

Grazing to Reduce Fire Fuels - Fire Board Experiment

Overview: This experiment is to demonstrate fire behavior and the role of grazing to reduce fire fuel loads. The matches in the experiment signify grass/vegetation. The placement and density of matches will influence fire behavior, thus more matches in a continuous sequence will demonstrate dense fire loads and more intense fire. When you spread out the matches on the board you can demonstrate reduced fire intensity – similar to grazed landscapes. Additionally, the battery mist fan can be used to add wind to the fire to promote spread of fire to additional matches and the mist/water can showcase how humidity can decrease fire behavior.



Supplies

- Fire Board (see details below)
- Matches
- Hand-held mister fan with batteries
- Strike anywhere matches



Safety Measures

- Conduct on blacktop or gravel free of debris and vegetation, away from structures.
- Bucket of water
- Fire Extinguisher
- Make sure not to wear flammable materials when conducting experiment.
- Consider local school and site policies and procedures.
- Dispose of used matches appropriately, being sure to prevent a trash fire.



Don't let matches burn all the way to the board!

Use mister or water to put out matches.
This will allow easy removal and reuse of board.

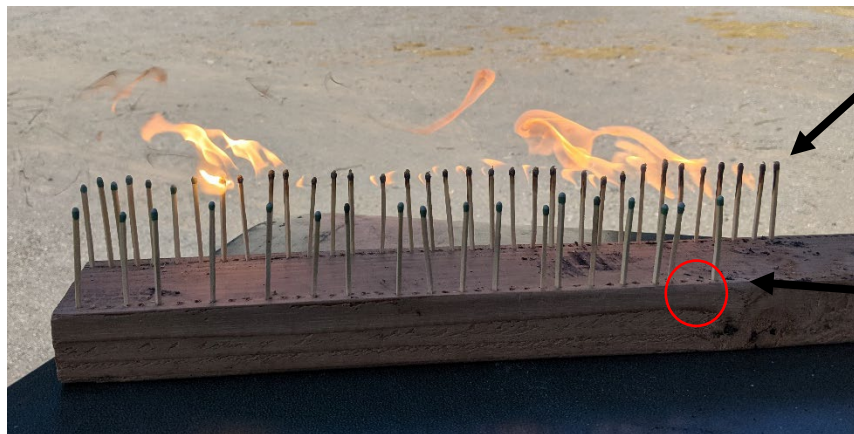
Conduct in an area with no wind for best results!

Discussion Topics

- **Initial Experiment:** Place matches in all holes to demonstrate fire activity and behavior.



- **Creating fuels breaks:** Place matches, leaving breaks in continuity to demonstrate fuel breaks that can come from herbivory/grazing, roads, cattle trails, disced/dozer fire breaks, etc.



Back Row -
Continuous matches on back row has spread the fire across board.

Front Row - Matches are spaced out with breaks and fire is not spreading from first match.

- **Dense Vegetation:** Place matches densely at end of board to illustrate intense fire behavior.
- **Slope:** Place board at an angle using another piece of wood or brick. Slope can intensify fire behavior.
- **Wind:** Add wind from fan to increase rate of speed, use with fire breaks to show how wind can cause fire to jump a break.
- **Humidity:** Use squirt bottle to add humidity to fire and illustrate how humidity can reduce rate of fire speed and intensity.
- **Board Application:** Discuss how the board for this lesson relates to grazing and fine fuels, but can also demonstrate the same concepts for brush control with mastication and forest management from logging. The same concepts all apply, sharing about density of trees, slope, humidity and breaking continuity all apply.

Fire Board

- 16 inches long, 1/8 inch drill bit.
- Suggestion for holes:
 - Draw a guide line on each side of the board.



- Drill 2 rows of holes (one on each side of the board). Place the holes in the rows as close as possible to each other in the line.



- Create dense section of holes on one end of the board.

