

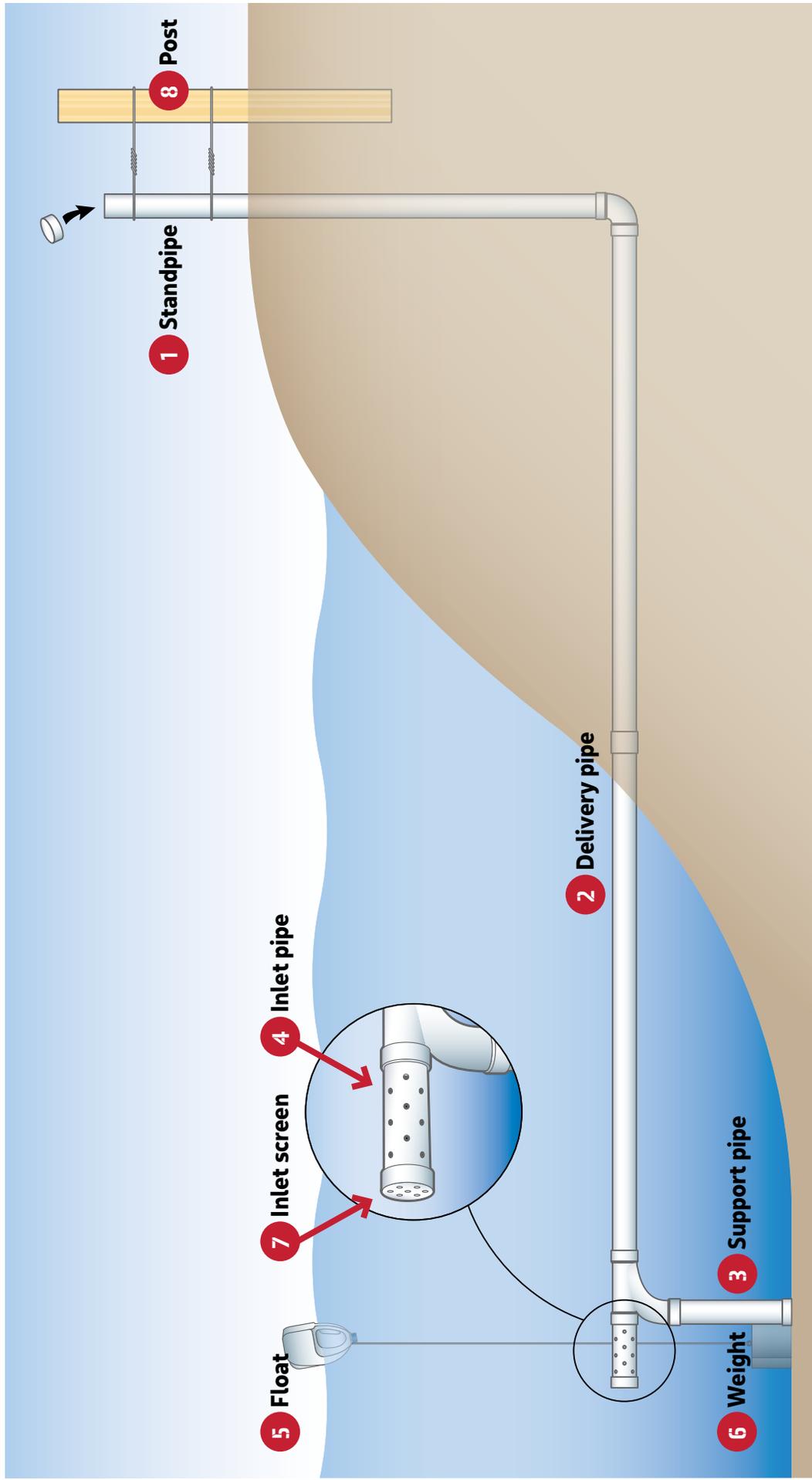
FARM LIFE TM

Install a Dry Hydrant for Your Farm Pond

Whether for livestock watering or light irrigation, this dry hydrant will be a handy addition to your pond. Here are the steps to build it, and the equipment you'll need.

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While springs and streams can be seasonal

and therefore somewhat less reliable as a source of stock or irrigation water, ponds can see you through dry seasons, and if large enough, through periods of more extended drought. Most farm ponds serve to water livestock, and for many, those ponds don't have a through-dam gravity tap for filling water troughs. Instead, the livestock drink from the pond itself.

Why not increase the utility of your pond by installing a dry hydrant to pump water to a pressurized irrigation system or livestock watering troughs uphill from the pond itself?

Materials/Shopping List

Tools

- Compact tractor with loader and backhoe attachment (The Massey Ferguson GC1725MB is an excellent choice for the work; other tractors in Massey Ferguson compact and utility lines also feature backhoe capability.)
- Saw for cutting 4-inch diameter PVC pipe
- Post hole diggers for installing a wooden post to support your hydrant's tap end
- Hand-held drill (or drill press) with ½-inch bit
- Appropriate measuring and marking devices
- Note: The system we describe here will not be suitable for firefighting tanker drafting.

Materials

- Sufficient 10-foot sections of 4-inch diameter Schedule 40 (not foam core) PVC pipe to accommodate the following dimensions:
 - one piece that's 2 feet longer than the distance from the ground surface where you intend to locate the hydrant and 4 feet below the average low water level.

This will be more than 6-feet total in our illustrated example. This piece is the standpipe (1).

one (glued up) piece that's the length measured in step 5 of the Site Plan (below). This piece is the delivery pipe (2).

one piece that approximates the distance from the depth of the hydrant intake to the pond bottom This is the support pipe (3).

one 1-foot long piece. This is the inlet pipe (4).

- One 90-degree, 4-inch diameter, Schedule 40 PVC long-turn elbow with female ends
- One 4-Inch diameter Schedule 40 PVC wye with 45-degree elbow combination fitting
- Three 4-inch diameter Schedule 40 PVC end caps
- PVC primer and glue
- One 5-foot or longer, 5- to 6-inch diameter treated-wood fence post (Steel pipe or t-posts can work)
- 10 feet of 9-gauge soft-steel galvanized wire

Site Plan

1 Spend some time observing your pond to estimate its depth and its average low water line. Note the elevation of the spillway and/or overflow tube.

2 Based on all the likely uses that you will have for the water that you take from the pond, mark the area where you would like the hydrant to be located, sufficiently far away from the pond bank so that you can easily back your tractor or other equipment to the hydrant and not worry about getting stuck. Estimate the elevation difference between this point and the average low water line.

3 Now find the pond's deep pool, an area that's at least 5 feet deeper than the average low water level that you estimate for your pond. You can estimate the pond's bottom contours by taking some depth measurements using a string with a heavy nut attached to the end. You will want to locate the intake in a location that meets that 5-foot-deeper requirement, but that is also closest to the hydrant site you've chosen.

4 When you find the point where you want to locate the intake of your hydrant, mark it with a milk jug or other "float" (5) attached to a string and heavy weight (6), being sure that the "anchor" line is short enough to partially submerge the jug. You can use a long stick or metal fencepost if the total water depth there allows.

5 Measure the distance from the jug (or stick or fencepost) to the point at which you intend to install the hydrant.

6 Mark a line from the hydrant location toward the intake and into the water until the depth is 5 or more feet below the low water line.

Intake Screen

1 Drill 7 evenly spaced $\frac{1}{2}$ -inch diameter holes into the top of one of the end caps.

2 Drill 15 or more evenly spaced $\frac{1}{2}$ -inch diameter holes in the 1-foot long inlet pipe, leaving about 2.5 inches of each end undrilled.

3 Glue the drilled end cap onto one end of the inlet pipe. We'll call this the intake screen (7).

Hydrant Assembly

- 1** Glue the 90-degree PVC elbow to one end of the standpipe.
- 2** Cut and glue sufficient lengths of pipe to create the delivery pipe.
- 3** Glue one end of the delivery pipe to the standpipe at the 90-degree elbow.
- 4** Glue the wye combination fitting to the end of the delivery pipe opposite the standpipe. Be sure that the 45-degree elbow component is pointing the opposite direction (180 degrees) as the opening of the standpipe.
- 5** Glue an endcap to one end of the support pipe and glue the opposite end of the support pipe to the elbow component of the wye combination fitting you attached to the delivery pipe in step 4. Note: the support pipe should point in the opposite direction of the standpipe and rest on the pond bottom.
- 6** Glue the intake screen to the end of the wye combination fitting that's in line with the delivery pipe. This completed structure will be called the hydrant in the installation steps below.

Excavation and Installation

1 Using the narrowest bucket that you have available, excavate a trench from the point at which you plan to locate the hydrant's outlet toward the inlet area of the pond. Though it might seem awkward, start at the point where you intend to locate the hydrant's outlet and work toward the pond (backhoe attachment leading) so that you don't need to dig the whole length with water in the trench. The trench should be level and 4-feet deeper than the average low water line for its entire length.

2 Position the hydrant along the trench and carefully position it in the trench – you may need to wait for the inlet and delivery pipe to fill with water to be able to readily sink it.

3 Pull the standpipe up close to the wall at the end of the trench and position it so that it is at the right depth and plumb in all directions.

4 Carefully backfill around the standpipe and several feet along the intake pipe by hand initially but use your backhoe or loader judiciously where it makes sense. This sequence will displace water from the flooded trench back to the pond and allow you to pack the backfill somewhat.

5 Continue backfilling the trench as you can; it will be difficult at some point in the pond but it will slowly fill itself over time.

6 Carefully dig a posthole about two feet deep and foot away from your standpipe. Install a wooden post (8) and wire it to your standpipe to support it.

7 Cap the standpipe with a PVC end cap when not in use.