

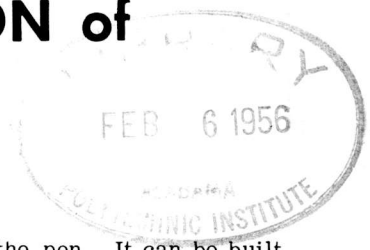
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AGRICULTURAL EXPERIMENT STATION of The Alabama Polytechnic Institute, Auburn, Ala.

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CONSTRUCTION and OPERATION of OUTDOOR BROODER*

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The commercial broiler producer in recent years has experienced considerable reduction in profit per bird. Many have attempted to overcome this reduced income by increasing flock size. Some, however, are finding that large numbers brooded together are not very efficient, crowding reduces growth, insufficient ventilation causes colds, and large numbers per pen encourages cannibalism and feed waste. Egg producers have had similar problems in growing chicks for future layers.

Brooder houses with small pens would reduce these problems, but in turn would increase the cost of labor. A new outdoor brooder has been constructed and is being tested at the Agricultural Experiment Station of the Alabama Polytechnic Institute. This brooder may solve many of the problems without increasing the labor. In this brooder, only 50 chicks are brooded in each pen. This, however, does not greatly increase the labor because all the work is

done as a unit from outside the pen. It can be built to care for any number of chicks in units of 50, making it suitable in size for large as well as small commercial producers.

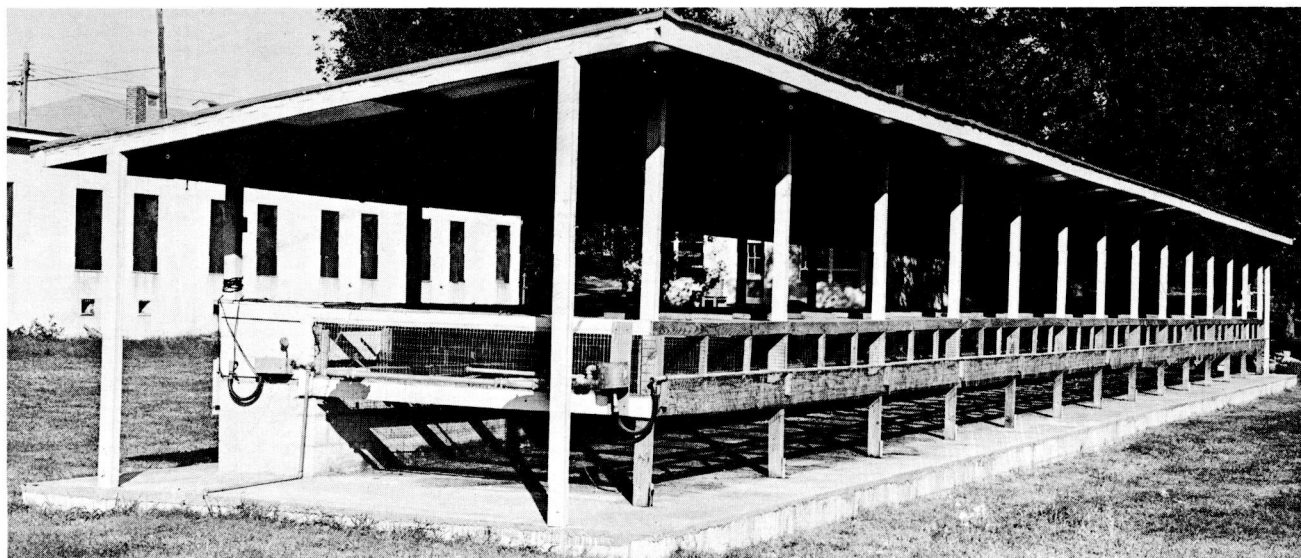
CONSTRUCTION and OPERATION

The brooder consists of a hover-box and a sun porch similar to the old outdoor lamp-type brooder used by farmers of the South from 1935 to 1940. (See plan on pages 2 and 3). It is built on a sloping concrete slab, which makes washing and cleaning easier.

To determine relative heating costs, several different types of electric elements were used in this experimental brooder. One group of pens was heated by soil cable distributed in the concrete floor of the hover-box. Another group of pens was heated by tubular heating lamps, while other groups were heated by regular elements either of the contact-type or by circulating-heat-type.

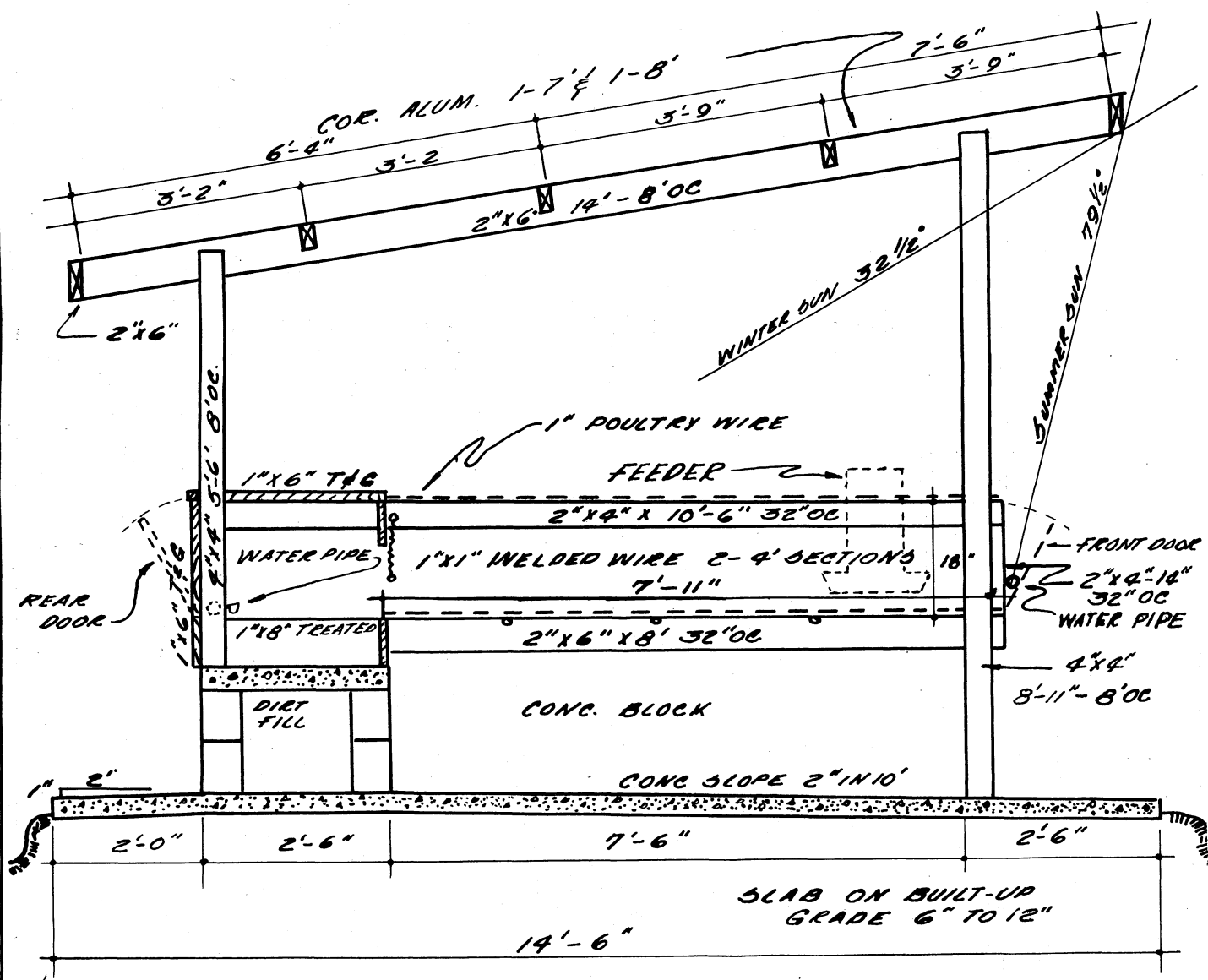
In addition to the 30- by 32-inch hover-box, each group of 50 chicks has access to a wire-floored sun porch 32 by 95 inches in size. The aluminum roof is designed to make full use of healthful sunshine. It

*Funds for this experiment were made available by the Alabama Rural Electric Association of Cooperatives.

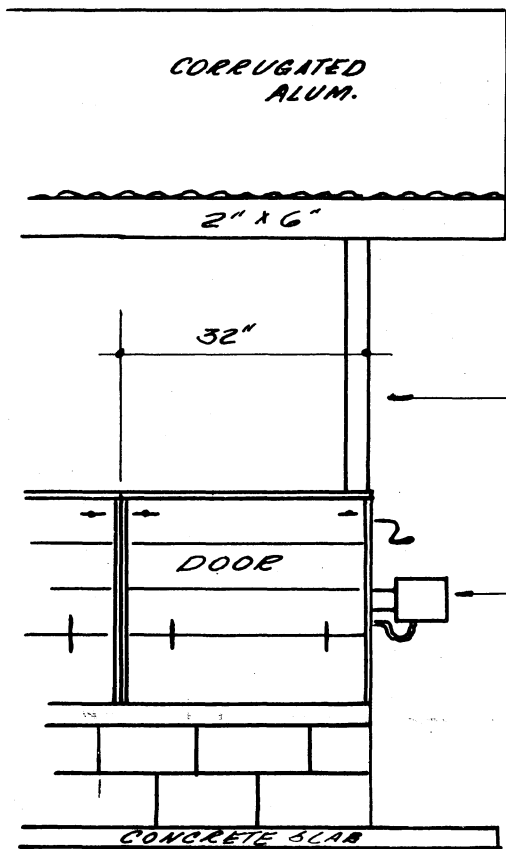


This outdoor brooder eliminates some problems that result from brooding large numbers of chicks together.

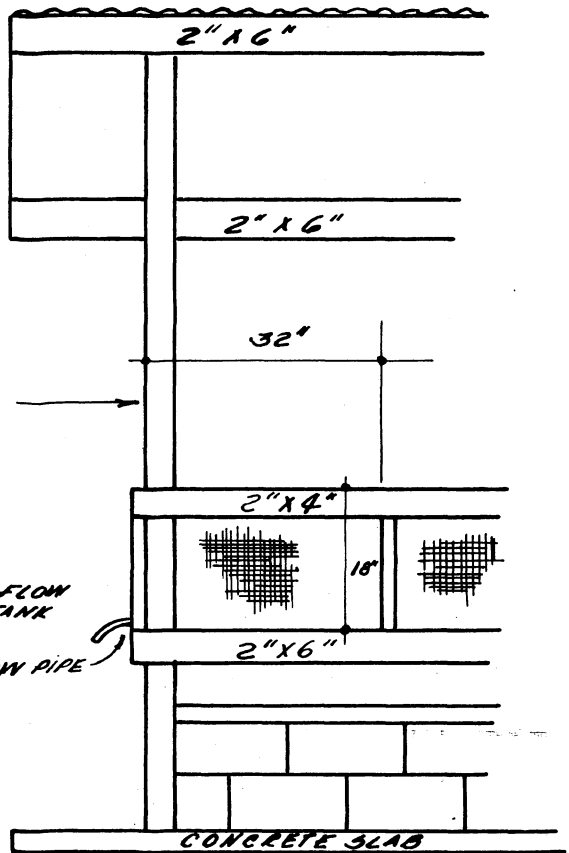
DIAGRAM for CONSTRUCTION of OUTDOOR BROODER



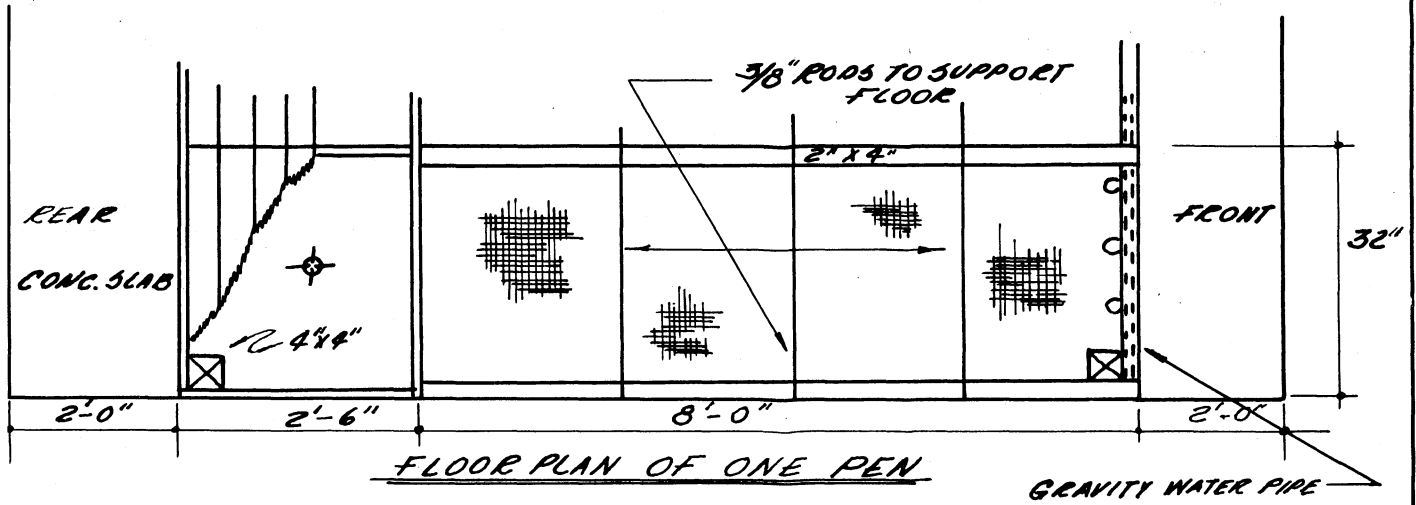
TYPICAL SECTION
SCALE 1/2" = 1'-0"



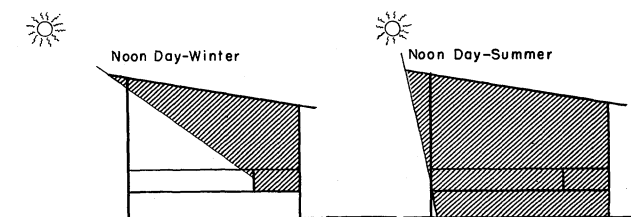
REAR VIEW



FRONT VIEW



RESULTS



covers the hover-box and porch, and overhangs the walks. The direction of the house, and the height, slope, and overhang of the roof is constructed so that in the summer time, when the sun is more directly overhead at noon each day, no sun will shine on the sun porch. This promotes coolness for the chicks during those months. In midwinter, when the sun is lower in the sky, the rays flood the entire porch area.

The hover-box is constructed as tightly as possible from tongue and groove lumber. A canvas curtain is used to cover the opening between the hover-box and sun porch. This is mounted on a crank so that the curtain can be raised or lowered to provide ventilation and control temperatures in the box. A small light bulb located in the top of the hover-box provides light for the chicks during the first week when they are largely confined to this area, and acts as an attraction light later on to train the chicks to go to the hover-box for heat.

The watering system is automatic. At the back of the hover-box, there is a water pipe at floor level for the entire 104-foot length of the brooder (39 units). The pipe is absolutely level. At one end of the brooder, there is a small water tank with a float valve, which keeps the pipe full of water at all times. Each group of 50 chicks has two thimble-like cups attached to the side of the pipe, providing the young chicks with a continuous water supply. A similar, but higher pipe runs the full length of the sun porch for water supply when the chicks are older.

The chicks receive their first feed inside the hover in chick-size metal hoppers. In about 7 days, the hoppers are moved to the sun porch. By the time the chicks are 2 weeks old, they are using the sun porch regularly, and they are fed from hanging-type bucket feeders near the south end of the porch. A mechanical feeder that carries feed to all pens could also be used. The feeders are raised to the back level of the chicks as they grow.

The first chicks were started in this brooder on February 15, 1955. They did very well even though the outside temperature went as low as 16 degrees F. at one time. Mortality for the 8-week brooding period was 4 per cent. On April 14, 1955, a second brood of 1,804 day-old chicks was placed in the brooder. These were brooded during relatively warm weather and the cost of electricity for brooding averaged 1.4 cents per chick. Mortality for the 8-week brooding period was 5 per cent.

On July 5, 1955, a third brood of 2,060 crossbred broiler-type chicks was started. The mortality was 5.4 per cent for the 9-week period. The average consumption of electricity per chick was 0.45 kilowatts. This amounts to about 1 cent per chick for heat during the brooding period. The broilers averaged 2.81 pounds each on 7.3 pounds of feed. This is a conversion of 1 pound of meat for each 2.6 pounds of feed.

There was a considerable difference in the fuel consumption of the different types of electric heating units used. The lowest fuel consumption was obtained where a soil heating cable was used imbedded in a concrete slab. This unit consisted of two 230 volt, 800-watt heating cables for 10 pens of 50 chicks each. This heating cable is controlled by a thermostat located at chick height in one of the pens. Chicks brooded by this heating arrangement used only 1/3 kilowatt per broiler for the brooding period. A contact-type heating element was also quite satisfactory as a source of heat for chicks in this type of brooder. This heater is suspended over the litter at chick-back-height and is raised weekly as the chicks grow. The unit is thermostatically controlled and the chicks get warm by placing their backs up against a warm screen or pad. Other heating units used were satisfactory, but the fuel consumption was considerably higher than the heating cable or the contact-type brooder.

If continued tests are favorable, perhaps many southern farmers will be interested in this outdoor brooder as a means of growing broilers or future layers. The cost of brooder, shelter, and equipment amounted to about \$1 per chick capacity and is less than similar installations where a brooder house and floor brooders are used.