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## EC1419 Farm Poultry Houses

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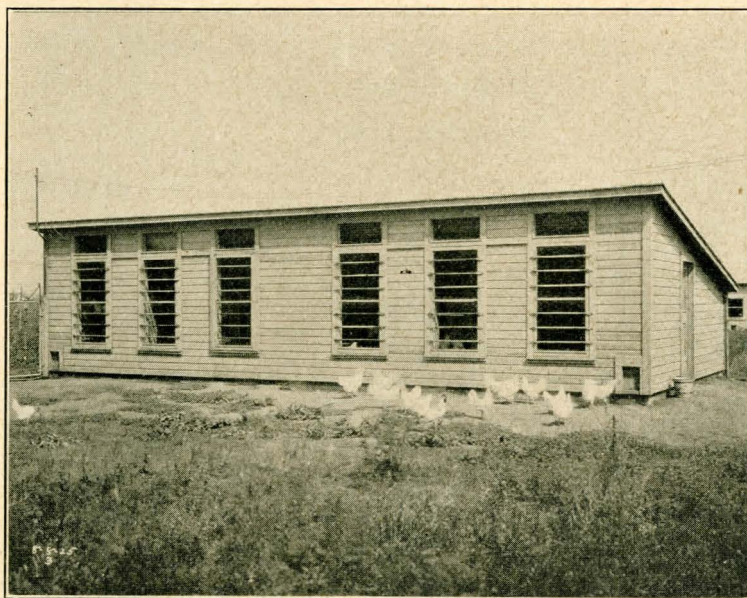
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THE UNIVERSITY OF NEBRASKA  
AGRICULTURAL COLLEGE EXTENSION SERVICE

August, 1925

Extension Circular 1419

## Farm Poultry Houses



UNITED STATES  
DEPARTMENT OF AGRICULTURE  
CO-OPERATING



## Farm Poultry Houses

By F. E. MUSSEHL AND S. J. MARSDEN

The poultry house for laying hens, the portable brooder house, and the open air roosting shed are each discussed in this circular. Each of them has been found to be very practical on Nebraska farms and at the Poultry Plant of the Agricultural College at Lincoln where they were first used. Each of them is economical in first cost and in upkeep and none of them are too expensive for the farm poultry raisers of Nebraska.

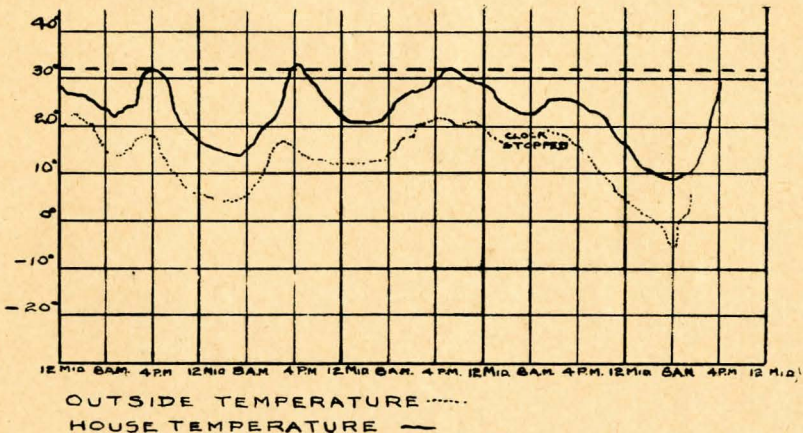


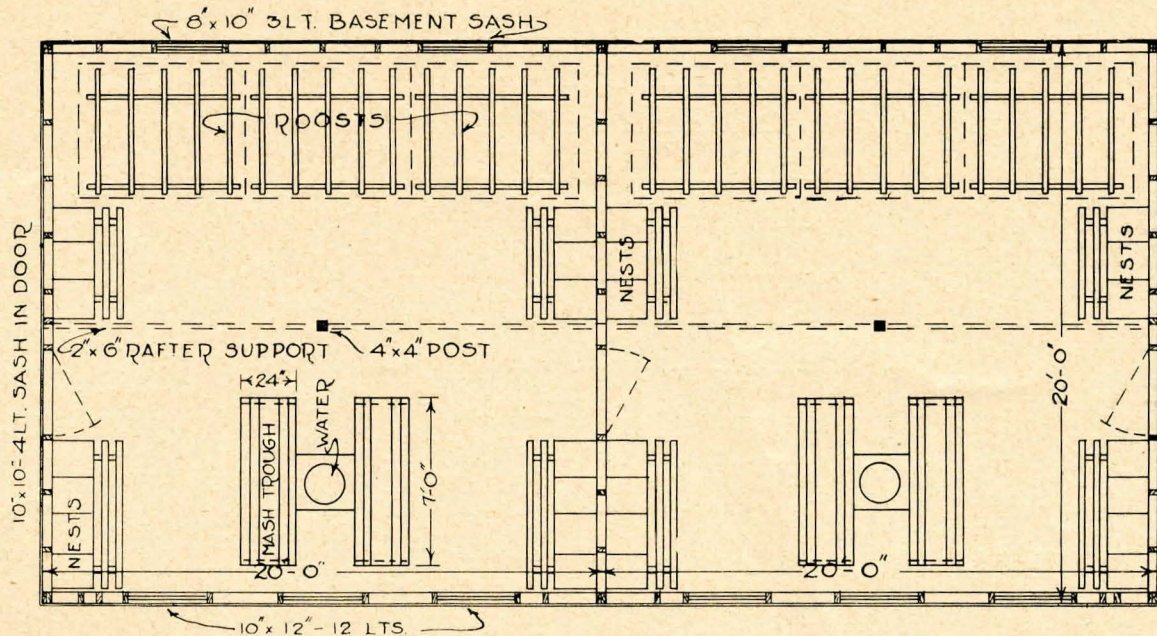
FIG. 1. This chart shows the protection that a good poultry house gives the birds when temperatures go to zero and below. This is an actual temperature record taken in a house such as is described in this bulletin. The dotted line shows outside temperatures, the solid line shows temperatures inside the house at the same time.

### A HOUSE FOR LAYING HENS

One of the important essentials for high egg production from the poultry flock is that the hens be kept comfortable. To maintain a "high morale" in the poultry flock, especially during the winter months, is, therefore, the special function

Blueprints of the house plans reproduced in this bulletin may be secured thru the County Extension Agents, or by writing direct to the Agricultural College if your county has no agent.

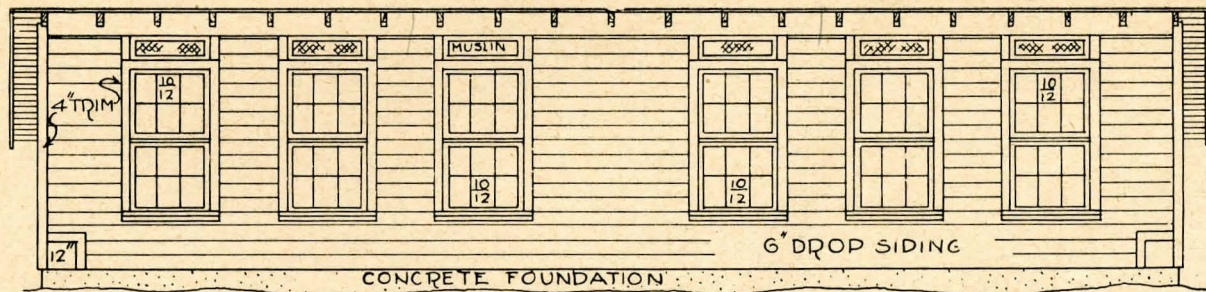
The authors wish to acknowledge the co-operation of the Department of Agricultural Engineering in preparing the plans shown in this circular.



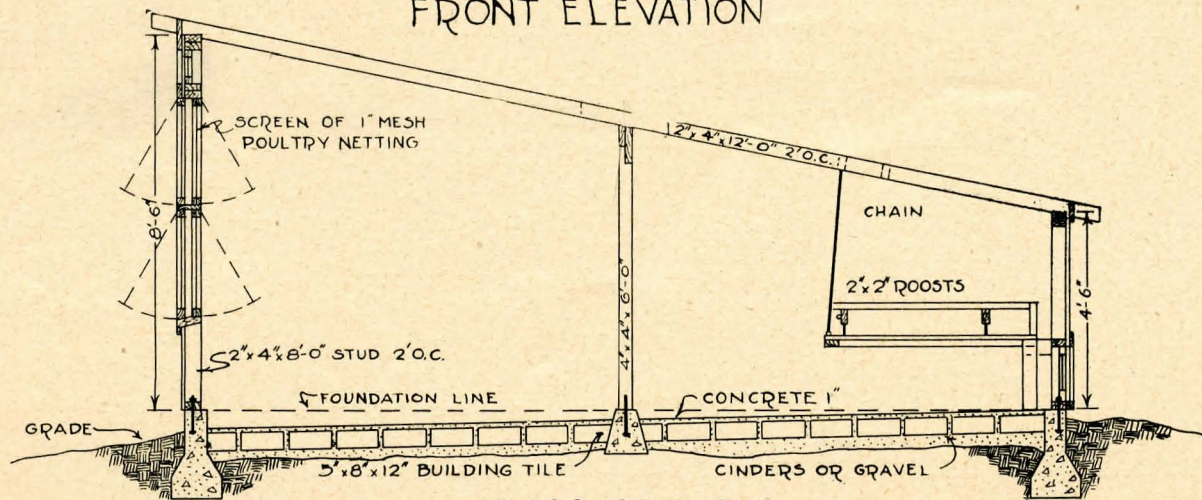
## FLOOR PLAN

FIG. 2. Plan for a double unit, 20'x40', Nebraska type house showing location of roosts and equipment. Figures 3 and 4 on the next page show the front and side elevations of the same house.





FRONT ELEVATION



CROSS SECTION



of the poultry house. From the hens' standpoint, the house that affords protection against extreme temperatures and wind, and that is light, bright, clean, and reasonably dry is most satisfactory.

Reasonable dryness in the poultry house is desirable because hens can regulate body temperature more easily when the humidity is not too high. Proper ventilation and proper location and construction will aid in maintaining conditions which are satisfactory in this respect. The house should be located on ground having good natural drainage and the floor should be raised at least 8 inches above the outside ground level.

### THE POULTRY HOUSE FLOOR

Concrete floors have proven generally satisfactory for poultry houses, but the suggestion is made that a two-inch floor will be thick enough for all practical purposes. An eight-inch fill of coarse crushed rock or cinders should be put down first. This material will break up soil capillarity and, if covered with a two-inch layer of rich cement mixture (three parts of sand and one part of cement), will make a relatively cheap, permanent floor.

Hollow tile floors are also giving excellent satisfaction. The common way to lay these is to fill in the foundation with several inches of sand, place the tile flatwise on this sand and finally smooth the surface and fill in the cracks between the tile with a rich cement mixture. The cement layer when used with tile need not be over one-half inch deep.

A practical point which may be mentioned here is that of having the floor slope slightly toward the south. A slope of four inches in twenty feet (the depth of the house) will be just enough to naturally keep the litter evenly distributed over the entire floor.

### THE VENTILATION SYSTEM

\* Prof. F. H. King in his very interesting book on ventilation proposed a minimum movement of 35 cu. feet of air per hen per hour through the poultry house for best results. More experimental work must be done before the principles are definitely established, however. These problems are being studied at several of the Agricultural Experiment Stations at the present time.

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\* *Ventilation* by F. H. King.



Among ventilation systems builders have the choice of open fronts, shutters, windows, covered frames, and King ventilation systems. Until more is definitely known about the ventilation requirements of hens, the authors suggest a covered frame and window combination as being most satisfactory for average conditions. The frames should be hinged so that when they are opened on dry, sunny days the sunlight will be well distributed even into the very back of the house. The location of these is indicated in the plans shown in this circular.

### SUNLIGHT

One poultryman has stated that "Sunshine is a germ destroyer and a better egg producer than red pepper or other condimental foods."

Recent research work has shown that pure, unfiltered sunlight holds even greater value for the poultry grower than was heretofore suspected. Certain of the sun's rays, namely, the ultra-violet rays, have a marked effect on lime and phosphorus assimilation. Both laying hens and growing chicks have high calcium and phosphorus requirements and for this reason provision for direct unfiltered sunlight in the poultry house is very desirable. Fortunately Nebraska poultry raisers are favored with an abundant supply of this great essential and the only problem is one of using it in the winter time without unduly exposing the hens to low temperatures. Certain gelatin screen and paraffin coated muslin products are being offered as substitutes for glass and are apparently giving good satisfaction.

### SIZE OF THE POULTRY HOUSE

From 3 to 4 square feet of floor space should be provided for each hen under average farm conditions. A unit 20 by 20 feet square should comfortably take care of from 100 to 125 birds. The double unit house 20 by 40 feet will comfortably house from 200 to 250 birds.

### LABOR SAVING EQUIPMENT

The first consideration in poultry house building is that the hens be made comfortable, but of almost equal importance is that of convenience for the caretaker. The poultry house described in this circular has been especially planned to save labor in caring for the flock. The ventilation system is as automatic as is practically possible. The wide end doors per-



mit of easy cleaning and the additional equipment of nests, roosts, dry mash hopper, water stand, and dropping boards are planned to save labor. As the fixtures are planned, it will be noted that all equipment is raised up off the floor at least 18 inches. Every inch of floor space is available for scratching purposes during the winter months.

**Dropping Boards** — The space under the roosts can be made available for scratching and exercising when dropping boards are used. These had best be made of a good grade of matched flooring with the boards running the same way that the scraper will move in cleaning them. Provision for a 4 inch opening at the back of the dropping boards will facilitate ventilation while the birds are on the roosts. When dropping boards are not used, an 8 or 10-inch board should be placed across the floor in front of the roosts to keep the litter from being mixed with the droppings.

**Roosts** — The roosts should be placed on a level at the back of the house and from 7 to 10 inches of roost space per bird should be allowed. Roosts should run the same direction as the dropping boards, that is north and south in a house facing south. Rounded poles about 3 inches in diameter or 2 by 4's which are rounded off on one side make very satisfactory roosts.

**Nests** — A nest for every six hens should be provided. Where trapnests are used, a nest for every four hens will be needed. The bottom dimensions of a good, practical nest should be about 14 by 14 inches.

**Dry Mash Feeder** — From the standpoint of its influence on egg production, the dry mash feeder is entitled to first place in our list of equipment. More economical and more practical feeding is possible when a dry mash feeder is used. These may be built with a hopper attached to hold one or two bushels of dry mash or in the form of a trough to hold one or two days' supply. When the trough type of feeder is used a supply box to hold two or three bushels of the mixed feed should be built into the house or be available nearby. The trough type of dry mash feeder has an advantage in that it is easier for the feeder to watch the ratio between scratch feed and mash consumption. This is important in feeding hens for winter egg production.

**An Outdoor Mash Hopper** — It is now understood that the best approach to a solution of the poultry disease prob-



lem lies in clean feeding, a clean water supply, and clean yards. Properly constructed mash hoppers, built so that the feed cannot become contaminated with droppings or damaged by rain, are very valuable from the sanitation standpoint.

The mash hopper plan which is shown in this bulletin is relatively simple and easy to construct. It is made in three parts so that it can be taken apart for cleaning if necessary. The bottom section should be treated with some good wood preservative. When this is done the hopper will last for many years.

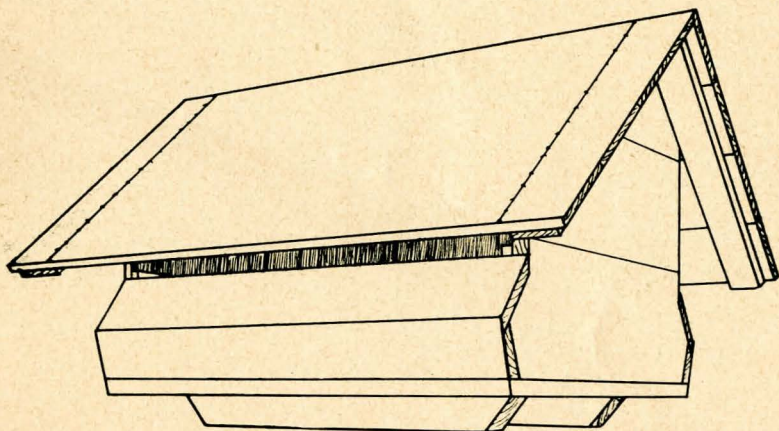


FIG. 5. The outdoor mash hopper used and recommended by the Nebraska Agricultural College poultry plant.

#### BUILDING MATERIALS

Either lumber or tile blocks may be used for constructing the poultry house described in this bulletin. Cost of construction may be somewhat less when lumber is used, but advantages claimed for the tile block are greater permanence and smaller maintenance expense. A comparison of local prices of the two building materials will help decide which had best be used under local conditions.

#### CARE OF THE HOUSE

With well-planned, labor-saving equipment, the work of keeping the poultry house clean and sanitary will be very easy, but always very important. The floor of the poultry house should be kept well-littered with clean straw, cut up corn



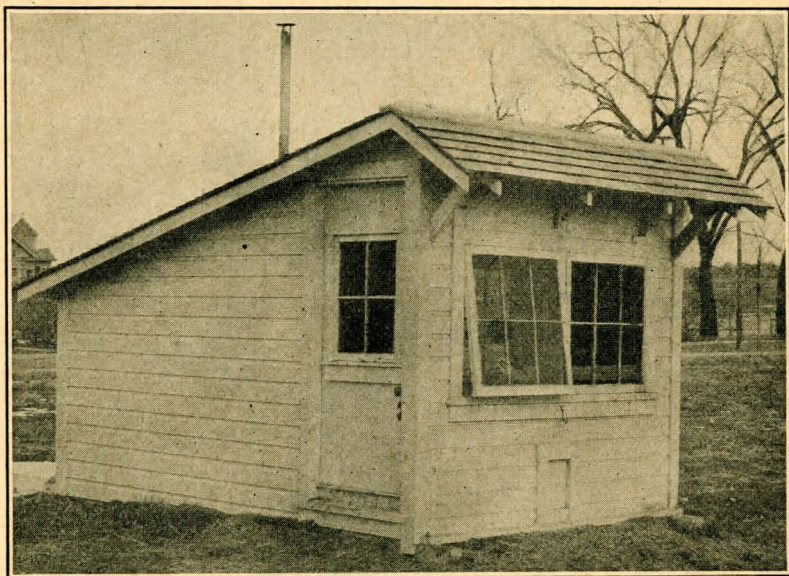
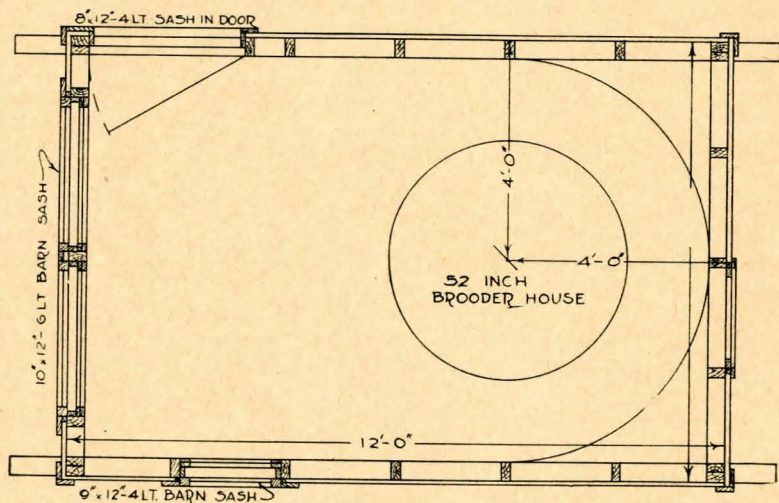


FIG. 6. A portable brooder house for chicks will fill a real need on many Nebraska farms.



### FLOOR PLAN

FIG. 7. Floor plan of the portable brooder house.



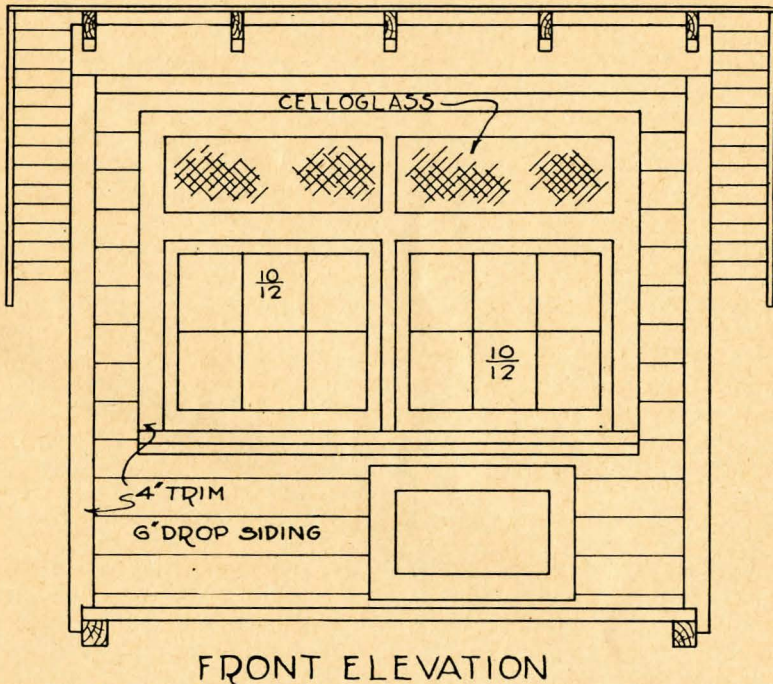


FIG. 8. Front elevation of the portable brooder house.

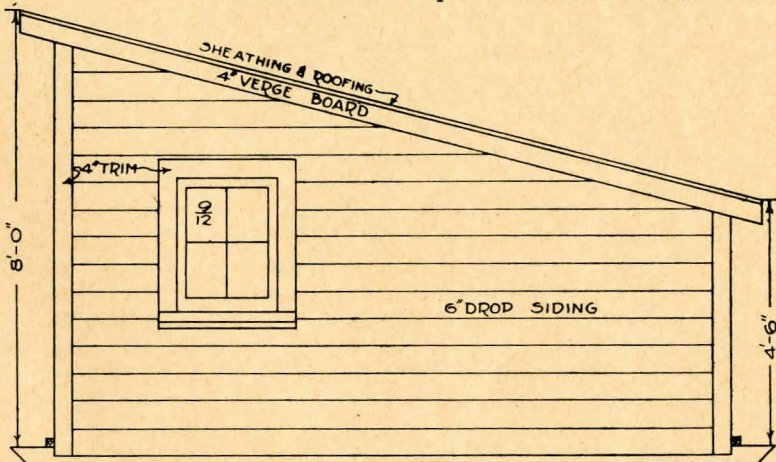


FIG. 9. Side elevation of the portable brooder house.



fodder, or sorghum fodder. The last mentioned litter materials do not break up so readily as does the straw and are, therefore, especially practical.

A coat of white wash or cold water white paint put on the inside walls of the house will make the house lighter and brighter during the winter months. The use of a coal tar disinfectant for spraying the roost and dropping boards about once a month is especially recommendable. An occasional spraying with kerosene emulsion will aid materially in the destruction of parasites. The kerosene emulsion may be made as follows: Dissolve about one-quarter of a pound of common laundry soap in one gallon of soft water by boiling. When the soap has all dissolved and the solution is still hot, pour into it two gallons of kerosene, and stir mixture vigorously. One part of the resulting creamy solution is added to eight or ten parts of warm soft water. This can be used as a spray or applied by means of a stiff fibered brush.

### **A PORTABLE BROODER HOUSE**

The 20 by 20 ft. or 20 by 40 ft. poultry house units may be used for brooding chicks, but under most conditions a small, inexpensive portable house will be more practical, particularly over a series of years. Much chick trouble is due to the practice of raising chicks on the same piece of ground year after year. Soil parasites, round worms, and tape worms cause trouble when chicks are raised on the same ground year after year and this problem may best be solved by moving the brooder house to a new location each season. With a light house such as is herein described, this is easily possible.

The Nebraska type Portable Brooder House is planned particularly for use with coal burning brooder stoves. A maximum of three hundred and fifty chicks can be brooded in this type of house satisfactorily. The Agricultural College recommends the use of a brooder stove with a hover canopy of at least 52 inches. Manufacturers sometimes claim a capacity as great as one thousand chicks for these large brooder stoves, but the beginner will be much more successful if not more than two hundred and fifty chicks are brooded in one unit. The experienced operator will be successful in brooding three hundred and fifty to five hundred chicks in one unit, but three hundred and fifty is the recommended limit for the 8 by 12 ft. house herein described.



**OPEN ROOSTING SHED**

An inexpensive and easily portable roosting shed such as has been used for several years at the Agricultural College will be useful on many Nebraska farms. By moving the first lot of chicks to the open roosting shed, the brooder house is made available for a second lot of chicks.

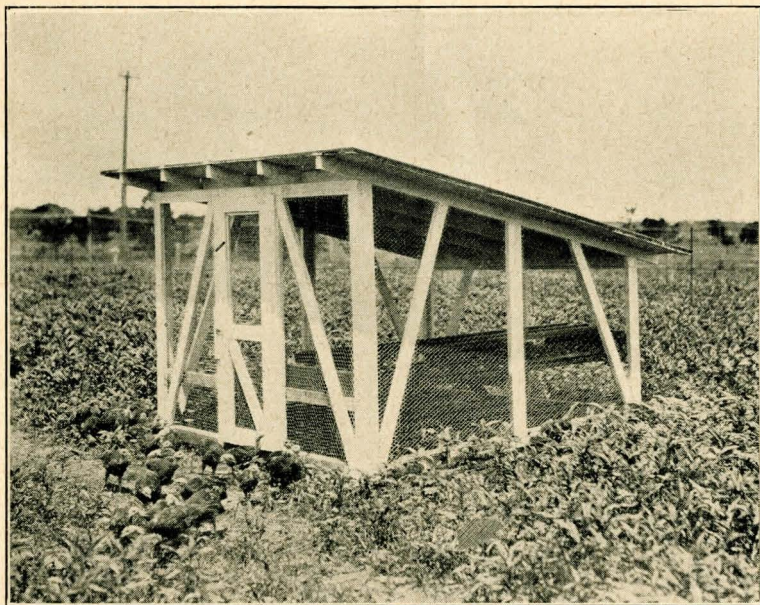


FIG. 10. A frame work like this covered with heavy chicken netting makes a satisfactory open roosting shed.

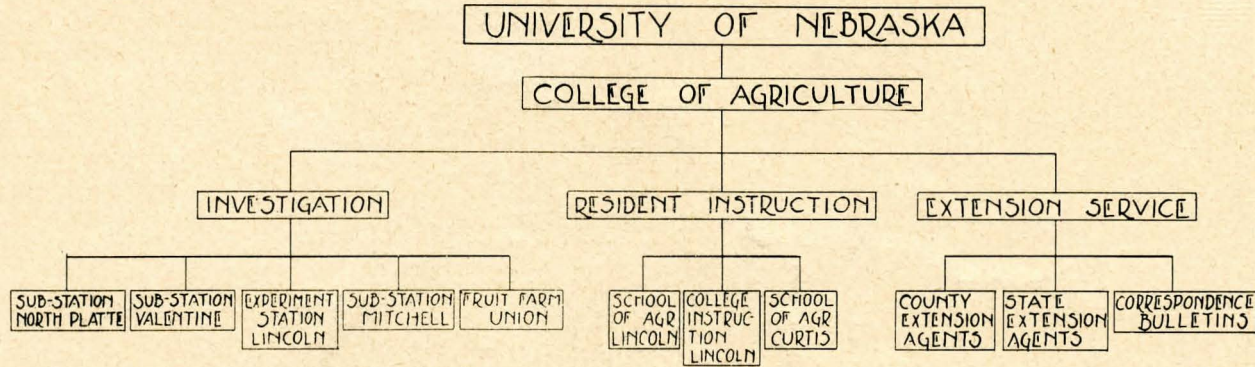
Where the ground available for poultry is limited it will be desirable to put a floor in the shed, cleaning regularly and removing the droppings from the yard. When plenty of land is available for a new range the house should be moved from 200 to 300 feet every month and the droppings distributed over the ground about the old location.

Distributed in furtherance of cooperative agricultural extension work. Acts of May 8, 1914, and June 30, 1914. The University of Nebraska Agricultural College and U. S. Department of Agriculture cooperating. W. H. Brokaw, Director of Agricultural Extension Service.

(Revision of Extension Bulletin 53—1-19-10M, 2-22-10M)  
(8-25-15M)



## THE COLLEGE OF AGRICULTURE AND ITS ACTIVITIES



This chart shows in graphic form the organization of the College of Agriculture. The College of Agriculture is one of ten colleges in the University of Nebraska, but has its own campus and buildings at Lincoln, besides experimental substations in various parts of the State. In addition to the customary instructional work of a college, it is responsible for experimental investigation and agricultural extension work. The instructional work includes instruction of college grade at Lincoln, instruction of high school grade thru the School of Agriculture at Lincoln, and instruction of high school grade thru the Nebraska School of Agriculture at Curtis. Experimental work and farming investigations are carried on at the main farms at Lincoln, and substations at North Platte, Valentine, and Mitchell, and at the fruit farm at Union. The Agricultural Extension Service represents the intimate contact between the college and the farmers of the State. This includes demonstrations by county and state extension agents, the distribution of bulletins, and practical service to the farmer, such as the answering of inquiries by mail.