



Michigan

Society of American Foresters

Growing better all the time



Michigan
Forest
Association



Fire and Its “Roll” In Silviculture

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MICHIGAN STATE
UNIVERSITY

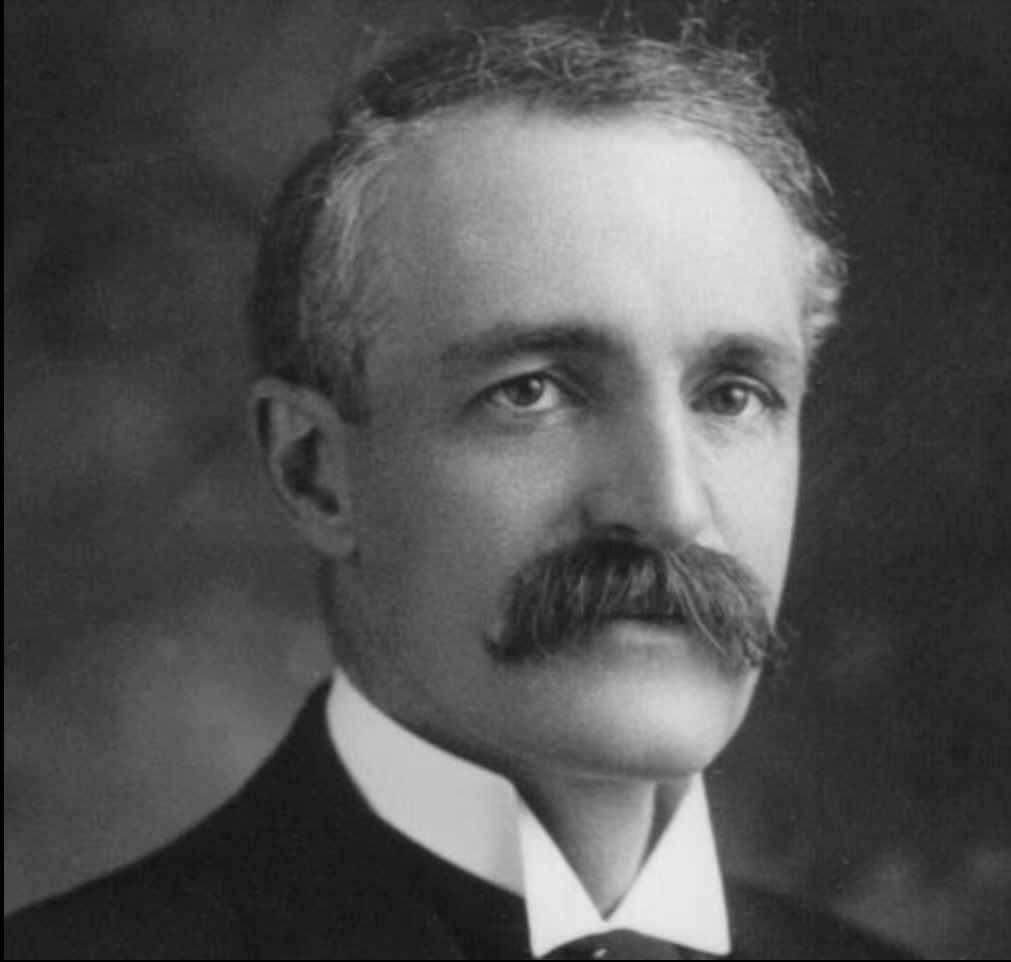


Silvicultural Use of Prescribed Fire: Is It Necessary?

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*“Of all the foes
which attack the
woodlands of
North America no
other is so terrible
as fire.”*

Gifford Pinchot



“Fire and life, in brief, form a necessary kind of symbiosis.”

Stephen Pyne



Remember—Only you can
PREVENT FOREST FIRES

Only you can set a prescribed fire!



Healthy Forests Restoration Act of 2003

“To improve the capacity of the Secretary of Agriculture and the Secretary of the Interior to **conduct hazardous fuels reduction projects** on National Forest System lands and Bureau of Land Management lands aimed at protecting communities, watersheds, and certain other at-risk lands from catastrophic wildfire, to enhance efforts to protect watersheds and address threats to forest and rangeland health, including catastrophic wildfire, across the landscape, and for other purposes.”



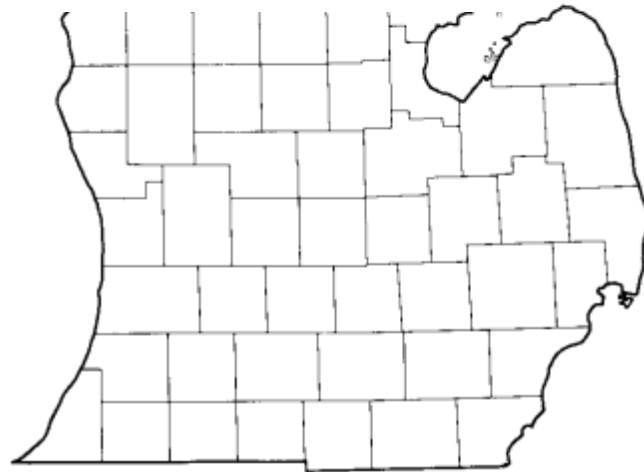
A white outline map of the United States is centered on a black background. A red arrow points upwards from the text below towards the Great Lakes region of the map.

2014: 2,389,798 acres ↑





2014: 16,333 acres ↑



Prescribed burning

is...

Fire

- Applied in a skillful manner...
- At a definite location & time...
- Under pre-defined weather conditions...
- To achieve specific management objectives

Anything else is a

Wildfire



Why use prescribed fire?



Why use prescribed fire?

- Reduces hazardous fuels



Why use prescribed fire?

- Site preparation—slash reduction, seed-bed improvement



Why use prescribed fire?

- Stimulates natural regeneration & increases diversity of ground flora



Why use prescribed fire?

- Controls woody understory



Why use prescribed fire?

- Creates desirable wildlife habitat



Why use prescribed fire?

- Controls certain insects & diseases



Why use prescribed fire?

- Recycles nutrient cations (Ca, Mg, P, K); stimulates N fixation



Why use prescribed fire?

- Restores a natural (pre-Euroamerican settlement) ecological process or condition



Why use prescribed fire?

- Enhances aesthetics & improves access



Harvest

Regenerate



The Silvicultural Cycle

Tend



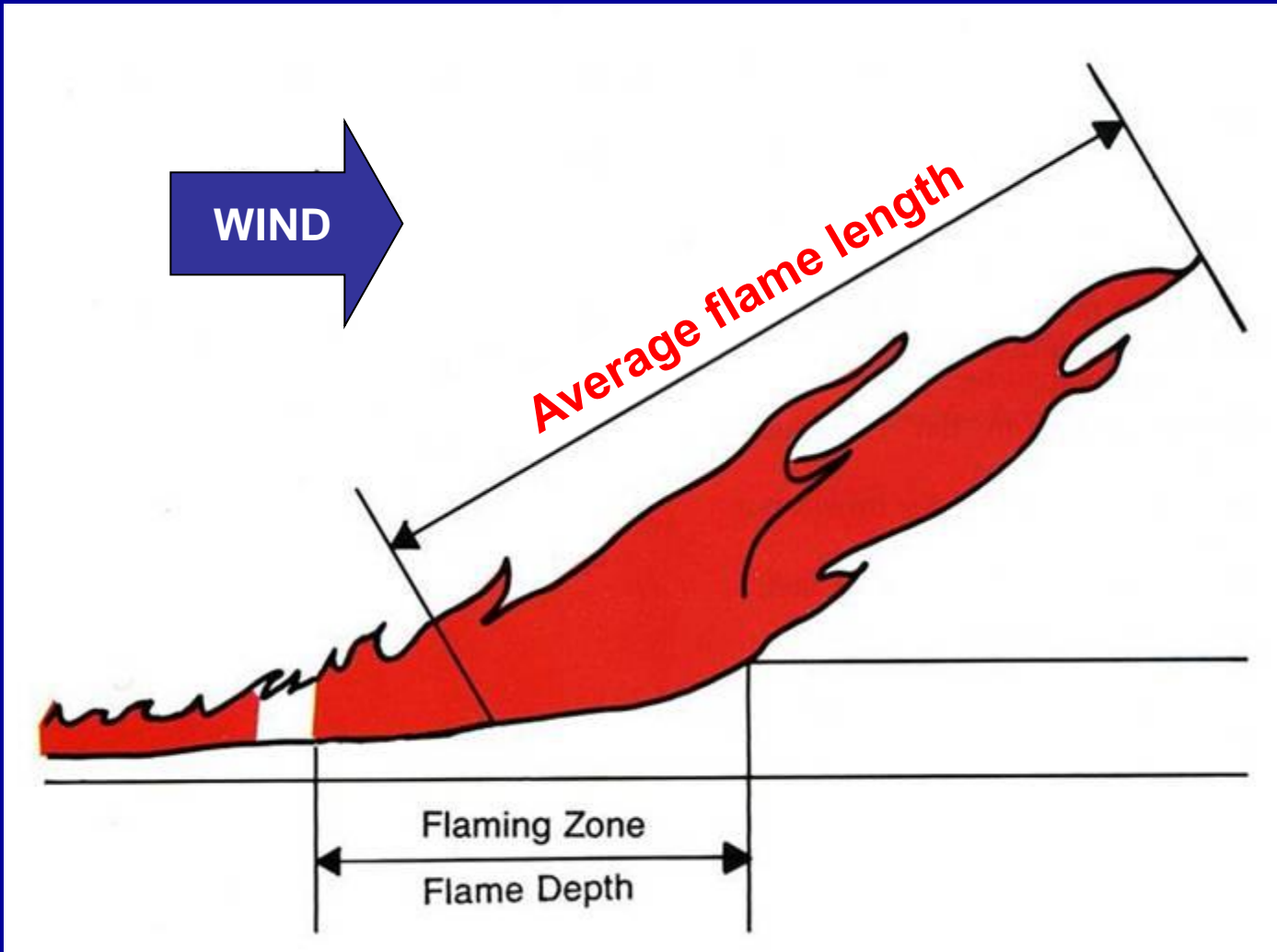






**Underburning:
Red pine
White pine**





<3 feet (1 m)









> 75% crown
scorch=








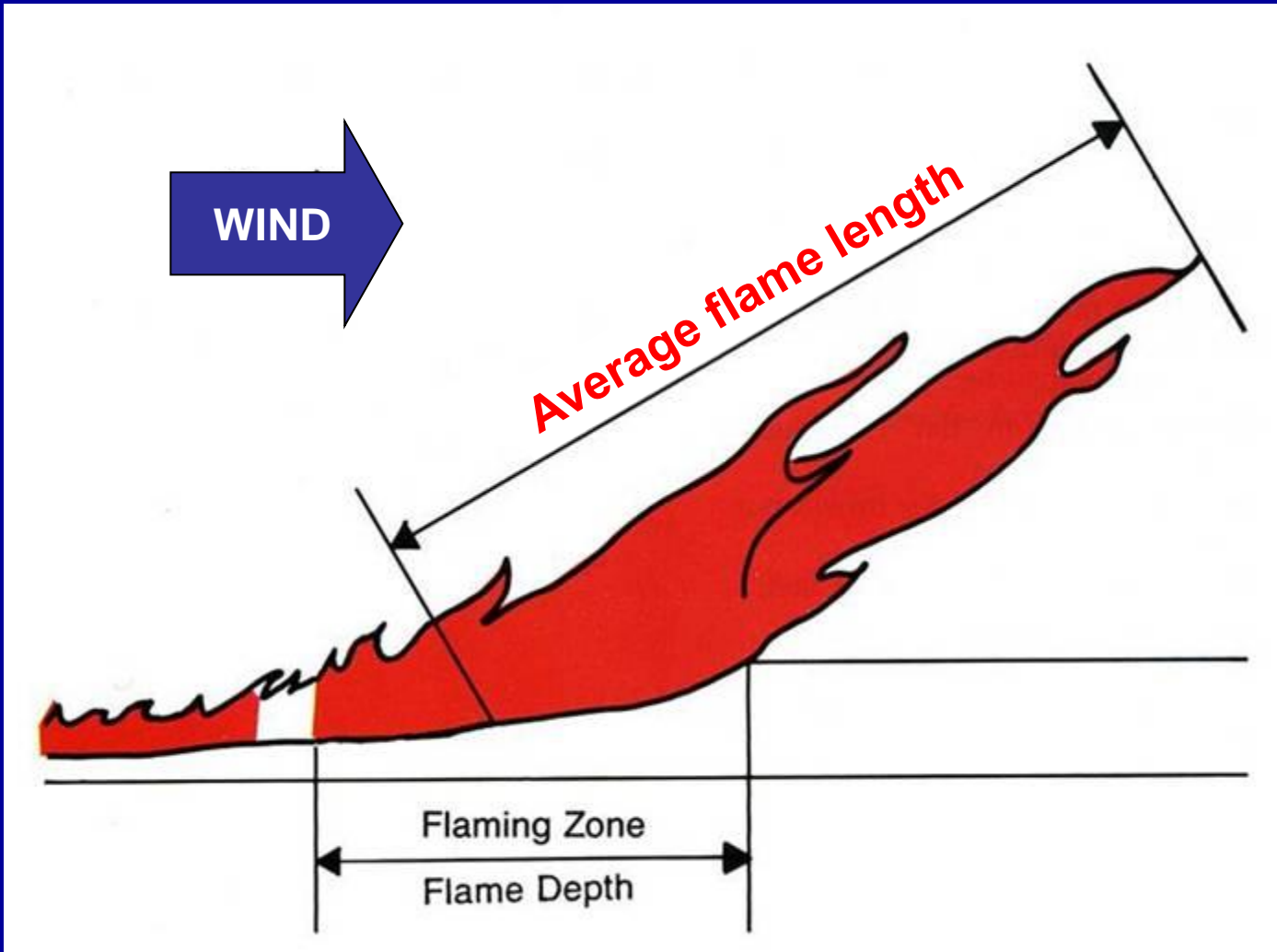
A silvicultural prescription for pine regeneration

Several burns in mature stands to suppress woody competition and prepare a seedbed





**Underburning:
Oaks**



Abundant

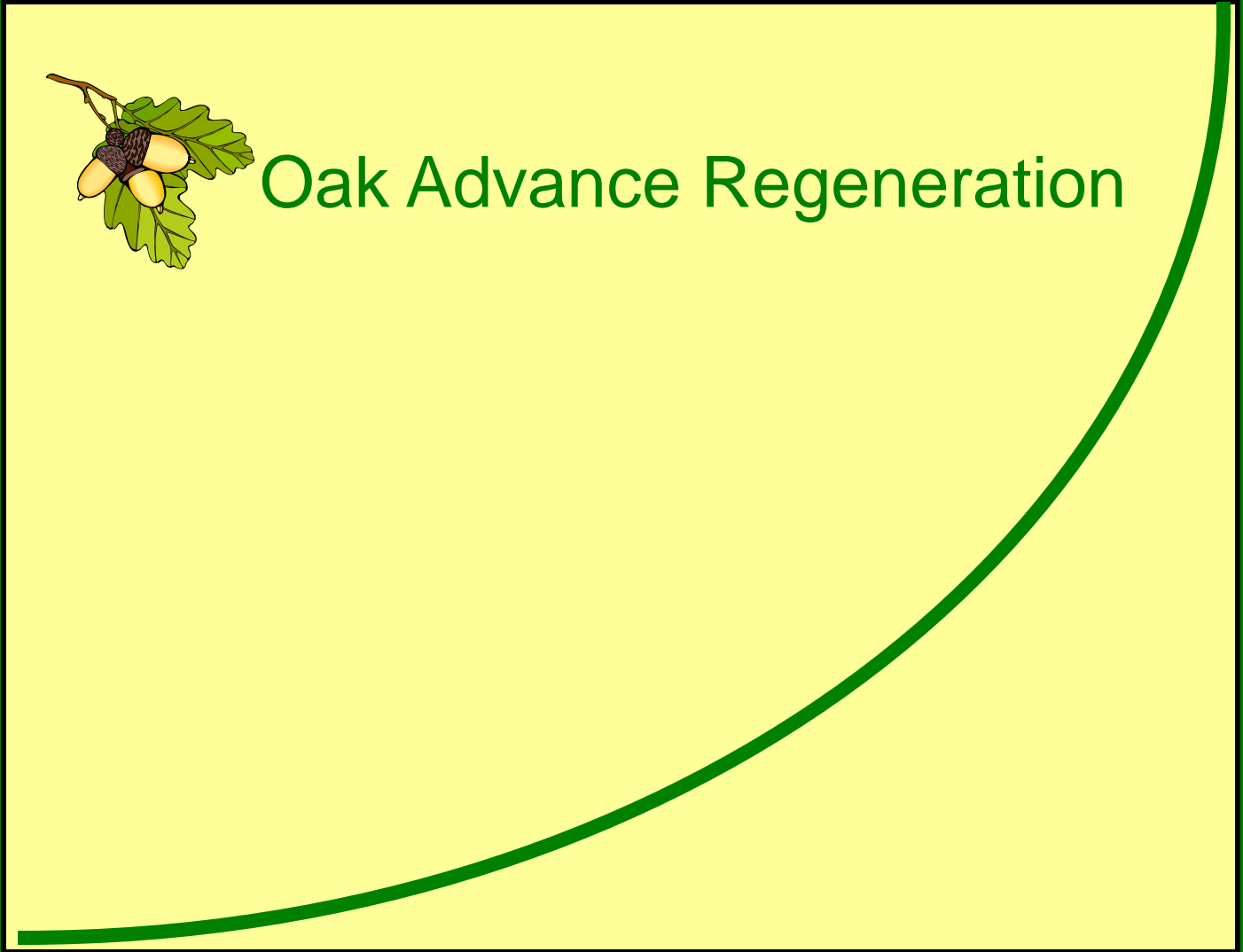


Absent



Oak Advance Regeneration

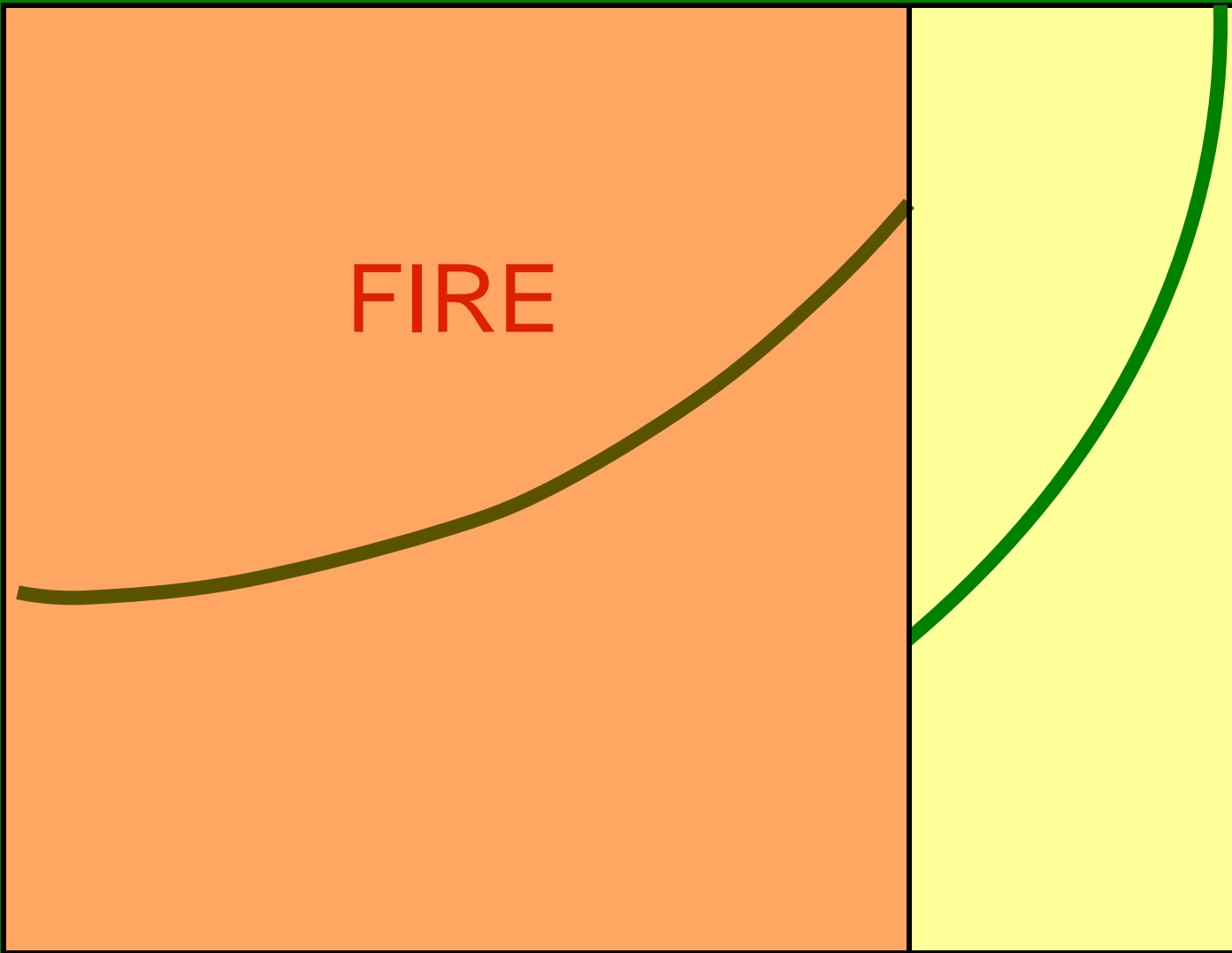
Mesic ←----- Dry-mesic -----→ Xeric



Abundant



Absent



FIRE

Mesic ←----- Dry-mesic -----→ Xeric

A silvicultural prescription for oak regeneration

(Dave Van Lear et al.)

Frequent burns in mature stands to suppress woody competition and favor acorn germination





TABLET & LIQUID FORMS

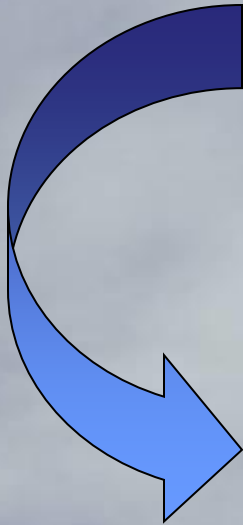
Dow AgroSciences
Garlon 4 Ultra
Trifluralin
Herbicide
3.75 L (1.0 gal)

3.75 L (1.0 gal)

Weather

- Fuel moisture
- Fire behavior
- Smoke dispersal

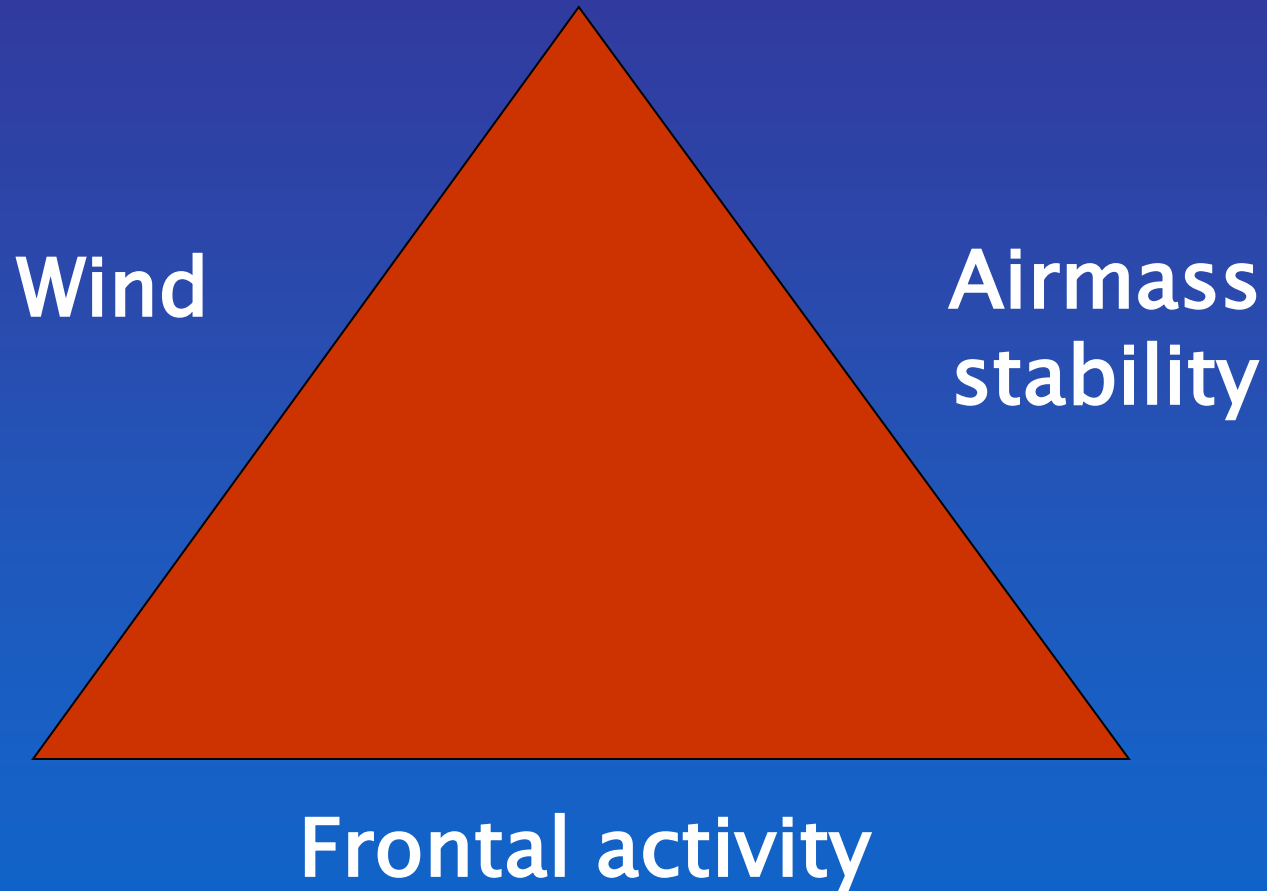
Good forecasts
are essential!





Smoke management

Weather during prescribed fire



H

01:15 PM EDT Wed Sep 19

L

1024

1016

1016





Target Values for Underburning

Fuel moisture codes:

FFMC 90–95

DMC 15–30

DC 70–100

} low intensity fire

Fire behavior indices:

ISI 6–10

BUI <50

FWI 10–15

} manageable behavior

Michigan

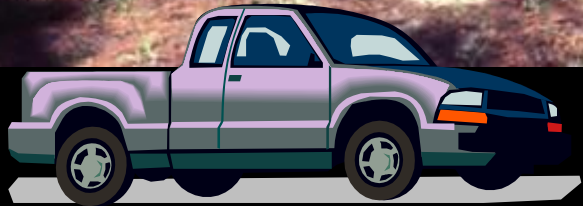


± 20 days,
mostly in
spring

Economics



Fuel loading & m.c.—weather



T.R. Miller Lumber Co.

“Those who regularly work with fire develop a profound respect for its tendency to surprise the unwary.”

G.S. Beebe & P.N. Omi





**Silvicultural Use of
Prescribed Fire:
Is It Necessary?**

**Not Necessary,
but available**

**MSU
FORESTRY**

Since
1902

