

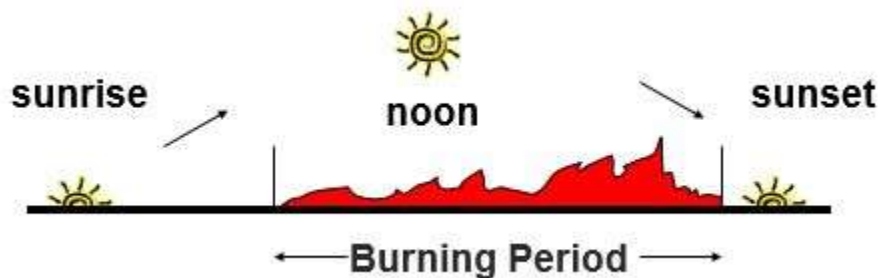
## Spring Clean-Up Fire Safety

With the arrival of spring comes the opportunity to clean up yard debris such as fallen leaves, twigs, and branches. Being able to dispose of these items by outdoor burning is one of the many positive aspects about living on a farm property.

With the arrival of spring also comes grass and brush fire season. It may seem counterintuitive since the ground is wet and patches of snow still remain in shady spots, but early spring is when many grass and brush fires occur.

Severn Township borders on large areas of provincial (Crown) land, and for this reason a formal agreement has been established between Severn Fire & Emergency Services and the Ontario Ministry of Natural Resources (MNR). One requirement of this agreement is that Severn's firefighters receive training in wildland firefighting. Following are a selection of excerpts from this training accompanied by examples of how you can apply these principles to fire safety during those spring cleanup burns.

The term "Burning Period" is defined as *"That part of each 24 hour day when fires are generally the most active. Typically, this is from mid-morning to sun down."*



This is because by mid-morning, conditions are becoming more ideal for a fire - dew has dried out and temperatures are rising. Mid-morning to sun down is also when we are most likely to be doing yard work and burning debris, which is why it is so important to follow safe practices when burning.

## **Fuel Size**

As mentioned previously, yard debris often consists of leaves, twigs, and branches. MNR classifies wildland fire fuel by size, with leaves and twigs being considered “fine” fuels and branches “medium” fuels.



**Fine fuels**



**Medium fuels**

Fine fuels are easy to ignite, and burn quickly. Medium fuels are slightly more difficult to ignite but will burn readily once they do start on fire.

Another example of a fine fuel is dry grass. This can be one of the most dangerous fuels on your property because it is so abundant and, especially in the early spring before the grass has started to green up, is very dry and easy to ignite.



**Example of fine fuel – grassy field**

## Fuel Quantity

Fuel quantity is the amount of fuel available to burn. As with any fire, the more fuel that is available to burn, the greater the intensity of the fire. Limit any pile of wood, brush, or leaves to a maximum of two metres in diameter and less than two metres high.

## Fuelbreak

The MNR defines a fuelbreak as *“An area (constructed or natural) on which there is no fuel available for burning”*. This is similar to the open area around a backyard campfire pit.



**Burnt (black) area on left. Fire travel was from left to right, stopped by fuelbreak**

Provide a fuelbreak of at least 5 metres in width all around the pile you are burning. A fuelbreak which is on one side of the fire only is of no use if there is a change in wind direction.

## Wind

Several very important reasons to take wind into account are:

1. The ability of wind to dry fuels out. That field of dead, matted grass which was soaked by yesterday's rain will dry surprisingly quickly on a windy day, making the fine fuel very easy to ignite again.
2. The effect of wind on fire spread. As a general “rule of thumb”, the MNR states that “If wind speed doubles, rate of fire spread MORE THAN DOUBLES”. This can be especially dangerous if the wind is gusty, or the day starts out calm and becomes windy while you are burning.

3. Embers being blown from the fire onto surrounding fuels, starting what are referred to as “spot fires”.

Check the wind conditions and weather forecast before burning, and don't start a fire if the current or forecasted wind speeds are over 10 km/hour. If wind and weather conditions are suitable for burning, monitor the wind while burning and be prepared to extinguish your fire if wind speeds begin to increase or the wind becomes gusty.

Some guidelines to help estimate wind speed are:

- 0-1 km/hour: Smoke rises vertically
- 1-5 km/hour: Smoke drifts
- 6-10 km/hour: Leaves rustle, weather vanes move, wind can be felt on your face
- 11-19 km/hour: Light flags unfurl, leaves and twigs on trees move steadily
- 20-28 km/hour: Small branches move. Loose dust and paper fly about
- 29-38 km/hour: Leafy shrubs and trees sway



**Wind driven grass fire**

## **Types of Fires**

The two types of fires we are concerned with in this article are what MNR refers to as “surface” and subsurface” fires.

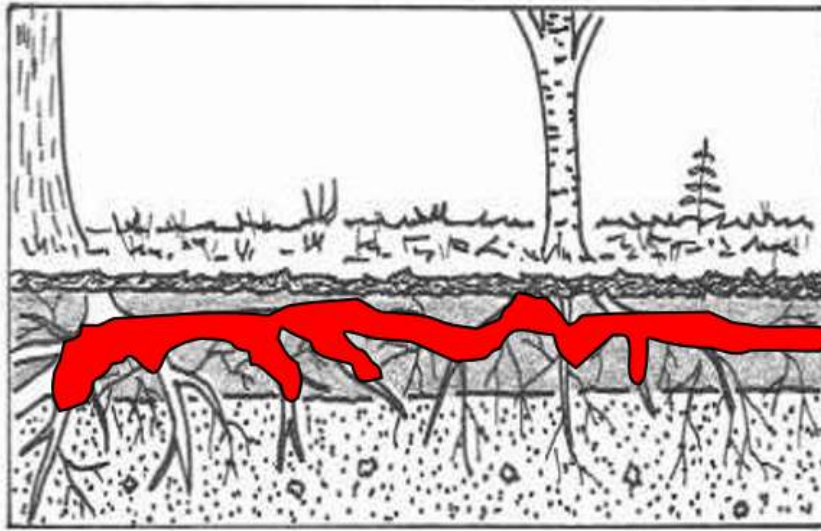


**Surface fire**

As the name implies, a surface fire is one burning on the surface fuel layer (on the ground) only. The grass fire pictured above is a good example of a surface fire, moving quickly across the ground as it completely consumes the available fuel. Although the flames pictured above may not appear to be all that dangerous because the fire burns and moves on so quickly, research done by the MNR has shown that temperatures at the base of the flame are in the 800° to 1,000° C range.

This is more than hot enough to start other items on fire – such as barns, homes, or outbuildings – if the surface fire spreads far enough to reach them. Grass fires can spread surprisingly fast on their own without any wind, and remember the rule of thumb that if wind speed doubles, rate of fire spread more than doubles.





### Subsurface fire

MNR defines a subsurface fire as *“Burning in organic matter below surface fuels”* and also states that a subsurface fire is *“usually described as a smoldering or creeping fire”*.

Burning too close to a muck/ manure pile can result in a stubborn, smoldering fire below the surface of the pile. A smoldering fire can travel (creep) below the surface and emerge in a different area of the pile, where it could then ignite other fuel and become a surface fire. Ensure that there is a fuelbreak between your burning debris and any muck/ manure pile!

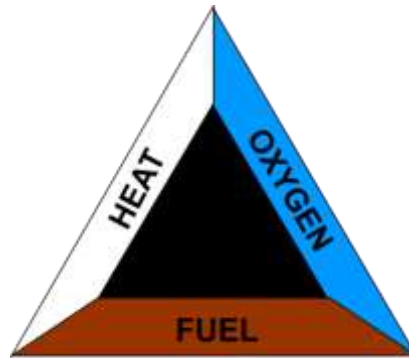
### Fire Control

It is essential that you have a means of controlling any fire you start. The “fire triangle” model is a good illustration of the three things that must be present for a fire to burn.

These three things are heat, oxygen (air), and fuel:



Fire control can be achieved by taking away any one leg of the triangle. The most familiar method of achieving fire control is putting water on the fire, which cools it – removing the “heat” leg.



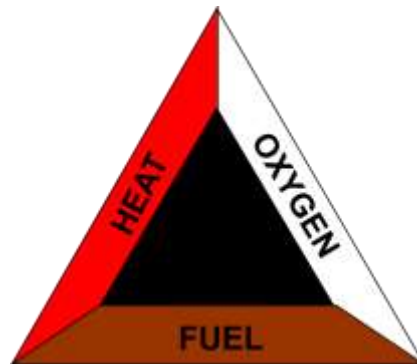
**Fire control by removing heat. Commonly done by application of water**

Water cools burning material by evaporating when it contacts the hot surface. As the water evaporates it draws (absorbs) heat energy from the burning fuel and converts it to steam.

Depending on the location of your burning area, and the availability of water, cooling may or may not be a practical method of fire control on your property.

A limitation of the cooling method is the amount of water required, particularly on larger fires which are more difficult to cool due to the large amount of burning material, especially embers. Water applied to a fire may knock flames down quickly but if there is a glowing bed of embers it will require a great deal more water to cool the embers to below their ignition temperature.

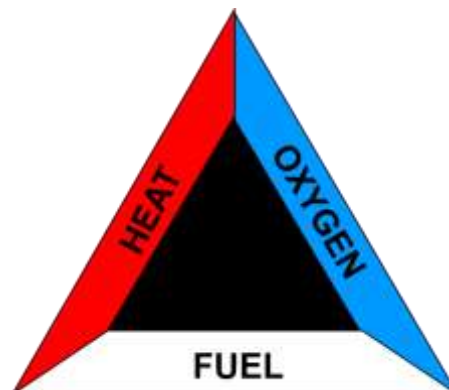
Another approach to fire control is taking away the “oxygen” leg – smothering the fire. In wildland firefighting, MNR fire crews remove the “oxygen” leg by covering a fire with mineral soil. The same thing can be done on your property if you have a supply of soil and equipment capable of moving it, and in some situations may be a more practical approach than applying water.



**Fire control by removing oxygen (air). Commonly done by covering fire with soil**

A limitation of this method is that applying a covering of soil limits the amount of oxygen to the fire, it does not completely remove all oxygen. Application of a soil covering also does not provide any cooling.

Removal of the “fuel” leg is also possible, by not adding any additional fuel and letting the fire burn itself out. This requires a fuelbreak which is large enough to be effective (remember the minimum 5 metre width). Never leave a fire unattended. If the fire has not burned itself out completely by the end of the day, cool or smother any remaining fire before you leave the area.



**Fire control by fuel removal. This typically takes the form of letting a fire burn itself out**



Remember these guidelines when doing any “spring cleaning” burns:

- Limit any pile of yard debris which you are burning to a maximum of two metres in diameter and less than two metres high
- Provide a fuelbreak all around the burn area, a minimum of 5 metres in width
- Have a means of controlling the fire readily available at all times
- Do not burn if current or forecasted wind speeds are greater than 10 km/hour
- Never leave a fire unattended

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