

APPENDIX A: Fire Behavior Modeling Results

Spring Burning Before Grass Green Up (March 1-May 12)

Modeling Runs Using Behave 6.0.0

Using Driest Fuel Moistures and Wettest Fuel Moistures and Eye Level Winds 2-10 mph from Prescription

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Inputs: SURFACE

Description

Fuel/Vegetation, Surface/Understory

Fuel Model

Fuel Moisture

1-h Fuel Moisture %

10-h Fuel Moisture %

100-h Fuel Moisture %

Live Herbaceous Fuel Moisture %

Live Woody Fuel Moisture %

Weather

Midflame Wind Speed (upslope) mi/h

Terrain

Slope Steepness %

Middle Farms Flats RX; Driest Conditions & Min/Max Winds

Head Fire

Surface Fire Rate of Spread (ch/h)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	8.6	27.8	50.2	74.5	113.7
gs3	6.4	22.0	42.2	65.6	105.4
gr6	10.1	36.7	75.6	123.9	211.1

Middle Farms Flats RX; Wettest Conditions & Min/Max Winds

Head Fire

Surface Fire Rate of Spread (ch/h)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	6.4	20.6	37.2	55.3	84.4
gs3	5.2	17.8	34.1	53.0	85.2
gr6	7.5	27.1	55.8	91.5	155.9

Middle Farms Flats RX; Driest Conditions & Min/Max Winds

Head Fire

Surface Fire Flame Length (ft)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	3.2	5.4	7.1	8.6	10.4
gs3	3.8	6.6	9.0	11.0	13.6
gr6	5.4	9.8	13.7	17.2	21.9

Middle Farms Flats RX; Wettest Conditions & Min/Max Winds

Head Fire

Surface Fire Flame Length (ft)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	2.5	4.4	5.7	6.9	8.3
gs3	3.2	5.6	7.6	9.3	11.5
gr6	4.3	7.8	10.9	13.7	17.5

Middle Farms Flats RX; Driest Conditions & Min/Max Winds

Backing Fire

Surface Fire Rate of Spread (ch/h)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	2.1	2.7	2.8	2.6	2.4
gs3	1.6	2.2	2.3	2.3	2.2
gr6	2.5	3.6	4.2	4.4	4.5

Middle Farms Flats RX; Wettest Conditions & Min/Max Winds

Backing Fire

Surface Fire Rate of Spread (ch/h)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	1.6	2.0	2.0	2.0	1.8
gs3	1.3	1.8	1.9	1.9	1.8
gr6	1.9	2.7	3.1	3.2	3.3

Middle Farms Flats RX; Driest Conditions & Min/Max Winds

Backing Fire

Surface Fire Flame Length (ft)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	1.7	1.9	1.9	1.8	1.8
gs3	2.0	2.3	2.4	2.4	2.3
gr6	2.9	3.4	3.6	3.7	3.7

Middle Farms Flats RX; Wettest Conditions & Min/Max Winds

Backing Fire

Surface Fire Flame Length (ft)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	1.3	1.5	1.5	1.5	1.4
gs3	1.7	1.9	2.0	2.0	2.0
gr6	2.3	2.7	2.9	2.9	3.0

Fall Burning After Warm Season Grasses go Dormant (September-October)

Modeling Runs Using Behave 6.0.0

Based on Anticipated Optimal Conditions with 1 hr FM 7%, 10 hr. FM 12% and Live FM's 100%



Inputs: SURFACE

Description → Middle Farms Flats RX; Fall Conditions & Min/Max Winds

Fuel/Vegetation, Surface/Understory

Fuel Model → GR3,GS3,GR6

Fuel Moisture

1-h Fuel Moisture % → 7

10-h Fuel Moisture % → 12

100-h Fuel Moisture % → 22

Live Herbaceous Fuel Moisture % → 100

Live Woody Fuel Moisture % → 100

Weather

Midflame Wind Speed (upslope) mi/h → 1,3,5,7,10

Terrain

Slope Steepness % → 0

Middle Farms Flats RX; Fall Conditions & Min/Max Winds

Head Fire

Surface Fire Rate of Spread (ch/h)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	1.9	6.3	11.3	16.8	17.9
gs3	0.8	2.7	5.1	7.9	9.1
gr6	1.0	3.7	7.5	12.4	21.1

Middle Farms Flats RX; Fall Conditions & Min/Max Winds

Head Fire

Surface Fire Flame Length (ft)

Fuel Model	Midflame Wind Speed (upslope) mi/h				
	1	3	5	7	10
gr3	1.1	2.0	2.6	3.1	3.2
gs3	0.7	1.2	1.7	2.0	2.2
gr6	0.9	1.7	2.4	3.0	3.8

Probability of Ignition Caused by Fire Brand

Driest End of Prescription

Wetter End of Prescription (but not the wettest)

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Inputs: SURFACE, IGNITE
 Description ▾ Middle Farms Flats RX, Probability of Ignition

Fuel/Vegetation, Surface/Understory
 Fuel Model ▾ gr3, gs3, gr6

Fuel Moisture
 1-h Fuel Moisture % ▾ 5
 10-h Fuel Moisture % ▾ 6
 100-h Fuel Moisture % ▾ 18
 Live Herbaceous Fuel Moisture % ▾ 60
 Live Woody Fuel Moisture % ▾ 60

Weather
 Midflame Wind Speed (upslope) mi/h ▾ 5
 Air Temperature oF ▾ 50,60,70,80,90
 Fuel Shading from the Sun % ▾ 10

Terrain
 Slope Steepness % ▾ 0

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Inputs: SURFACE, IGNITE
 Description ▾ Middle Farms Flats RX, Probability of Ignition

Fuel/Vegetation, Surface/Understory
 Fuel Model ▾ gr3, gs3, gr6

Fuel Moisture
 1-h Fuel Moisture % ▾ 10
 10-h Fuel Moisture % ▾ 18
 100-h Fuel Moisture % ▾ 22
 Live Herbaceous Fuel Moisture % ▾ 150
 Live Woody Fuel Moisture % ▾ 150

Weather
 Midflame Wind Speed (upslope) mi/h ▾ 5
 Air Temperature oF ▾ 50,60,70,80,90
 Fuel Shading from the Sun % ▾ 10

Terrain
 Slope Steepness % ▾ 0

Head Fire
Probability of Ignition from a Firebrand (%)

Fuel Model	Air Temperature oF				
	50	60	70	80	90
gr3	58	60	63	65	68
gs3	58	60	63	65	68
gr6	58	60	63	65	68

Head Fire
Probability of Ignition from a Firebrand (%)

Fuel Model	Air Temperature oF				
	50	60	70	80	90
gr3	27	29	30	32	34
gs3	27	29	30	32	34
gr6	27	29	30	32	34