

Grand Traverse Orchard & Vineyard Show

“Firewise on the Farm”





**"AND
JUSTICE
FOR ALL"**

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**A neighbor is burning
pruned material and leaves**



**Your neighbor steps in for lunch and one
stray ember sets the field on fire...**



The fire spreads to your farm while you are in town on an errand. Before the first fire truck arrives, every building on your farm will be on fire and you will return to see everything lost...

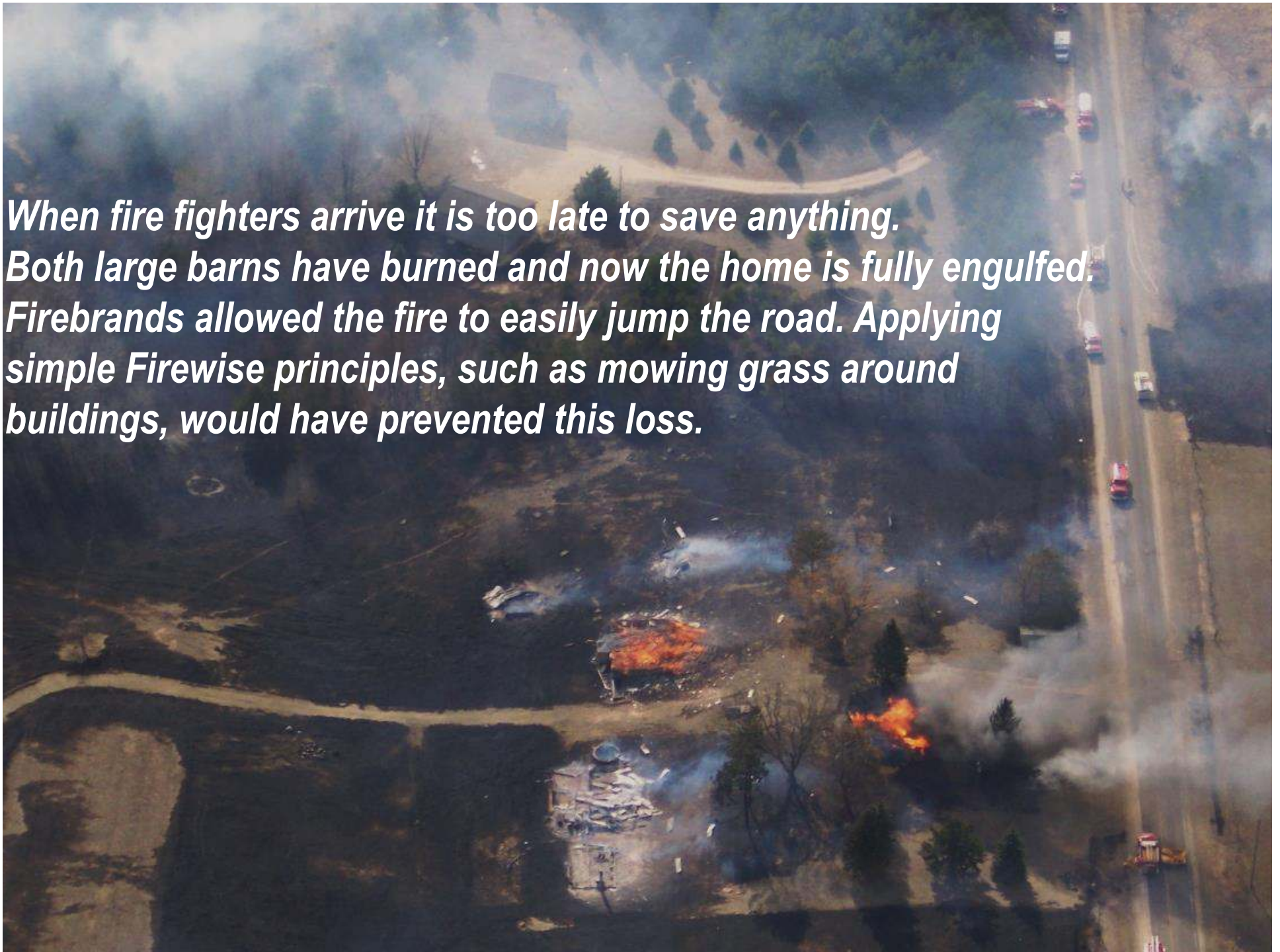




Hoxeyville Wildfire April 16, 2008

An April grass fire in Wexford County, Michigan, quickly ignites agricultural outbuildings...

When fire fighters arrive it is too late to save anything. Both large barns have burned and now the home is fully engulfed. Firebrands allowed the fire to easily jump the road. Applying simple Firewise principles, such as mowing grass around buildings, would have prevented this loss.



Michigan on average experiences
nearly 10,000 wildfires per year!

Background: The 21,964
acre “Duck Lake Fire” in the
U.P destroyed 136
structures in 2012.

Right: The 1,500 acre “Four
Mile Fire” roars into Grayling
in 2008, 3 homes were lost



Recent Michigan wildfires



- **Mack Lake Fire** (Mio) – 1980 (pictured)
25,000 acres; 44 homes destroyed
- **Stephan Bridge Fire** (Grayling) – 1990
76 homes & 125 buildings destroyed
- **County Line Fire** (Baldwin) – 1994
900 acres, 8 homes lost, threatened the Village of Baldwin
- **Hughes Lake Fire** (Mio) – 2006
6,000 acres, \$1Mil. fire service costs, 23 structures lost
- **Sleeper Lake Fire** (U.P.) – 2007
20,000 acres, threatened U.P. towns
- **Four Mile Fire** (Grayling) – 2008
1,300 acres, \$1Mil. fire service costs, 3 homes lost, threatened City of Grayling
- **Meridian Boundary Fire** - 2010
8,790 acres, 12 homes, 39 structures lost, threatened Village of Roscommon
- **Duck Lake Fire (Newberry) – 2012**
21,000+ 20+ structures, Village of Newberry threatened

Duck Lake Fire - Newberry



Duck Lake Fire – Lake Superior Shoreline





Meridian Boundary Fire, Roscommon, 2010

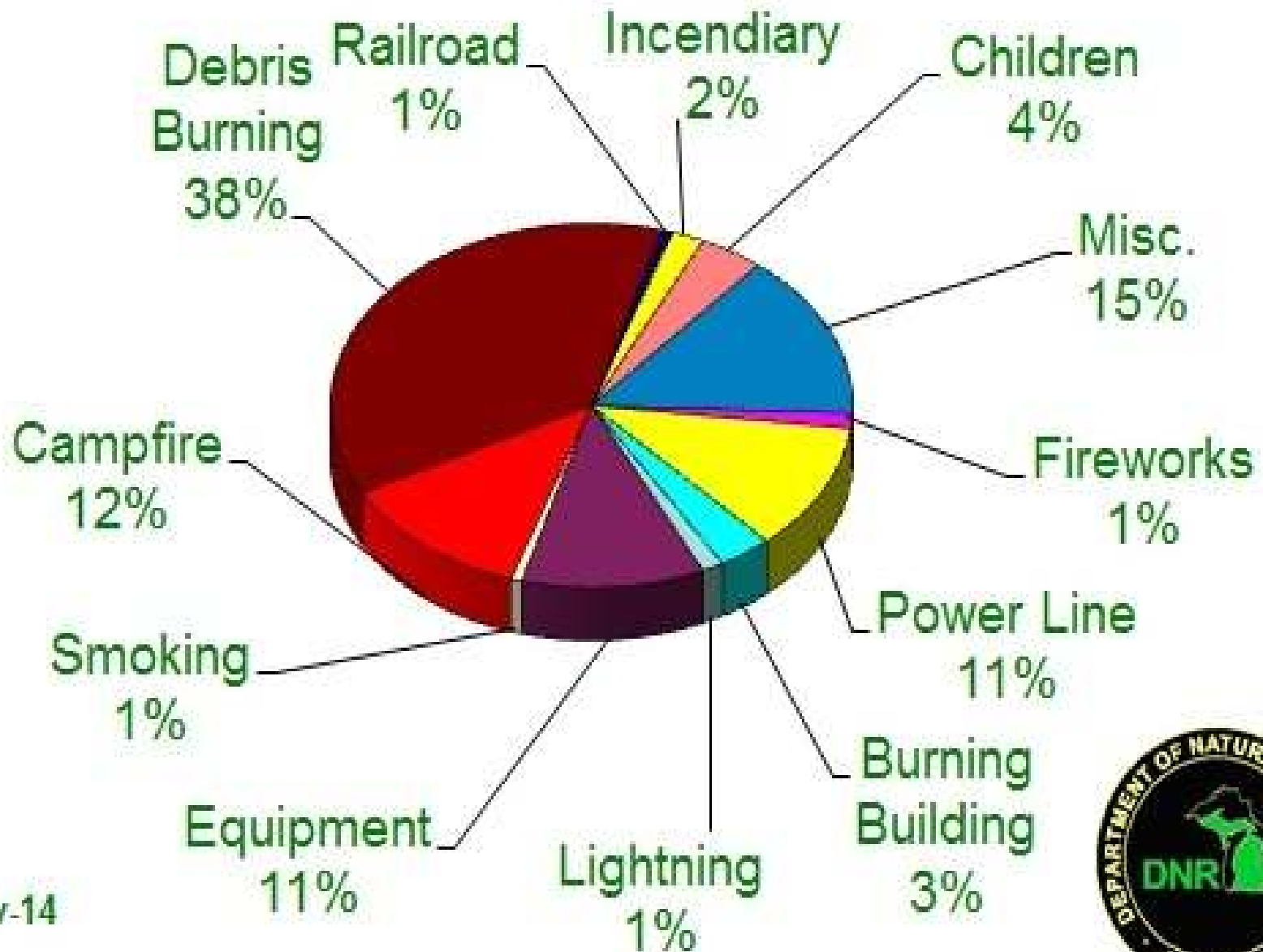
Sleeper Lake Fire 2007



Bear Lake Fire 2004



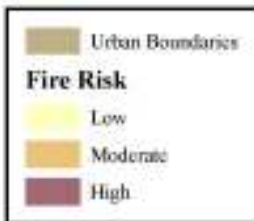
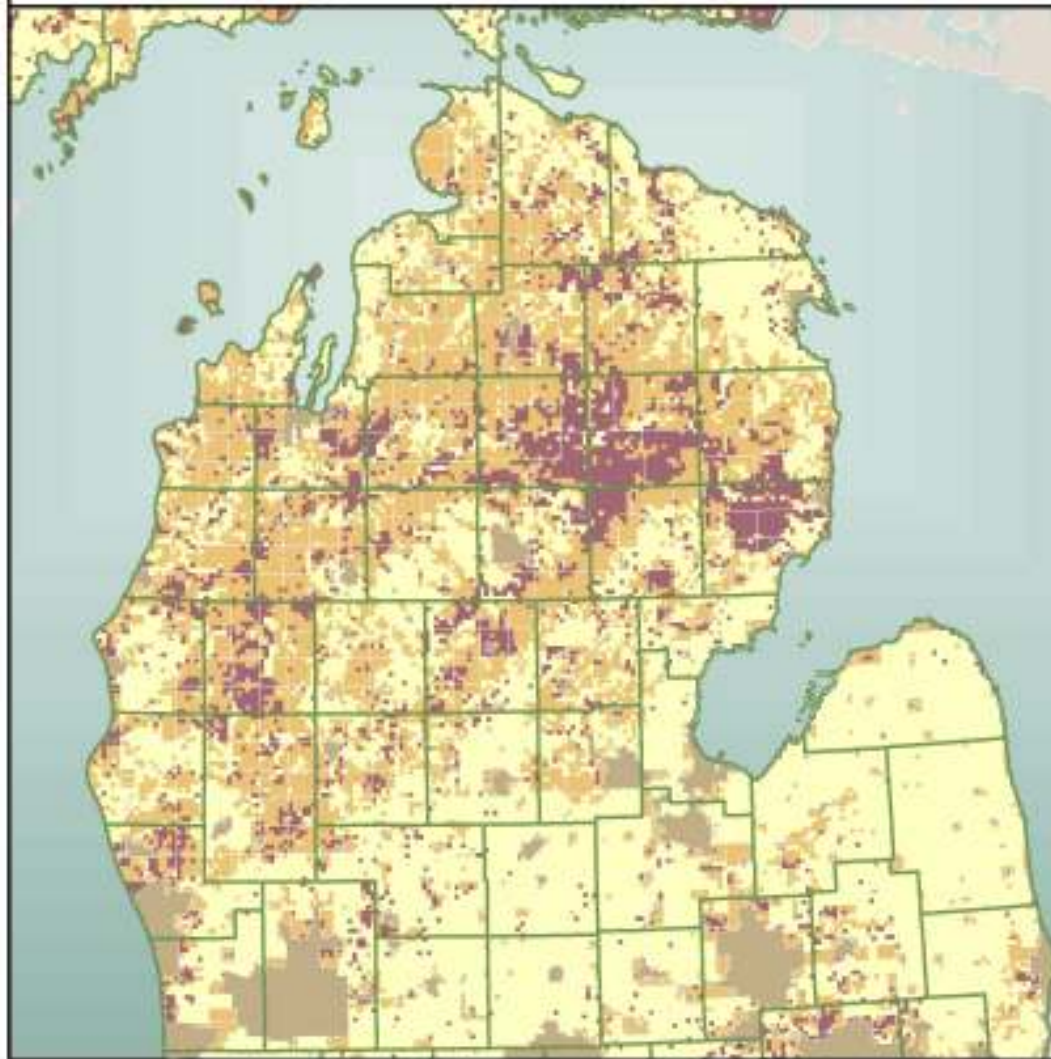
2014 Wildfires by Cause To Date



17-Nov-14



Fire Management - Communities at Risk



Map and Analysis by Kenneth Sinding & Jeff Karsant/Great Lakes Statewide GIS Center - <http://www.gis.wisc.edu>

Michigan wildfire history ...



Native Americans considered fire a gift, understood its role in nature and used it wisely to their benefit for thousands of years. At the time of European arrival, Native Americans had roughly doubled the amount of fires that were occurring naturally.

Poor land use practices by European settlers created major fire & environmental disasters



Wildfires swept Michigan

Devastating wildfires from poor land use practices and extreme fire weather swept over much of the state in the 1870's and 80's. Scores of cities and towns including Holland, Manistee and Port Huron were nearly or completely destroyed.



Society's Iconographic Collections

This painting by Mel Kishner graphically illustrates the plight of victims trapped in such outlying areas as the Sugar Bushes.

Wildfire becomes the enemy...

Europeans considered most wildfires as “bad” requiring immediate extinguishment.

Resulting improvements in fire detection, fire fighting techniques and equipment allowed fire to often be controlled or suppressed by the 1920's and 30's.





SMOKEY SAYS—

**Care will prevent
9 out of 10 forest fires!**

Wildfires consume an average of 6.5 million acres annually in the U.S. with over 90% being caused by human activity. Smokey's logic was to eliminate most wildfires by preventing their cause, careless human activity. Remaining fires could be controlled using modern fire fighting equipment and techniques, or so we thought...

A dangerous cycle...

Pre-1870 natural fire tempered forest



1870-1900 Clear-cut / stripped land



1900-30 New forests planted / No fire



Today-100 years without fire... thick with trees, brush, deadfall, insects and disease.



How wildfires ignite structures...

Radiant Heat



Firebrands



Direct Flames



Firebrands ...

- Most people, including fire departments, do not realize that firebrands will shower a community creating multiple ignitions from a fire as far as a mile away.



Ladder fuels create running high intensity crown fires

Fire climbs neighboring trees like a ladder. To reduce the chance of fire climbing a tree, limb trees at least 6-15 feet or lower 1/3 branches of smaller trees



Being “Firewise” helps insure your home and farm survives

A raging fire swept through the entire area surrounding this home and it survived without fire department intervention thanks to basic Firewise principles.



Michigan farms in the cross hairs of an emerging problem?

- Greater exposure to wildfire in rural settings.
- Greater potential for fire starts, i.e. debris burning, machinery, hay, lightning etc.
- Greater wildfire vulnerability due to older flammable buildings in close proximity, flammable crops, livestock bedding etc.
- Limited or distant fire department resources and water supplies.
- Crop livestock and employee evacuation and protection challenges.

What wildfire hazards exist on your farm?

- Hay storage/composting
- Livestock bedding materials
- Livestock corralled or fenced and unable to escape fire
- Flammable liquids storage/use, other hazardous materials
- Machinery, Electric motors, fences, and belt driven equipment
- Flammable buildings in close proximity to each other
- Open burning for crop management or debris removal
- Burning for debris/trash removal
- Remoteness from fire department and water supplies
- Close proximity to fields and forest lands
- Laborers/public working and/or smoking in fields and buildings
- Lightning risks

How is fire used on your farm?

- Land clearing
- Pest control
- Disease control
- Propagation
- Soil conditioning
- Debris/trash removal
- Recreation
- Heating

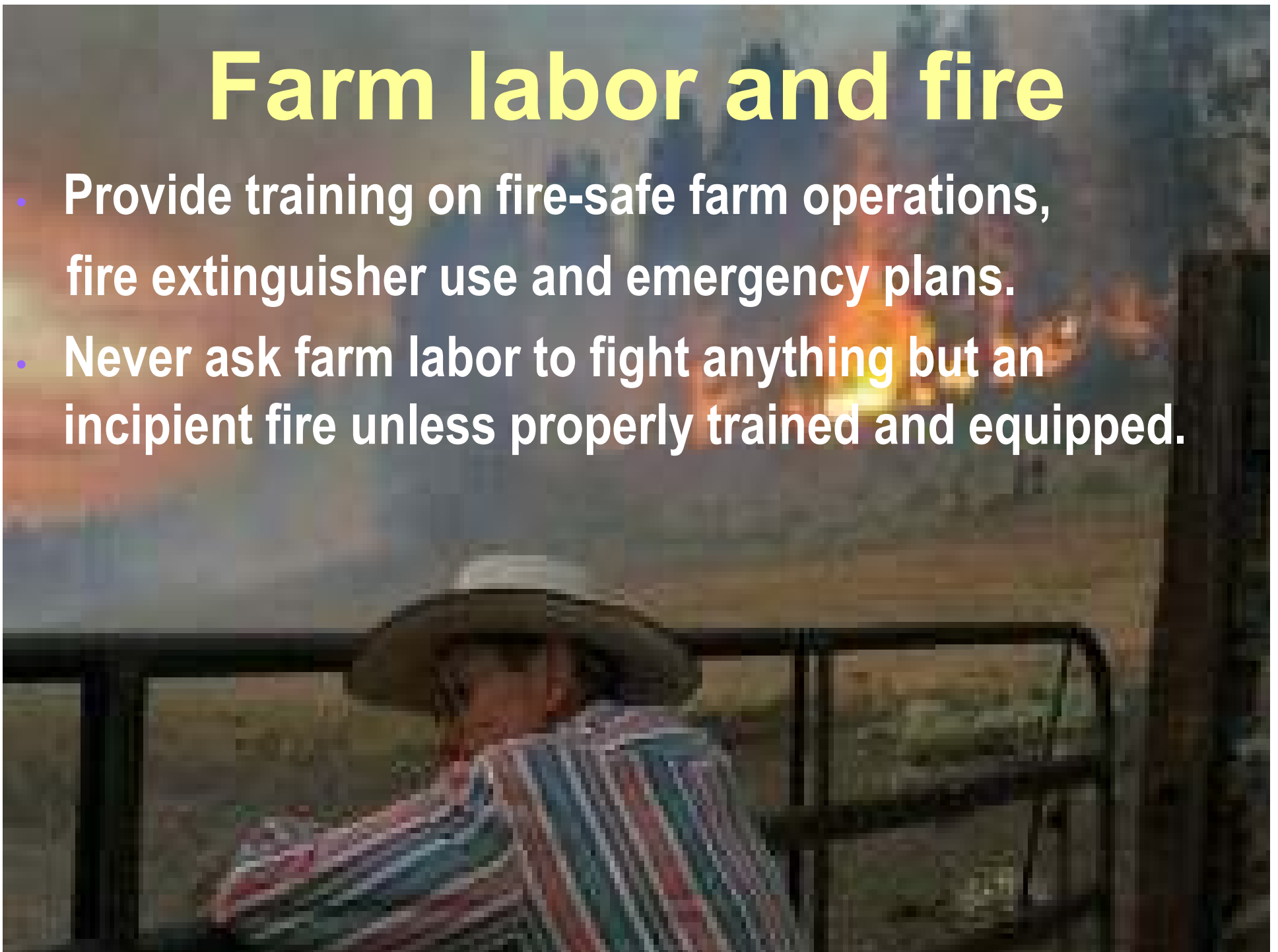


Farm fire defense

- Create fuel breaks, water supply points and livestock evacuation and safety areas.
- Keep tractor plows, sprayers, pumps, irrigation systems and hand tools ready for fire use.
- Properly train and equip employees for fire response
- Have a Fire Plan.
- Participate with Firewise and MAEAP programs.
- Understand “fire weather”.

Farm labor and fire

- Provide training on fire-safe farm operations, fire extinguisher use and emergency plans.
- Never ask farm labor to fight anything but an incipient fire unless properly trained and equipped.



Farm fire management plan:

- Identifies your agricultural fire uses, best practices and applicable regulations.
- Reveals fire risks to your property.
- Identifies fire hazards on your property and reduces your risks and liabilities.
- Defines fire prevention and mitigation measures.
- Creates a plan for preparing for, responding to and recovering from fire.
- Helps keep people, livestock, crops and property safe from fire.


Do You Know...

- That portable heaters are the #1 cause of barn fires, and outdoor burning the leading cause of wildfire?
- That soil erosion is a major issue following wildfire?
- The conventional wisdom of watering crops after fire impingement can pH shock certain crops and take them out of production for up to three years?
- That Michigan fire law provides specific rules and guidelines for agricultural fire use?
- That “fire weather” is a very useful tool for farming?

In a wildfire event, fire departments do not have enough resources to protect every farm and home



Will Your Farm Survive Without Help?



Your 911 call during a wildfire emergency may not produce the results you anticipate. With limited resources available during interface wildfires, homes and farms may not be defended!

Invite your local fire department to visit your farm

- This can be a field training day for fire department volunteers
- Point out water sources, ingress & egress roads, barn access, open areas to land a helicopter
- If you have livestock, indicate where animals and trailers are located
- Also point out where chemicals, fuels, and other hazardous materials are stored including location of underground tanks
- Make sure signs are reflective so fire fighters can see them in dense smoke or at night

What You Can or Cannot Burn

- Legal with permit
 - Leaves
 - Brush
 - Limbs, branches, logs
- Illegal to burn
 - Building materials
 - Demolition debris
 - Furniture, mattresses, etc.



Michigan Laws & Regulations

- Michigan Fire Law
- Permits
 - Snow cover
 - Domestic fires
 - 1400 feet from city limits
 - Agricultural exemption*
- Burn Barrels
 - Non-flammable surface with lid
 - Holes no larger than $\frac{3}{4}$ inch
 - Burn natural materials only



You'll get a list for your county similar to this....

County Name	Township Name	Burning Permits Issued	Guidelines and Restrictions
MANISTEE	ARCADIA	Yes	All Day
MANISTEE	BEAR LAKE	Yes	All Day
MANISTEE	BROWN	Yes	All Day
MANISTEE	CLEON	Yes	All Day
MANISTEE	DICKSON	Yes	All Day
MANISTEE	FILER	No	Burn permits are issued locally by calling 231-723-3138
MANISTEE	MANISTEE	No	Burn permits are issued locally by calling 231-723-6507
MANISTEE	MAPLE GROVE	Yes	All Day
MANISTEE	MARILLA	Yes	All Day
MANISTEE	NORMAN	Yes	All Day
MANISTEE	ONEKAMA	Yes	All Day
MANISTEE	PLEASANTON	Yes	All Day
MANISTEE	SPRINGDALE	Yes	All Day
MANISTEE	STRONACH	Yes	All Day

Wildfire issues specific to vineyards

- Damage to infrastructure including buildings, irrigation systems and trellises.
- Heat damage to crops.
- Smoke damage to crops.
- Soil contamination and pH shock.
- Erosion.






- Orchards and vineyards are now close neighbors in most areas of Michigan. Fire use in both orchards and vineyards could potentially “taint” your or a neighbors crops.

- Just a 30% smoke density for 30 minutes can ruin a wine grape crop!





The “taint” produces flavors ranging from “wet ashtray” and “sweaty socks” to “burnt meat” and “chemicals”.

The taint is usually not detectable when tasting the fruit; however fermentation processes releases and amplifies the volatile chemical compounds in the smoke taint known as phenols.

A small batch of smoke tainted fruit mixed with other unexposed fruit can contaminate and ruin an entire batch, creating significant financial loss.

What is Known...

Fruit from Merlot grapevines has shown the highest sensitivity to smoke at seven days after the onset of ripening.

Guaiacol and 4-methylguaiacol are two major compounds associated with smoke taint in fruit and wines. Guaiacol and 4-methylguaiacol glycosides are also identified in smoke affected fruit and wine.

Repeated and longer exposure to smoke results in increased levels of guaiacol and 4-methylguaiacol through a cumulative effect.

Levels of “smoke” compounds increase in bottled wine over time due to release of smoke taint compounds from their bound forms (glycosides).

Some techniques can reduce the smoke taint. They include hand harvesting of fruit, chilling grapes after harvest, altering strength and duration of pressing and reverse osmosis treatment of the wine.

There is no carry-over effect of smoke taint from one growing season to the next.

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- **Losses have exceeded \$100,000,000 annually worldwide and the problem is rapidly expanding**

Michigan Firewise Program

Presenter

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On the web at: www.firewise.msu.edu

National Firewise: www.firewise.org

