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1995

## Program Guide: Fire Extinguishers: Protection for the Home and Farm

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### Repository Citation

Piercy, Larry R., "Program Guide: Fire Extinguishers: Protection for the Home and Farm" (1995).  
*Agricultural Engineering Extension Updates*. 62.  
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# Agricultural Engineering Update



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## PROGRAM GUIDE

### FIRE EXTINGUISHERS

#### Protection for the Home and Farm<sup>1</sup>

The right kind of fire extinguisher conveniently located and properly used can greatly reduce the potential losses from a fire. However, the user must have a knowledge of the common types of extinguishers, the types of fires for which they are safe and effective and the proper operating procedures.

A discussion outline and suggested teaching activities are provided to assist you in presenting a program on fire extinguishers.

#### PROGRAM OBJECTIVE:

Upon completion of this program the audience will be able to:

1. Identify the classes of fires,
2. Identify the types of fire extinguishers,

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3. Select appropriate fire extinguishers for the home and farm, and
4. Understand the operating procedures for the common dry chemical fire extinguisher.

**SUGGESTED TEACHING ACTIVITIES AND MATERIALS:**

1. Have a multi-purpose dry chemical extinguisher available for illustrating the operating procedures.
2. Ask a member of the fire department to talk about fire extinguishers.
3. Contact your local fire department for an educational video on fire extinguishers.

**DISCUSSION OUTLINE**

**LEADER NOTES:**

- I. Kentucky Fire Losses
  - A. The right kind of fire extinguisher, properly used and located where it can be put into immediate action, could sharply reduce fire losses.
  - B. Remember the purpose of an extinguisher is to limit property damage. Never endanger a life fighting a fire.
- II. Chemistry of Fire
  - A. Three factors must be present for a fire to burn. They are:
    1. Oxygen - Air
    2. Fuel - Something to burn
    3. Heat - Ignition source
  - B. If any one of these factors is removed, the fire will die.
  - C. Fire extinguishers work by removing one of these factors or by interrupting the chemical chain reaction in the combustion process.
- III. Fire Classifications
  - A. Home and farm fires are classified into three groups.
    1. **Class A** - Ordinary combustibles

- a. Includes wood, paper, fabric, crop residue, etc.
- b. Water is the best extinguishing agent.
- c. Multi-purpose dry chemical is also effective.

2. **Class B** - Flammable Liquids

- a. Includes gasoline, diesel fuel, cooking oil, paints, paint thinner, cleaning agents, etc.
- b. A grease fire in the home is an example of a Class B fire.
- c. Never use a stream of water on a Class B fire; it will splash and spread the flame.
- d. Use carbon dioxide, dry chemical or multi-purpose dry chemical type extinguishers.

3. **Class C** - Electrical Fires

- a. Includes any fire in or near electrical appliances, electric motors or electrical wiring.
- b. A fire is considered to be Class C anytime the extinguishing agent could come in contact with electrical power, even if the source of the flame is Class A or B materials.
- c. Use an extinguishing agent that does not conduct electricity.
- d. It is advisable to disconnect the electrical circuit and de-energize the area involved in the fire, if possible.
- e. Carbon dioxide, dry chemical or multi-purpose dry chemical are safe to use on electrical fires.
- f. Never use water where it could come in contact with electrical power.

4. **Class D** - Combustible Metals

- a. Some metal such as sodium, magnesium, potassium, etc., used in industry are combustible and require a special Dry Powder type extinguisher.

IV. Types of Fire Extinguishers

A. Water - Class A Fires

1. Water extinguishes by cooling the material and is the most effective extinguishing agent for ordinary combustibles.
2. Water should not be used on flammable liquid or electrical fires.
3. Two and one-half gallon pressurized water extinguishers are commonly found in commercial buildings. (Usually a stainless steel extinguisher.)
4. Must protect the water from freezing.

B. Carbon Dioxide (CO<sub>2</sub>) - Class B-C Fires

1. CO<sub>2</sub> extinguishes by smothering the flame and is effective on flammable liquid and electrical fires.
2. Not recommended for outdoors since a wind can spread the CO<sub>2</sub> gas.
3. Does not leave any residue after use. Safe to use around food or electronic equipment.
4. Extinguishers must be weighed to determine if fully charged.
5. More expensive than dry chemical for equal fire fighting capacity.

C. Dry Chemical - Class B-C Fires

1. It's effective against flammable liquid and electrical fires.
2. Can be used to knock down flames of ordinary combustibles.
3. Baking soda is one type of dry chemical.
4. Leaves a residue after use.
5. Has a tendency to settle. Shaking prior to use will improve performance.
6. Extinguishes by interrupting the chemical chain reaction at the burning surface.

D. Multi-Purpose Dry chemical - Class A-B-C Fires

1. A type of dry chemical that is effective against all three types of classes of fires.
2. An excellent choice for use in the home and on the farm.

3. Leaves a powder residue which is corrosive to metals when wet.
4. Has a tendency to settle. Shaking prior to use will improve performance.
5. Extinguishes by interrupting the chemical chain reaction at the burning surface and coating the material.

E. **Halon - Class B-C Fires or Class A-B-C Fires**

1. A colorless vapor that leaves no residue.
2. Halon extinguishers are being discontinued and will not be recharged because they damage the environment (ozone layer).

V. Selecting A Fire Extinguisher

- A. Good extinguishers are worth their cost because of the protection they provide.
- B. Look for testing laboratory seal of approval and size rating.
  1. Only buy extinguishers that bear the Underwriter's Laboratory (UL) or Factor Mutual (FM) Seal of Approval.
  2. Look for the number and letter rating on the fire extinguisher.
    - a. The number indicates the relative size of fire that can be extinguished.
    - b. The letter indicates the class or type of fire for which the extinguisher is suitable.
    - c. For example, if an extinguisher is rated 10-B:C, the B:C indicates an effectiveness against flammable liquids and electrical fires and the 10 indicates the relative size of fire that it will extinguish. A 5-B:C unit would have less extinguishing capability.
- C. A 5 lb. multi-purpose dry chemical fire extinguisher rated at 2-A; 10-B:C is a good, all-around choice for use in the home and on the farm.
  1. A multi-purpose extinguisher is effective on all classes of fires.
  2. The 5 lb. size is convenient to handle.
  3. For high risk areas on the farm, such as fuel storage areas or farm shops, etc., consider larger 10 lb. multi-purpose extinguishers. For combines consider several 10 lb. or a 20 lb. multi-purpose extinguisher.
  4. A smaller 2 1/2 lb. size is convenient for the use in the car or added locations in the home such as the kitchen.

- D. Extinguishers with a plastic head are less expensive but they are difficult to recharge.

#### VI. Suggested Locations for Extinguishers

- A.
 

<u>House</u>	<u>Farm</u>
Kitchen	Combine
Furnace Room	Tractor
Family Room	Trucks
Garage	Farm Shop
	Fuel Storage Areas
	Confinement Livestock Buildings
- B. Mount extinguishers near an exit door where they are easily accessible. Never mount one in the immediate area of a potential fire.

#### VII. Maintenance

- A. Most extinguishers require very little maintenance.
- B. Check pressure gauges monthly to be sure the unit is charged and rubber hoses and nozzles yearly for cracks and obstructions.
- C. Have dry chemical extinguishers checked with a hydrostatic pressure test every 12 years.
- D. Have your extinguisher recharged by a competent fire extinguisher service establishment. In rural area check with the local fire department.
- E. Always recharge after being used on a fire, even if the powder is only partially used up. (The powder clogs the valve and the pressure is released after a short period.)

#### VIII. Fighting Fires!

- A. Use a "fanning action" by rapidly moving the nozzle from side to side so that the extinguishing agent can thoroughly intermix with the flames.
- B. Aim nozzle at bottom of flames.
- C. Approach fire from upwind side.

#### IX. How to Use a Fire Extinguisher

- A. Pull the pin. Some units require releasing a lock latch, pressing puncture lever or other motion.
- B. Aim the extinguisher nozzle (horn or hose) at the base of the fire.

- C. Squeeze or press the handle.
- D. Sweep rapidly from side to side at the base of the fire. Watch for reflash. Discharge the contents of the extinguisher.
- E. Most extinguishers are operated by following these directions. Check your extinguisher for variations.

X. In Case of a Fire, **REMEMBER**

- A. Fire extinguishers are for protection against property loss. **NEVER ENDANGER A LIFE IN FIGHTING A FIRE.**
- B. So when a fire happens:
  - 1. Evacuate the premises,
  - 2. Call the fire department,
  - 3. If still safe, fight the fire but always leave yourself an escape route.
  - 4. If the fire gets too large, get out and close the door behind you to slow the fire speed.