

Fall Sickle Bar Mowing and Spring Burning as a Field Sanitation and Pruning Method

[Much of the information in this document has been gathered from discussions with Joe Slack and others, who have been using this method for several years.]

The idea of sickle bar mowing and burning has been around for a while, but to do it effectively and safely, a lot of preparation has to be done. As well, a proper amount of respect for fire must be given so this management practice can be done safely and effectively. **Burning is not for every grower or every field situation!**

A sickle bar mower is a traditional mowing device often used in hay fields and pastures to cut forage and prune pastures. It is relatively simple technology that can run off a small tractor. The reciprocating teeth cut vegetation in a single cut and lay it flat on the ground, un-mulched.



In blueberries, the sickle bar mower cuts the blueberry stem near the ground and lays the stem flat. Over the winter the stems dry out and provide fuel for the fire to burn in the spring. The continuity of fuel is important to keep a fire going. Because of this fields need to have consistent plant coverage with good plant height. The patchier a field is and the shorter the plants are, the less efficient this method becomes. Also rough and hummocky fields are not only hard on the mower; it creates an inconsistent fuel supply. **Therefore, this method cannot and should not be done in every field.**

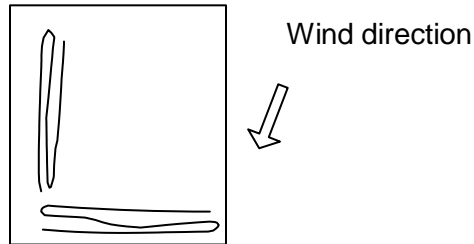
How it's Done:

Establishing a fire break is critical. The fire will burn extremely hot in the spring and it will create a significant amount of smoke. An adequate fire break is key to burning effectively and safely. Using a flail mower in the fall to prune and mulch a border around the edge of the field is important. By spring the tightly mowed and mulched plants provide minimal fuel to burn.

Back burning: This can be done in the fall or in the morning or night before a burn. To do this you will need to know the prevailing wind direction. Back burning the downwind edge of the field will add a larger buffer area to prevent the fire from getting away from you. Using a water

wagon for protection, a worker with a backpack and furnace fuel walks upwind of the edge of a field. A fire is lit a couple feet into the cut stems. The water wagon prevents the fire from going too far into the flail mowed border. Once this buffer strip is burned a second path is made. This is continued until a 16-20 foot buffer strip is burned away from the edge of the field. See diagram.

Diagram 1: Field burning technique



Once the back burn is done, the fire can be started using the same method as the back burning but at the up wind end of the field (top right corner in Diagram 1). For an increased safety level, the fire can be started in smaller strips (ie. 100ft) working from the bottom left corner towards the top right. No fire burns perfectly, and the workers can cleanup missed patches behind the fire with the backpacks.

Costs and Time Commitments:

The common questions are: How much will it cost? How long will it take? And will it provide an adequate burn? The first two questions are directly related to fuel costs and time in the field. Both of these factors vary greatly on wind, soil moisture, relative humidity, available fuel and other factors. The following are real examples of fuel and time usage using this technique on two different fields last year.

Example 1:

- 9 acres
- 3 people (2 on the water wagon, 1 burning)
- 27 litres of fuel
- 4 man hours + mowing costs

Example 2:

- 12.5 acres
- 3 people (2 on the water wagon, 1 burning)
- Friday 50 litres of fuel; Sunday 50 litres of fuel
- Friday 4.5 man hours; Sunday 6 man hours
- Total – 100 litres of fuel, 10.5 man hours + mowing costs

The time and fuel usage is greatly reduced from traditional burning techniques. Because of the woody nature of the fuel, it dries much quicker than something like straw. Also, not all fields have solid vine cover, this technique is not as versatile as using an oil burner. If a priority is made to burn when it is appropriate, an excellent quality of burn can be achieved. It burns as hot as a straw burn.

Keys to Burning with a Sickle Bar Mow:

- 1) It cannot be done on every field
 - a. Need good plant coverage (density and % coverage)
 - b. Not ideal with short plants
- 2) Make it a priority
 - a. Be prepared and ready to burn when its right (Sunday morning in early March?)
 - b. You need to work around the weather
- 3) Use a metal wand for backpack burner
- 4) Back burn in morning on downwind edges of field (16-20 foot buffer zone)
- 5) Burn in mid afternoon
- 6) Do not burn in high wind conditions!**
- 7) Have a water wagon and 2-3 people on hand
- 8) Start small and work up to more acreage

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