- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand

Stand simulator for Pinus pinaster

General Stand Site Prescription

Species: Pb Model Type: Tree Structure: Uneven-aged

Available Models for simulation: PBIRROL

Planning Horizon: 70

Select file of economic data for:

- Operations: Operations.csv
- Consumables: Consumables.csv
- Assortments: Assortments\_Pb.csv

Select file of silviculture for:

- Uneven-aged: FMA31\_Pb\_Gres\_IRReg.csv, FMA41\_Pb\_025\_REGular.csv
- Even-aged: [empty]

Select file of inventory data:

- Tree data: inv\_Pb\_J\_6888\_arv.csv

Next >

Save Run

Stand simulator for Pinus pinaster

General Stand Site Prescription

Topographic data:

- Altitud: 100
- Coordinate: 0
- Coordinate: 0

Clima:

- Type: Annual average
- Climatic Station: Alcacer do Sal
- Import: Climate data
- Insert Data

Stand Variables:

- Plot: 6888
- Rotation: 1
- Area: 500
- nr trees: 10
- t: 0.0
- thinning: 0.0

< Back Next >

Save Run

Stand simulator for Pinus pinaster

General Stand Site Prescription

Import prescription file

Define prescription

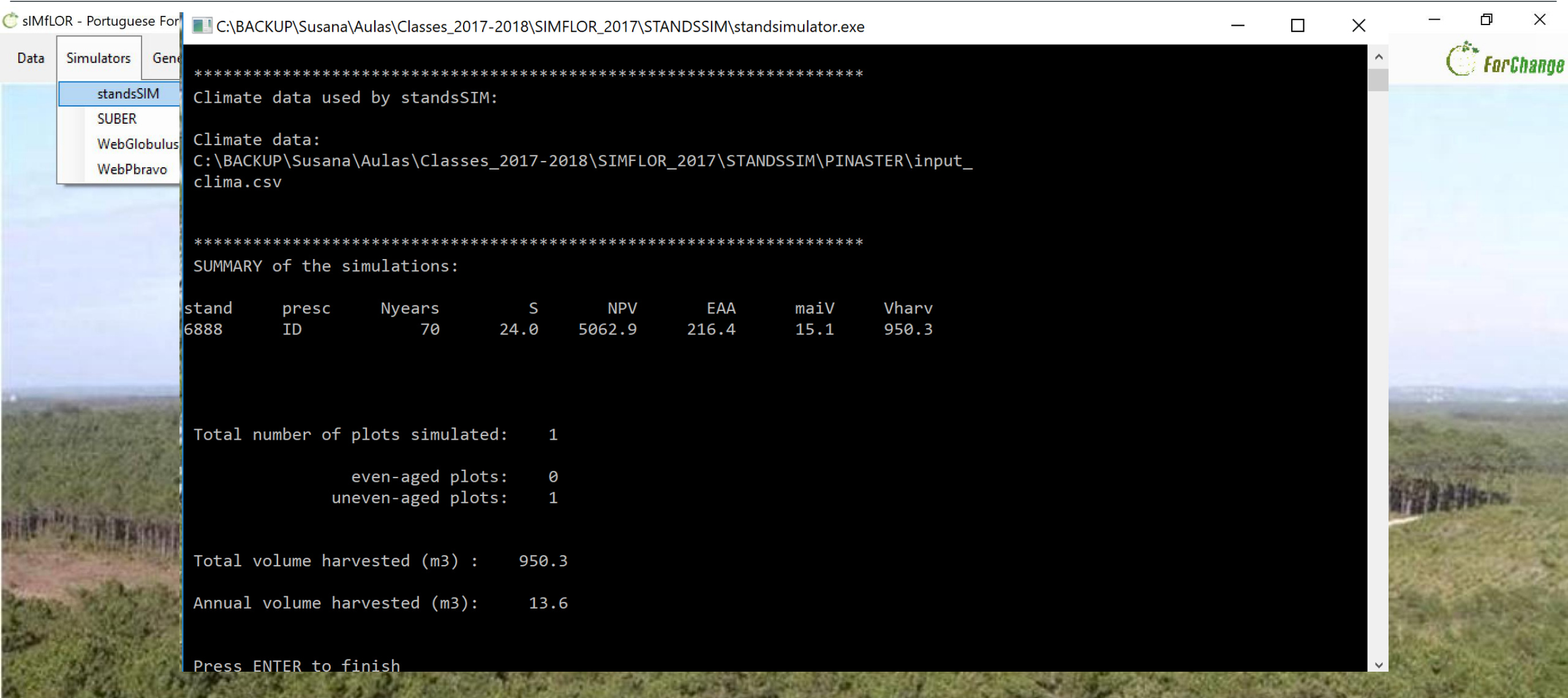
ID: [empty] Number of cycles: 2

Plot	NrCycle	Sp	FMA	NyFMA	rot	tcut
1	2	Pb	31 - FMA31_...	35	1	
2	2	Pb	41 - FMA41_...	35	1	

< Back

Save Run

# Maritime pine – Exercise 5 solution



The screenshot shows a Windows desktop with a terminal window titled "standsimulator.exe" running. The terminal displays the output of a simulation. On the left, a menu is open with "standsSIM" selected. The background of the desktop is a photograph of a forest.

Terminal Output:

```
*****  
Climate data used by standsSIM:  
  
Climate data:  
C:\BACKUP\Susana\Aulas\Classes_2017-2018\SIMFLOR_2017\STANDSSIM\PINASTER\input_  
clima.csv  
  
*****  
SUMMARY of the simulations:  
  
stand      presc      Nyears      S      NPV      EAA      maiV      Vharv  
6888      ID          70          24.0   5062.9   216.4   15.1     950.3  
  
Total number of plots simulated:      1  
      even-aged plots:      0  
      uneven-aged plots:    1  
  
Total volume harvested (m3) :      950.3  
Annual volume harvested (m3):      13.6  
  
Press ENTER to finish
```



# Maritime pine – Exercise 5 solution

SIMFLOR - Portuguese Forest Simulators

Data Simulators Generator Tools Help

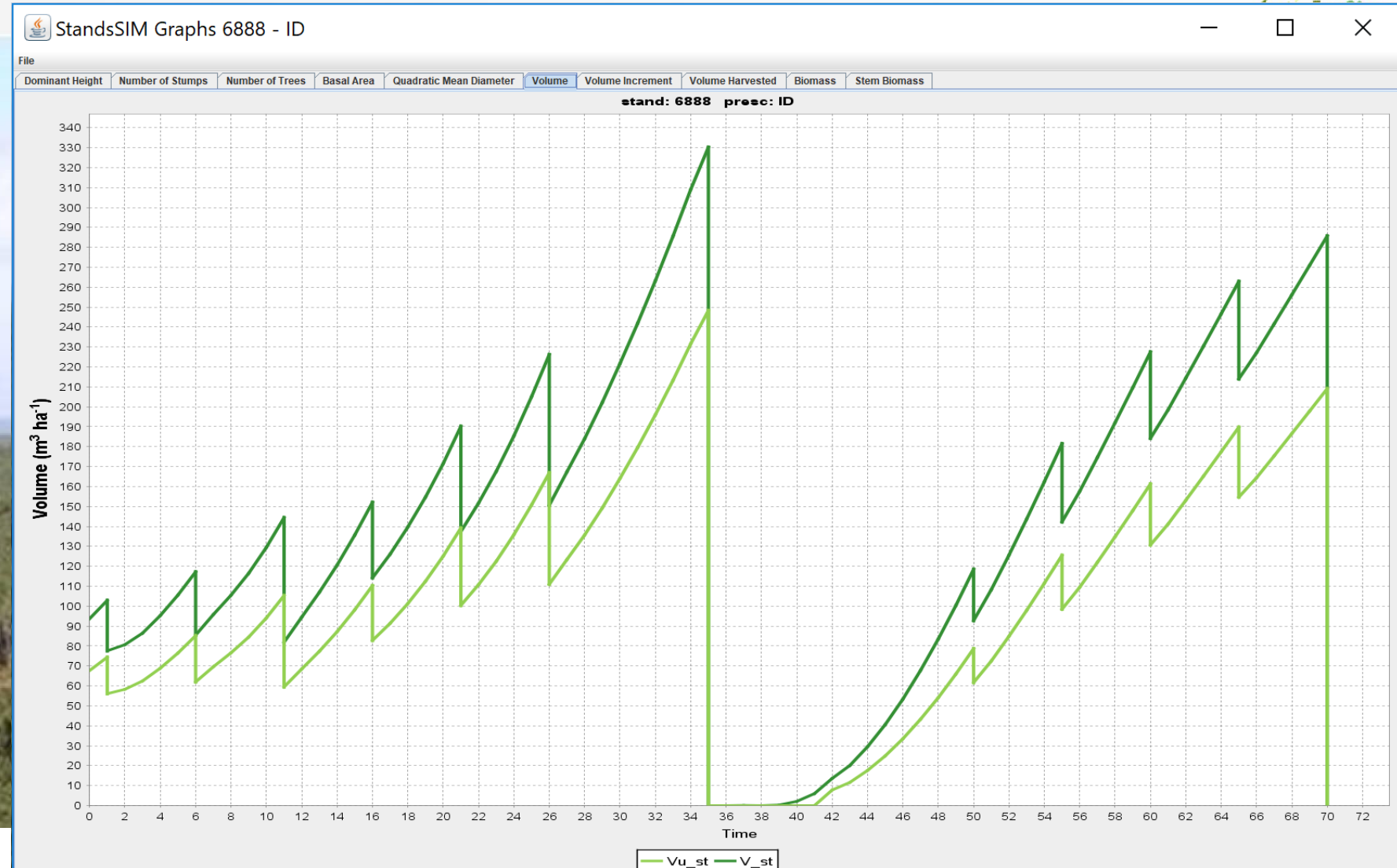
- standsSIM ▶ Yield Table
- SUBER ▶ Existing stand
- WebGlobe
- Multi...

Stand simulator for Pinus pinaster

General Stand Site Prescription Results [output](#)

ID	t	rot	hdom	dg	Nst
6888	0	1	17.9	27.5	200
6888	1	1	17.8	27.3	220
6888	1	1	17.7	27.7	160
6888	2	1	17.7	25.3	200
6888	3	1	17.9	24	240
6888	4	1	18.2	23.2	280
6888	5	1	18.6	23.4	300
6888	6	1	19.1	23.7	320
6888	6	1	18.9	21.7	280
6888	7	1	18.6	21.5	320
6888	8	1	18.7	21.9	340
6888	9	1	19	22.4	360
6888	10	1	19.4	22.9	380
6888	11	1	20	23.3	400
6888	11	1	18.7	19.6	340
6888	12	1	17.7	20	380
6888	13	1	17.8	20.8	400
6888	14	1	18	21.5	420
6888	15	1	18.3	22.2	440
6888	16	1	18.6	22.9	460

Buttons: Saved! Run Table Graphs Distribution



# Thank you!

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