BehavePlus 2.0.2 **Prepared By**

Modules: SURFACE

Description		Fuel Model 1 Backing Fire
Fuel/Vegetation		
Fuel Model		1
Fuel Moisture		
1-h Moisture	%	5, 6, 7, 8, 9, 10, 11
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
Midflame Wind Speed	mi/h	3.0, 5.0, 7.0, 9.0, 11.0,
Direction of Wind Vector (from upslope)	deg	0
Terrain		
Slope Steepness	%	1
Fire		
Spread Direction (from upslope)	deg	180
Elapsed Time	h	.5

Run Options

Calculations are for the specified spread directions.
Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

Output Variables

Rate of Spread (ch/h)
Heat per Unit Area (Btu/ft2)
Fireline Intensity (Btu/ft/s)
Flame Length (ft)
Direction of Maximum Spread (from upslope) (deg)
Spread Distance (ch)

Fuel Model 1 Backing Fire
Rate of Spread (ch/h)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	3.7	5.5	6.9	7.9	7.9	7.9	7.9
6	3.5	5.2	6.5	7.4	7.4	7.4	7.4
7	3.3	4.9	6.2	6.8	6.8	6.8	6.8
8	3.0	4.5	5.6	6.1	6.1	6.1	6.1
9	2.6	3.8	4.8	4.8	4.8	4.8	4.8
10	2.0	2.9	3.2	3.2	3.2	3.2	3.2
11	1.1	1.2	1.2	1.2	1.2	1.2	1.2

Fuel Model 1 Backing Fire
Heat per Unit Area (Btu/ft2)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	92	92	92	92	92	92	92
6	91	91	91	91	91	91	91
7	88	88	88	88	88	88	88
8	84	84	84	84	84	84	84
9	75	75	75	75	75	75	75
10	59	59	59	59	59	59	59
11	35	35	35	35	35	35	35

Fuel Model 1 Backing Fire

Fireline Intensity (Btu/ft/s)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	6	9	12	13	13	13	13
6	6	9	11	12	12	12	12
7	5	8	10	11	11	11	11
8	5	7	9	9	9	9	9
9	4	5	7	7	7	7	7
10	2	3	3	3	3	3	3
11	1	1	1	1	1	1	1

Fuel Model 1 Backing Fire

Flame Length (ft)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	1.0	1.3	1.4	1.5	1.5	1.5	1.5
6	1.0	1.2	1.3	1.4	1.4	1.4	1.4
7	1.0	1.2	1.3	1.4	1.4	1.4	1.4
8	0.9	1.1	1.2	1.3	1.3	1.3	1.3
9	0.8	1.0	1.1	1.1	1.1	1.1	1.1
10	0.6	0.8	0.8	0.8	0.8	0.8	0.8
11	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Fuel Model 1 Backing Fire
Spread Distance (ch)

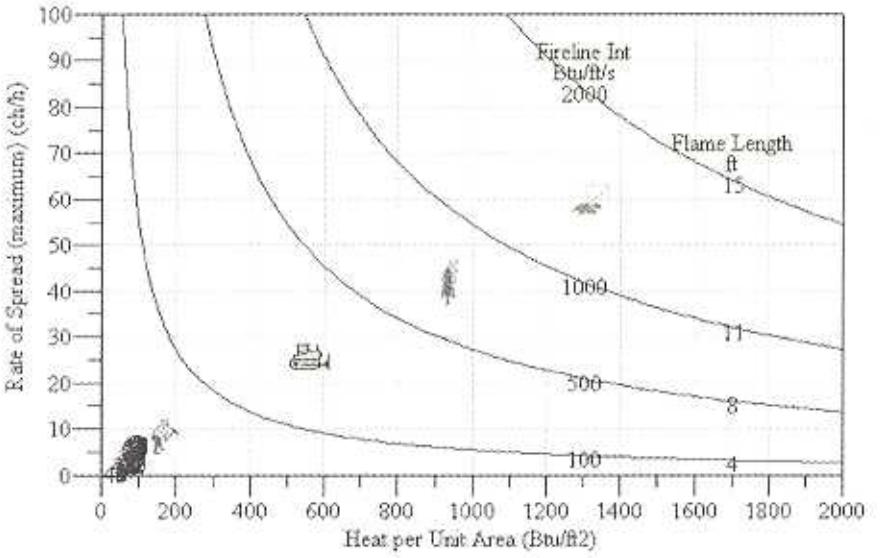
1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	1.8	2.7	3.5	3.9	3.9	3.9	3.9
6	1.7	2.6	3.3	3.7	3.7	3.7	3.7
7	1.6	2.4	3.1	3.4	3.4	3.4	3.4
8	1.5	2.2	2.8	3.0	3.0	3.0	3.0
9	1.3	1.9	2.4	2.4	2.4	2.4	2.4
10	1.0	1.5	1.6	1.6	1.6	1.6	1.6
11	0.6	0.6	0.6	0.6	0.6	0.6	0.6

Fuel Model 1 Backing Fire
Maximum Wind Exceeded?

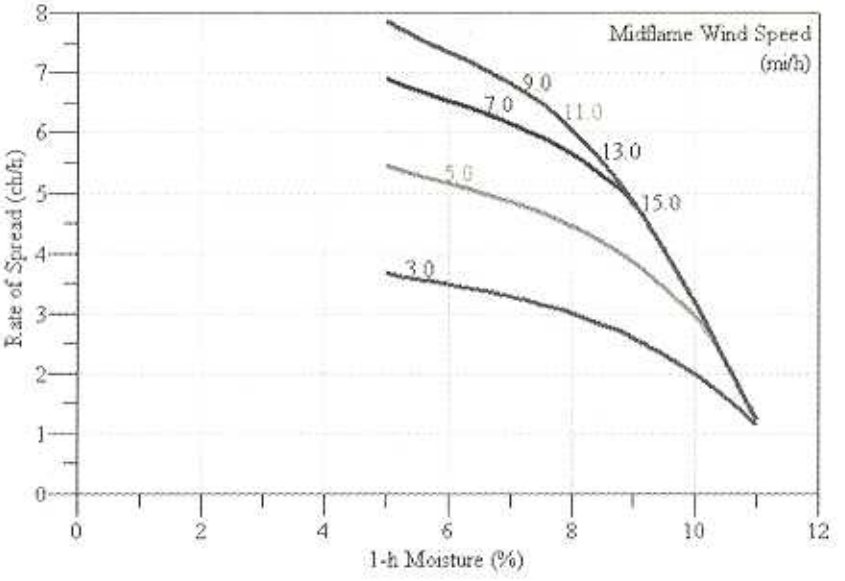
1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	No	No	No	Yes	Yes	Yes	Yes
6	No	No	No	Yes	Yes	Yes	Yes
7	No	No	No	Yes	Yes	Yes	Yes
8	No	No	No	Yes	Yes	Yes	Yes
9	No	No	Yes	Yes	Yes	Yes	Yes
10	No	No	Yes	Yes	Yes	Yes	Yes
11	No	Yes	Yes	Yes	Yes	Yes	Yes

Fuel Model 1 Backing Fire

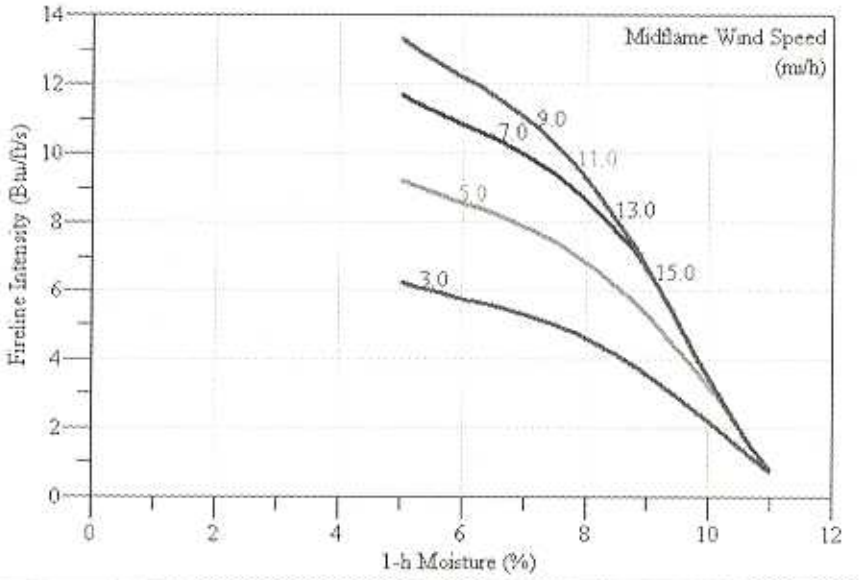
Fire Characteristics Chart



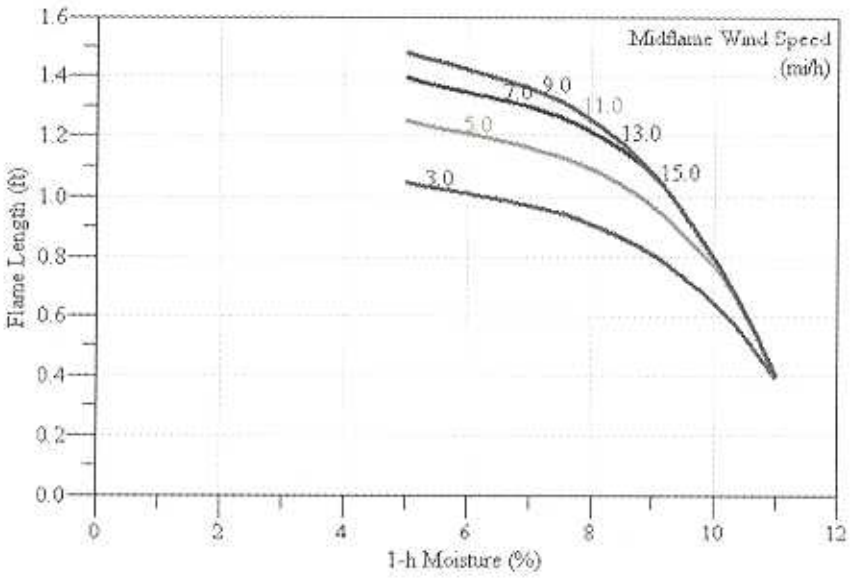
Fuel Model 1 Backing Fire



Fuel Model 1 Backing Fire

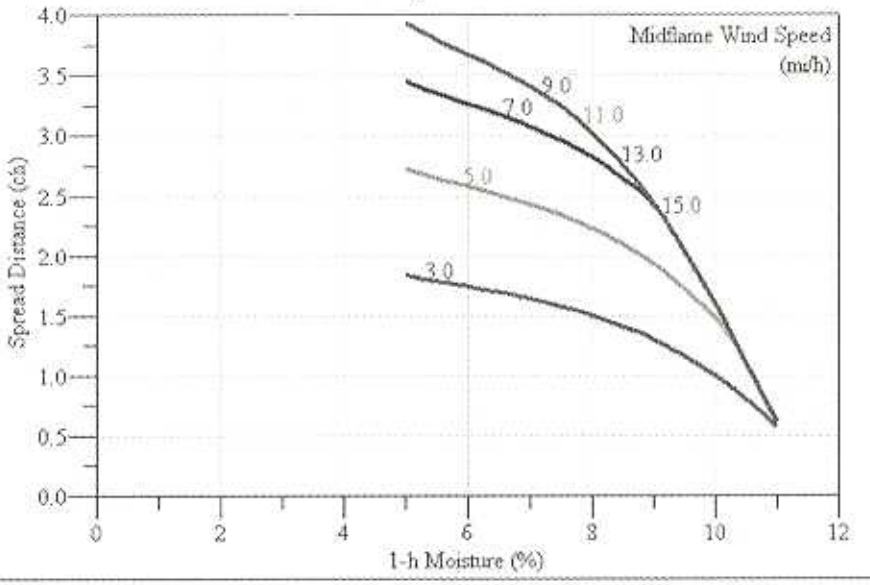


Fuel Model 1 Backing Fire

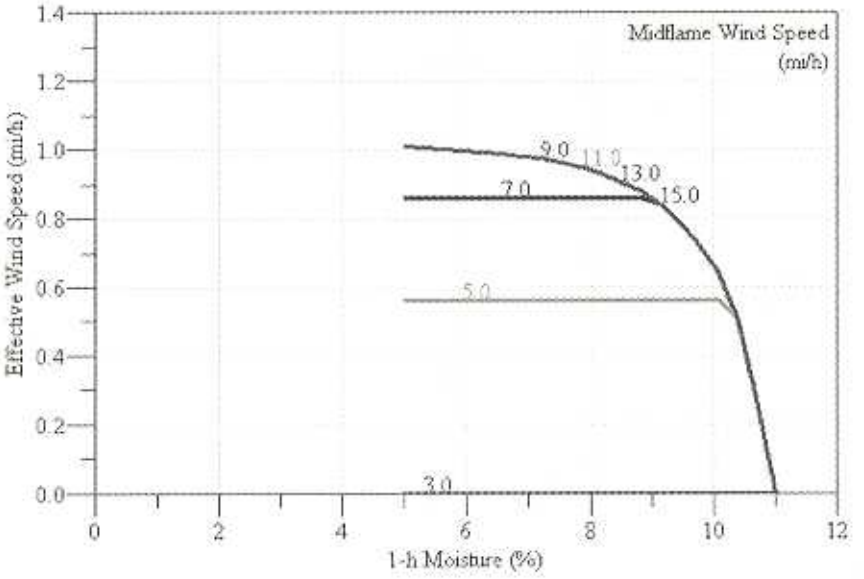


Fuel Model 1 Backing Fire

5 hr elapsed time



Fuel Model 1 Backing Fire



Modules: SURFACE

Description		Fuel Model 1 Flanking Fire
Fuel/Vegetation		
Fuel Model		1
Fuel Moisture		
1-h Moisture	%	5, 6, 7, 8, 9, 10, 11
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
Midflame Wind Speed	mi/h	3.0, 5.0, 7.0, 9.0, 11.0,
Direction of Wind Vector (from upslope)	deg	0
Terrain		
Slope Steepness	%	1
Fire		
Spread Direction (from upslope)	deg	90
Elapsed Time	h	.5

Run Options

Calculations are for the specified spread directions.
Fireline intensity, flame length, and spread distance are always
for the direction of the spread calculations
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

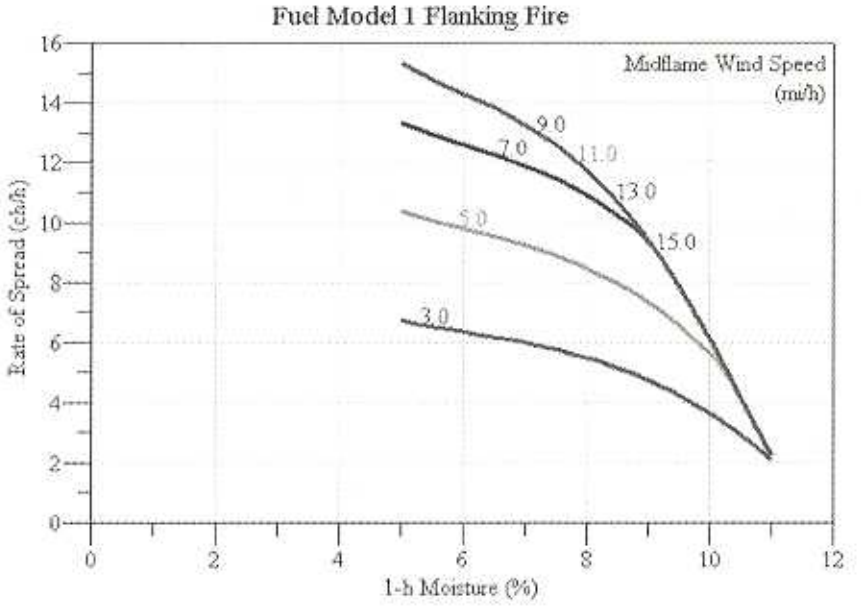
Output Variables

Rate of Spread (ch/h)
Heat per Unit Area (Btu/ft2)
Fireline Intensity (Btu/ft/s)
Flame Length (ft)
Direction of Maximum Spread (from upslope) (deg)
Spread Distance (ch)

Fuel Model 1 Flanking Fire

Rate of Spread (ch/h)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	6.7	10.3	13.3	15.3	15.3	15.3	15.3
6	6.3	9.8	12.6	14.3	14.3	14.3	14.3
7	6.0	9.2	11.9	13.3	13.3	13.3	13.3
8	5.5	8.4	10.9	11.7	11.7	11.7	11.7
9	4.7	7.3	9.4	9.4	9.4	9.4	9.4
10	3.6	5.6	6.0	6.0	6.0	6.0	6.0
11	2.1	2.2	2.2	2.2	2.2	2.2	2.2



Fuel Model 1 Flanking Fire
Heat per Unit Area (Btu/ft2)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	92	92	92	92	92	92	92
6	91	91	91	91	91	91	91
7	88	88	88	88	88	88	88
8	84	84	84	84	84	84	84
9	75	75	75	75	75	75	75
10	59	59	59	59	59	59	59
11	35	35	35	35	35	35	35

Fuel Model 1 Flanking Fire
Fireline Intensity (Btu/ft/s)

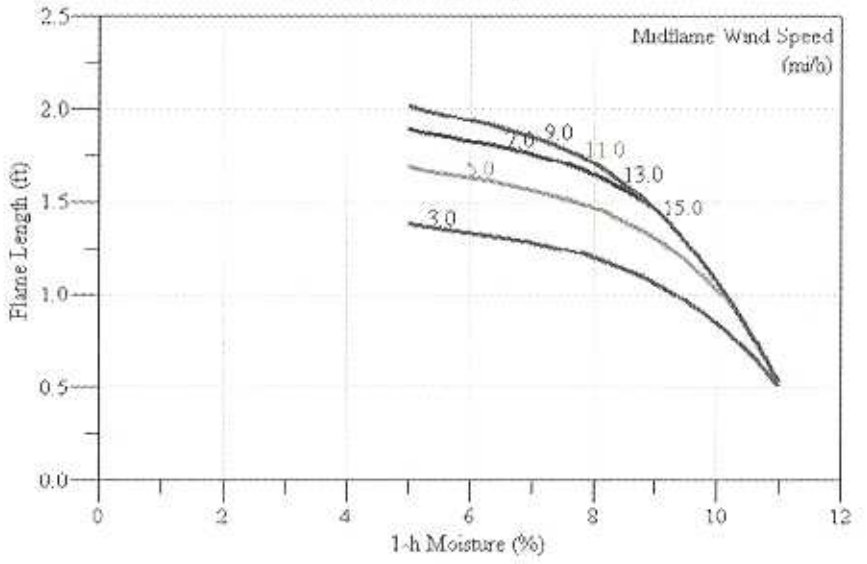
1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	11	18	23	26	26	26	26
6	11	16	21	24	24	24	24
7	10	15	19	22	22	22	22
8	8	13	17	18	18	18	18
9	6	10	13	13	13	13	13
10	4	6	7	7	7	7	7
11	1	1	1	1	1	1	1

Fuel Model 1 Flanking Fire

Flame Length (ft)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	1.4	1.7	1.9	2.0	2.0	2.0	2.0
6	1.3	1.6	1.8	1.9	1.9	1.9	1.9
7	1.3	1.6	1.8	1.8	1.8	1.8	1.8
8	1.2	1.5	1.6	1.7	1.7	1.7	1.7
9	1.1	1.3	1.5	1.5	1.5	1.5	1.5
10	0.8	1.0	1.1	1.1	1.1	1.1	1.1
11	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Fuel Model 1 Flanking Fire



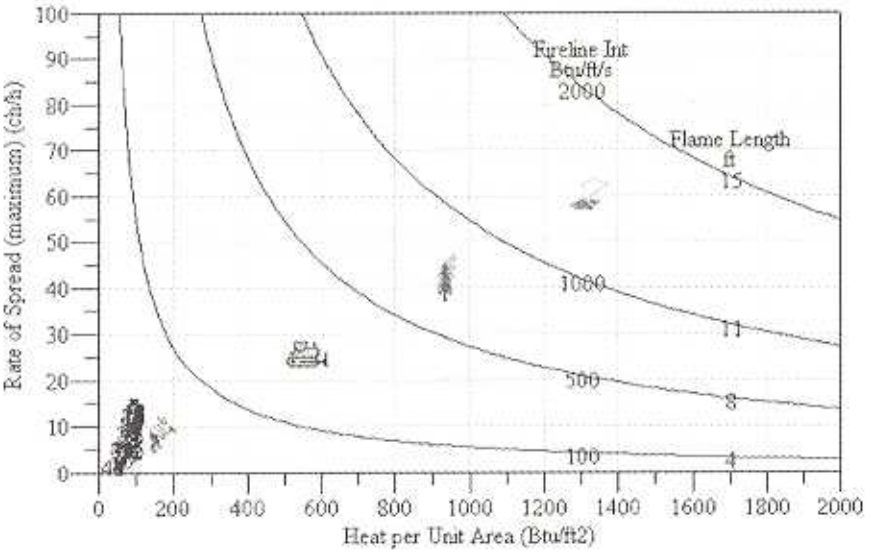
Fuel Model 1 Flanking Fire

Maximum Wind Exceeded?

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	No	No	No	Yes	Yes	Yes	Yes
6	No	No	No	Yes	Yes	Yes	Yes
7	No	No	No	Yes	Yes	Yes	Yes
8	No	No	No	Yes	Yes	Yes	Yes
9	No	No	Yes	Yes	Yes	Yes	Yes
10	No	No	Yes	Yes	Yes	Yes	Yes
11	No	Yes	Yes	Yes	Yes	Yes	Yes

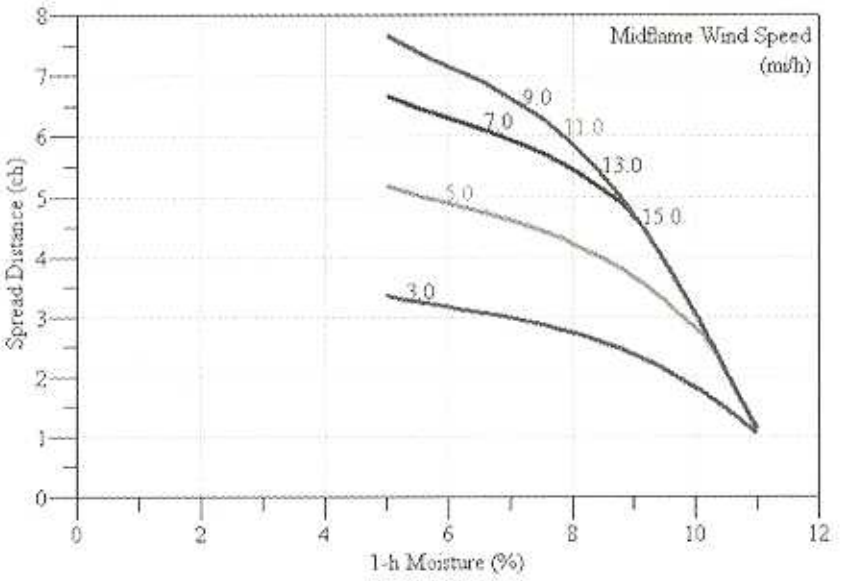
Fuel Model 1 Flanking Fire

Fire Characteristics Chart



Fuel Model 1 Flanking Fire

.5 hr elapsed time



Fuel Model 1 Flanking Fire

Spread Distance (ch)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	3.3	5.2	6.7	7.7	7.7	7.7	7.7
6	3.2	4.9	6.3	7.2	7.2	7.2	7.2
7	3.0	4.6	5.9	6.6	6.6	6.6	6.6
8	2.7	4.2	5.4	5.9	5.9	5.9	5.9
9	2.4	3.6	4.7	4.7	4.7	4.7	4.7
10	1.8	2.8	3.0	3.0	3.0	3.0	3.0
11	1.0	1.1	1.1	1.1	1.1	1.1	1.1

Modules: SURFACE

Description		Fuel Model 3 Flanking Fire
Fuel/Vegetation		
Fuel Model		3
Fuel Moisture		
1-h Moisture	%	5, 6, 7, 8, 9, 10, 11
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
Midflame Wind Speed	mi/h	3.0, 5.0, 7.0, 9.0, 11.0,
Direction of Wind Vector (from upslope)	deg	0
Terrain		
Slope Steepness	%	1
Fire		
Spread Direction (from upslope)	deg	90
Elapsed Time	h	.5

Run Options

Calculations are for the specified spread directions.
Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

Output Variables

Rate of Spread (ch/h)
Heat per Unit Area (Btu/ft2)
Fireline Intensity (Btu/ft/s)
Flame Length (ft)
Direction of Maximum Spread (from upslope) (deg)
Spread Distance (ch)
Effective Wind Speed (mi/h)
Maximum Wind Exceeded?
Fire Characteristics Chart

Fuel Model 3 Flanking Fire

Heat per Unit Area (Btu/ft2)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	783	783	783	783	783	783	783
6	742	742	742	742	742	742	742
7	712	712	712	712	712	712	712
8	689	689	689	689	689	689	689
9	673	673	673	673	673	673	673
10	662	662	662	662	662	662	662
11	654	654	654	654	654	654	654

Fuel Model 3 Flanking Fire

Fireline Intensity (Btu/ft/s)

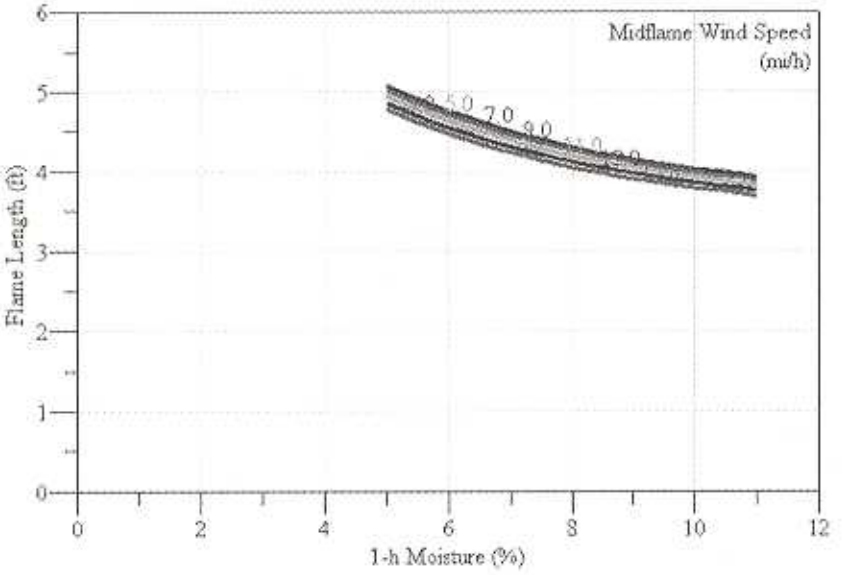
1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	176	193	194	190	184	177	170
6	153	167	168	165	159	153	147
7	135	148	149	146	141	136	131
8	123	134	135	132	128	123	118
9	113	124	125	122	118	114	109
10	106	116	117	115	111	107	103
11	101	110	111	109	105	101	97

Fuel Model 3 Flanking Fire

Flame Length (ft)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	4.9	5.1	5.1	5.0	4.9	4.9	4.8
6	4.5	4.7	4.8	4.7	4.6	4.6	4.5
7	4.3	4.5	4.5	4.5	4.4	4.3	4.2
8	4.1	4.3	4.3	4.3	4.2	4.1	4.0
9	4.0	4.1	4.1	4.1	4.0	4.0	3.9
10	3.8	4.0	4.0	4.0	3.9	3.9	3.8
11	3.8	3.9	3.9	3.9	3.8	3.8	3.7

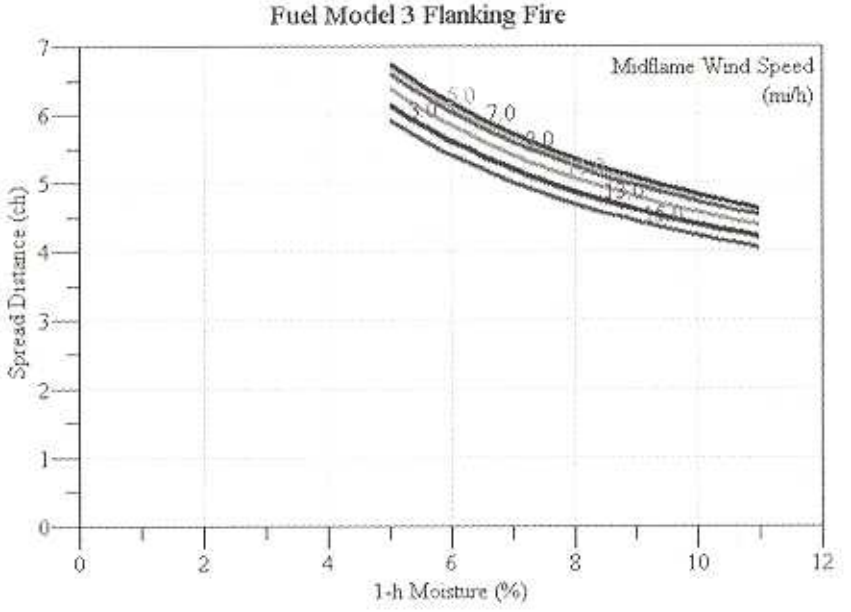
Fuel Model 3 Flanking Fire



Fuel Model 3 Flanking Fire

Spread Distance (ch)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	6.1	6.7	6.8	6.6	6.4	6.2	5.9
6	5.6	6.1	6.2	6.0	5.8	5.6	5.4
7	5.2	5.7	5.7	5.6	5.4	5.2	5.0
8	4.9	5.3	5.4	5.2	5.1	4.9	4.7
9	4.6	5.0	5.1	5.0	4.8	4.6	4.4
10	4.4	4.8	4.8	4.7	4.6	4.4	4.2
11	4.2	4.6	4.6	4.5	4.4	4.2	4.1



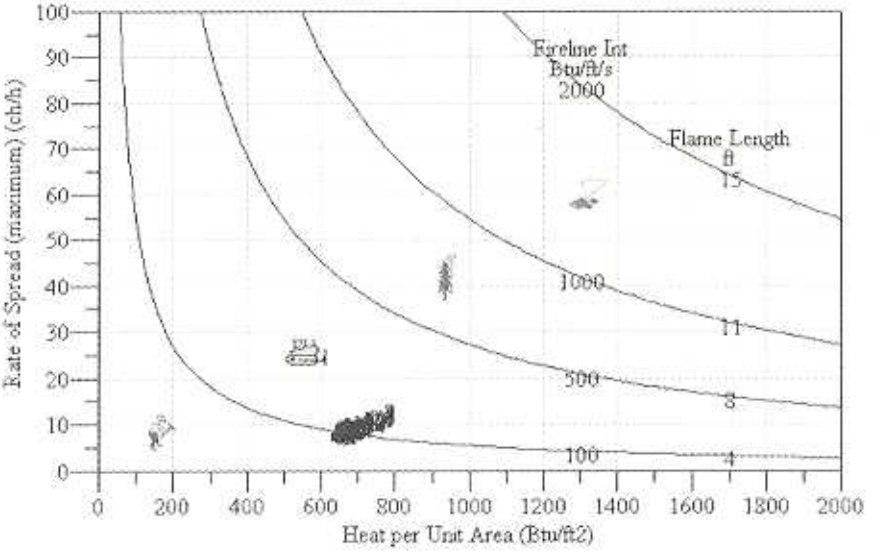
Fuel Model 3 Flanking Fire

Maximum Wind Exceeded?

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	No	No	No	No	No	No	No
6	No	No	No	No	No	No	No
7	No	No	No	No	No	No	No
8	No	No	No	No	No	No	No
9	No	No	No	No	No	No	No
10	No	No	No	No	No	No	No
11	No	No	No	No	No	No	No

Fuel Model 3 Flanking Fire

Fire Characteristics Chart

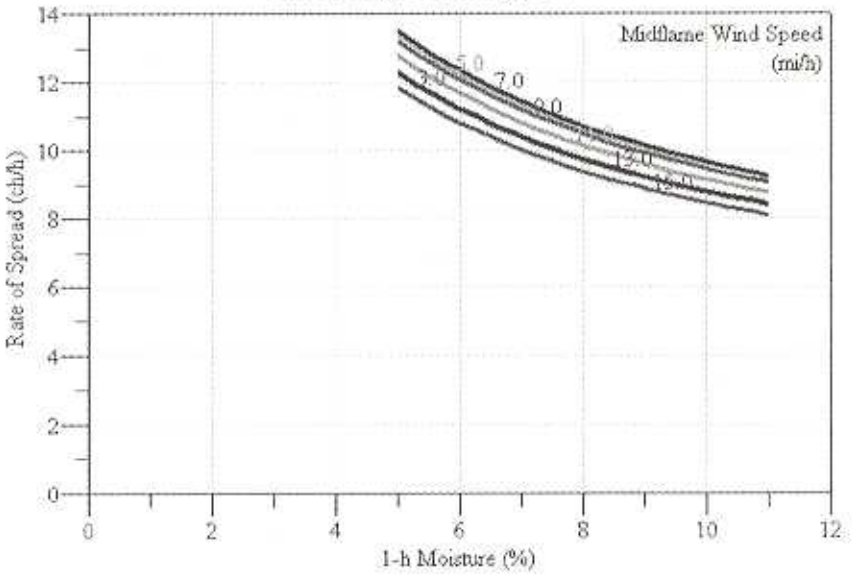


Fuel Model 3 Flanking Fire

Rate of Spread (ch/h)

1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	12.3	13.4	13.5	13.2	12.8	12.3	11.8
6	11.2	12.3	12.4	12.1	11.7	11.3	10.8
7	10.4	11.4	11.4	11.2	10.8	10.4	10.0
8	9.7	10.6	10.7	10.5	10.1	9.8	9.4
9	9.2	10.1	10.1	9.9	9.6	9.2	8.9
10	8.8	9.6	9.7	9.4	9.1	8.8	8.5
11	8.4	9.2	9.3	9.1	8.8	8.4	8.1

Fuel Model 3 Flanking Fire



Modules: SURFACE

Description		Fuel Model 3 Backing Fire
Fuel/Vegetation		
Fuel Model		3
Fuel Moisture		
1-h Moisture	%	5, 6, 7, 8, 9, 10, 11
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
Midflame Wind Speed	mi/h	3.0, 5.0, 7.0, 9.0, 11.0,
Direction of Wind Vector (from upslope)	deg	0
Terrain		
Slope Steepness	%	1
Fire		
Spread Direction (from upslope)	deg	180
Elapsed Time	h	.5

Run Options

Calculations are for the specified spread directions.
Fireline intensity, flame length, and spread distance are always
for the direction of the spread calculations
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

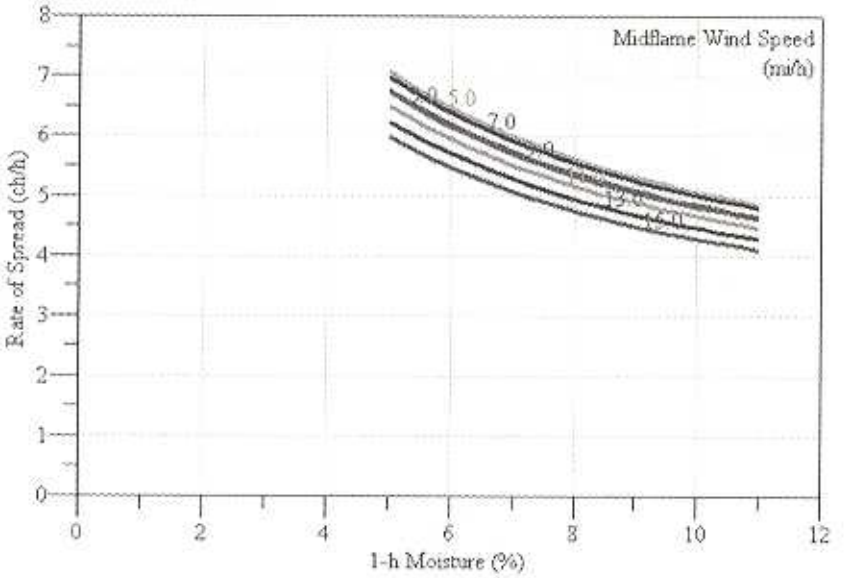
Output Variables

Rate of Spread (ch/h)
Heat per Unit Area (Btu/ft2)
Fireline Intensity (Btu/ft/s)
Flame Length (ft)
Direction of Maximum Spread (from upslope) (deg)
Spread Distance (ch)
Effective Wind Speed (mi/h)
Maximum Wind Exceeded?
Fire Characteristics Chart

Fuel Model 3 Backing Fire

Rate of Spread (ch/h)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	6.7	7.1	7.0	6.8	6.5	6.2	6.0
6	6.2	6.5	6.4	6.2	6.0	5.7	5.5
7	5.7	6.0	5.9	5.7	5.5	5.3	5.1
8	5.3	5.6	5.5	5.4	5.2	4.9	4.7
9	5.0	5.3	5.2	5.1	4.9	4.7	4.5
10	4.8	5.1	5.0	4.8	4.7	4.5	4.3
11	4.6	4.8	4.8	4.6	4.5	4.3	4.1



Fuel Model 3 Backing Fire
Heat per Unit Area (Btu/ft2)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	783	783	783	783	783	783	783
6	742	742	742	742	742	742	742
7	712	712	712	712	712	712	712
8	689	689	689	689	689	689	689
9	673	673	673	673	673	673	673
10	662	662	662	662	662	662	662
11	654	654	654	654	654	654	654

Fuel Model 3 Backing Fire
Fireline Intensity (Btu/ft/s)

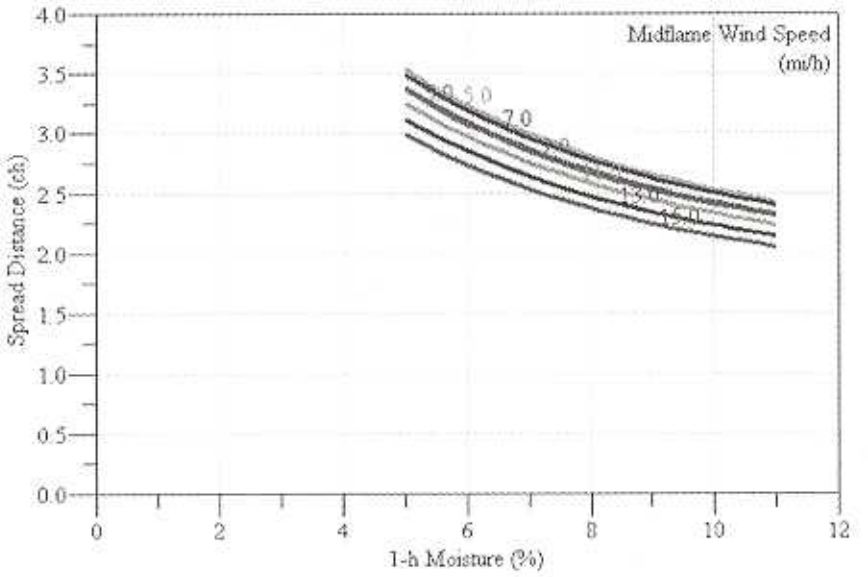
1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	97	102	100	97	93	90	86
6	84	88	87	84	81	78	74
7	74	78	77	75	72	69	66
8	67	71	70	68	65	62	60
9	62	65	65	63	60	58	55
10	58	61	61	59	56	54	52
11	55	58	58	56	53	51	49

Fuel Model 3 Backing Fire

Spread Distance (ch)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	3.4	3.5	3.5	3.4	3.3	3.1	3.0
6	3.1	3.2	3.2	3.1	3.0	2.9	2.7
7	2.9	3.0	3.0	2.9	2.8	2.6	2.5
8	2.7	2.8	2.8	2.7	2.6	2.5	2.4
9	2.5	2.7	2.6	2.5	2.4	2.3	2.2
10	2.4	2.5	2.5	2.4	2.3	2.2	2.1
11	2.3	2.4	2.4	2.3	2.2	2.1	2.0

Fuel Model 3 Backing Fire



Fuel Model 3 Backing Fire
Effective Wind Speed (mi/h)

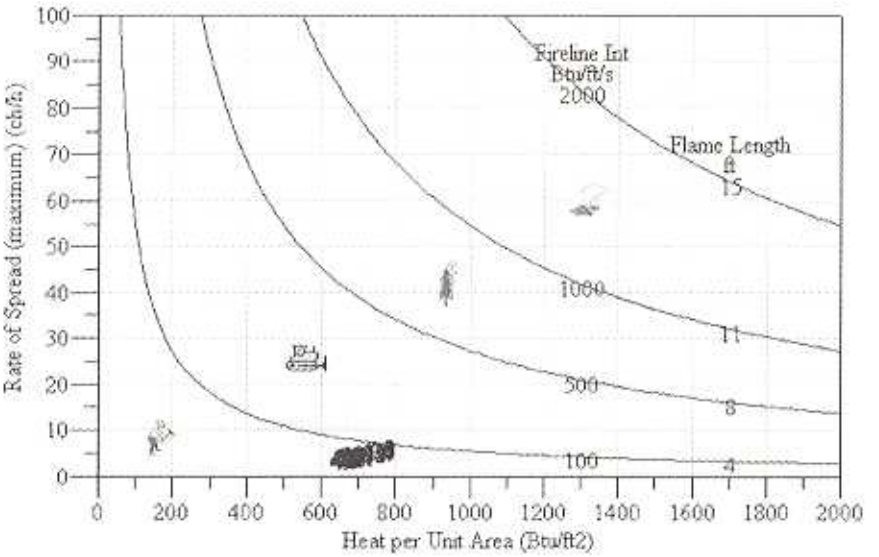
1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	0.2	0.2	0.2	0.2	0.2	0.2	0.1
6	0.2	0.2	0.2	0.2	0.2	0.2	0.1
7	0.2	0.2	0.2	0.2	0.2	0.2	0.1
8	0.2	0.2	0.2	0.2	0.2	0.2	0.1
9	0.2	0.2	0.2	0.2	0.2	0.2	0.1
10	0.2	0.2	0.2	0.2	0.2	0.2	0.1
11	0.2	0.2	0.2	0.2	0.2	0.2	0.1

Fuel Model 3 Backing Fire
Maximum Wind Exceeded?

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	No	No	No	No	No	No	No
6	No	No	No	No	No	No	No
7	No	No	No	No	No	No	No
8	No	No	No	No	No	No	No
9	No	No	No	No	No	No	No
10	No	No	No	No	No	No	No
11	No	No	No	No	No	No	No

Fuel Model 3 Backing Fire

Fire Characteristics Chart

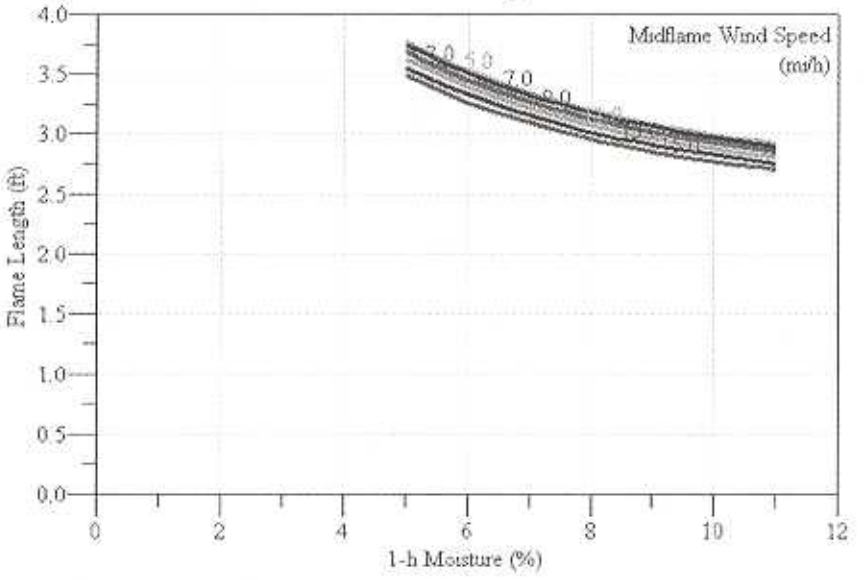


Fuel Model 3 Backing Fire

Flame Length (ft)

1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	3.7	3.8	3.8	3.7	3.6	3.6	3.5
6	3.5	3.5	3.5	3.5	3.4	3.3	3.3
7	3.3	3.3	3.3	3.3	3.2	3.2	3.1
8	3.1	3.2	3.2	3.1	3.1	3.0	3.0
9	3.0	3.1	3.1	3.0	3.0	2.9	2.9
10	2.9	3.0	3.0	2.9	2.9	2.8	2.8
11	2.9	2.9	2.9	2.9	2.8	2.8	2.7

Fuel Model 3 Backing Fire



Modules: SURFACE

Description		Fuel Model 3 Head Fire

Fuel/Vegetation

Fuel Model		3

Fuel Moisture

1-h Moisture	%	5, 6, 7, 8, 9, 10, 11
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	

Weather

Midflame Wind Speed	mi/h	3.0, 5.0, 7.0, 9.0, 11.0,
Direction of Wind Vector (from upslope)	deg	0

Terrain

Slope Steepness	%	1

Fire

Elapsed Time	h	.5

Run Options

Calculations are only for the direction of maximum spread.
Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

Output Variables

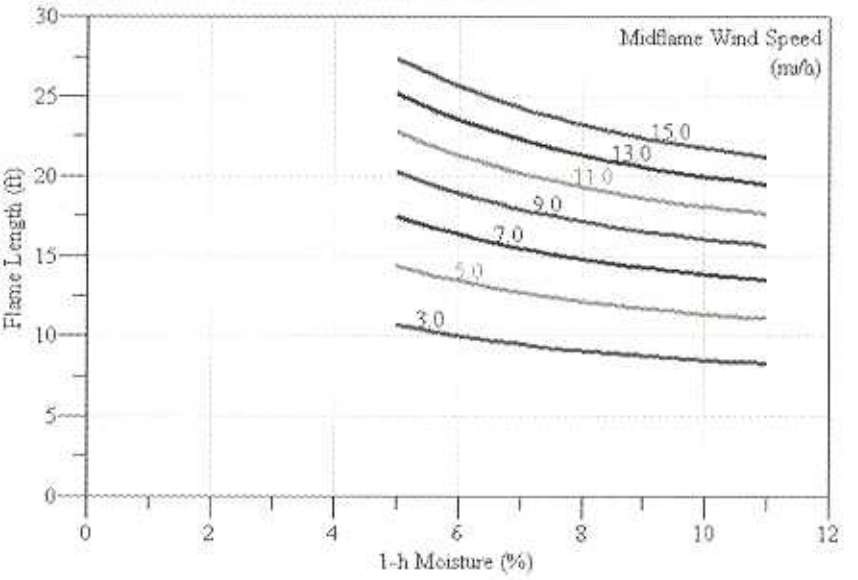
Rate of Spread (maximum) (ch/h)
Heat per Unit Area (Btu/ft2)
Fireline Intensity (Btu/ft/s)
Flame Length (ft)
Direction of Maximum Spread (from upslope) (deg)
Spread Distance (ch)
Effective Wind Speed (mi/h)
Maximum Wind Exceeded?
Fire Characteristics Chart

Fuel Model 3 Head Fire

Flame Length (ft)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	10.7	14.3	17.4	20.2	22.8	25.2	27.4
6	10.0	13.4	16.3	18.9	21.3	23.6	25.7
7	9.5	12.7	15.5	17.9	20.2	22.3	24.3
8	9.1	12.1	14.8	17.1	19.3	21.3	23.2
9	8.7	11.7	14.2	16.5	18.6	20.6	22.4
10	8.5	11.4	13.8	16.0	18.1	20.0	21.7
11	8.3	11.1	13.5	15.6	17.6	19.5	21.2

Fuel Model 3 Head Fire

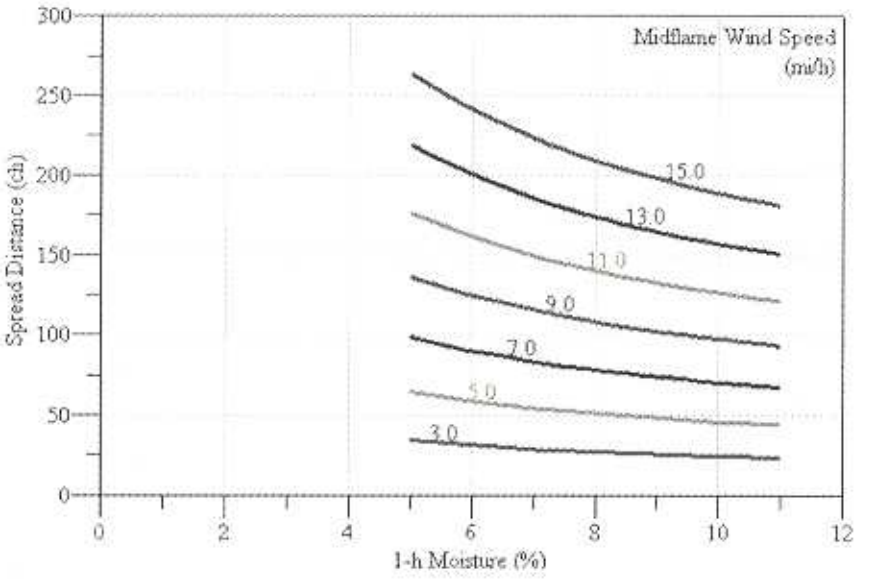


Fuel Model 3 Head Fire

Spread Distance (ch)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	34.2	64.4	98.7	136.3	176.5	219.1	263.8
6	31.3	58.9	90.3	124.6	161.5	200.4	241.3
7	28.9	54.5	83.6	115.4	149.5	185.6	223.4
8	27.1	51.1	78.3	108.1	140.0	173.8	209.2
9	25.6	48.3	74.0	102.2	132.4	164.3	197.8
10	24.4	46.0	70.6	97.4	126.2	156.6	188.6
11	23.4	44.1	67.6	93.4	121.0	150.2	180.8

Fuel Model 3 Head Fire



Fuel Model 3 Head Fire

Effective Wind Speed (mi/h)

1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	3.0	5.0	7.0	9.0	11.0	13.0	15.0
6	3.0	5.0	7.0	9.0	11.0	13.0	15.0
7	3.0	5.0	7.0	9.0	11.0	13.0	15.0
8	3.0	5.0	7.0	9.0	11.0	13.0	15.0
9	3.0	5.0	7.0	9.0	11.0	13.0	15.0
10	3.0	5.0	7.0	9.0	11.0	13.0	15.0
11	3.0	5.0	7.0	9.0	11.0	13.0	15.0

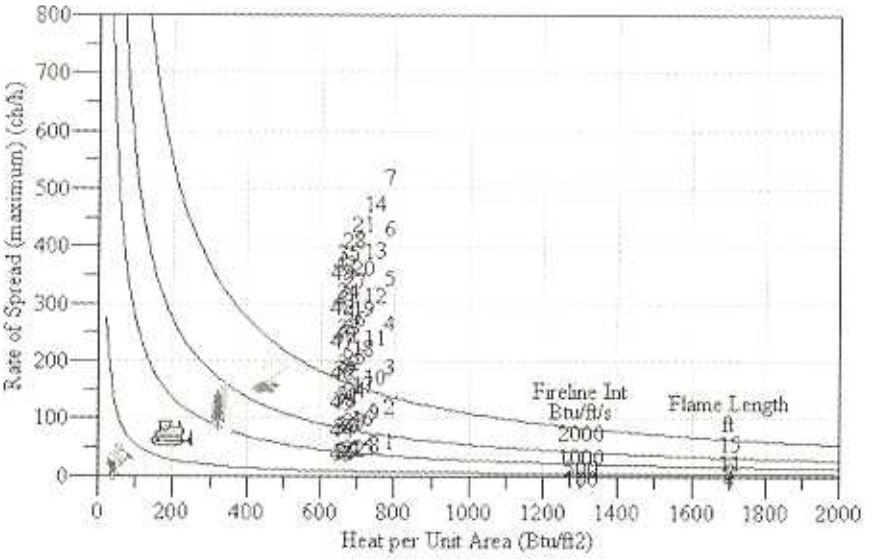
Fuel Model 3 Head Fire

Maximum Wind Exceeded?

1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	No	No	No	No	No	No	No
6	No	No	No	No	No	No	No
7	No	No	No	No	No	No	No
8	No	No	No	No	No	No	No
9	No	No	No	No	No	No	No
10	No	No	No	No	No	No	No
11	No	No	No	No	No	No	No

Fuel Model 3 Head Fire

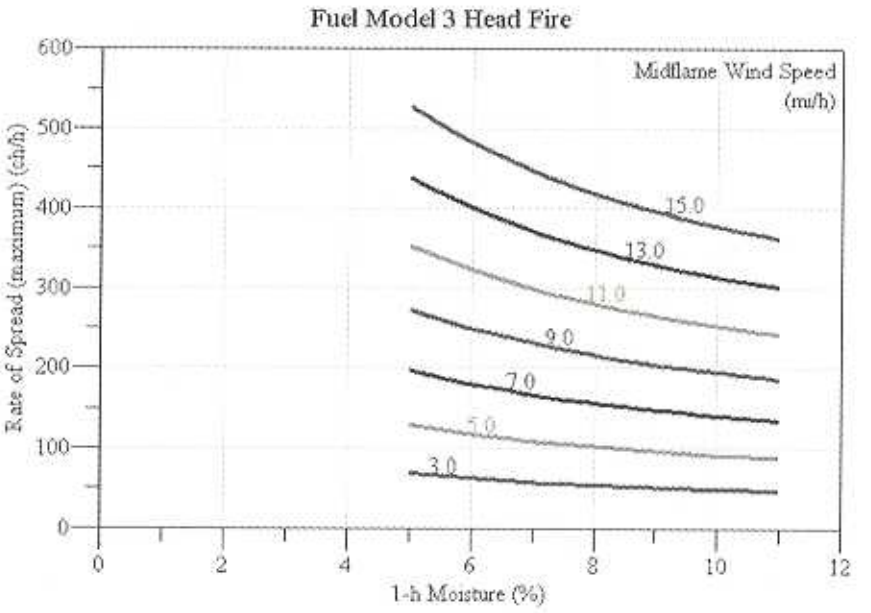
Fire Characteristics Chart



Fuel Model 3 Head Fire

Rate of Spread (maximum) (ch/h)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	68.3	128.8	197.4	272.5	353.0	438.3	527.7
6	62.5	117.8	180.6	249.3	322.9	400.9	482.7
7	57.9	109.1	167.2	230.8	299.0	371.2	446.9
8	54.2	102.1	156.6	216.1	280.0	347.5	418.4
9	51.2	96.6	148.0	204.4	264.7	328.6	395.7
10	48.8	92.0	141.1	194.8	252.3	313.2	377.1
11	46.8	88.3	135.3	186.8	241.9	300.3	361.6



Fuel Model 3 Head Fire

Heat per Unit Area (Btu/ft2)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	783	783	783	783	783	783	783
6	742	742	742	742	742	742	742
7	712	712	712	712	712	712	712
8	689	689	689	689	689	689	689
9	673	673	673	673	673	673	673
10	662	662	662	662	662	662	662
11	654	654	654	654	654	654	654

Fuel Model 3 Head Fire

Fireline Intensity (Btu/ft/s)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	981	1849	2834	3913	5068	6292	7575
6	851	1603	2458	3393	4395	5456	6569
7	755	1423	2181	3011	3901	4842	5830
8	685	1290	1977	2730	3536	4389	5285
9	632	1191	1826	2521	3266	4054	4881
10	593	1117	1712	2363	3062	3801	4576
11	562	1058	1623	2240	2901	3602	4336

Modules: SURFACE

Description		Fuel Model 1 Head Fire
Fuel/Vegetation		
Fuel Model		1
Fuel Moisture		
1-h Moisture	%	5, 6, 7, 8, 9, 10, 11
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
Midflame Wind Speed	mi/h	3.0, 5.0, 7.0, 9.0, 11.0,
Direction of Wind Vector (from upslope)	deg	0
Terrain		
Slope Steepness	%	1
Fire		
Elapsed Time	h	.5

Run Options

Calculations are only for the direction of maximum spread.
Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

Output Variables

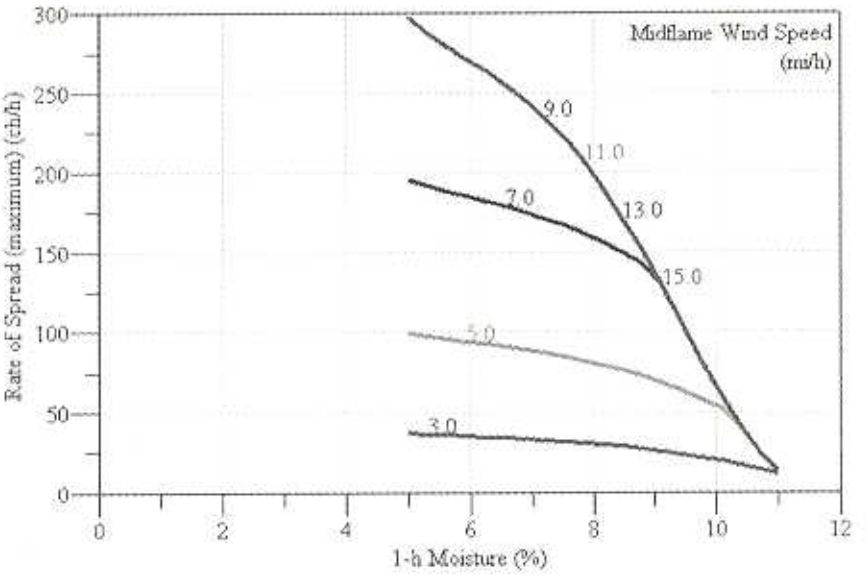
Rate of Spread (maximum) (ch/h)
Heat per Unit Area (Btu/ft2)
Fireline Intensity (Btu/ft/s)
Flame Length (ft)
Direction of Maximum Spread (from upslope) (deg)
Spread Distance (ch)
Effective Wind Speed (mi/h)

Maximum Wind Exceeded?
Fire Characteristics Chart

Fuel Model 1 Head Fire

Rate of Spread (maximum) (ch/h)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	37.4	99.3	194.8	297.3	297.3	297.3	297.3
6	35.3	93.9	184.3	270.1	270.1	270.1	270.1
7	33.3	88.5	173.7	242.1	242.1	242.1	242.1
8	30.5	81.1	159.1	198.7	198.7	198.7	198.7
9	26.3	70.0	135.7	135.7	135.7	135.7	135.7
10	20.2	53.6	64.8	64.8	64.8	64.8	64.8
11	11.5	13.3	13.3	13.3	13.3	13.3	13.3



Fuel Model 1 Head Fire
Heat per Unit Area (Btu/ft2)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	92	92	92	92	92	92	92
6	91	91	91	91	91	91	91
7	88	88	88	88	88	88	88
8	84	84	84	84	84	84	84
9	75	75	75	75	75	75	75
10	59	59	59	59	59	59	59
11	35	35	35	35	35	35	35

Fuel Model 1 Head Fire
Fireline Intensity (Btu/ft/s)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	63	168	330	504	504	504	504
6	59	156	306	449	449	449	449
7	54	143	282	392	392	392	392
8	47	125	244	305	305	305	305
9	36	96	186	186	186	186	186
10	22	58	70	70	70	70	70
11	7	9	9	9	9	9	9

Fuel Model 1 Head Fire

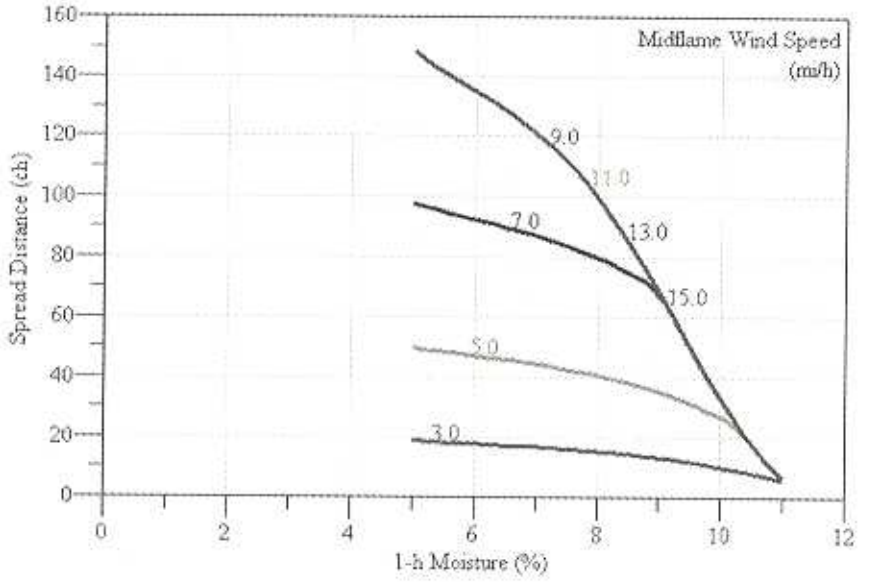
Spread Distance (ch)

.5 hr elapsed time

1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	18.7	49.6	97.4	148.7	148.7	148.7	148.7
6	17.7	47.0	92.1	135.0	135.0	135.0	135.0
7	16.7	44.3	86.8	121.0	121.0	121.0	121.0
8	15.3	40.5	79.6	99.4	99.4	99.4	99.4
9	13.2	35.0	67.8	67.8	67.8	67.8	67.8
10	10.1	26.8	32.4	32.4	32.4	32.4	32.4
11	5.8	6.7	6.7	6.7	6.7	6.7	6.7

Fuel Model 1 Head Fire

.5 hr elapsed time



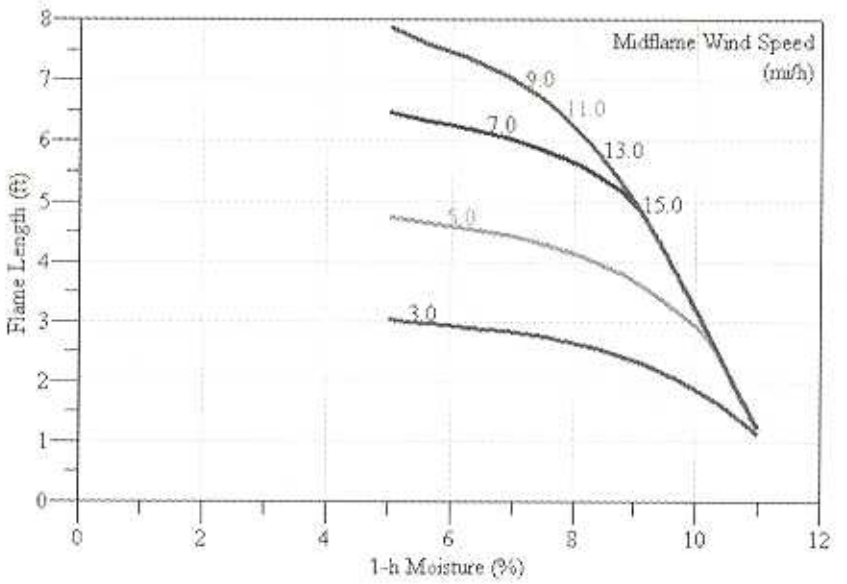
Fuel Model 1 Head Fire
Maximum Wind Exceeded?

1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	No	No	No	Yes	Yes	Yes	Yes
6	No	No	No	Yes	Yes	Yes	Yes
7	No	No	No	Yes	Yes	Yes	Yes
8	No	No	No	Yes	Yes	Yes	Yes
9	No	No	Yes	Yes	Yes	Yes	Yes
10	No	No	Yes	Yes	Yes	Yes	Yes
11	No	Yes	Yes	Yes	Yes	Yes	Yes

Fuel Model 1 Head Fire
Effective Wind Speed (mi/h)

1-h Moisture %	Midflame Wind Speed mi/h 3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	3.0	5.0	7.0	8.6	8.6	8.6	8.6
6	3.0	5.0	7.0	8.4	8.4	8.4	8.4
7	3.0	5.0	7.0	8.2	8.2	8.2	8.2
8	3.0	5.0	7.0	7.8	7.8	7.8	7.8
9	3.0	5.0	7.0	7.0	7.0	7.0	7.0
10	3.0	5.0	5.5	5.5	5.5	5.5	5.5
11	3.0	3.2	3.2	3.2	3.2	3.2	3.2

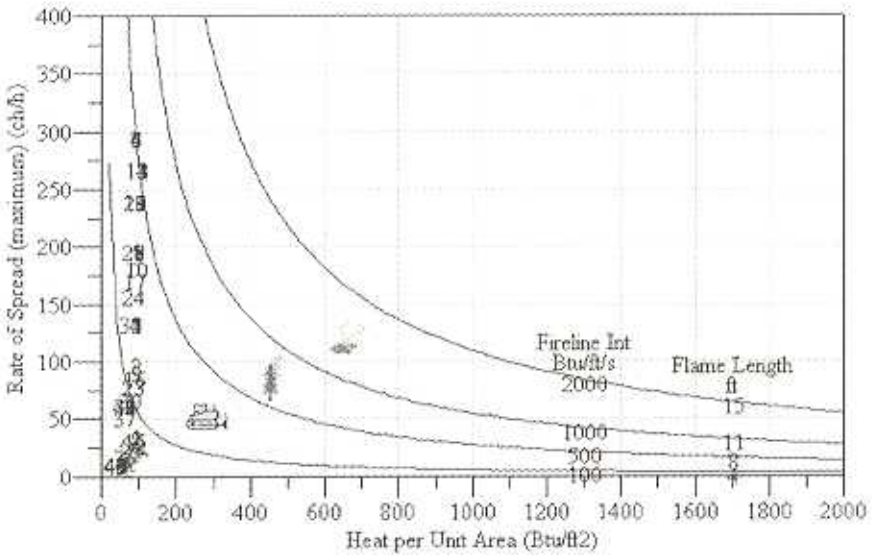
Fuel Model 1 Head Fire



Fuel Model 1 Head Fire

Flame Length (ft)

1-h Moisture	Midflame Wind Speed mi/h						
%	3.0	5.0	7.0	9.0	11.0	13.0	15.0
5	3.0	4.8	6.5	7.9	7.9	7.9	7.9
6	2.9	4.6	6.3	7.5	7.5	7.5	7.5
7	2.8	4.4	6.0	7.0	7.0	7.0	7.0
8	2.6	4.1	5.6	6.3	6.3	6.3	6.3
9	2.3	3.7	5.0	5.0	5.0	5.0	5.0
10	1.9	2.9	3.2	3.2	3.2	3.2	3.2
11	1.1	1.2	1.2	1.2	1.2	1.2	1.2

Fuel Model 1 Head Fire

Fire Characteristics Chart