Model and Pathway Test Report

Module: FBSDK Downloads, July 2011
Pathway(s): Predict crown scorch height (IFT-scorch)
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Test Period: March 2012

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General Testing Procedures

All models implemented in IFTDSS undergo two types of testing:

- **Scientific testing** to ensure that the outputs produced by the model are consistent with a range of expected values generated by the native desktop software application and/or provided by the scientific model developer(s). These tests include comparisons for a range of predefined scenarios developed to exercise different parts of the model.
- **Software testing** to ensure that the model is functioning from a usability perspective, accepting inputs, and producing outputs without generating software error reports. These automatic tests also ensure that as updates are made to the models or modeling framework, each model produces correct data values.

This document describes Sonoma Technology, Inc.'s test cases.

Scientific Testing

Predict Crown Scorch Height Test Case

This test case compared the Predict Crown Scorch Height model in IFTDSS (IFT-scorch) to the desktop version of BehavePlus 5.0.5 using three simulations to test for data ranges commonly observed by users and to allow the comparison of a variety of results. The output parameter Scorch Height was compared.

Inputs and Results File Name

- Predict crown scorch height test case results (included in the IFTDSS online help under **IFTDSS Compared with Other Systems > Module Test Cases**)
- Predict crown scorch height test case summary (Appendix)

Passed/Fail: Passed

Issues: None identified

References

Documentation of BehavePlus operation and application:
http://www.firemodels.org/index.php/national-systems/behaveplus

Appendix: Scientific Test Case for the IFTDSS Predict Crown Scorch Height Model as Implemented in BehavePlus

Summary of Findings

The Predict Crown Scorch Height model as implemented in IFTDSS is a scientifically sound representation of the desktop version of BehavePlus 5.0.5. In this test case, the output values from IFTDSS and desktop BehavePlus matched with negligible rounding/truncating differences.

Methods

Predict Crown Scorch Height Test Case

This test case compared the Predict Crown Scorch Height model in IFTDSS to the desktop version of BehavePlus 5.0.5 using three simulations (Table 1) to test for data ranges commonly observed by users and allow the comparison of a variety of results.

Table 1. Input data used for the Predict Crown Scorch Height model test case.

Input Parameter	Unit	Simulation 1	Simulation 2	Simulation 3
Midflame Wind Speed	miles/hour	5	20	35
Air Temperature	Fahrenheit	70	80	90
Flame Length	ft	5	15	25

Results

Predict Crown Scorch Height Test Case

Results from the Predict Crown Scorch Height model implemented in IFTDSS and desktop BehavePlus for the three simulations tested matched with negligible rounding/truncating differences (Table 2).

Table 2. Results from the Predict Crown Scorch Height model comparison.

Output Parameter	Unit	Simulation 1		Simulation 2		Simulation 3	
		IFTDSS	Behave Plus	IFTDSS	Behave Plus	IFTDSS	Behave Plus
Scorch Height	ft	22.86	23	76.31	76	151.34	151