

# Heating Poultry Drinking Water

## electrically heating poultry watering systems by different methods tested for economy of operation

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**Tests on three methods** of heating poultry watering systems electrically indicated that it was most economical to run the heating cable through the water pipe.

The method of heating the water by spiralling electric heating cable around the pipe is common practice in many areas but, in addition to being less economical, it has the disadvantage of requiring mechanical protection for the cable from the birds.

The method of using the pipe itself as a heating element necessitates considerable electrical know-how plus the investment of a fairly heavy duty transformer. All pipe joints must have a good electrical connection and the system, although operated at low voltage, is not insulated and therefore hazardous as a source of electric shock. This system is quite economical in the use of power but requires a greater capital investment.

The third method tested involves running the electric heating cable through the water pipe.

Inexpensive connectors are available for making a drip-proof connection for running the electric heating cable through the inside of the pipe—on either standard or low pressure systems. The cable is small, about  $\frac{1}{8}$ " in diameter and thus does not reduce the carrying capacity of the pipe materially. Encasing the wire in the pipe protects it from mechanical injury. The cable insulation is suitable for use when immersed in water. The pipe may be grounded to protect the poultry from shock in case of a breakdown in insulation. This system is low in insulation cost and power consumption.

Under conditions of natural convection and temperature range of 0°F to 32°F, the amounts of connected load required in these tests to keep the pipes from freezing were:

	Watts per foot per °F below 32	Watts per 100 feet run for 15° F temp.
<b>Cable through pipe</b>		
½" pipe ...	0.07	110
¾" pipe ...	0.10	170
<b>Cable spiralled around pipe</b>		
½" pipe ...	0.17	289
¾" pipe ...	0.20	340
<b>Pipe as heating element</b>		
½" pipe ...	0.12	204

The problem of protecting poultry waterers from freezing is confined mainly to areas where a minimum temperature of 20°F or less may be expected.

Open type laying houses now in use in many colder areas afford little protection from freezing of the long runs of water pipe required, particularly since the nests and pipes are normally three or four feet above the ground.

Drip-type waterers are particularly susceptible to freezing because of the very low flow rate through the pipes and the drip fountains.

Frozen waterpipes, in addition to being a nuisance, may reduce egg production. When water is not available, birds stop eating and as a result, lower egg production may be expected.

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Three methods for electrically heating poultry watering systems.

