

OGTreeCreator

Documentation



OGLTreeCreator: Documentation

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Introduction

It was not the goal of this tool to add a new one to the various existing tree generators, available as standalone applications or plugins. There was a need on my site for such a tool to check my own algorithms and for determining all parameters for trees when I am using this algorithms.

So I decided to write my own tool, OGLTreeCreator. This tool is intended to be used for simply creating of three dimensional models of trees. There are no random parameters used, so using same settings will lead to identical models. The export functionality (DXF, x-files(DirectX)) gives the possibility to import these models into other applications or to convert to other formats using third party tools.

Features

- simple to use
- changed settings are visible immediately within the preview
- export of the created models to DXF and DirectX (x-files)

Moving within the preview window

OGLTreeCreator gives you the possibility to look at the just created tree model from different points of view within the preview window. The following combinations of using keyboard and mouse are available:

Table 1. Moving within preview window

left mouse button + moving mouse to the left/right	turning around the model
right mouse button + moving mouse up/down	zoom
left mouse button + Shift + moving mouse up/down	moving camera position up/down
left mouse button + Control + moving mouse up/down	moving camera view up/down

Chapter 1. Menu

1.1. Menu File

Table 1.1. Menu File

New Project	Creates a new project and resets all settings. If there is a loaded and changed project a save request will appear.
Load	Loads an existing setup file. If there is a loaded and changed project a save request will appear.
Save	Save setup using current project name. Available only, if there is a project loaded.
Save as	Save setup using project name which has to be given.
Export	Export current model in DXF or DirectX format.
Quit	Exit application. If there is a loaded and changed project a save request will appear.

1.1.1. Export

Table 1.2. Menu File - Export

DXF	Export current model in dxf format. There is the possibility to select "only tree" or "tree with leafs".
DirectX	Export current model in directx x-file format. There is the possibility to select "only tree" or "tree with leafs".

1.2. Menu Creator

Table 1.3. Menu Creator

Trees	Access to tree generators
Leafs	Access to leaf generator. Only possible, if mode "Full 3D" is selected.

1.3. Menu Textures

Table 1.4. Menu Textures

Trunc/ Branches	Select a texture to use for trunc/ branches. Currently there are two textures available.
Leafs	Select a texture to use for leafs. Currently there are two textures available: two for leaves, one for needles.
Ground	Select texture to use for ground. Currently there is one for each season available.
Sky	Select background color. Currently blue and gray are available.

1.4. Menu Options

Table 1.5. Menu Options

Mode	Select mode. Mode "Line " is for setting the basics for tree model. Mode "Full 3D" is for setting the three dimensional specific parameters. Mode "Wire Frame" gives the possibility to look at the wire frame of the tree model.
Lighting	Set lighting on / off.
Reset Current Tree	Resets setting of current selected tree model. All other settings will remain unchanged (settings of leafs too).
Reset All trees	Resets settings of all tree models. Settings of leafs will remain unchanged.
Reset Leafs	Resets settings of leafs.
Reset All	Resets all settings of all tree models and leafs.

1.5. Menu Help

Table 1.6. Menu Help

About	Show "About ..." dialog.
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Chapter 2. Tree generators

2.1. General

The most important modes for creating trees are the mode "Line" and the mode "Full 3D". While switching between these modes it is possible to create these trees which mostly fit the ideas of your own.

2.2. Basic Settings

There are some parameters, which are valid for all model generators, but can be set separately. The availability of parameters depends on the currently used mode. Sliders for parameters, which are not available, are disabled.

Modus Line

In this mode you can set the basic settings for the generator you have chosen. Dependend on the current model these settings influences the whole tree or only parts of it.

Figure 2.1. Basic settings of Line Modus

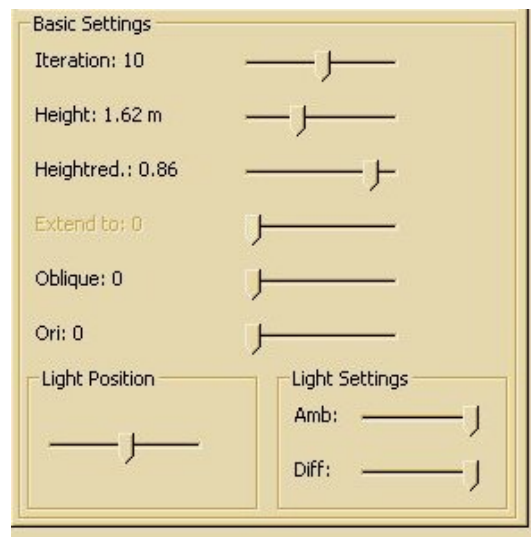
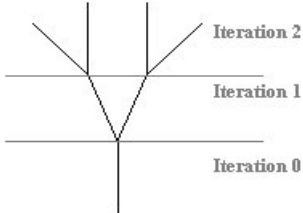
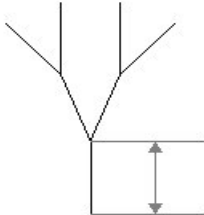
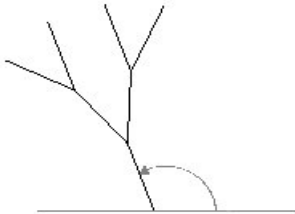
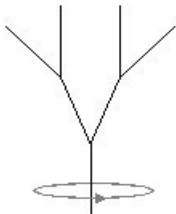


Table 2.1. Basic settings of Line Modus

Iteration	Count of iterations (Range: 0 ... 20) 
Height	Basic height of trunc (Range: 0m ... 5m) 
Heightred.	Relative reduction of height per iteration (Range: 0.0 ... 1.0)
Extend to	Up to this iteration trunc will be extended (Range: 0 ... 20); only up to value of "Iteration" is considered
Oblique	Obliquity of the trunc (Range: 0° ... 90°) 
Ori	vertical origin angle of the trunc; will be used as twist angle for each trunc extension in all tree generators except SimpleTreeCreator (Range: 0° ... 360°) 

Modus Full 3D

In this mode all these parameters are available, which affect the three dimensional appearance.

Figure 2.2. Basic settings of Full 3D Modus

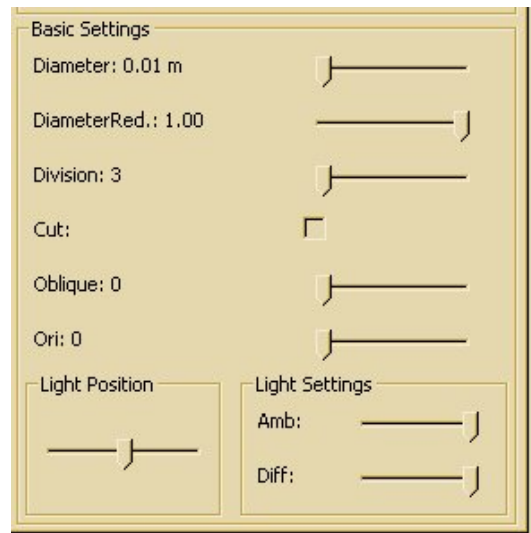
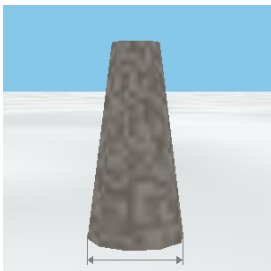





Table 2.2. Basic settings of Full 3D Modus

Diameter	starting diameter of the trunc (Range: 0.01m ... 2m) 
DiameterRed.	Relative reduction of diameter of the trunc (Range: 0.01 ... 1) 
Division	Division of outline (Range: 3 ... 20) 
Cut	Add a stump end to the trunc. 
Oblique	see Line Basic Settings
Ori	see Line Basic Settings

Light Position und Light Settings

With these parameters you are able to change settings of lighting. These settings will not be saved, because they have no influence to the model on exporting.

Table 2.3. Light Position, Light Settings

Light Position	Sets the position of the light source around the model, similar to the sun.
Light Settings	Changes the ambient and diffuse part of the light..

2.3. Generator dependend settings

2.3.1. Simple Tree Creator

This is a simple algorithm, which gives the possibility to create with a few parameters fairly good looking tree models.

Figure 2.3. Simple Tree Settings

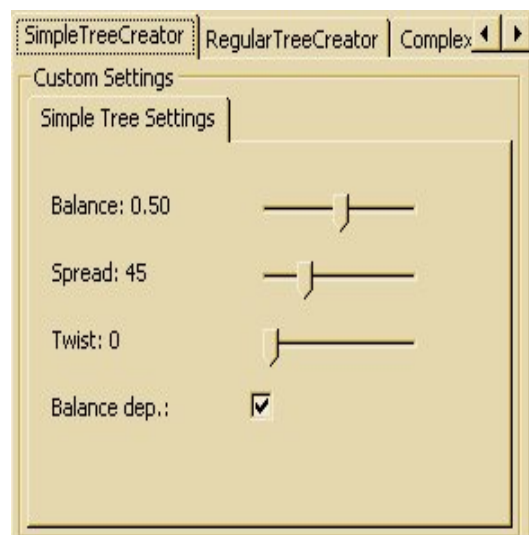


Table 2.4. Simple Tree Settings

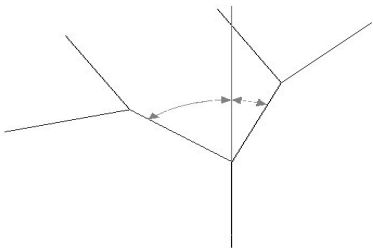
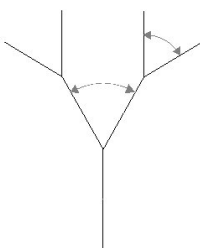
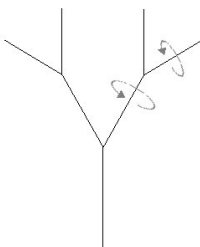
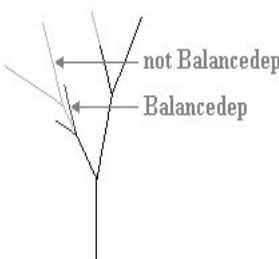
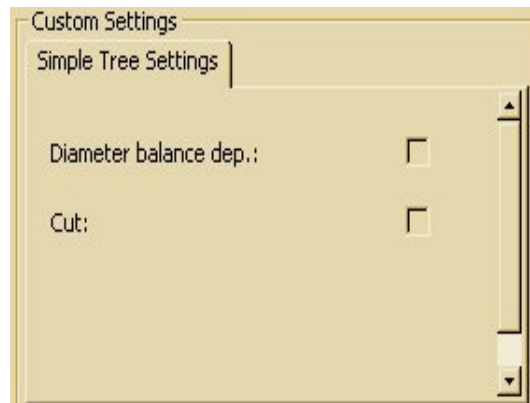


Balance	<p>Ratio of spread angle parts between left and right branch. If "Balancedep" has been chosen, this parameter influences height of branch too. (Range: 0 ... 1)</p> 
Spread	<p>Spread angle between branches (Range: 0° ... 180°)</p> 
Twist	<p>Twist angle of branches (Range: 0° ... 180°)</p> 
Balancedep.	<p>This parameter decides, if height of branches is balance dependent or not.</p> 

Figure 2.4. Simple Tree Settings (Full 3D Modus)**Table 2.5. Simple Tree Settings (Full 3D Modus)**

Diameter balance dep.	<p>Diameter of branches will be changed dependend on parameter "Balance".</p> 
Cut	<p>Adds a stump end to each branch.</p> 

2.3.2. Regular Tree Creator

This algorithm gives the possibility for individual settings for up to 20 branches. This gives more control to the appearance of the tree.

Figure 2.5. Regular Tree Settings (Line Modus)

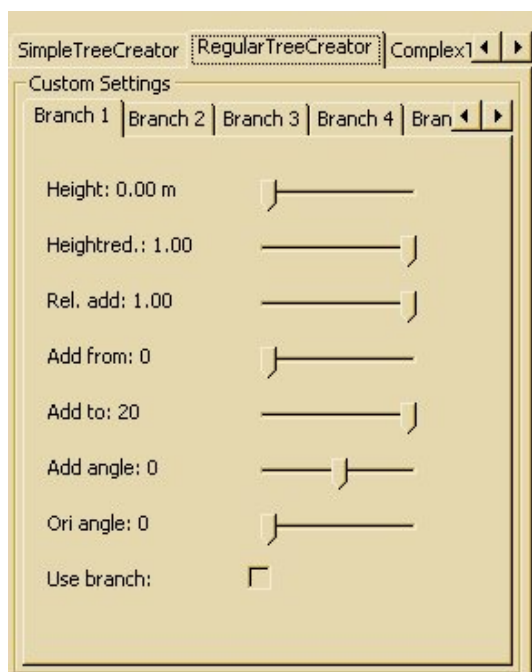
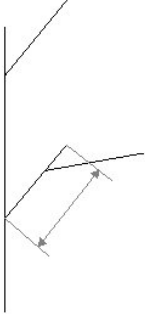


Table 2.6. Regular Tree Settings (Line Modus)

Height	Length of the branch. (Range: 0m ... 5m) 
Heightred.	Relative value of branch reduction per iteration. (Range: 0.0 ... 1.0)
Rel. add	Relative value for adding branch to the previous branch. (Range: 0.0 ... 1.0)

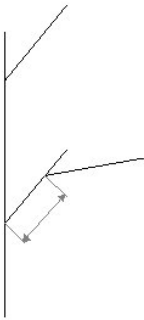
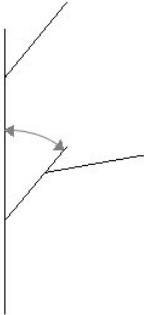
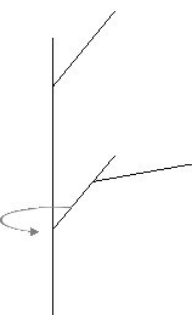
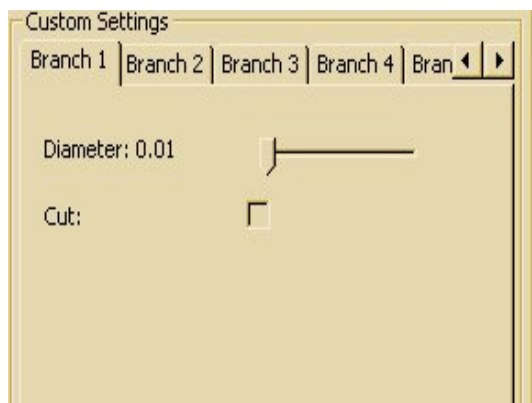


	
Add from	Determines the iteration, from which the branch will be added. (Range: 0 ... 20)
Add to	Determines the iteration, up to which the branch will be added. (Range: 0 ... 20)
Add angle	Vertical angle used for adding branch. (Range: -180° ... 180°) 
Ori angle	Horizontal angle used for adding branch. (Range: 0° ... 360°) 
Use branch	Determines, if branch is used.

Figure 2.6. Regular Tree Settings (Full 3D Modus)**Table 2.7. Regular Tree Settings (Full 3D Modus)**

Diameter.	<p>Diameter of branch (disabled, if branch is not in use).</p> 
Cut	<p>Adds a stump end to the branch, if parameter "Add to" \leq parameter "Iteration" (disabled, if branch is not in use).</p> 

2.3.3. Complex Tree Creator

This algorithm gives the possibility for individual settings for up to 20 branches too, but you have more individual parameters per branch.

Figure 2.7. Complex Tree Settings (Line Modus)

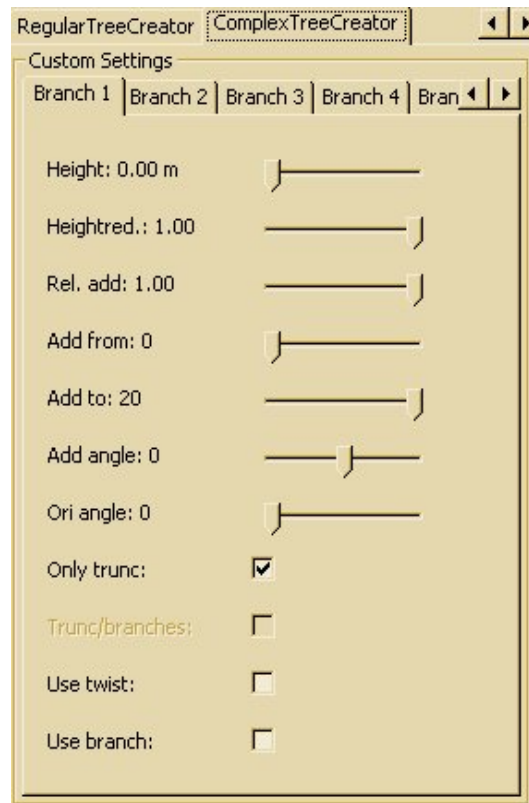
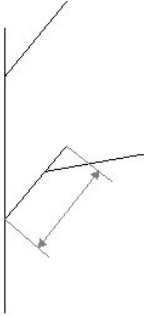


Table 2.8. Complex Tree Settings (Line Modus)

Height	Length of branch. (Range: 0m ... 5m) 
Heightred.	Relative value of branch reduction per iteration. (Range: 0.0 ... 1.0)
Rel. add	Relative value for adding branch to the previous branch. (Range: 0.0 ... 1.0)

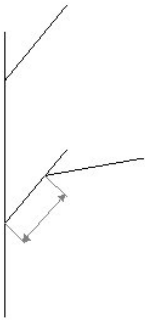
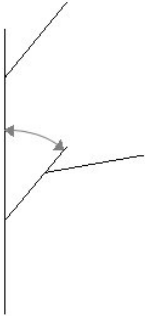
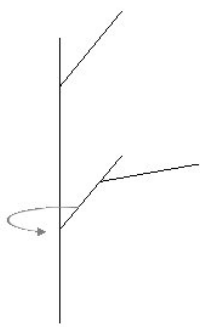
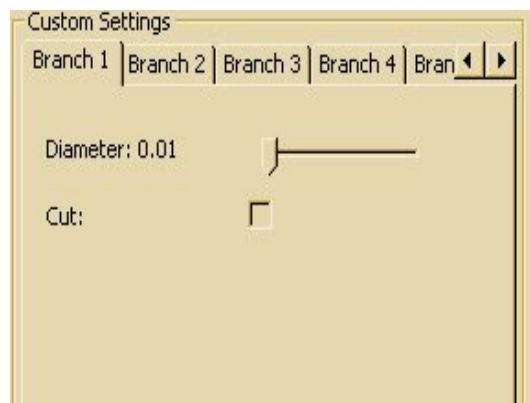


	
Add from	Determines the iteration, from which the branch will be added. (Range: 0 ... 20)
Add to	Determines the iteration, up to which the branch will be added. (Range: 0 ... 20)
Add angle	Vertical angle used for adding branch. (Range: -180° ... 180°) 
Ori angle	Horizontal angle used for adding branch. (Range: 0° ... 360°) 
Only trunc	This branch will be added only to the trunc (and each trunc extension).
Trunc / branches	This branch will be added to the trunc (and each trunc extension) and each branch.
Twist	Use twist for branch (Ori angle of branch is used as twist angle).
Use branch	Determines, if branch is used.

Figure 2.8. Complex Tree Settings (Full 3D Modus)**Table 2.9. Complex Tree Settings (Full 3D Modus)**

Diameter.	Diameter of branch (disabled if branch is not in use). 
Cut	Adds a stump end to the branch, if parameter "Add to" <= parameter "Iteration" (disabled, if branch is not in use). 

Chapter 3. Leaf Creator

3.1. General

The leaf generator gives the possibility to add leaves to an existing tree model. Up to 20 leaves with different settings are possible.

You have access to the leaf creator only in mode "Full 3D". Changes of settings are visible immediately and can be corrected, if they do not fit your association.

3.2. Settings

Figure 3.1. Settings of leaf generator

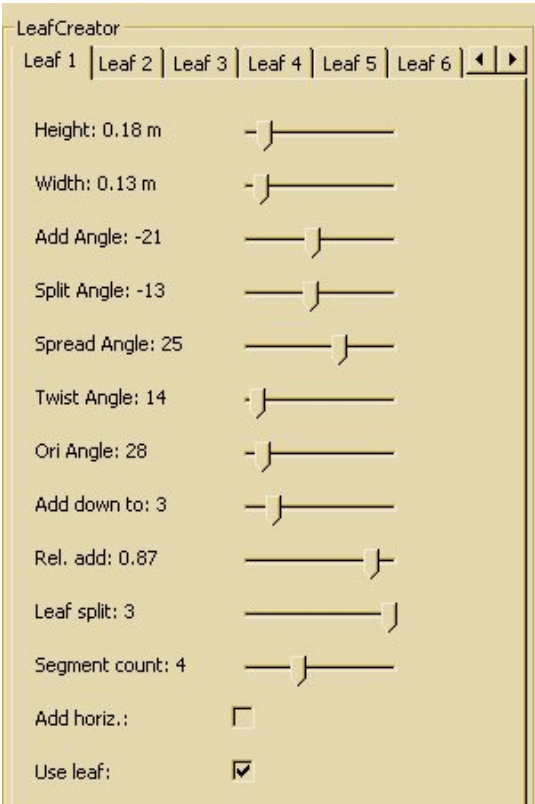
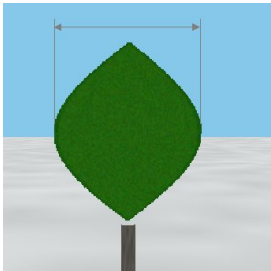
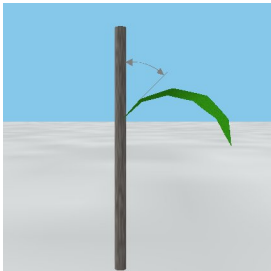
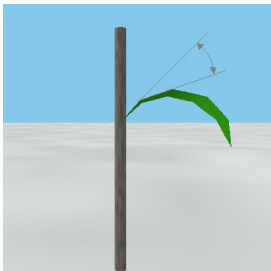
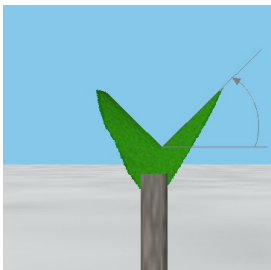
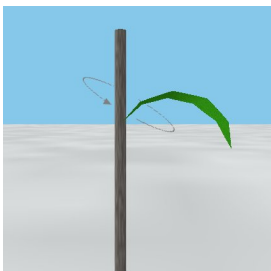
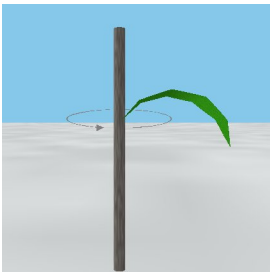
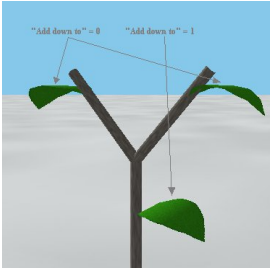
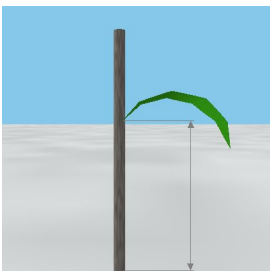
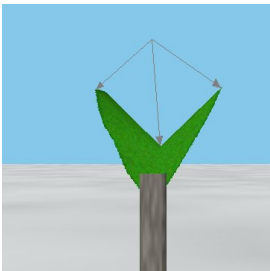
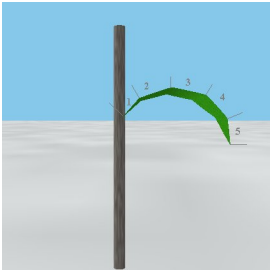
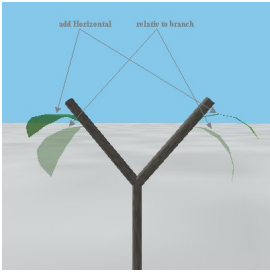


Table 3.1. Settings of leaf generator

Height	<div>Lenght of leaf. If set to "0", leaf has the same length as the branch on which it will be added. (Range: 0m ... 2m)</div> <div></div>
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Width	<p>Width of leaf. If set to "0", leaf has the same width as the branch on which it will be added. (Range: 0m ... 2m)</p> 
Add Angle	<p>Angle used for adding leaf to the branch. (Range: -180° ... 180°)</p> 
Split Angle	<p>Angle used for adding leaf segments > 1. (Range: -90° ... 90°)</p> 
Spread Angle	<p>Angle of both half the leaf related to horizon (only considered, if "Leaf Split" = 3) (Range: -90° ... 90°)</p> 
Twist Angle	<p>Angle for turning leaf around itself (vertical axis). (Range: 0° ... 360°)</p> 
Ori Angle	<p>Angle for turning leaf around the branch. (Range: 0° ... 360°)</p>

	
Add down to	<p>Determines, down to which iteration leaves will be added. If "Add down to" > "Iteration", leaves are added only down to trunc.</p> 
Rel. add	<p>Relative value for adding leaves to the branch. (Bereich: 0 ... 1)</p> 
Leaf split	<p>Count of corners over width. (Value: 2 oder 3)</p> 
Segment count	<p>Count of segments over length. (Range: 1 ... 10)</p> 
Add horiz.	<p>Determines, if "Add angle" has to be considered to branch or horizon.</p>

	
Use leaf	Determines, if leaf is used.