

## Farm Ponds and Fire Suppression

Large quantities of water and powerful pumps are necessary to douse farmstead and rural property fires. Your local fire officials typically provide the vehicles, pumps, and some water during a fire response, but additional water is often necessary for barn fires, house fires, and forest or brush fires. Ponds can provide thousands of gallons of water in an emergency. However, improper maintenance can restrict the amount and availability of water from a pond. This fact sheet describes uses of ponds for fire suppression in New York and tips for maintaining a pond intended for fire suppression.

Although many pond owners consider their ponds a likely source of water for a fire on their own property, your entire community can benefit from your efforts to maintain a pond as a rural water supply. Access to water can make a big difference for your neighbors, whether they live on adjacent farms or are non-farmers living in the country.

### Volume of the rural water supply

House and barn fires require large amounts of water. A fire in a 2000 square foot house requires at least 8000 gallons of water for full suppression. The minimum water amount needed for a barn fire exceeds 25,000 gallons.

If you plan on using a pond for fire suppression, you should calculate the number of gallons available in your pond. This amount is somewhat less than the total volume of your pond, because several feet of water are necessary to prevent suction problems during high-volume pumping. To calculate the number of gallons in your pond, you need the surface square footage and average depth (for more details, see *Commercial Farm Pond Management Series* fact sheet, "Calculating Water Volume in Ponds"). Multiply these two numbers to get the total cubic feet. Multiply the cubic feet by 7.5 to determine how many gallons of water are in the pond. The actual amount of water in the pond available for fire suppression will be somewhat less, depending on the shape and depth of the pond.

Several other important considerations apply to ponds for fire suppression:

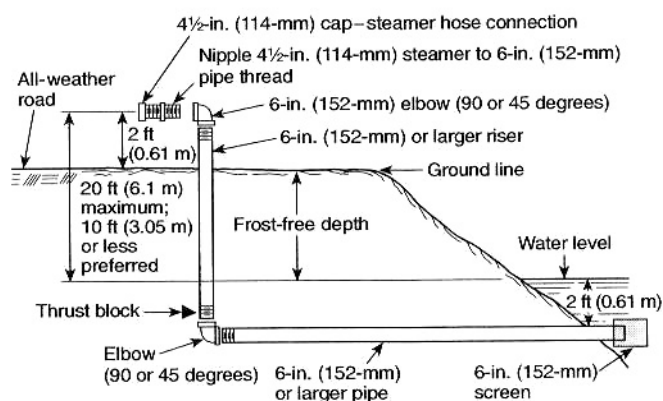
- The minimum level of the pond should be adequate to meet the intended fire problem. Calculations of capacity should be made during the summer, when ponds generally are at their lowest level.
- Frozen ponds substantially reduce the amount of water available for fire suppression.
- Pond silt and debris can unknowingly reduce pond capacity.
- If a pond is difficult to access due to soft ground or terrain, it cannot be employed for a speedy fire response.

### Dry hydrants

Dry hydrants are typically installed as 6-inch PVC or metal pipes, running from the pond to a spot where heavy fire vehicles can park and fill with pond water. The only visible portion is the capped pipe as it exits the ground, ready for hook-up. Dry hydrants improve the process of obtaining pond water by providing a safe and accessible pumping location, prior consent to use the water, and reduced water relay time.

If you have or plan to install a dry hydrant, make sure you notify and cooperate with the local fire department. These hydrants cost \$600 – \$1200 to install, depending on materials, and contractor services. A

DRY HYDRANT CONSTRUCTION



written water use agreement should be in effect, signed by the pond owner and the fire chief. If you are not sure of the status of a water use agreement, check with the fire department or the county Emergency Management Coordinator.

A dry hydrant is useful, but not required, for obtaining water from a pond. Many rural fire departments have floating pumps and screened supply lines for this purpose. If you are planning to have a nearby pond supply water for fire suppression, discuss the options with your fire department so your understanding of their capabilities is clear ahead of time.

### **Maintenance of fire suppression ponds**

The goal of fire pond maintenance is to ensure unobstructed access to thousands of gallons of pond water. This goal can be easily integrated with other pond uses, such as fishing, swimming, and irrigation.

If you have a dry hydrant connected to a pond, check the underwater intake pipe regularly for silt, weeds, and other obstructions. The pipe should have a screen and anti-vortex attachment to keep debris and air from entering the pipe. The intake should be checked seasonally, and tested annually. If silt becomes a problem, the intake can be elevated with a riser section of pipe.

Weeds and algae can become a problem if they grow to obstruct water supply. Weeds can be blocked with bottom barriers, harvested by hand or tools, or suppressed with colorants. Keep in mind that chemical herbicides kill plants, but the stems may linger for longer periods, creating an intake obstruction.

The dry hydrant should be accessible by large fire vehicles year-round. Keep the access area clear of vegetation and stabilized. Reflective signs help the fire department locate the hydrant at night and in inclement weather. Dry hydrants should also be constructed to prevent freezing.

Without a dry hydrant, pond owners should designate an entry area for fire supply lines. This portion of the pond edge should be stable and level, with no obstructions. It should be easily accessible from the road for large vehicles. If you are uncertain about the feasibility of using your pond for fire suppression, work with fire officials to make a determination ahead of time.

In the winter, an ice-free surface can be created by floating a bale of straw, a log, foam blocks, or a plastic barrel half-filled with water. These items can be broken out of the ice with less effort than chipping a hole in the ice.

In the past, some farm and home insurers offered a "pond credit" if the property included a pond suitable as a water supply for fire suppression. Few, if any, insurers currently offer this credit. Check with your policyholder for the most up-to-date guidelines.

Prepared by Jim Ochterski, Extension Resource Educator, South Central New York Agriculture Team, December 2002. Production of this fact sheet was funded by a Cornell Small Farms Program Grant.

Image reprinted with permission from NFPA 1142, Water Supplies for Suburban and Rural Fire Fighting. Copyright 2001, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

If you are interested in additional information about commercial farm pond management, please refer to the other fact sheets in this series:

*Farm Pond Maintenance Routines*  
*Farm Pond Safety and Responsibility*  
*Calculating Water Volume in Ponds*  
*Meeting Small Farm Needs with a Pond*

You can access these and other pond management topics on-line at <http://pond.dnr.cornell.edu>