So you're thinking about building a farm pond?

POND DESIGN AND CONSTRUCTION

Fish ponds designed and constructed according to recommended standards are relatively safe, easy to manage, and relatively economical to build, according to Penn State's Special Circular 263, Fish Ponds.

Ponds constructed haphazardly are unsatisfactory and difficult to maintain.

It pays to obtain information and expert advice before you start construction Educational information can be obtained from county offices of the Penn State Cooperative Extension Service. The assistance of professional Soil Conservation Service personnel is available through local conservation district offices.

Construction permits

Permits for the construction of ponds or dams may be required, depending on the size of the drainage area, the height of the dam, and the capacity of the impoundment.

A permit is required for the construction of any dam that impounds the runoff from a drainage area that exceeds 100 acres or provides a maximum storage capacity of 50 acre-feet of water (about 16.3 million gallons) A permit also is required for any pond with a dam more than 15 feet high, even if the pond's only source of water is a spring, a well, or a small pipeline from a stream.

Permits will not be required for fish ponds that do not exceed these specifications.

The law authorizing fish-pond construction permits is the Pennsylvania Dam Safety Act. This law, Act No. 325 of the 1978 legislative session, became effective July 1, 1979. Permits are issued by the Bureau of Dam Safety, Obstructions, and Storm Water Management; Department of Environmental Re-

Top width of dam

The top width of a dam depends on the height of the structure. In most cases, the dam should be wide enough to permit limited use as a roadway for farm vehicles

Side slopes of dam

All earth dams should be constructed with side slopes stable enough to prevent erosion and keep the earth fill in place. In most instances, a slope of 3 feet horizontal to 1 foot vertical on both the upstream and downstream faces of the dam will be satisfactory Under no circumstance should either face of the dam or any excavated slope be steeper than 2:1

Proper slope is especially important in the shallow edges of the pond. Water should be at least 3 feet deep at a point 6 feet out from the shoreline, to discourage growth of algae and aquatic weeds. Experience indicates it is best to slope the banks properly at the time of construction.

Freeboard above water level

The crest of all earth dams must be higher than normal water level to keep waves and high water from breaking over the top and cutting channels through the structure. After settling, the top of the dam for a one-acre or smaller pond should be at least 3 feet above the normal water level.

Emergency spillway

An emergency spillway is necessary to provide a safe outlet for flood water.

The spillway should be constructed in the undisturbed bank at one end of the dam It should have a wide, flatbottomed channel large enough to handle the overflow caused by a 50- or 100-year rainfall.

The spillway, including the side slopes and channel bottom, should be planted with a mixture of grass seed that will produce a thick, tough sod. Good sod prevents rushing flood water from scouring deep ruts in the channel. The pond should not be filled with water until the sod becomes well established and the spillway is ready for use.

Pipes through the dam

A pipe spillway or L-shaped trickle tube should be installed through the dam to provide an outlet for the normal flow of water.

The trickle tube, which governs the depth of water in the pond, should be about 12 inches below the bottom of the emergency spillway. The tube should be large enough to drain the full pond down to normal water level within 24 hours after the flow through the emergency spillway ends.

The pipe thru the dam should be at least 4 inches in diameter, and preferably 6 to 8 inches.

A combination trickle tube and drainpipe is highly desirable for fish-pond

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