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EC58-1413 Keeping Hens on Slat Floors

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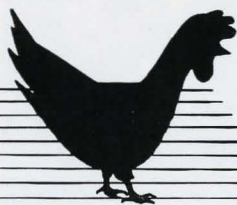
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keeping hens on Slat Floors



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Slats also find considerable acceptance among turkey growers.

INTRODUCTION

The popularity of keeping hens on raised floors made of wood slats or laths is based upon two reasons.

First, it offers an opportunity to more than double existing laying house capacity at a minimum of housing costs.

Second, it represents a way of caring for an economical unit of poultry production with a very low labor requirement and a minimum of initial cost per bird.

Keeping hens on a slatted surface and in a restricted area or on limited floor space is not new. The system has been popular in sections of the Orient for centuries. Professor Charles Bice at the University of Hawaii brought the system of using slatted floors into commercial prominence in the 1930's.

His objective was to get the birds off the damp ground and thereby eliminate some of the parasites, mold, and disease problems.

Turkey producers soon seized upon the opportunities these floors offered to relieve the disease situation. From 1938 to 1950, many turkeys were grown on slat and elevated floors. A considerable number of turkey raisers now use slatted floors during all or part of the growing period but it remained for the chicken producers to successfully adapt slats to egg production and breeding flocks here in the United States.

A tightening economy in agriculture, resulting in higher housing costs and decreasing bird margins, is causing a rapid expansion of this system of management in Nebraska.

Keeping Hens on Slat Floors

By John L. Skinner

and Dr. John L. Adams

CONSTRUCTION AND FEATURES

The dimensions of individual slats will vary slightly with the manufacturer as well as with the intended use. In all cases, the floor area is made up of parallel arranged slats or laths having from one-half to one-inch open space between each.

The width of this opening depends on the age and species (chickens or turkeys) of birds to be kept on them.

Many of the commercially available flooring units are made of wood laths similar in size and appearance to common plaster laths. They are usually made of Cypress or Redwood because of the greater resistance of these woods to moisture and acids. This type of lath is arranged on edge about $\frac{5}{8}$ inch apart. Some companies have marketed floor sections made of $\frac{3}{4} \times \frac{3}{4}$ inch strips spaced $\frac{3}{4}$ of an inch apart.

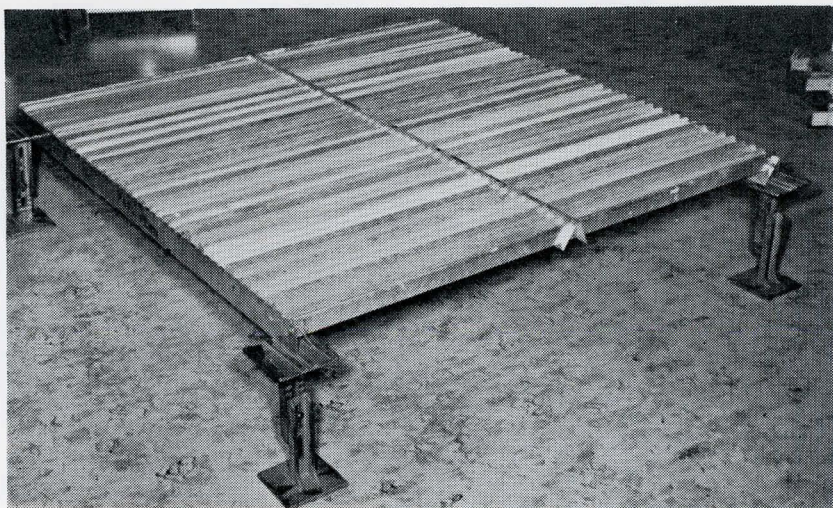
Various leg and supporting structures have been used. Thin metal and pressed steel legs rust quite quickly. Heavier cast legs experience longer life, but are relatively expensive.

Most poultrymen have used wood framing material (2 x 4 or 2 x 6) resting on concrete blocks to support the slatted sections. Pressure treated wood used for supports will prolong life and keep the floor from developing irregularities due to warping.

Standard 8 x 8 x 16 in. concrete blocks placed on end, plus a 2 x 4 or 2 x 6 will give the desired height as the droppings can be expected to accumulate at approximately $1\frac{1}{4}$ inches per month. This accumulation is based upon birds being housed at the rate of 1 to $1\frac{1}{4}$ sq. foot per bird. This will allow the house to be cleaned only once each year, a necessary consideration since this saving of time and labor is one of the basic justifications for the use of this system of management.

A dirt floor under the slats is better than hard surface or concrete because a considerable amount of natural drainage will take place, reducing the moisture problem. This does not rule out the use of buildings equipped with concrete or other hard surfaced floors but indicates that in new construction, continuous structural flooring is not necessary.

John L. Skinner is Extension Poultryman, and Dr. John L. Adams is chairman of the Poultry Husbandry Department, University of Nebraska College of Agriculture.



A 4 x 4 foot section of slat flooring showing cast-iron supporting legs.

SPACE REQUIREMENT

The exact amount of slatted floor space to allow for each hen may vary slightly with each operator. Experienced poultrymen have gone as low as seven-tenths square foot for each bird.

As a rule-of-thumb, one square foot is considered as the goal, but it is advisable for a person using slats for the first time to allow 1.4 to 1.5 square feet per hen. This allows the operator to gain experience in the operation of his ventilating equipment and other component items when the demands are not quite as exacting as they are with the birds housed at one square foot per bird. Floor space can be reduced as the operator gains experience.

Keep in mind that a greater concentration of birds requires a proportionate increase of feeders, waterers and nests. Count your birds; provide at least one nest or its equivalent for each five layers; provide not less than four hanging feeders (cylinder type) for each 100 hens, and see that there is enough waterer space so that another hen can find room without pushing or crowding.

AUXILIARY EQUIPMENT

You have a choice of waterers and nests to use. Two points to keep in mind when selecting this equipment are:

1. Birds are hesitant to jump up from or back onto the slatted surface.
2. Since the birds have no opportunity for scratching or dusting on this floor, loose nesting material will be quickly seized and scratched from the nests.

These points make it necessary to use roll-away type nests and to place them close to the floor when the birds are coming into production. The nests can be elevated gradually as the birds become accustomed to their use.

Most persons using slat-floors prefer the round, hanging type feeder. This unit gives a maximum of feeding space while occupying no floor space, requires filling only every three to four days, and can be easily moved to new locations to insure an even distribution of droppings.

Automatic waterers are essential in any commercial poultry operation, and any of the several low-leg trough types are satisfactory. Also satisfactory for use on slatted floors are "Air Dome," "Johnson Cup" and "Drip Nipple" or "Dew Drop" waterers.

Some waterers are equipped with legs that will not stand firmly on the slatted surface. In these cases, anchor or attach them firmly to the slats. Many operators are careless of overflow and leakage. Because of being on slats, this spillage is not readily visible. Careful management of waterers on slats will pay off in an easier job of cleaning at the end of the year and in less ammonia and foul odor throughout the operation.

Automatic feeders are readily adaptable to use on slatted floors. Tube type automatic feeders that can be permanently mounted overhead and used to fill round, hanging type feeders are very satisfactory. They offer the advantages of not having to be removed for the annual clean up and providing a three or four day supply of available feed in case of power failures.

The ventilation of a slat-floor unit is an essential part of the overall operation. Because of the extreme concentration of birds and their inability to move to a less crowded area, adequate air movement must be maintained at all times.

Adequate ventilation provides three important things in a poultry house: a. air purity, b. removal of undesirable odors, c. removal of excess heat and moisture.

The only exact basis for computing ventilation in any poultry house is the total body weight of all the birds housed. The total cubic feet of air enclosed by the house determines the number of times the air must be changed in any given unit of time, but the pounds of living tissue in the structure must be satisfied with an ample supply of pure air if maximum performance is to be maintained.

A satisfactory ventilation system should provide at least 1 cubic foot of air per minute for each pound of chicken contained in the house. The effectiveness of any ventilating system is dependent upon sufficient insulation correctly installed

Lights are essential to any modern poultry operation. Either incandescent or fluorescent types are satisfactory in the slat-floor house. The former has the advantage of lower initial cost while the latter is somewhat cheaper to operate.

Many of the newer slat-floor installations are windowless. This lowers the initial cost of the house, adds to its life expectancy and insulating value. However, for slat-floor operations, a house can be equipped with or without windows and both will be satisfactory when artificial light is properly supplied.

Large clean-out doors at either end of the slat-floor house are essential. They permit entry and use of mechanical clean-out and haul-away equipment. This is necessary if the full labor-saving potential of the slat-floor is to be realized. These doors also may be left open during periods of warm weather to provide additional air movement and escape of heat.

**Comparative Performance by a Nebraska Hatcheryman for His
Hatching Season 1957-58**

% of Saleable Chicks Hatched Based Upon the Total Number of Eggs Set. (2% Allowance Made for Cull Chicks)	
Overall average for all egg-type flocks in the hatchery program	85.3%
Average of all egg-type flocks being maintained on conventional (litter) floors.	84.9%
Average of all egg-type flocks being maintained on slat floors.	86.6%

MODIFICATIONS

The slat floor was originally designed and intended for use as a cover for the entire floor area. This puts all the birds on the same level as no roosts or other elevated structures, other than nests, are employed.

Recently some producers have used the slatted surface as an island in the center of the pen. The area between this island and the walls is covered with litter to a depth of 8 to 12 inches. The waterers and a large percentage of the feeders are located on the slats while the remainder of the feeders are on the litter. This arrangement allows more than one major society to develop, and affords an excellent mating area on litter surface where the flock is used for hatchery supply purposes. In addition, this arrangement causes all of the birds to roost in the center of the building where the best air circulation prevails and tends to discourage crowding at roosting time.

Another advantage of this modified system is that conversions and irregular sized and shaped buildings can be easily handled without cutting or altering the standard sizes of commercial slat sections. The area left for litter is somewhat flexible. Four to six feet is satisfactory.

The disadvantages of the modified system include a slight reduction in housing capacity—about 1.5 sq. feet per bird—and a dimming mechanism on the lights in windowless houses made necessary by the desire and necessity of the birds to roost on the island of slats.

The slatted island should be at least 20 inches above the litter floor area and have solid wood sides so that the droppings can be allowed to accumulate for the full 12 month period.

SUMMARY AND CONCLUSIONS

1. Slat can be used in any building possessing sufficient height to allow the operator working room above the slats and 18 to 20 inches below the floor to accomodate the build-up of droppings.

2. Slat are satisfactory for egg production purposes and the keeping of an egg-production type breeding flock. They are not recommended for breeding flocks of heavy breed or broiler-type breeders as these tend to develop foot calluses and bruises, the foot afflictions being most pronounced in the heavy males.

3. Slat are satisfactory for broiler growth although they have relatively less advantage for this purpose than for laying hens, and do tend to contribute to the breast blister problem in some instances.

4. Slat can be used effectively for the production of broiler-fyer turkeys and for mature market turkey production. Caution:—Turkeys, due to their heavier weight, require additional supporting structure and, depending on time kept in unit, may require additional height allowance for increased accumulation of droppings.

5. Laying hens can be successfully kept on as little as .75 sq. ft. per bird. This concentration is not advised for the person who has had little or no experience in slat-floor management. It is suggested that about 1½ sq. ft. per bird be allowed the first year and a somewhat lesser amount be considered each successive year as experience in their use is gained. The ultimate goal can be at or near one sq. ft. per bird.

6. Slat are a means of economically increasing the number of birds that can satisfactorily be kept in a given house provided they are used with the proper ventilation and a sufficient amount of feeder, waterer, and nesting space.

7. A dependable and efficient power ventilating system is required with a slat-floor unit. The system can be equipped with automatic controls and should make provisions in its design for partial functioning in event of a power failure.

8. Birds kept for extended periods on slat-floors often appear quite ragged and devoid of feathers. This is because of the feathers being broken or worn by the close association of birds and the fact that all birds are in the flow of society all of the time.

9. An all-mash complete ration is the only recommended feeding program for slat-floor operations. In any system involving increased stress due to less floor space and closer association of the birds, it becomes imperative that you provide an adequate ration, well fortified with vitamins and minerals. Because of variation in hand feeding of grain, etc., an all-mash ration is the surest way of supplying the bird's requirements.

10. Major problems in slat-floor operation include: cannibalism, over-heating in summer, and attempted roosting on nests or other items of equipment. Occasionally a person may have individual problems with foot calluses, piling at roosting time and leg weakness or fatigue, although these are not universal problems.

Ready for the Birds

