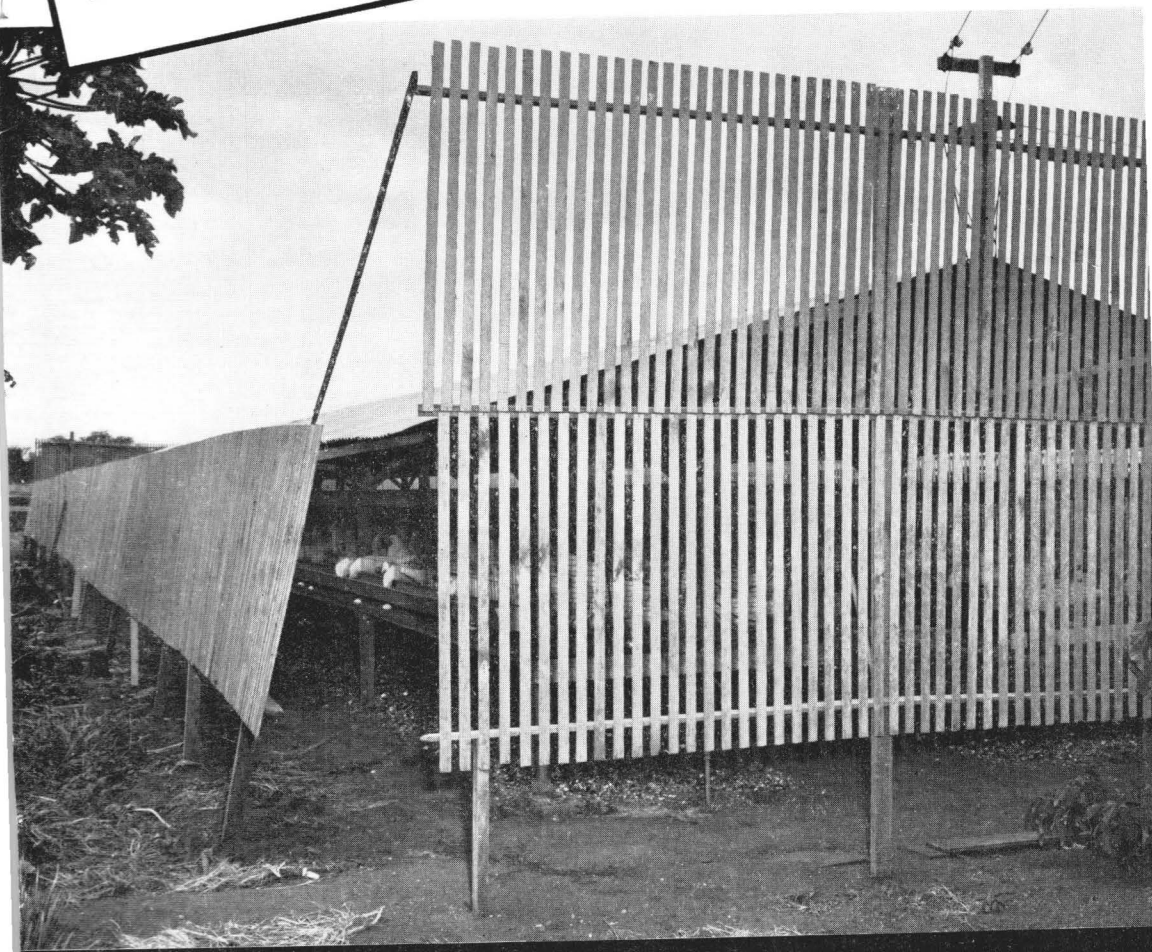
By Charles M. Bice

WINDBREAKS
for open poultry houses



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UNIVERSITY OF HAWAII

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WINDBREAKS FOR OPEN POULTRY HOUSES

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Cover photo courtesy HONG'S LITTLE ACRE, OAHU

HIGH WINDS ARE A PROBLEM FOR POULTRYMEN in many areas in Hawaii during certain periods of the year. During these periods of heavy winds, in many instances there is a decided slump in egg production. Figure 1 shows the effect of heavy winds on pullets housed in laying batteries without protection from windbreaks. This lowering in egg production during the months of October, November, and December — when eggs are usually at their maximum price — results in a lowering in the net income from the poultry enterprise. At this time

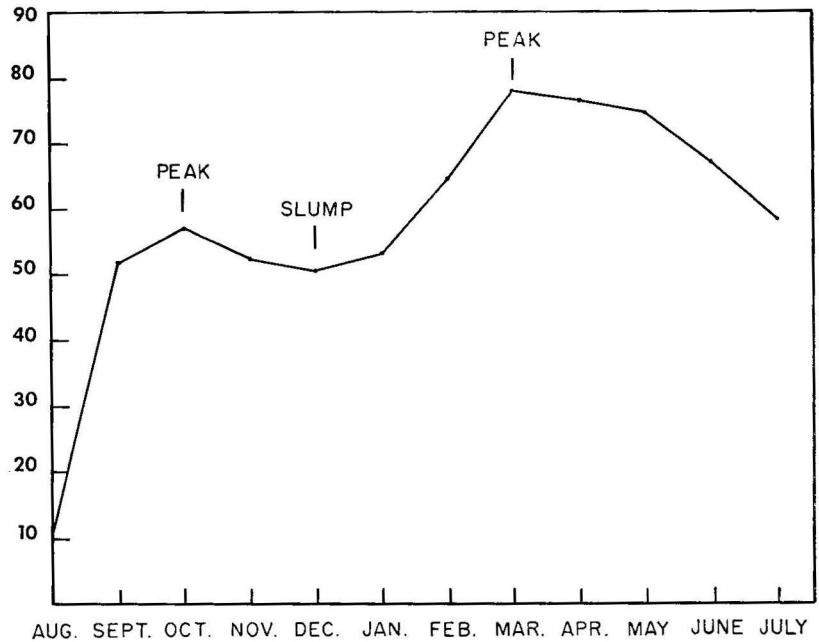


FIGURE 1. Winter slump in egg production due to heavy winds on pullets in laying batteries without windbreak. (Courtesy University of Hawaii Poultry Science Department.)

FIGURE 2. Panax hedge protecting grower unit. (Courtesy Hawaii Agricultural Experiment Station.)

of year the winds are moisture-laden, which adds to the discomfort of the flock and is reflected in a considerable drop in egg production over a period of 3 to 4 months. Also during this period, much feed is blown from the open feed troughs, thus resulting in considerable loss due to wastage.

Many poultrymen in Hawaii use windbreaks for the protection of their flocks housed in open, wire-floored, individual batteries or pen-type poultry houses, and report satisfactory results from their use.

KINDS OF WINDBREAKS

There are two general types of windbreaks: natural and artificial. Both of these types will be discussed in this circular, inasmuch as they have proved to be of value on poultry farms in Hawaii.

NATURAL WINDBREAKS

Some of the natural windbreaks used on poultry farms are:

Hedges. Tall-growing hedges, as shown in figure 2, will break heavy winds. Fast-growing panax will serve well for this purpose. Hibiscus, crotons, or other fast-growing hedges also may be used. It is especially important to have hedges on the side of the poultry house in the direction of the prevailing wind. Growing birds housed in open houses, as shown in figure 2, do not need windbreaks on all sides of the house; however, laying birds housed in a similar type of construction would need windbreaks on at least three sides of the house. It is possible

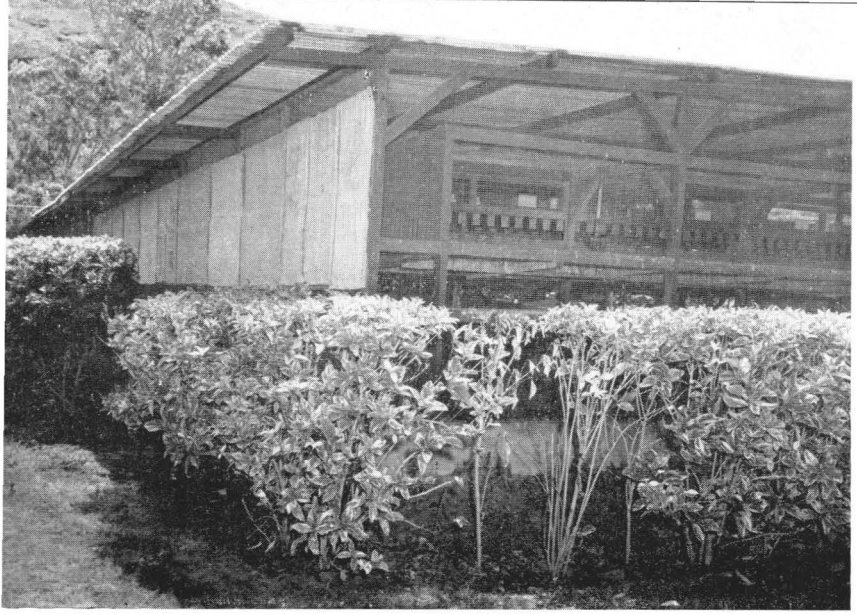


FIGURE 3. Low-type of hedge used in combination with feed sacks attached to walls of poultry house. (Courtesy Hawaii Agricultural Experiment Station.)

to cover open poultry houses with bags or other material while the hedges are growing and are of insufficient height to break and diffuse the wind. One advantage of the hedge-type windbreak is the relatively open bottom area, through which the wind can circulate to the droppings, thus keeping them dry at all times. This is essential in the control of flies on poultry farms.

Figure 3 shows a hedge around two sides of an open-air, pen-type laying house. There are hedges on the other two sides which are not shown in the picture. In addition to the natural hedge-type windbreak in figure 3, bags are attached to the rear end of the poultry house in the direction of the prevailing wind. Figure 3 shows that it may be advantageous to use both natural and artificial windbreaks for the protection of laying birds housed in open houses.

Trees. Many poultrymen find that trees provide protection to birds in open-air, wire-floored poultry houses. When trees are mature, and if grown close together, they are dense enough to provide wind protection and to slow up the wind before it passes through the open poultry houses. One advantage of trees as windbreaks is their permanency. With some of the artificial windbreaks it is necessary to renew them yearly, thus adding to the cost of operation. Figures 4 and 5 show how trees can be used effectively as windbreaks where birds are housed in open-air poultry houses. As a precautionary measure, if poison sprays are used on fruit trees that are used as windbreaks, every effort should be made to keep the poison spray away from the feed and water troughs.

ARTIFICIAL WINDBREAKS — LATHS

Artificial windbreaks are generally used by most poultrymen. These may be constructed of laths, slats, boards, bags, muslin, roofing paper, and galvanized or

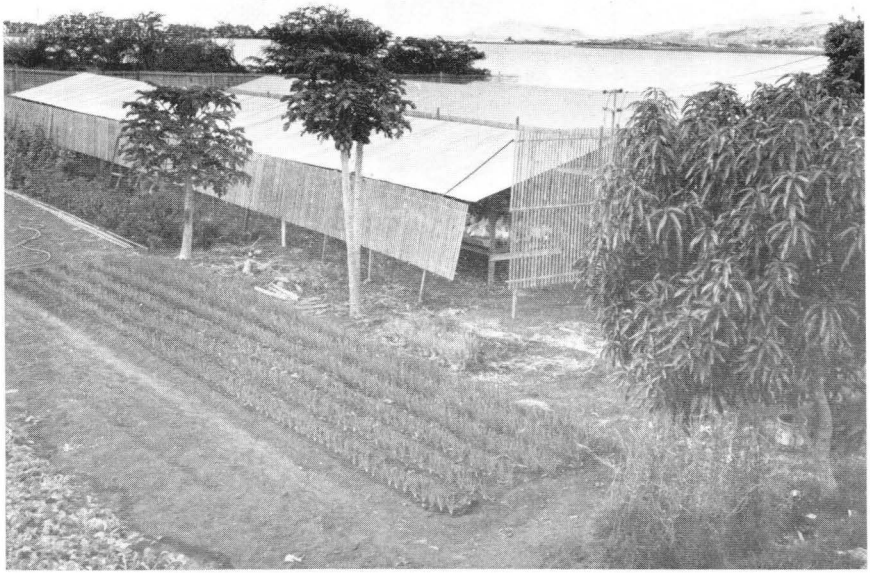
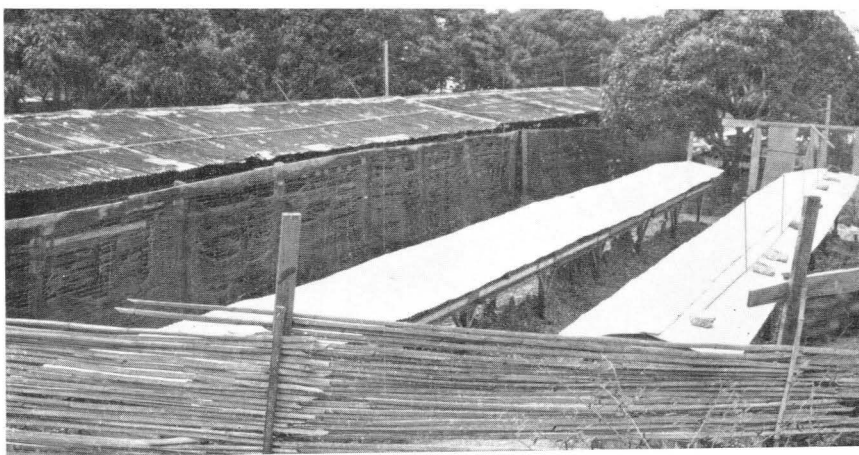


FIGURE 4. Combination of trees and laths as windbreaks. Note center windbreaks between poultry houses extending beyond eave of poultry house. Note poultry houses are protected on three sides by windbreaks. (Courtesy Hong's Little Acre, Oahu.)

aluminum sheets. Of these, the lath type is preferred, because it retards the velocity of the wind, yet permits a gentle distribution of air through the openings between the laths to the birds in individual laying batteries or open-type pens.

The cover picture shows how laths are being used on one farm for the protection of pullets in their first year of lay. This farm has provided protection on all sides, thus eliminating any chance of heavy winds entering the poultry house and making the birds uncomfortable. This lath windbreak is so constructed that the laths are set ¾ inch to 1 inch apart and an opening from the ground to the lower portion of the laths provides adequate ventilation to keep droppings

FIGURE 5. Natural windbreaks of mango trees, combined with artificial windbreaks made of camouflage wire netting and bamboo poles. (Courtesy Higa Poultry Farm, Oahu.)



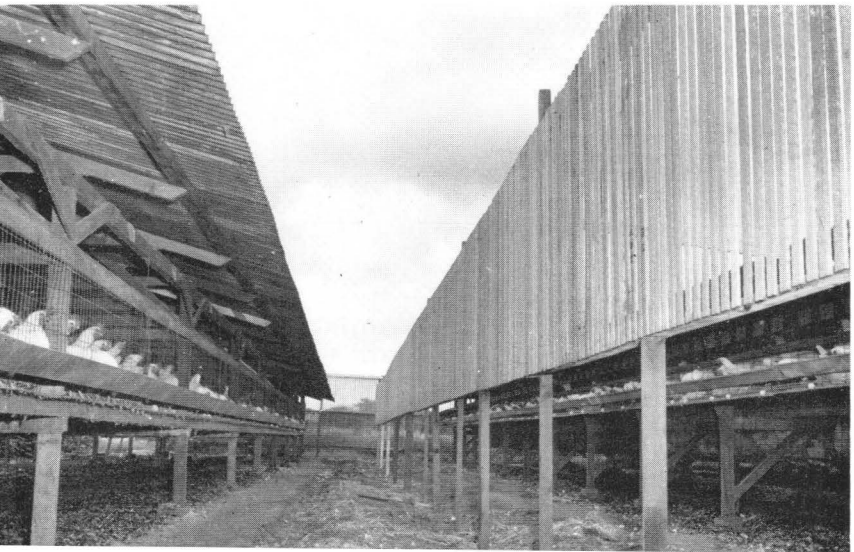
dry at all times. In addition to the lath windbreak shown on the cover picture, the same farm makes good use of trees to control heavy wind velocity (see fig. 4).

How laths diffuse the wind. When heavy winds strike a lath windbreak they immediately diffuse; however, some wind will pass through the ¾-inch space between the laths. As the wind comes through the open spaces between the laths, it moves rapidly, but its movement is considerably reduced through the first 2 feet of air movement. After the first 2 feet the air moves rather slowly and diffuses itself through the poultry house.

Figures 6 through 12 show many applications of the use of laths as windbreaks. Figures 6 and 7 show the use of lath construction between rows of poultry houses. The center windbreak between the rows of houses runs the full length of the house. It is constructed so that the top of the windbreak is above the eaves of the two rows of houses (see fig. 4). The purpose of the center windbreak is to keep the heavy winds from sweeping down over the roofs and under the eaves into the poultry houses. It is open on the bottom to provide adequate air circulation. A more detailed picture is shown in figure 7. This is an end view showing how the windbreak is located between the houses and the manner by which the windbreak is attached to the house. It also shows that the top of the windbreak is well above the eaves of the houses. This type of windbreak can be applied where several rows of houses are lined up one after the other.

Types of lath construction. A very desirable type of lath windbreak is the lath fence between houses, shown in figures 8 and 9. This type is found on many poultry farms in Hawaii and has proved to be highly satisfactory. The laths are attached to frames with ¾-inch space between the laths. The bottom of the frame is a foot above the ground and the top of the frame rests on the eave of the house and extends slightly above it, as shown in figures 8 and 9.

FIGURE 6. Lath windbreak running full length of poultry house and above eaves of adjacent houses. Note opening under windbreak to provide adequate air circulation. (Courtesy Hong's Little Acre, Oahu.)



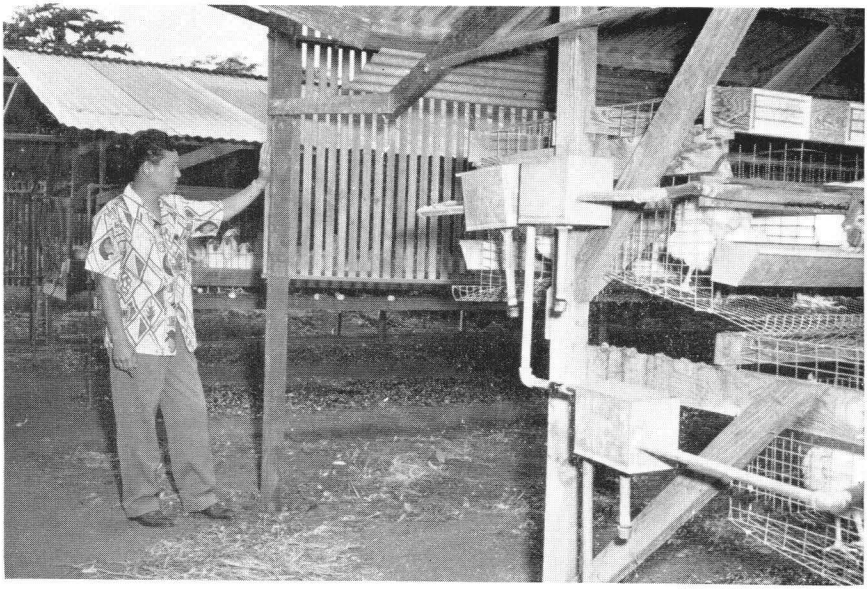


FIGURE 7. End view of windbreak shown in figure 6, showing position between houses and attachment to poultry house. (Courtesy Hong's Little Acre, Oahu.)

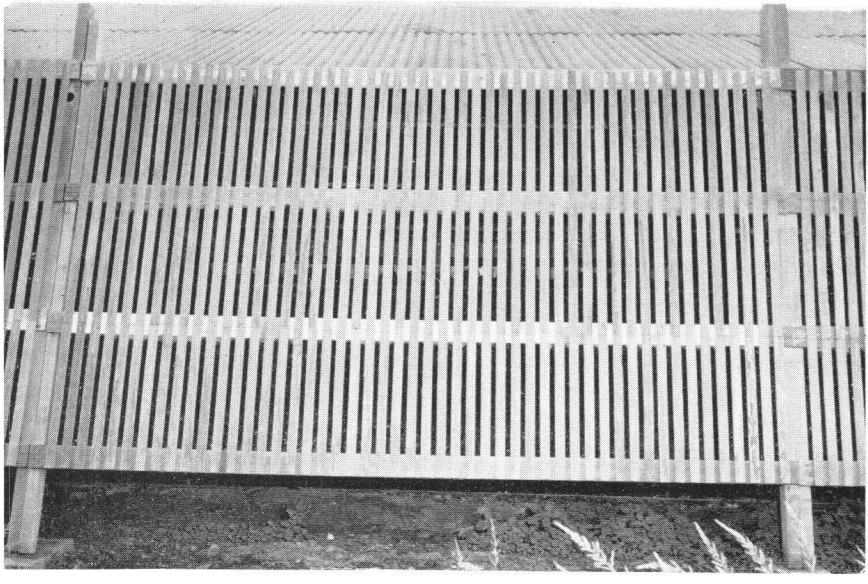


FIGURE 8. Lath windbreak with opening between ground and bottom of windbreak. Top of windbreak is attached to eave of poultry house. (Courtesy Mr. Kiyoshi Izumi, Quality Chik Hatchery, Oahu.)

FIGURE 9. Interior view of windbreak shown in figure 8, showing distance from windbreak to poultry pens and attachment of windbreak to eaves of poultry house. (Courtesy Mr. Kiyoshi Izumi, Quality Chik Hatchery, Oahu.)

Figure 9 is an interior view of the lath windbreak shown in figure 8. It shows the relative distance between the lath windbreak and the pens where the birds are housed. It also shows how the windbreak is attached to the house with the top of the laths slightly above the eave of the house. This windbreak runs the full length of the house.

Another type of lath windbreak is the wall type, shown in figure 10. Here the laths are attached to the house and form the walls of the house. Although the picture shows only two sides protected, all four sides are protetced with the same type of construction. The laths are set ¾ of an inch apart, except near the water flume, where they are sufficiently wide apart to provide head space for the birds to drink from the troughs. This type of windbreak construction is found on several farms, and the operators report good results.

Another type of lath windbreak, used as a fence, is shown in figure 11. This type of construction is used by many poultrymen in California, and the permission to use the drawings in figure 11 was given by the University of California. The upper drawing shows an end view of the windbreak, with special emphasis on the hinged lower section. On relatively warm days the hinged section may be swung upward, thus allowing an increased air circulation which will keep the

droppings dry and also provide greater circulation throughout the poultry house. This type of windbreak could be used by poultrymen in Hawaii.

Plans for the last type of windbreak discussed in this circular are also provided by the University of California. This type is attached directly to the cage house and extends from the plate down to the bottom of the cages. It is hinged at the plate, as shown in figure 12, so that it can be pushed out during hot days to provide for additional air movement and shade. Figure 12 gives the detailed drawings necessary for the construction of this type of windbreak. Many birds are housed in individual laying batteries in Hawaii; consequently, this type of construction should prove to be highly desirable on cage-operated plants.

Spacing of the laths or slats. The common practice is to provide ¾-inch space between the laths or slats used as windbreaks for adult stock. In broiler or fryer houses, however, the general practice is to provide ½- to ⅝-inch openings between the laths or slats. This practice has worked well over many years and can be adopted by all poultrymen.

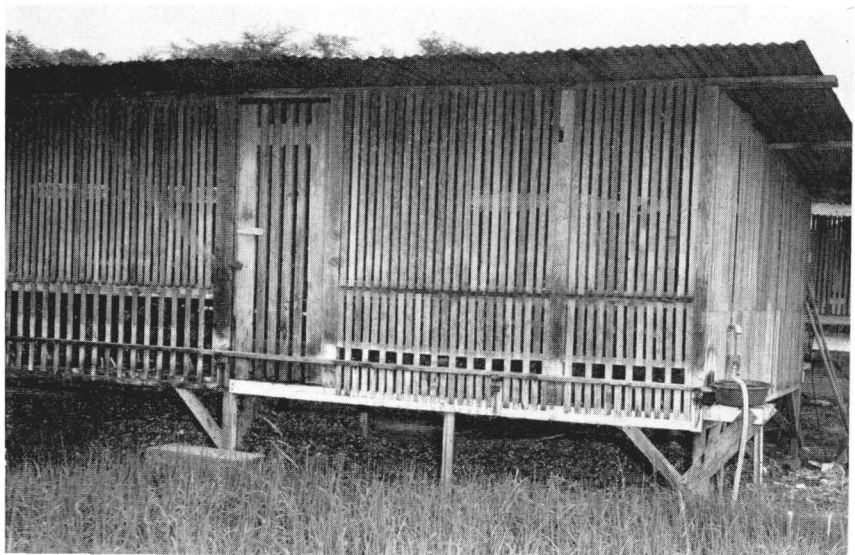
OTHER TYPES OF ARTIFICIAL WINDBREAKS

Other types of artificial windbreaks are shown in figures 5 and 13. In figure 5 the operator has used advantageously bamboo poles and camouflage wire in addition to the natural windbreak of mango trees. The types of windbreak protection on this farm have made it possible to maintain high egg production during periods of high winds.

The brooder house shown in figure 13 has muslin windbreaks that can be adjusted according to the velocity of the prevailing wind. Muslin can also be used on grower and layer houses.

Some poultrymen use boards, feed sacks, roofing paper, and galvanized or aluminum sheeting for windbreaks. These latter types are suitable if sufficient openings are provided in the house for adequate ventilation.

FIGURE 10. Walls of poultry house made of laths placed ¾ inch apart. (Courtesy Mr. Kiyoshi Izumi, Quality Chik Hatchery, Oahu.)

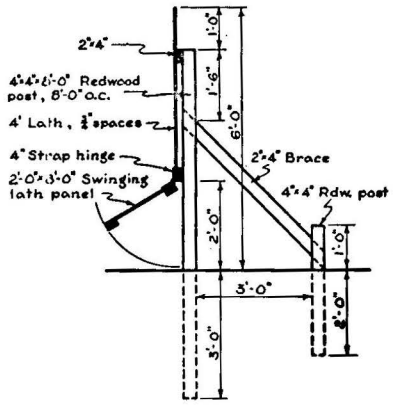


DISTANCE OF WINDBREAKS FROM POULTRY HOUSES

The following recommendation is taken from the University of California Leaflet 44, *Windbreaks for Wire-Floor Poultry Ranches,* by C. F. Kelly and W. O. Wilson.

A windbreak placed at a distance of three times its height from the poultry house will afford effective protection. For example, a windbreak 8 feet high could be placed 24 feet from the chicken house. Most windbreaks, however, are placed at a distance equal their height. They are generally a foot or more higher than the eaves of the house.

Windbreaks should be located so as to make economical use of available land. This is why most windbreaks are built close to the poultry house. The height of the windbreak, type of roof on the chicken house, and surrounding buildings or trees are important factors in deciding the location of the windbreak.



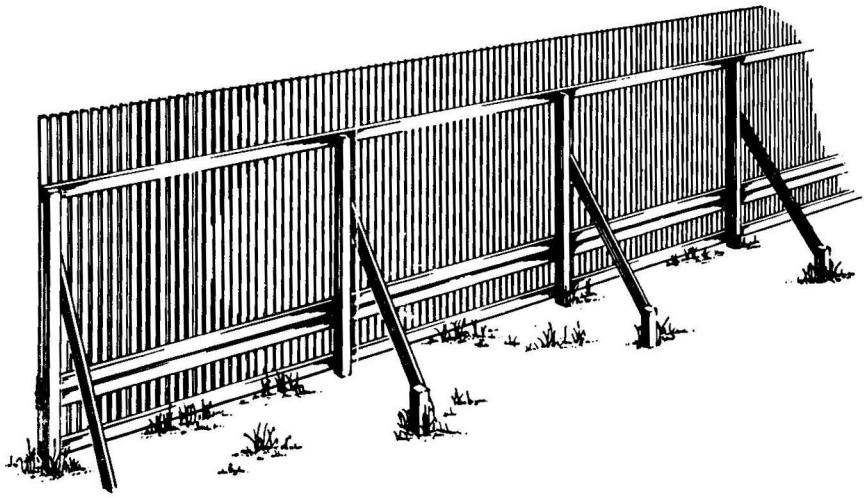


FIGURE 11. *a,* The lower section of this windbreak is hinged so that it can be folded up in the summer to allow additional air to flow across the droppings. (Courtesy C. F. Kelly and W. O. Wilson, University of California.) *b,* The sketch below shows the leeward side of the finished windbreak.

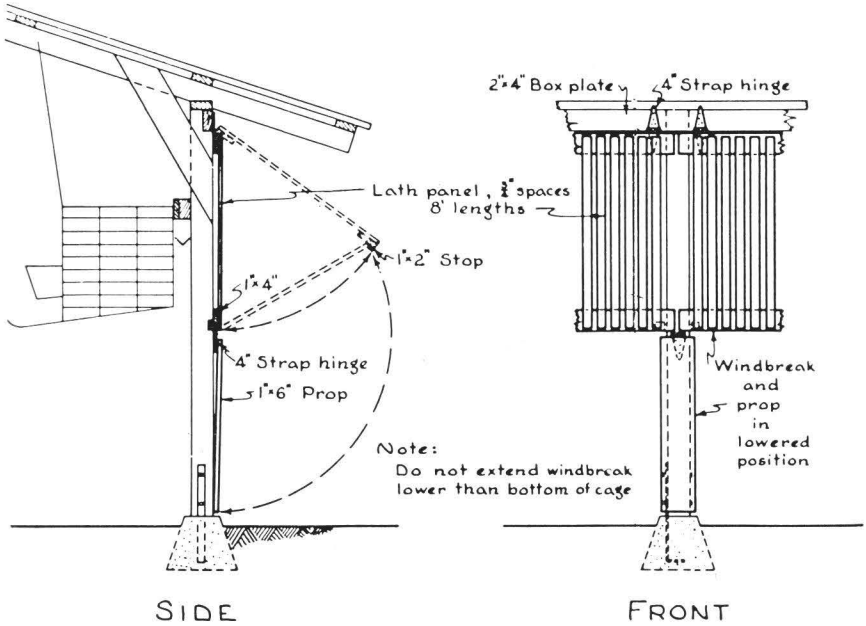


FIGURE 12. One type of slatted windbreak may be attached directly to the cage house, extending from the plate down to the bottoms of the cages. It may be hinged at the plate, as shown, so that it can be pushed out in the summer for additional shade and air movement. This construction may also protect the birds from excessive ground radiation in the summer. (Courtesy C. F. Kelly and W. O. Wilson, University of California.)

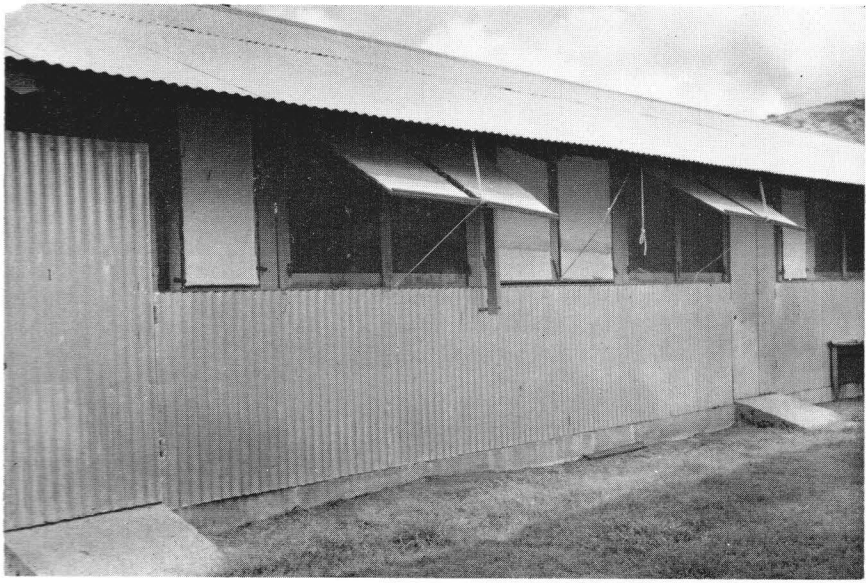


FIGURE 13. Muslin on movable frames on brooder house. (Courtesy Hawaii Agricultural Experiment Station.)

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