Pasture Cooling for Bred Sows

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With increased popularity of central farrowing facilities has come the practice of nearly continuous farrowing. Continuous farrowing allows the cost of the farrowing facility, and its labor and pig saving advantages, to be spread over more litters. Economy dictates that the farrowing facility not be allowed to stand empty.

One disadvantage of continuous farrowing is lowered reproductive performance of sows during hot summer months. Sows farrowing during summer months and early fall have smaller litters and lighter weaning weights than those farrowing during the rest of the year. The apparent cause of lower reproductive performance of sows farrowing in the summer months is heat stress during gestation.

Research at Oklahoma State University indicates sows subjected to heat stress for the first 15 days after breeding tend to have lower conception rates, fewer viable embryos and lower embryo survival rates than sows not subjected to heat stress. Heat stress two to three weeks before farrowing is even more critical. During this period, heat stress can result in more stillborn pigs and fewer live pigs farrowed. Furthermore, sows subjected to heat stress during pregnancy tend to wean fewer and smaller pigs. Heat stress can also cause death of the sow.

Litter size at weaning is the single most important indicator of profit or loss in a swine production system. Birth weight is also important since pigs lighter at birth tend to gain more slowly and reach market later than large newborns. Money spent to provide summer cooling for the bred sow herd is a sound investment.

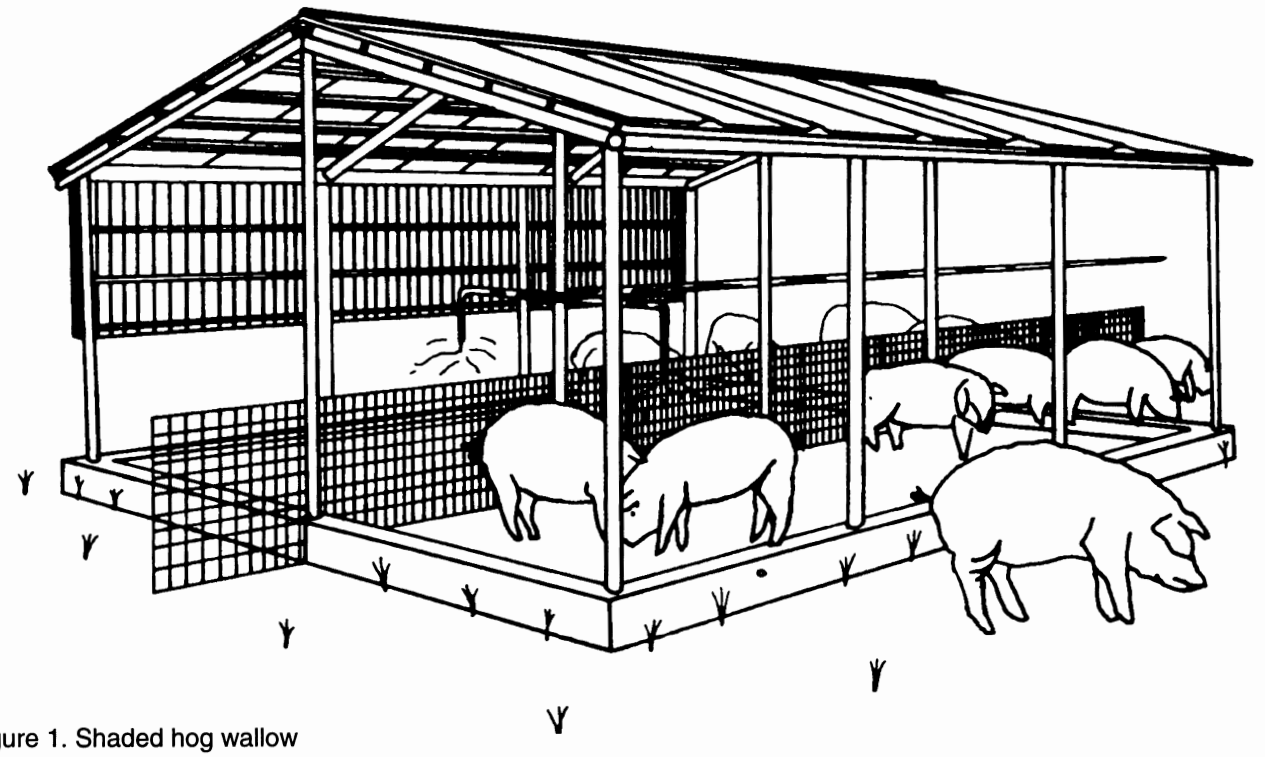

Figure 1. Shaded hog wallow

Pasture cooling for bred sows can be accomplished several ways. The simplest but least effective method of cooling is a shade. Another method is to provide a shade over sand with the sand wetted several times on hot days. The best method is a shaded hog wallow. See Figure 1.

Wallow Construction

Figures 2 through 3 provide construction details for a shaded hog wallow. The 20' x 24' structure uses 2" x 4" nailers (wall girts and roof purlins) and corrugated metal over a pipe frame. The west wall is partially closed against afternoon sun. A ten foot eave height and open sides allow southern winds to cool the sows and sweep away roof heat. Sprinkling nozzles provide direct cooling and with the curb create a wallow.

The building is placed on a fence line to serve two sow groups. Each half provides 240 sq. ft. of floor area. For larger sow groups, increase the width to 30 ft. using the same pipe size and purlin spacing. In this case, ridge height should increase to 13 foot and 16-foot roofing sheets would be required.

For protection against uplift forces in high winds, weld short flanges to the base of the pipes before they are set in concrete. When the concrete shrinks during curing, the poles will remain securely anchored in concrete.

Reinforcing bars can simply be spot welded to the poles before pouring the curb. Concrete should be at least a 6-sack cement per cubic yard mix, with not more than 6 gallons of water per sack. Do not begin finishing until all bleeding water has disappeared and the surface has started to stiffen. A smooth wood float finish is best. Overworking the surface or sprinkling cement on the surface for easier working can

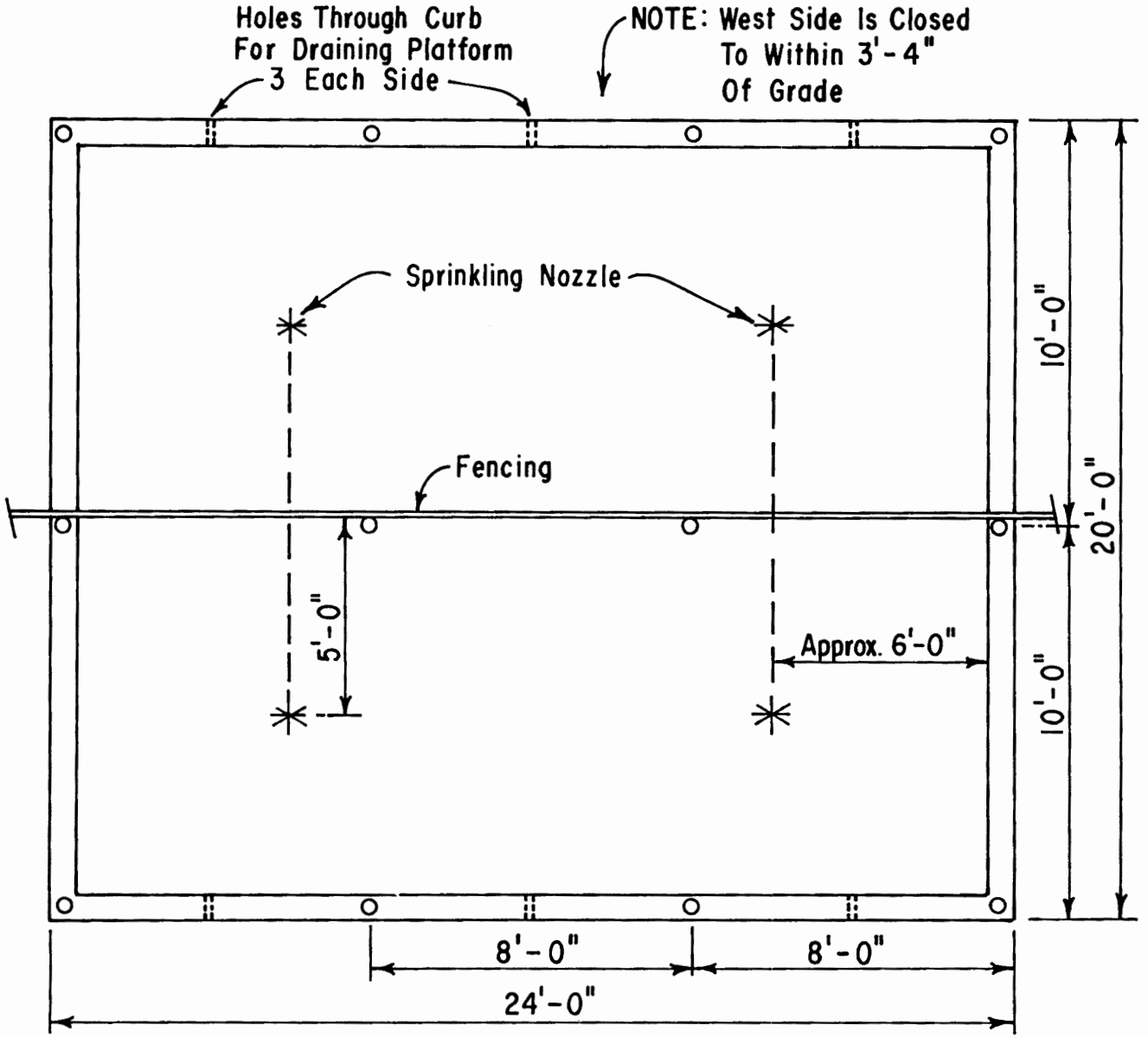

Figure 2. Plan view of shaded hog wallow

cause scaling. Concrete should be cured at least four days by covering with plastic sheets or by frequent wetting of a straw or burlap covering.

Sprinkling System

The best sprinkling system wets the animal, then allows it to dry. A thermostat- and timer-controlled sprinkler sprays the pigs for 2 to 3 minutes out of each hour that temperatures are above 80°F. See Figures 4 and 5. Select non-corrosive nozzles designed to furnish a solid cone of water droplets, not a fog. A fogger cools the air while a sprinkler provides direct animal cooling.

Bill of Materials

Item	Description	Quantity
Pole	4" O.D. x 16'	4
	4" O.D. x 14'	8
Rafter	4" O.D. x 10'-3"	8
Purlin	2" x 4" x 16'	12
	2" x 4" x 8'	12
Wall Girt	2" x 4" x 16'	4
2"x4" x 8'	4	
Nail Anchor	2½" x 2½" x 6" angle iron	64
Bolt	¼" dia. x 2¼" machine bolts with washers	80
Corrugated Metal	11'-0" length	528 sq.ft.
	7'-0" length	168 sq.ft.
	Ridge cap	24 ft.
Welded wire	6" x 6" -10/10	480 sq.ft.
Reinforcing steel	⅜" rebar	176 ft.
Fill	Sand or gravel	6 cu.yd.
Concrete	Pole collars	2 cu.yd.
	Floor and curb	8 cu.yd.
Sprinkling system	Nozzles rated at 0.75 gpm at available line pressure	4
	Waterline and fittings	as needed

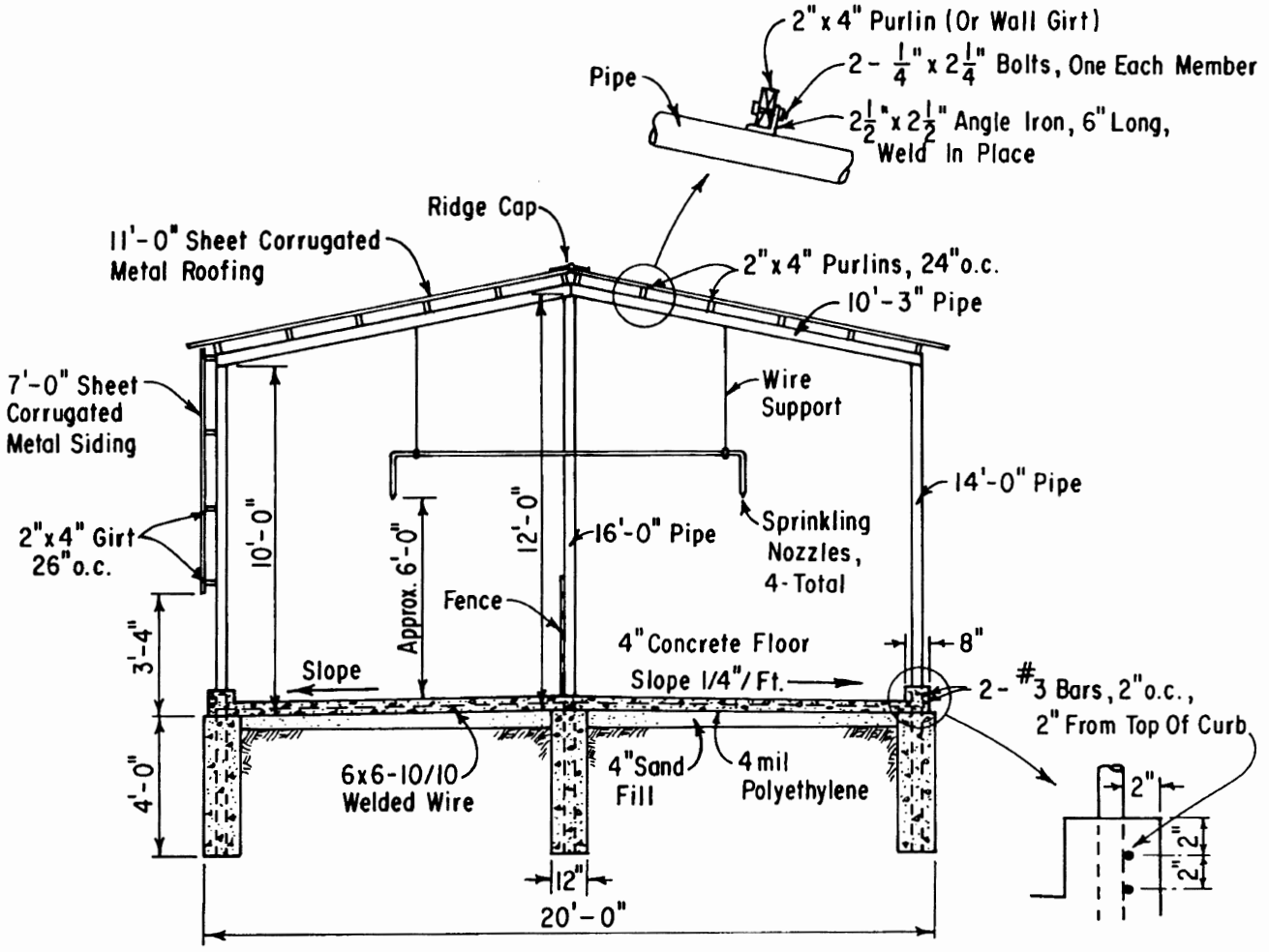

Figure 3. Cross-section of shaded hog wallow

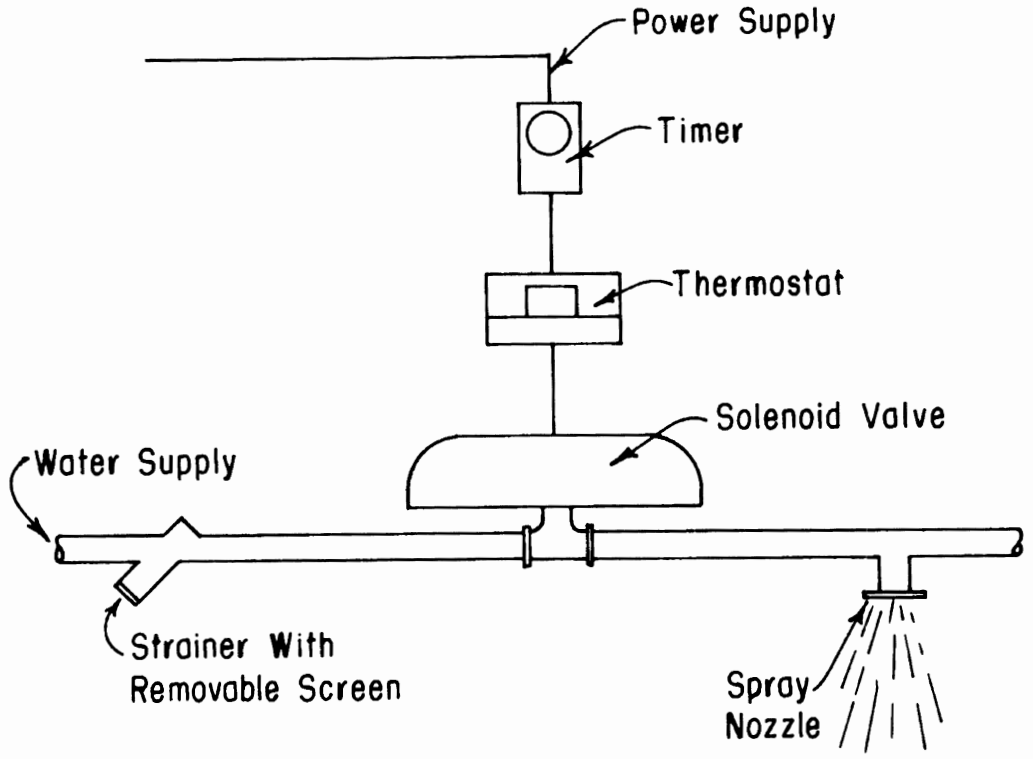

Figure 4. Sprinkler with solenoid valve control

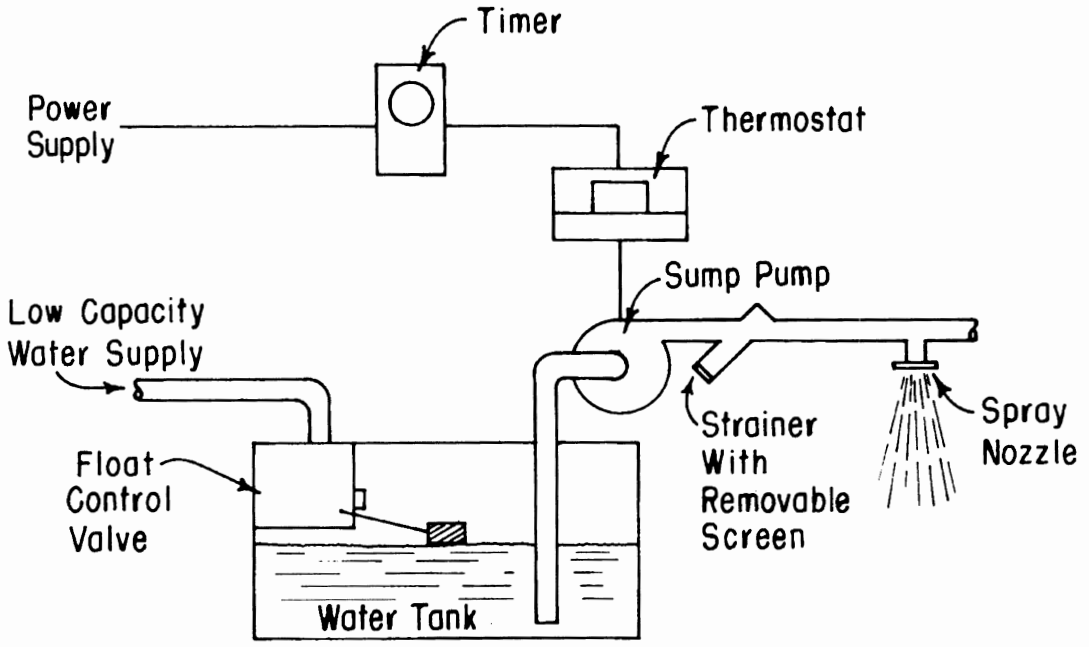

Figure 5. Sprinkler with float valve control

A float valve and tank are often less costly and less complicated than a solenoid valve and manifold piping. Select a sump pump for at least 30 psi pressure.

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