

Help Document for First Order Fire Effects Model (FOFEM) Web v.1.0

**For more information read the FOFEM user guide available here:
<http://www.treesearch.fs.fed.us/pubs/25257>**

Note about viewing reports and graphs: When you are done viewing a report or graph click the button at the bottom of the screen that says "Return to...". This will keep your simulation selections from being erased.

Note about data entry errors: If there is an error on the data entry page (usually a required field left blank) an error screen will appear stating "You have one or more errors..." and the field with the error will have a small red exclamation point next to it.

CONSUMPTION-EMISSIONS-SOIL PAGE

Project Name

Not functional in this Web version of FOFEM

Region

Select a geographic region. Only the cover types found in the selected region will then show in the Cover Type dropdown list.

Cover Type Class

You may use Society of American Foresters/ Society of Range Management (SAF/SRM) cover types, National Vegetation Classification System cover types (NVCS), or Fuel Characteristic Classes (FCCs) to describe your cover type.

Cover Type

Select a Cover Type. Each cover type has default fuel loads associated with it. These defaults are placed in the Fuel Load fields, but you can change them.

Fuel Type

Select natural fuels, piled fuels, or slash fuels. Your selection may alter the default fuel loadings or the consumption algorithms.

Season

Season of burn. This will not affect fuel loadings but may affect consumption.

Soil

Select a soil type. Used only when the Soil Heating report is specified.

'Fine-Silty' by weight, < 15% of the particles are fine sand (diameter 0.25-0.1 mm) or coarser, including fragments up to 7.5 cm in diameter; 18 - 34% clay in the fine-earth fraction.

'Fine' a clayey particle-size class that has 35 - 59% clay in the fine-earth fraction.

'Coarse-Silty' by weight, < 15% of the particles are fine sand (diameter 0.25-0.1 mm) or coarser, including fragments up to 7.5 cm in diameter; < 18% clay in the fine-earth fraction.

'Coarse-Loamy' by weight, 15% or more of the particles are fine sand (diameter 0.25-0.1 mm) or coarser, including fragments up to 7.5 cm in diameter; < 18% clay in the fine-earth fraction.

'Loamy-Skeletal' rock fragments make up 35% or more by volume; enough fine earth to fill interstices larger than 1 mm; the fraction finer than 2 mm is loamy as defined for the loamy particle-size class.

Fuel Load Windows

Amounts shown in the windows are the fuel loadings used to calculate Consumption, Emissions and Soil Heating.

You can use the default loading amounts for the selected Cover Type or you can enter your own amounts.

These loadings may change if you change the selection in the Fuel Type field.

Rotten Log

This is the percent of 3"+ wood that is considered to be rotten.

Log Loading Distribution

Select how the large (3"+) down woody fuel gets distributed across diameter classes.

Classes: 3"->6", 6"->9", 9"->20" and over 20"
 'Right' largest amount of fuel in 20"+
 'Left' largest amount of fuel in 3"->6"
 'Even' equal amounts of fuel in each size class
 'End' largest amount of fuel in 3"->6" & 20"+
 'Center' largest amount of fuel in 3"->9" & 9"->20"

Crown Burned

Select percent crown burned. Used only in the Emissions report to estimate emissions from burned crown components. Range is 0 (no crown fire) to 100% for a continuous crown fire. For fires with some torching select an intermediate value.

Duff Depth

Duff Depth is a default setting for the selected Cover Type, but you can change it.

Moisture (%) Condition Radio Buttons

The selection you make will determine the default moisture contents for Duff, 10-hr, Logs and Soil. The defaults can be modified by the user.

Duff

Moisture content for 0.25"-1.0" class of woody material used in simulation.

Duff Assessment

Are you using:

1. estimated or measured content of the **entire** duff profile
2. estimated or measured content of the **lower** duff layer
3. the **NFDR 1000** hour moisture code
4. the **adjusted NFDR 1000** hour moisture code?

For more information on these choices use FOFEM help.

10-hr

Moisture content for 0.25"-1.0" class of woody material used in simulation.

Logs

Moisture content for 3"+ class of woody material used in simulation.

Soil

Moisture content soil used in simulation. Only used when the Soil Heating report is specified. NOTE: Soil Moisture Content is a "percent of mass", thus its upper limit is set much lower than limits for duff and wood moisture.

Consumption Radio Button

Select this Radio Button to create a fuel consumption report or graph.

Emissions Radio Button

Select this Radio Button to create a smoke emission report or graph.

Soil Heating Radio Button

Select this Radio Button to create a soil heating report or graph.

Full Report Radio Button

View selected report in Full format.

Summary Report Radio button

Not enabled in this version. (Currently gives you the same report as Full)

Create Report Button

Click to view the text report. The report can be copied into documents.

Create Graph Button

Click to view the graphical report. The graph can be copied into documents.

MORTALITY PAGE

Project Name

Not functional in this Web version of FOFEM

Flame Height Radio Button

Select this if using Flame Height to predict mortality.

Scorch Height Radio Button

Select this if using Scorch Height to predict mortality.

Flame Length - Scorch Height

Enter a value for either flame length or scorch height. This value will be used for calculating tree mortality. FOFEM does not predict fire behavior. You can estimate expected flame length or scorch height using a program like BEHAVE or NEXUS.

Region

Select a geographic region.

Moisture Regime

Should be labeled **Fire Severity**. Select the desired fire severity. Used only in determining Aspen mortality.

Species Window

Used to populate species in the tree list. Highlight the desired species then Click the **Add Species** button.

Tree List Window

For each species enter Density (Trees per Acre), DBH, Height, Crown ratio. Note: The range for Crown Ratio is 1 - 10.

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