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COLLEGE STATION, BRAZOS COUNTY, TEXAS

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College Station, Texas.

New Developments in Hog Houses and Equipment



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†As of November 1, 1933

The constant demand for improvements in hog houses and equipment for Texas conditions is recognized, and this publication reports several new developments found helpful to the hog producer. The new developments include an improved A-type house adapted to all sections of the state. Improvements made on the shed-roof house increases its adaptability to Texas conditions. Designs for extending the concrete floors six feet beyond the outside walls of the half-monitor and gable-roof houses are a new feature which prevents mud holes and rooting along the foundation. Better door and window installation and arrangement have been added.

A simple and inexpensive hog breeding crate, covered water trough, and two types of adjustable self-feeders that aid in economical hog production are shown.

Other useful equipment reported in this publication includes weighing and shipping crates, loading chute, hog-killing equipment, and smoke house.

Plans and bills of material are shown for all houses and equipment reported in this Bulletin.

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NEW DEVELOPMENTS IN HOG HOUSES AND EQUIPMENT

FRED HALE AND H. P. SMITH

The primary purpose of a hog house is to promote the comfort, health, and development of the stock it houses in order that greater returns may be realized.

Climate is an important factor in hog-house design. No animal on the farm requires more protection from cold and dampness than the little pig. The climate of Texas, while generally equable and mild as compared with that of many other sections, is nevertheless variable enough to require the adaptation of the hog house to the locality it serves. Even in the sections of mildest climate the sudden changes and extreme difference in temperature cause loss to the hog raiser unless protection is provided.

The A-type hog house has been modified so that it is a suitable all-purpose house for the hog raiser in all sections of the State. The shed-roof house has been improved to where it is better adapted to Texas conditions. Improvements made on the half-monitor and gable-roof types of hog houses make them more serviceable to the Texas hog man.

New and original designs of self-feeders, water troughs, and breeding crates for hogs have been developed, which are indispensable to the hog raiser.

Various other time and labor-saving pieces of equipment for the hog lot are described which are essential to all hog raisers.

In addition to houses, certain equipment is necessary in the management, feeding, and marketing of hogs and in the preparation of meat. This equipment, including houses, can be had for very little cash outlay.

REQUIREMENTS OF A TEXAS HOG HOUSE

The kind of house to construct should be the one that gives the necessary comfort and health to the hogs for the least cost. In Texas a hog house that is constructed so as to keep out rain, snow, and cold winds in winter or early spring, and that will permit the raising of doors on all sides in warm or hot weather will, in the main, furnish comfort to the hogs.

TYPES OF HOUSES

Several types of houses are described in this Bulletin, and their design is such that one may select and obtain the proper type for his particular needs.

Houses for hogs can be divided into two general classes, or types—the small moveable type of individual house, and the large central, or stationary, type.

The individual house has but one pen, which is large enough to accommodate one sow and her litter. Some of the most common types are: the A-shape, the shed-roof, the gable-roof, and the box, which has a roof of two different slopes. The A-shape and shed-roof types are more popular in Texas.

The central, or stationary, house has several pens, the number depending on the number of animals to be housed. The partitions between the pens are generally constructed so they can be removed and a larger pen provided. This type of house should be constructed on a durable foundation and provided with serviceable floors, usually of concrete, and sufficient windows and openings to furnish sunlight and ventilation. The two most common shapes for the central house are the half-monitor and the gable-roof. The half-monitor house should be set lengthwise east and west so that the windows face south, while the gable-roof house should be set lengthwise north and south so that the rays of the sun will shine through the sky-light windows on the east side in the morning, and those on the west side in the afternoon.

The central house is better adapted for one who is in the hog business on a larger scale than the average. This house permits a number of sows to farrow in the same house at the same time. The man who has less than 25 or 30 sows can probably get along as well in Texas by using only individual houses such as the A-type or shed-type. Where the central house is used it is doubtful if there should be more than one pen for every two sows, as it will be possible to farrow the sows and move them out into the individual houses in time to make room for the other sows as they farrow. It is very probable that one could farrow 40 sows in a central house of only 16 pens where the sows are moved out into individual houses soon (4 to 5 days) after farrowing. At the Texas Station, where the sows were moved out four days after farrowing, as many as 24 sows have farrowed in eight pens all within a period of eight days. This practice has proved very satisfactory.

Whether to build a central farrowing house or not depends not only upon the number of sows one has, but upon the amount of money one wishes to invest per sow in permanent equipment, and upon whether one is in the market-hog business or the pure-bred-hog business. Where one is a breeder of pure-bred hogs and sells quite a number of breeding hogs for good prices, it may be considered that a properly constructed central house carrying a well-painted sign giving the name of the firm will take the place of a certain amount of advertising.

Such a house, if possible, may well be constructed near the highway or railroad.

The A-Type Individual House

The plans for constructing the Texas A-type house are shown in Figure. This house has the following advantages over the shed type.

1. Easy to construct.

2. Less cost (approximately \$15.00, or one-half the cost of the shed-type).
3. Less maintenance cost.
4. Easy to move.
5. Requires fewer guard rails.
6. Warmer in winter than shed-type house.

A stationary floor is shown in this house; however, a very satisfactory removable floor can be put in by constructing three sections on 2x4 runners. The runners are bolted to the floor and may be replaced when

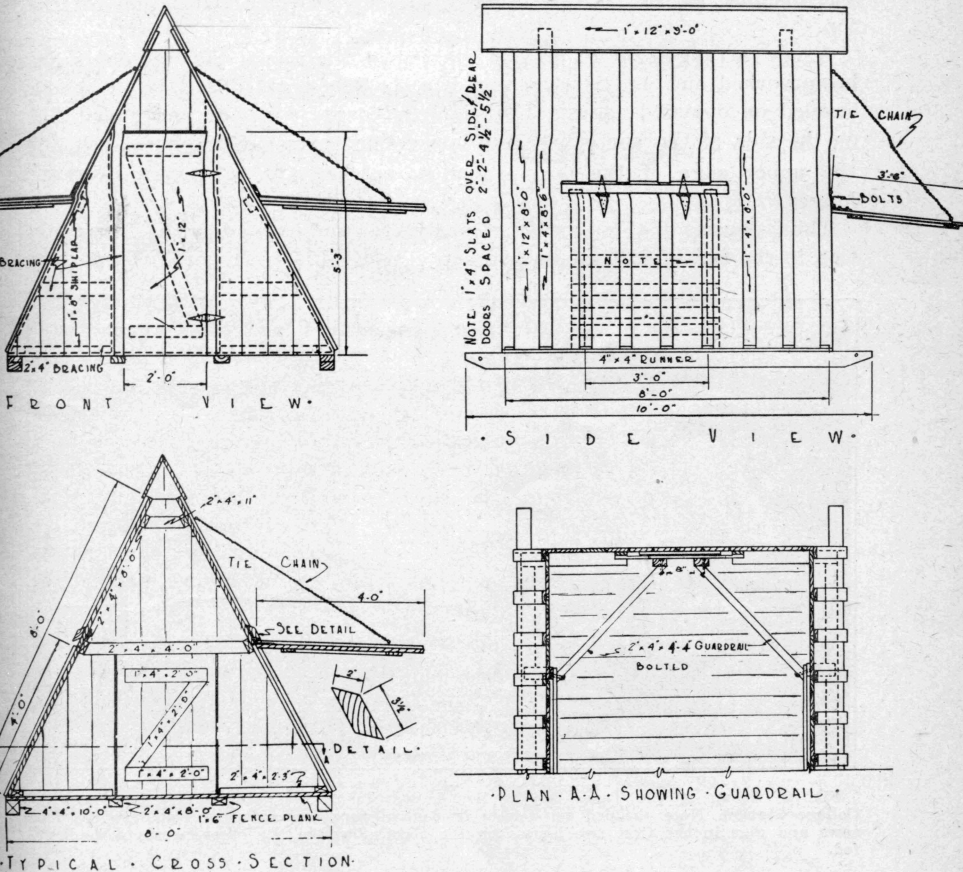


Fig. 1. A-type, or individual hog house

necessary by removing two bolts from each runner. The slats that are nailed over the inside of the rear and side openings is another new feature on the Texas A-type house. The slats prevent the pigs from crawling out of these openings, and the sows from going out over guard rails which could injure the sows udders.

Guard rails to prevent the sow from mashing the pigs against the sides of the house, are placed diagonally across the two rear corners, but none are used in the front ones. The rails consist of 2x4's set edge-wise, extending across the corner from the rear of the side doors to the center of the rear door, as shown in Fig. 1. The ends are bolted to the slats which cover the doors. No guard rails are placed in the front corner because it was observed that the sow preferred to lie down in the rear part, and usually crosswise in the house.

Air circulates freely through the house when all the doors are open. The opening at the ends just under the cap provides ventilation for the top.

A new arrangement to prevent leaking at the top of the side doors has been worked out, and is shown in Fig. 1. It consists of a 2" x 6" plank beveled on opposite edges. The plank is coated with tar and nailed flat on the side of the house with the lower slope over-hanging the crack and the upper edge of the door. Shallow notches are cut to fit over the hinges.

Thirty houses of this type were constructed and painted by the Texas Station in the fall of 1932 at an average cost of \$12.00 per house. They were



Fig. 2. Group of the Texas A-type hog houses in use on the Station hog farm at College Station. Note shedded self-feeder in central fore ground which was used to feed sows and pigs in the first two houses on the right. Sows in the other houses were hand-fed.

used to farrow 270 pigs with a minimum loss from overlaying. Fig. 2 shows a group of houses in use on the Station Hog Farm at College Station.

The Texas Station heretofore has not used or recommended the A-type hog house because the ordinary A-type house is not large enough and does not provide cool, shady quarters for the hogs in warmer climates. Constructing a larger house and having raised doors at the back on

each side and at the front, have made this type of house very satisfactory for Texas conditions.

Bill of Material for A-type House

No. Pieces	Dimensions	Board Feet
2	4" x 4" x 10'-0" for runners	28*
1	2" x 6" x 8'-0" to cover side doors	8
5	2" x 4" x 16'-0" for framework and bracing	54
1	1" x 12" x 18'-0" for ridge	18
8	1" x 12" x 16'-0" for siding and doors	128
1	1" x 12" x 10'-0" for front door	10
6	1" x 8" x 16'-0" shiplap for ends	64
9	1" x 6" x 16'-0" rough fence planks for floor	72
16	1" x 4" x 16'-0" for bracing and slats	86

Hardware:	Total	468
3 door hooks	6 screw-eyes	
4 pair 6" strap hinges	16 feet tie chain, galvanized	
1 6" hasp and staple	nails, 8-penny, and 16-penny	

The Shed-Roof Individual House

The shed-type house is a popular hog house, but it will cost more to construct, and has no particular advantage over the A-type house.

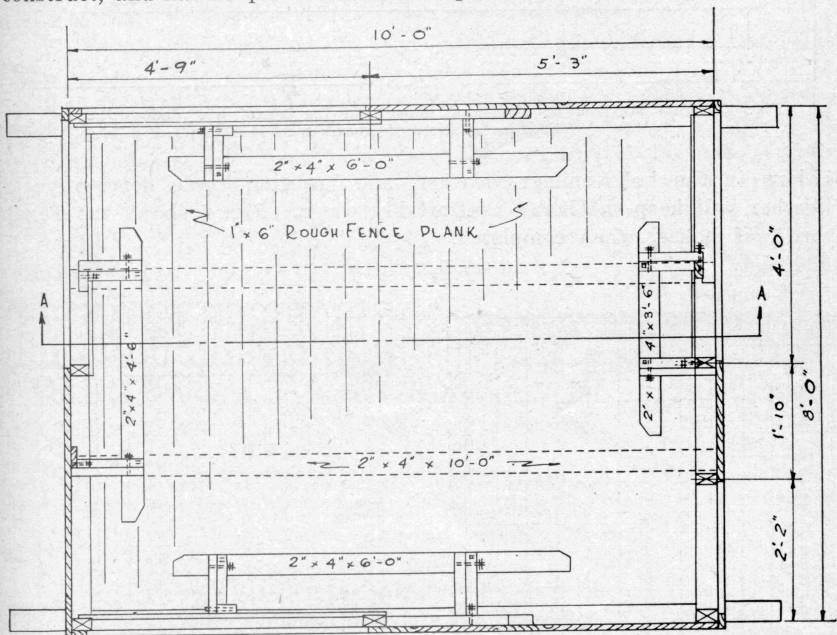


Fig. 3. Floor plan for shed-roof hog house

*All board feet were figured to nearest even foot above actual number of feet when fractions of a foot resulted.

Figures 3, 4, 5, and 6 show the plans for a good shed-type house for Texas conditions. Raised doors on all sides permit cool, shady con-

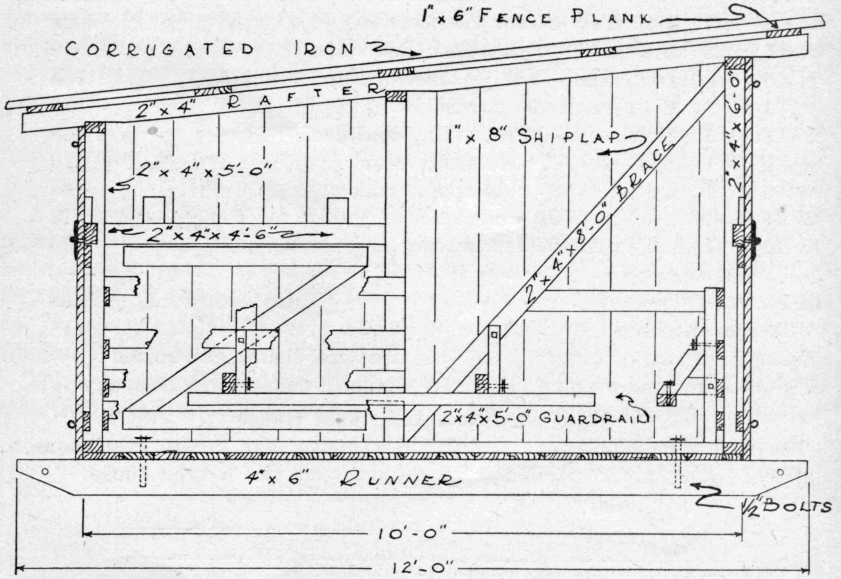


Fig. 4. Cross sections of shed-roof house showing slats over door openings and installation of guard rails

ditions in the hot summer weather, and lowering these doors in cold weather will keep the house comfortably warm. Fig. 7 shows the Texas shed-roof house, when completed.

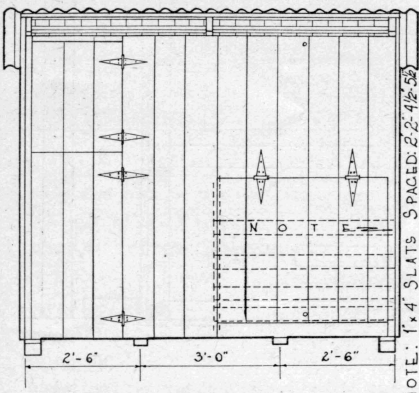


Fig. 5. Front view of shed-roof hog house

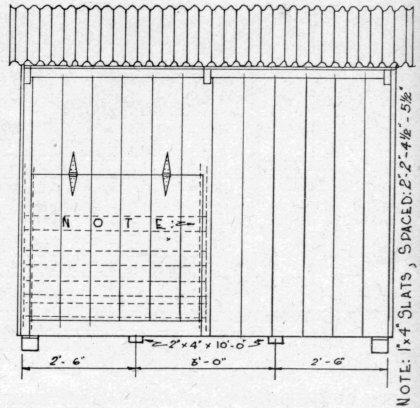


Fig. 6. Rear view of shed-roof hog house

Individual shed-roof houses require a small amount of framing, yet their construction is comparatively simple. They can be built in almost any size, but the one in the plan submitted which is 8 x 10 ft., makes a good-sized house for the average sow and her litter. The rough fence-plank floor is first nailed to 2" x 4" plates, shown in Figs. 3 and 4. Use nails long enough to go through both the floor and the 2 x 4 and clinch to prevent their pulling loose. The 2 x 4's are laid down and the flooring placed on top of them and nailed; then the entire floor is turned over and the 4" x 6" runners are bolted to it, with two or more bolts. Bolting the runners to the floor makes it possible to put on new runners if the original ones rot. Treating the runners with creosote will help to preserve them.

Figure 4 shows a section, lengthwise, through the house at AA in Fig. 3. Both side walls are constructed just alike, having a brace in the front half and a door in the rear half of the wall.

Slats are recommended for the inside of all openings (Fig. 4) in this house except the entrance, or front door. The guard rails (Fig. 4), which are well constructed, are bolted to studs, and may be removed at any time. A guard rail constructed like the one shown in Fig. 4 will last as long as the house itself, and is adequate for big heavy sows.

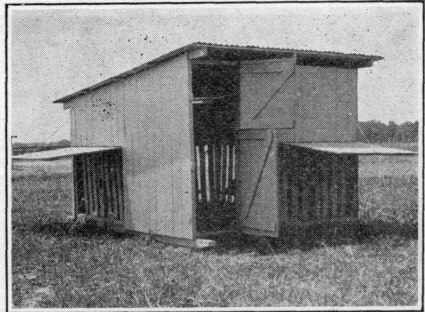


Fig. 7. The Texas shed-roof house in use

Bill of Material for Shed-Roof House

No. Pieces	Dimensions	Board Feet
2	4" x 6" x 12'-0" for runners	48
3	2" x 4" x 18'-0" for guard rails	36
5	2" x 4" x 16'-0" for plates, wall braces, stude, headers	54
3	2" x 4" x 12'-0" for rafters	24
4	2" x 4" x 10'-0" for sills and plates	28
3	2" x 4" x 8'-0" for plates	16
15	1" x 8" x 14'-0" for siding (shiplap)	140
13	1" x 8" x 12'-0" shiplap for siding	104
11	1" x 6" x 16'-0" rough fence plank for floor	88
5	1" x 6" x 9'-0" rough fence plank for roof lath	24
7	1" x 4" x 18'-0" for Z-frame and slats for openings	42
2	1" x 4" x 16'-0" for slats for openings	12
2	1" x 4" x 14'-0" for slats for openings	10
Total		626

Bill of Material for Shed-roof House—Continued

Hardware:

- 5 pieces 26" x 6'-0" corrugated iron
- 5 pieces 26" x 7'-0" corrugated iron
- 6 pair 6" strap hinges
- 2 6" hasps and staples
- 6 $\frac{5}{8}$ " x 6" bolts and nuts for guard rails
- 24 $\frac{5}{8}$ " x 4½" bolts and nuts for guard rails
- 4 ½" x 7" bolts, nuts, and washers for runners
- 4 door hooks
- 8 screw-eyes
- 18 feet tie chain, galvanized
- Nails, 8-penny and 16-penny

The Half-Monitor House

The half-monitor hog house often meets the needs of a hog raiser better than the other types. The house is set lengthwise east and west so that the windows face south, to provide better lighting and penetration

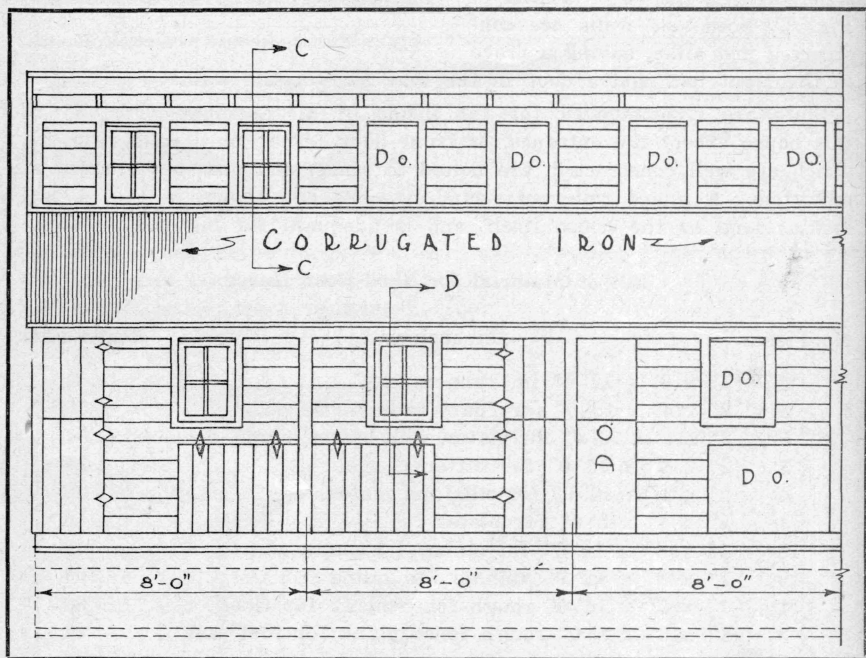


Fig. 8. Side, or front, view of Half-Monitor hog house

of the sun. Figure 8 shows a front, or side, view of the house, Fig. 9 shows an end view, and Fig. 10 shows a cross section of the house and its foundation.

Several new features have been added to the present type of the half-monitor house with the view of making the house better suited to Texas conditions. One new feature is shown in Fig. 10, where the concrete floor is made to extend six feet beyond each side of the house. The

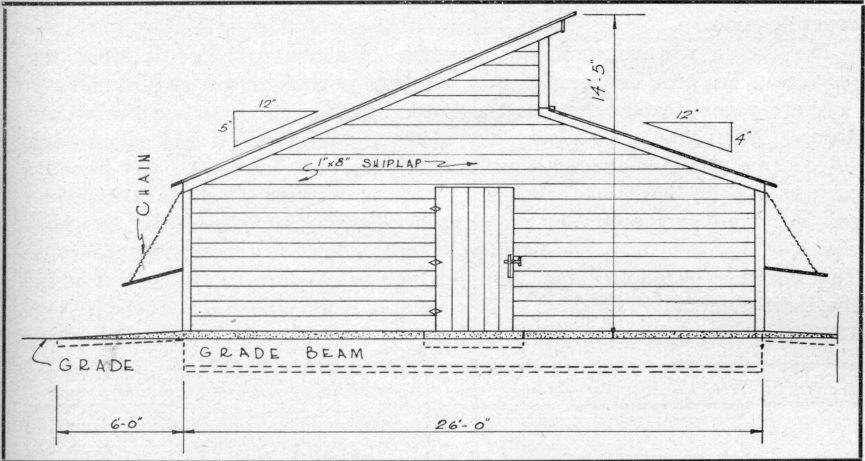


Fig. 9. End view of half-monitor hog house

floor slopes away from the house to a gutter, which can be located either on the inside or outside of a fence. Hurdles can be substituted for the fence and placed along the outer edge of the concrete in muddy weather. This outside concrete keeps the sows from rooting against

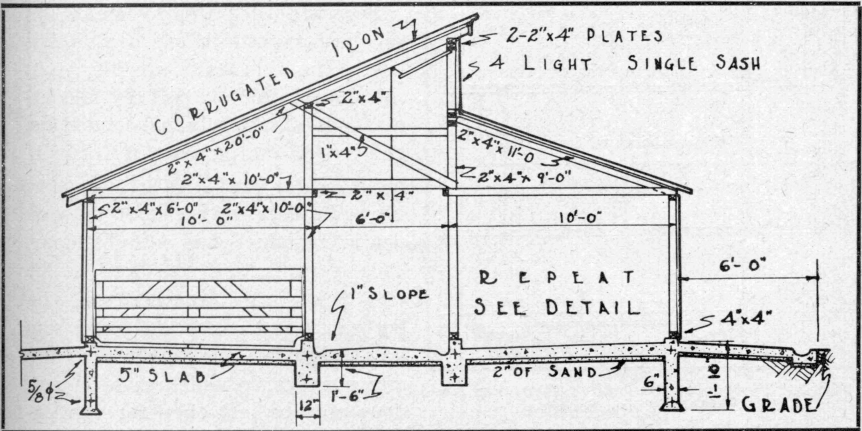


Fig. 10. Cross section of half-monitor hog house

the foundations of the house. It also provides an excellent place for feeding the sows on the outside of the pen while the pigs are small.

By feeding the sows on the outside one does not run the risk of having the pigs stepped on at feeding time while they are too young to keep out of the way. With this outside concrete it is not so necessary that a gutter be placed on the eaves of the roof, since the water will be carried off by the drainage gutter provided at the outer edge of the concrete slab.

The inside pen construction provides adequate drainage so that the pens may be kept dry and clean. All pen partitions are removable.

Another new feature is this: there is no guard rail extending completely around the inside of the pen, but a short guard rail is placed on each side. This provides adequate protection, since the sow cannot get into the corners and lie down on the pigs. By using this plan for guard rails one can use shorter pieces, and in a great many cases there will be short pieces of lumber about the farm well suited for constructing guard rails. The guard rail construction for each pen is similar to the one used in the individual house (Fig. 4). The general floor plan is set forth in Fig. 11. This plan does not allow for feed storage, but bins may be provided at either end of the building for the storage of feed and equipment.

Where the foundation for outside walls and alley way is properly constructed it will not be necessary to use reinforcement in the concrete for the floors, since practically no weight is supported by them. This saving is well worth while.

Several other improvements on the half-monitor house are as follows: The side walls are higher in this house than is usually recommended to meet Texas conditions. This is for the purpose of furnishing a cooler house in hot weather. The outside entrance door to each pen is constructed as a double door. This permits the top door to be closed in rainy weather and the bottom door to be closed when the pigs are to be held in the pens for any purpose, in which case the top door may be left open for ventilation and light. Each pen is also provided with a raised door, and the opening for this door is slatted on the inside to prevent the pigs from going through this opening. Each pen is also provided with a hinged window for light and ventilation. The windows are hinged at the top

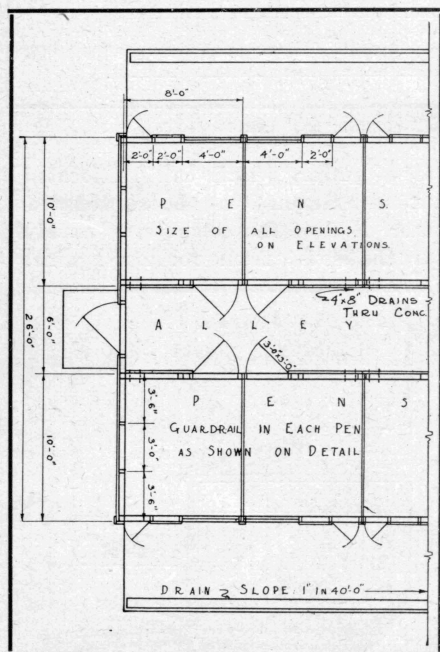


Fig. 11. Floor plan for both half-monitor and gable-roof hog houses

Each pen is also provided with a raised door, and the opening for this door is slatted on the inside to prevent the pigs from going through this opening. Each pen is also provided with a hinged window for light and ventilation. The windows are hinged at the top

and may be drawn open and tied by means of a small rope. It is suggested that the rope be attached to a transom spring latch on the window so that pulling on the free end will pull the latch free and permit the window to be opened. When the windows are closed the rope is untied and released quickly so that the window will drop and latch automatically, provided, of course, the sash does not bind. Details of the installation of the windows are shown in Figs. 12 and 13. Fig. 14 shows the details of constructing the eaves. Fig. 15 shows construction of alley fence and gate.

It is generally considered that the half-monitor house is better suited for the North than for the South. For Texas the half-monitor house is satisfactory north of a line running east and west through Waco. The reason this is true is that in the South the rays of the sun are more nearly perpendicular and in order to get sunshine on the floor of the farrowing pens at midday one would have to con-

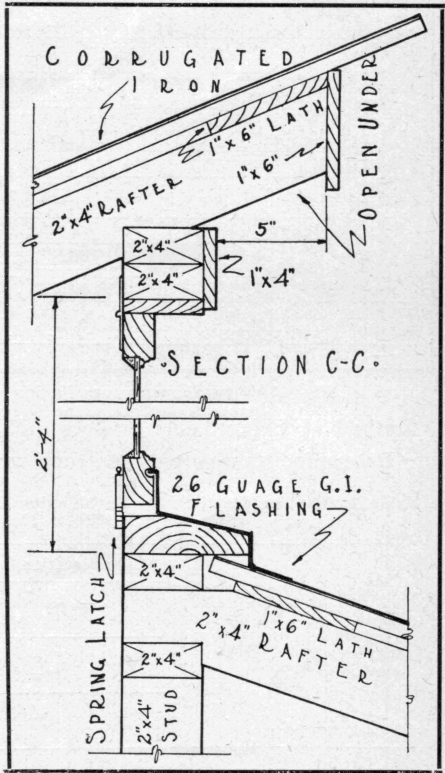
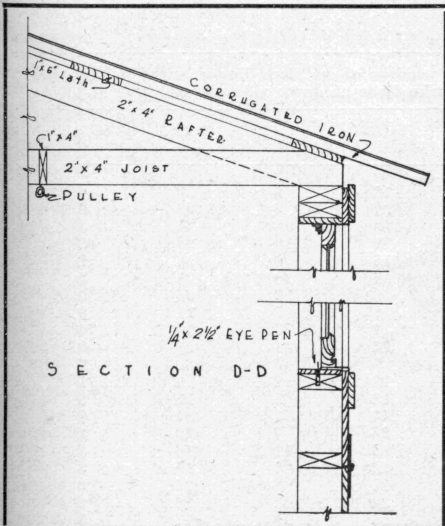


Fig. 13. Framing details for lower windows

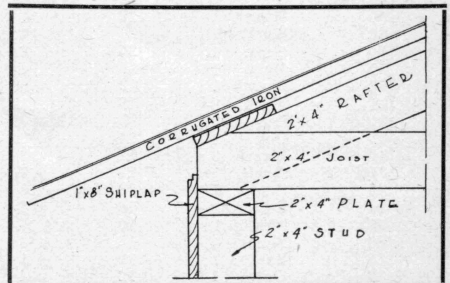


Fig. 14. Framing details for the eaves

struct the house of a height that would be impractical. For example, a study of Table 1 shows that for College Station, which is located approximately on latitude 30 degrees north, the top of the windows of a half-

monitor house would have to be more than twenty feet above the ground to permit sunshine to reach the rear of a 10-foot pen at noon on April 1. A house of such height would be out of proportion and costly.

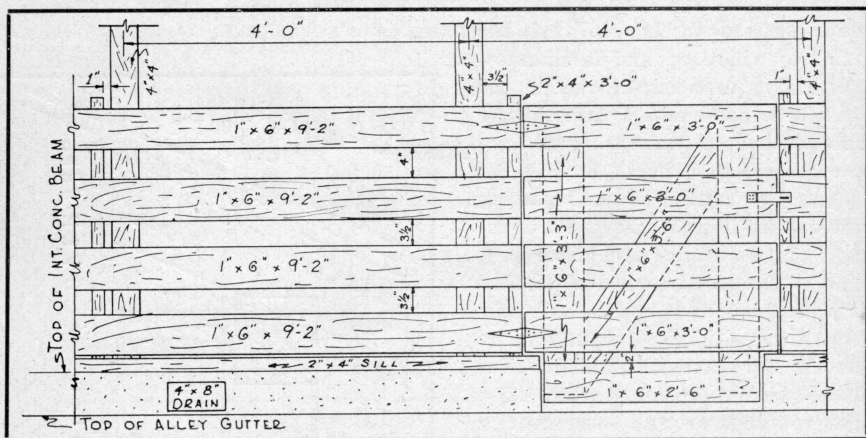


Fig. 15. View showing construction of alley fence and gate for each pen

Method of Using Table to Locate Windows for Half-Monitor House.

Determine farrowing date and your location to the nearest latitude.

Table 1. Window locations in Half-Monitor hog house for different farrowing dates and different lengths of pens

Latitude degrees north	Date	Distance from window line (at floor) to north end of pen					
		10 ft.		12 ft.		14 ft.	
		Feet	Inches	Feet	Inches	Feet	Inches
28	March 1	13	11	16	9	19	6
28	April 1	22	10	27	5	32	0
28	Sept. 1	28	0	33	8	39	3
28	Oct. 1	16	6	19	10	23	1
30	March 1	12	11	15	6	18	1
30	April 1	20	10	25	0	29	2
30	Sept. 1	25	2	30	2	35	3
30	Oct. 1	15	4	18	5	21	6
32	March 1	12	0	14	5	16	10
32	April 1	19	1	22	11	26	9
32	Sept. 1	22	10	27	5	32	0
32	Oct. 1	14	3	17	1	19	11
34	March 1	11	3	13	5	15	8
34	April 1	17	7	21	1	24	8
34	Sept. 1	20	10	25	0	29	2
34	Oct. 1	13	3	15	11	18	7
36	March 1	10	6	12	7	14	8
36	April 1	16	3	19	6	22	9
36	Sept. 1	19	1	22	11	26	9
36	Oct. 1	12	4	14	10	17	3

For example, at 30 degrees north for an 8-foot pen and a 6-foot alley it will be 14 feet to the north side of the pen from a point on the floor directly underneath the roof window.

Suppose March 1 is the farrowing time. From the table the height of top of the window for these conditions would be 18 feet one inch above the floor. At noon on March 1 the sun's rays passing through the window 18 feet one inch above the floor will strike the floor just inside the back wall of the pen.

To determine sizes of pens not shown on the table use the following method: Suppose it is 16 feet instead of 14 feet to the north side of the pen, including the alley. In the column headed 14 feet the height of the window is given as 18 feet one inch. To 18 feet one inch add one-seventh of that amount, or 2 feet 7 inches, which gives 20 feet 8 inches as the height of the top of the roof window for this set of conditions.

The bill of material is divided into two sections: the first section shows the material required to build a six-pen half-monitor house; the second section shows the material necessary for each additional pair of pens that may be added. Thus the material necessary for a house with any number of pens can be easily determined.

Bill of Material for Six-Pen Half-Monitor House

(26'-0" wide by 24'-0" long by 14'-5" high)

Foundation:

Concrete (1:2:4 mix), 24 cu. yards consisting of:

130 sacks Portland cement

10 cu. yards of sand

20 cu. yards of gravel

Sand mat for concrete:

6 cu. yards of clean screened sand

Reinforcing steel:

200 feet 5/8" round deforded bars

18 5/8" x 12" round anchor bolts

Framing Lumber:

No. Pieces	Dimensions	Board Feet
2	4" x 4" x 12'-0" for corner posts	32
7	4" x 4" x 10'-0" for interior posts	94
4	4" x 4" x 18'-0" for interior posts	96
6	4" x 4" x 16'-0" for bottom plates	128
20	2" x 4" x 16'-0" for top plates	214
14	2" x 4" x 20'-0" for roof rafters	188
7	2" x 4" x 22'-0" for roof rafters	104
31	2" x 4" x 12'-0" for studding and joists	248
22	2" x 4" x 10'-0" for joists	148
45	1" x 6" x 16'-0" for alley fence and roof lath	360
17	1" x 4" x 16'-0" for bracing and Z-frames for doors	92

Bill of Material for Six-Pen Half-Monitor Central House—Continued**Siding Lumber:**

80	1" x 8" x 16'-0" shiplap for siding	854
36	1" x 8" x 12'-0" shiplap for siding	288
4	1" x 6" x 14'-0" for stripping	28
1	1" by 6" x 24'-0" for eaves	12
15	1" x 4" x 14'-0" for stripping	70
2	1" x 4" x 20'-0" for stripping	14
2	1" x 4" x 12'-0" for stripping	8

Total lumber 2978

Mill Work:

- 1 2" x 6" x 24'-0" dressed sill, as detailed
- 12 4 light 8" x 12" single-sash windows, 1-3/8" thick

Hardware:

- 24 pcs. 26" x 10'-0" corrugated iron
- 12 pcs. 26" x 11'-0" corrugated iron
- 26 pr. 6" strap hinges
- 20 6" hasps and staples
- 6 door hooks
- 15 screw-eyes
- 81 feet galvanized tie chain
- 6 5" door hooks, and screw-eyes for lower windows
- 6 1/4" x 2 1/2" eye-pens
- 6 pr 3" strap hinges
- 6 pr 2" square butts
- 6 pulleys
- Nails, 8-penny and 16-penny

**Bill of Material for Each Additional Pair of Individual Pens
For Half-Monitor House**

(26'-0" wide by 8'-0" long by 14'-5" high)

Foundation:

Concrete (1:2:4 mix), cu. yards consisting of:

- 38 sacks Portland cement
- 3 cu. yards of sand
- 6 cu. yards of gravel

Sand mat for concrete:

- 2 cu. yards of clean screened sand

Reinforcing steel:

- 200 ft of 5/8" round deformed bars
- 18 5/8" x 12" round anchor bolts

**Bill of Material for Each Additional Pair of Individual Pens for
Half-Monitor House—Continued**

Framing Lumber:

No. Pieces	Dimensions	Board Feet
2	4" x 4" x 10'-0" for interior posts	26
1	4" x 4" x 18'-0" for interior posts	24
2	4" x 4" x 16'-0" for bottom plates	44
5	2" x 4" x 16'-0" for top plates	54
5	2" x 4" x 20'-0" for rafters	68
3	2" x 4" x 22'-0" for rafters	44
10	2" x 4" x 12'-0" for studding and joists	80
7	2" x 4" x 10'-0" for joists	48
15	1" x 6" x 16'-0" for alley fence and roof lath	120
6	1" x 4" x 16'-0" for bracing and Z-frames for doors ..	32

Siding Lumber:

24	1" x 8" x 16'-0" for siding (shiplap)	256
1	1" x 6" x 8'-0" for eaves	4
5	1" x 4" x 14'-0" for stripping	24

Total lumber

824

Mill Work:

1	2" x 6" x 8'-0" dressed sill, as detailed
4	4 light 8" x 12" single-sash windows, 1-3/8" thick.

Hardware:

8 pcs.	26" x 10'-0" corrugated iron
4 pcs.	26" x 11'-0" corrugated iron
8 pr.	6" strap hinges
6	6" hasps and staples
2	door hooks
5	screw-eyes
27 feet	galvanized tie chain
2	5" door hooks, and screw-eyes for lower windows
2	1/4" x 2 1/2" eye pens
2 pr.	2" square butts
2 pr.	3" strap hinges
2	pulleys
	Nails, 8-penny and 16-penny

The Gable-Roof House

The gable-roof house is placed lengthwise north and south so that in the morning the windows in the east side of the roof furnish light and sunshine to the ceiling and floor of the west side of the house as the sun advances to its noonday position. In the afternoon the windows in the west side of the roof furnish the east side of the house with the rays of the descending sun. A side elevation of a gable-roof house

is shown in Fig. 16, while Fig. 17 shows a cross section. An end view is shown in Fig. 18. The floor plans are practically the same as those

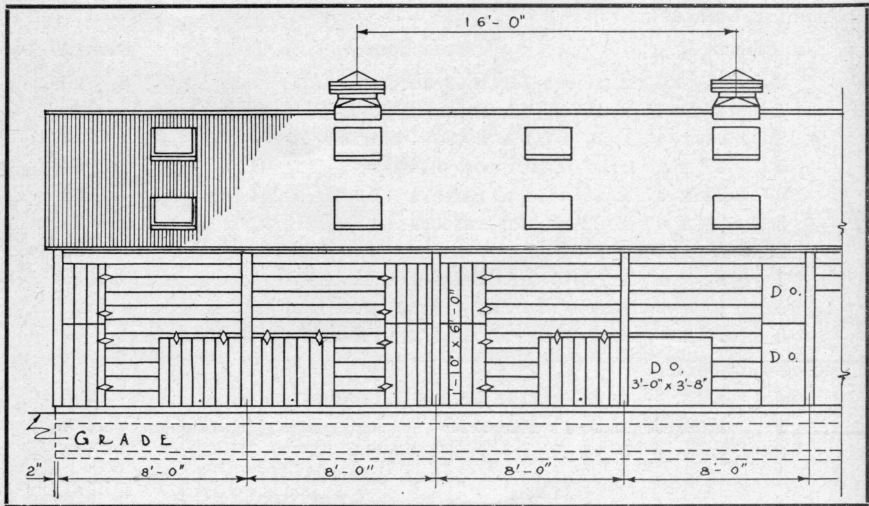


Fig. 16. Side view of gable-roof hog house

shown for the half-monitor house with the exception of the extra footings under the alley walls (Fig. 19). The width of the alley and the size of the pens are the same for both types of houses. The slopes for the alley, the pen, outside floors, and the location of the gutter are also the same. Framing details for the side walls are shown in Fig. 20.

The pens on each side of the alley have the same arrangement of removable partitions, gates, and doors as for the half-monitor house.

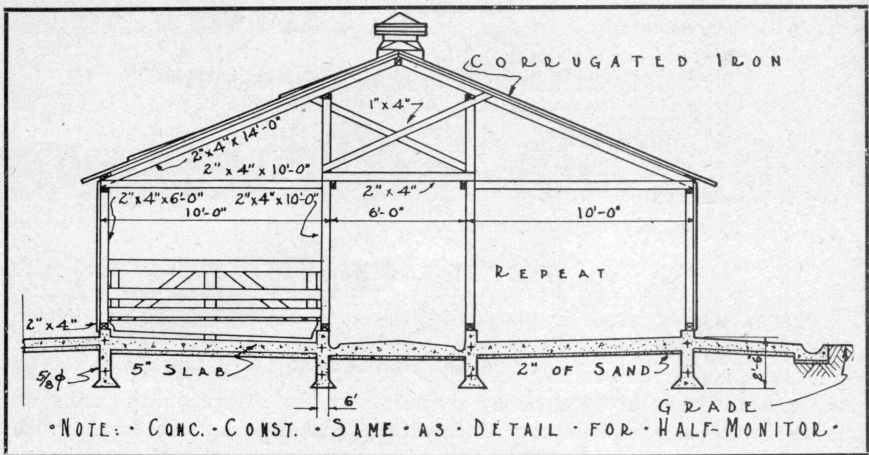


Fig. 17. Cross section of gable-roof hog house

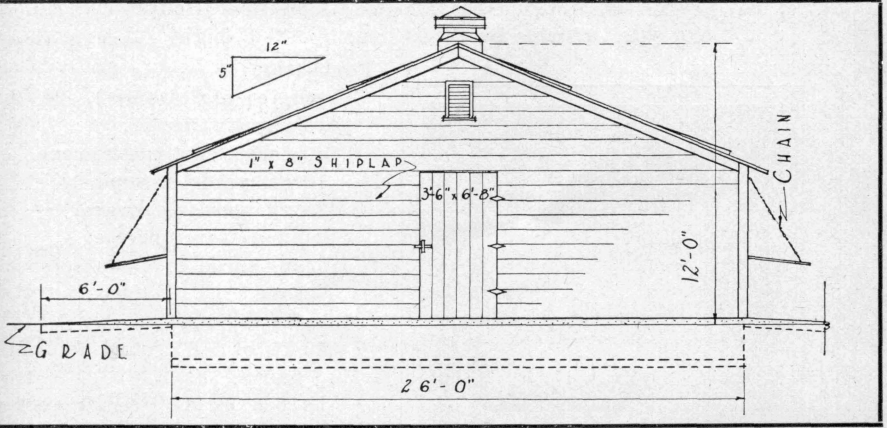


Fig. 18. End view of gable-roof hog house

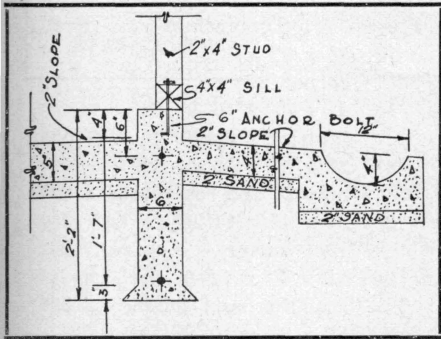


Fig. 19. Details of foundation footing under alley wall

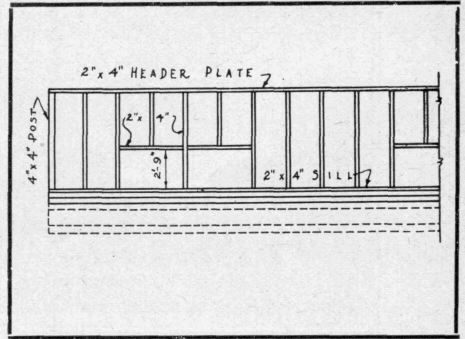


Fig. 20. Framing details for side wall of gable-roof hog house

Good ventilation is secured by opening the doors in the side of the house. Warm air collecting in the top of the house can pass out through the cupolas in the roof. Fig. 21 shows a patented skylight inserted in sheet of corrugated roofing. If desired, skylight windows can be constructed so they can be opened.

With the two rows of skylight windows in each side of the roof a large percent of the interior of the gable-roof house is bathed with the rays of the sun during the day. Opening the doors in the side of the house permits the early morning and the late sun to strike the floor of the pens near the wall.

The bill of material is divided into two sections: the first for six pens and the second for each additional pair of pens that may be added.

Bill of Material for Six-Pen Gable-Roof House
(26'-0" wide by 24'-0" long by 12'-0" high)

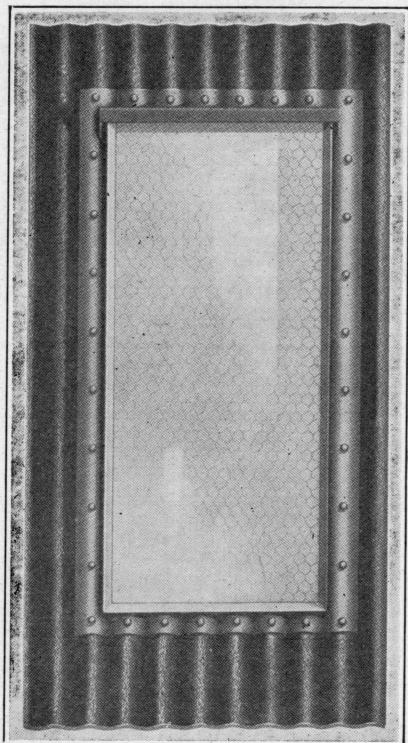


Fig. 21. Patented skylight inserted in sheet of corrugated roofing
(Courtesy H. H. Robertson Co.)

Foundation:

Concrete (1:2:4 mix), 24 cu. yards, consisting of:

- 130 sacks Portland cement
- 10 cu. yards of sand
- 20 cu. yards of gravel

Sand mat for concrete:

- 6 cu. yards of clean screened sand

Reinforcing steel:

- 200 ft. of 5/8" round deformed bars
- 18 5/8" x 12" round anchor bolts

Framing Lumber:

No. Pieces	Dimensions	Board Feet
2	4" x 4" x 12'-0" for corner posts	32
10	4" x 4" x 10'-0" for interior posts	134
21	2" x 4" x 16'-0" for bottom and top plates	224
28	2" x 4" x 14'-0" for roof rafters	262
28	2" x 4" x 12'-0" for studding and joists	224
22	2" x 4" x 10'-0" for joists	150
42	1" x 6" x 16'-0" for alley fence and roof lath	336
19	1" x 4" x 16'-0" for ridge pole, bracing, and frames for doors	102

Siding Lumber:

50	1" x 8" x 16'-0" shiplap for siding	534
50	1" x 8" x 12'-0" shiplap for siding	400
4	1" x 6" x 14'-0" for stripping	28
6	1" x 4" x 14'-0" for stripping	28
2	1" x 4" x 12'-0" for building 2 louvres	8

Total lumber 2462

Hardware:

- 48 pcs. 26" x 8'-0" corrugated iron
- 24 feet 10" galvanized iron ridge roll
- 12 Depressed head skylights
- 2 Roof ventilator 22½" x 22½" base

Bill of Material for Six-Pen Gable-Roof Central House—Continued**Hardware: (cont.)**

24	6" anchor bolts
26 pr.	6" strap hinges
20	6" hasps and staples
6	Door hooks and 12 screw-eyes
27 feet	galvanized tie chain
	Nails, 8-penny and 16-penny

Bill of Material for Each Additional Pair of Individual Pens for Gable-Roof House

(26'-0" wide by 8'-0" long by 12'-0" high)

Foundation:

Concrete (1:2:4 mix), 7 cu. yards consisting of:

38	sacks Portland cement
3	cu yards of sand
6	cu. yards of gravel

Sand mat for concrete:

2	cu. yards of clean screened sand
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Reinforcing steel:

70	feet of 5/8" round deformed bars
4	5/8" x 12" round anchor bolts

Framing Lumber:

No. Pieces	Dimensions	Board Feet
4	4" x 4" x 10'-0" for interior posts	54
5	2" x 4" x 16'-0" for bottom and top plates	54
10	2" x 4" x 14'-0" for roof rafters	94
10	2" x 4" x 12'-0" for studding and joists	80
7	2" x 4" x 10'-0" for joists	48
14	1" x 6" x 16'-0" for alley fence and roof lath	112
6	1" x 4" x 16'-0" for ridge pole, bracing, and Z-frame for doors	32

Siding Lumber:

30	1" x 8" x 16'-0" shiplap for siding	320
2	1" x 4" x 14'-0" for stripping	10

Hardware:

Total lumber 804

16 pcs.	26" x 8'-0" corrugated iron
8 feet	10" galvanized ridge roll
4	Depressed head skylights
1	Roof ventilator, 22½" x 22½" base
8 pr.	6" strap hinges
6	6" hasps and staples
2	door hooks
4	screw-eyes
9 feet	galvanized tie chain
	Nails, 8-penny and 16-penny

EQUIPMENT FOR HOG PRODUCTION

Self Feeders

Hogs will eat more feed, gain faster, and balance their own ration when fed by means of the self-feeder. Hand feeding, twice daily, requires considerably more time and labor than when the self-feeder is used. It requires more skillful labor to feed hogs by hand than by self-feeder because in self-feeding the only instructions the feeder needs are to keep

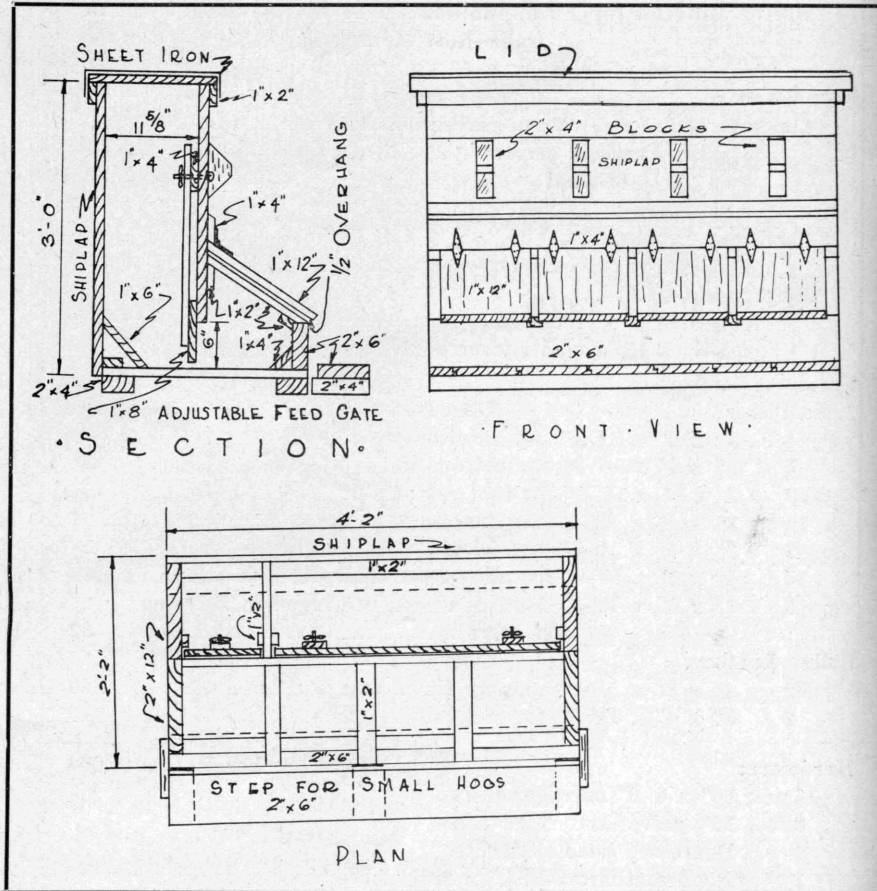


Fig. 22. Self-feeder for fattening hogs

the compartments of the feeder filled with the feeds that are fed, and to be sure the feeder is not clogged.

One of the recent discoveries of the Texas Station relative to the method of feeding wheat, corn, milo and kafir to fattening hogs is

that when fed in self-feeders, free choice, it is not necessary to grind these grains. This is because the hogs take more time to chew their feed, and take a little feed throughout the day instead of greedily gulping it down whole in a short time as they do when the ration is fed by hand twice per day. Thus the labor and expense of grinding milo, kafir, corn, or wheat is eliminated when these grains are fed in self-feeders, free choice. All pigs at the Experiment Station which are fattened for the

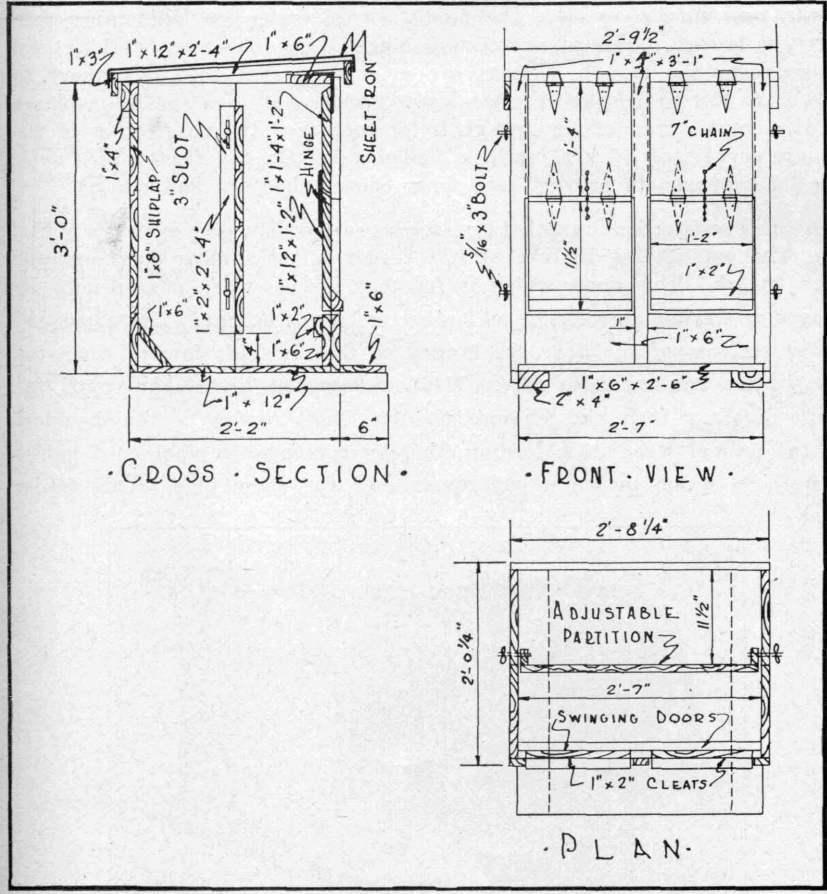


Fig. 23. Self-feeder for brood sows, suckling pigs, and fattening hogs

market are fed from the self-feeder. A self-feeder four feet long will accommodate 12 feeder pigs. One linear foot of trough space should be allowed for every three pigs.

There are many kinds of self-feeders for hogs. In the construction of the self-feeder used at the Texas Experiment Station economy, simplicity of construction, prevention of waste of feed, and the prevention of the grain and protein feeds from clogging up in the feeder were each taken into consideration. The details of construction for the feeder which meets the above requirements are given in Fig. 22. At one end a one-foot space is partitioned off to provide for the protein supplement. Suspended on the front and inside of the feed box is an adjustable gate, one for each section of the box. A six-inch baffle board is set diagonally over the lower rear corner, to slide the feed forward under the adjustable gate into the trough. Several self-closing hinged lids, fifteen inches long, are placed over the trough. Blocks are attached to the feed box above to cause the lids to drop down when opened wide. A 1" x 4" baffle is placed in the front corner of the trough to prevent feed from collecting in the square corners. A 1" x 2" strip is nailed along the top front edge, under the lid supports, to prevent feed from being raked out and wasted.

A small self-feeder of another type for brood sows and pigs is shown in Fig. 23. The outstanding feature of this feeder is the folding door over the feed trough. This door, which is fourteen inches wide, is suspended by hinges or flexible straps such as leather or canvas belting. The upper and lower sections of the door are hinged so that it folds inward when the pig pushes against it to feed. This arrangement gives more room for large pigs and sows and prevents the door from resting on the shoulders of the animal when it is feeding, thereby rubbing off patches of hair—something which makes a bad appearance for show pigs. This feeder

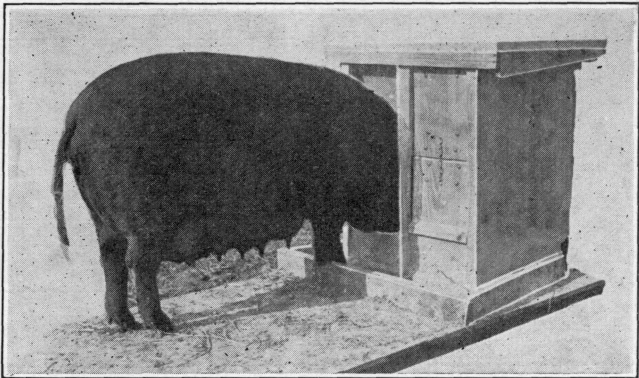


Fig. 24. Brood sow eating from a self-feeder fastened to a sled

may be fastened securely on a sled which provides a place for the hogs to stand when feeding (Fig. 24) and prevents the formation of mud holes in front of the feeder in wet weather.

Bill of Material for Self-Feeder for Fattening Hogs

No. Pieces	Dimensions	Board Feet
1	½" x 2" x 14'-0"	2
2	1" x 2" x 16'-0"	6
1	1" x 2" x 12'-0"	2
1	1" x 4" x 10'-0"	4
1	1" x 8" x 4'-0"	3
4	1" x 8" x 16'-0" shiplap	44
1	1" x 12" x 14'-0"	14
1	2" x 6" x 10'-0"	10
1	2" x 12" x 8'-0"	16
Total		101

Hardware:

- 4 pr. 4" strap hinges
- 1 pc. sheet iron 25" x 5'-0" cut to 21" x 4'-8"
- 3 ¼" threaded wing nut
- 3 ¼" x 3" bolts
- Nails, 4-penny, 8-penny, and 16-penny

Bill of Material for Small Self-Feeder for Brood Sows and Pigs**Lumber:**

No. Pieces	Dimensions	Board Feet
1	2" x 4" x 6'-0" skids	4
2	1" x 8" x 12'-0" shiplap for sides and partition	16
1	1" x 12" x 12'-0" floor and lid	12
1	1" x 6" x 12'-0" for baffle, steps, etc.	6
1	1" x 2" x 10'-0" for partition and doors	2
1	1" x 3" x 10'-0" for lid	3
1	1" x 4" x 12'-0" for door stops	4
1	1" x 14" x 6'-0" for doors	7
Total		54

Hardware:

- 8 pr. 4" strap hinges
- 1 pc. sheet iron 28" x 3'-6"
- 36 ¼" x 2" bolts and nuts for hinges
- 4 ¼" threaded wing nuts
- 1 foot tie chain
- 4 ¼" wood screws
- 4 ¼" x 3" bolts
- Nails, 6-penny and 8-penny

Water Troughs

Fattening pigs and brood sows require clean water for best results. The Texas Station developed in 1927 a water trough, the plans for which are shown in Fig. 25, which has been very satisfactory. This trough is so constructed that the pigs are unable to lie down in it or even get

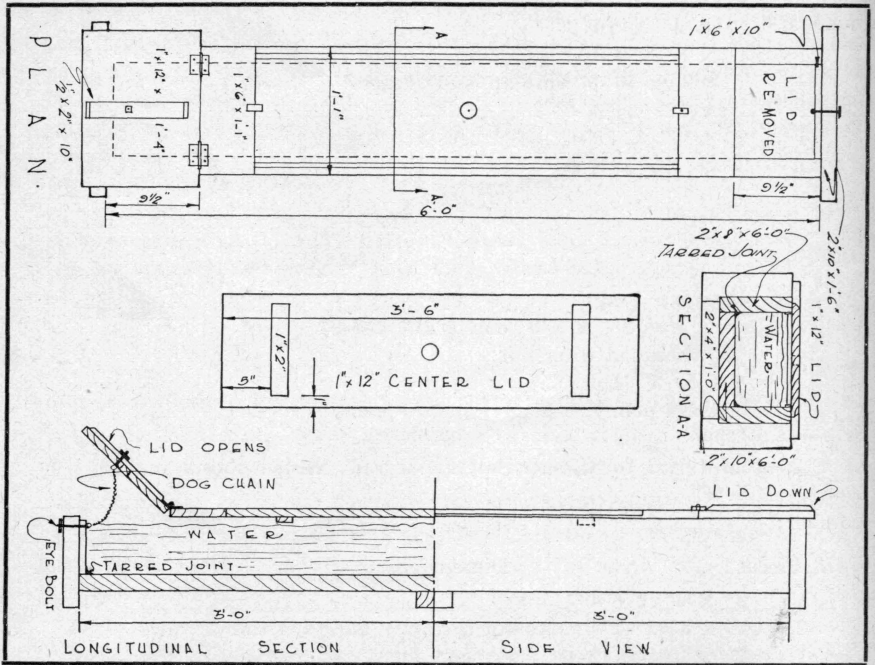


Fig. 25. Plans for sanitary water-trough for hogs

their feet into the water; thus the water is always clean. This type of water trough also prevents the hogs from wasting the water, thus saving labor and time required to keep the trough filled. The plans for the trough consist of a covered rectangular box having lids at each end that can be lifted similarly to those on a self-feeder. A short section of tie chain prevents the lid from being raised any further than is necessary for the pig to get his head in to drink. When the pig's head is withdrawn the lid drops down closing the opening and thus protecting the water. If a trough without lids is desired a 4 1/2-inch opening on each end provides ample space for drinking. The center section of the cover is removable to permit occasional cleaning of the trough. A hole is bored in the center lid for ventilation.

There are many different types of watering troughs, both homemade and commercial, but the Texas Station is now using the one described, since it is sanitary and requires a minimum of labor to keep clean and

supplied with water. There are barrels equipped with automatic watering devices, and many other types of watering systems for keeping water before the hogs. Any watering system that will save time and labor and yet furnish clean, fresh water at all times is sufficient. A trough just outside the pen with a small opening in the fence to permit the hogs to drink is a good way to prevent the sows from throwing the trough around and injuring the little pigs.

Bill of Material for Sanitary Water-Trough

Suggested Lumber (Fir)

No. Pieces	Dimensions	Board Feet
1	1" x 6" x 4'-0"	2
1	1" x 12" x 8'-0"	8
1	2" x 4" x 2'-0"	2
1	2" x 8" x 12'-0"	16
1	2" x 10" x 10'-0"	18
Total		46

Lid braces may be cut from extra 1" x 12"

Hardware:

- 4 screw-eyes
- 2 pr. square butts
- 2 feet galvanized tie chain
- Tar for waterproofing
- Nails, 6-penny and 16-penny

The Texas Hog Breeding Crate

Hog breeding crates are necessary for any hog breeder who occasionally has a gilt nine months old or less which he wishes to mate to a large boar. A gilt or a small sow if run down in condition just after weaning a large litter of pigs should be bred by means of a breeding crate if a boar weighing 400 pounds or more is used. Large sows, when mated to small boars, may be placed in an ordinary chute and bred. The breeding crate shown in Fig. 26 was designed in 1932 by the Texas Station and the material for the construction of this breeding crate may be had for about \$5.00. The low cost of construction and the ease of operation of the Texas Station hog breeding crate make it possible for any hog breeder to own one.

Some outstanding features of the Texas Station breeding crate are:

1. To get the sow in the crate the right side drops down giving plenty of room.
2. When in use both sides of the chute are slightly sloping and fit tightly against the sides of the sow. The right side can be adjusted to suit the size of the sow being bred and held firmly in place by the legs supporting it (Fig. 27).

3. The top edge of each side of the chute is five inches wide and forms a convenient foot rest for the boar.
4. Chains, leather straps, or rope are fastened over the shoulders and loin of the sow.
5. A slatted gate is inserted in the front end of the crate at the rear of the sow.

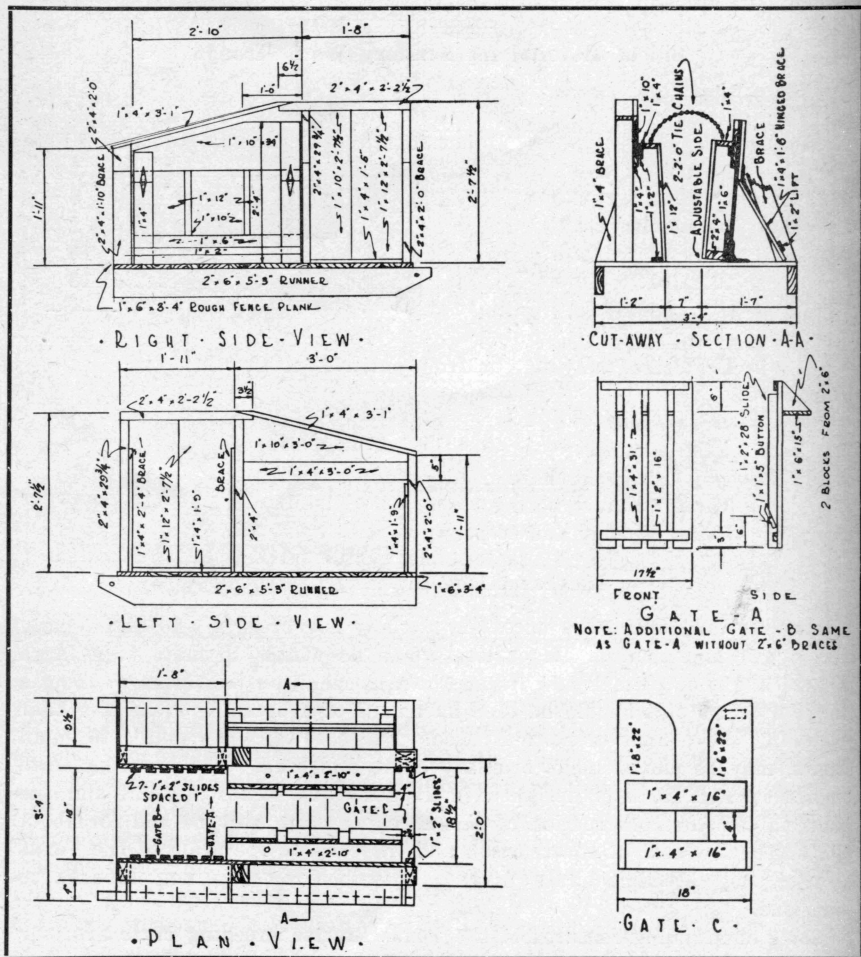


Fig. 26. Plans for Texas hog breeding crate

6. A second gate is then dropped down in front of the sow to force her back against the rear gate. On this gate is a 1" x 6" plank extending out over the sow's nose to prevent the head from being raised and moved forward.

7. A third gate is inserted ahead of the second gate to prevent the sow from getting out of the chute when the second gate is being adjusted to suit the length of the sow.

8. After the sow is bred, the two front gates are removed and the adjustable side released, allowing the sow to walk forward out of the crate.

9. The crate is built on skids so that it can be easily moved about.

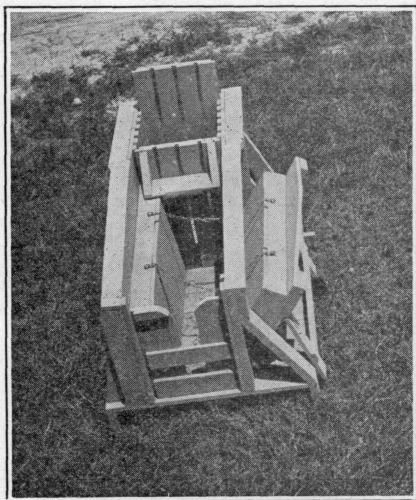


Fig. 27. Texas hog breeding crate

Bill of Material for A Portable Hog Breeding Crate

No. Pieces	Dimensions	Board Feet
1	2" x 6" x 14'-0" for runners	14
2	2" x 4" x 16'-0" for posts, plates, and bracers	22
2	1" x 12" x 12'-0" for sides, chute, and gate C	24
1	1" x 10" x 6'-0" for sides	5
3	1" x 6" x 16'-0" for floor, gate C, and sides	24
6	1" x 4" x 12'-0" for bracing, plates, and gates	24
5	1" x 2" x 16'-0" for gate sides	14
Total		127

Hardware:

- 2 pr. 6" strap hinges
- 3 feet galvanized tie chain with 2 harness snaps
- 4 screw-eyes
- Nails, 6-penny and 10-penny

Weighing Crate

Breeders and feeders of hogs often find it advisable to weigh their pigs. To do this accurately and rapidly with the least amount of handling of the pigs a weighing crate is essential. Fig. 28 shows the plans for a crate developed and used by the Texas Station. The crate may also be used for holding the pig when one is clipping its ears and tail for exhibition at the fair. It has an end gate at each end that may be raised up to let the pig in and out.

When in use the crate is placed on ordinary platform scales, and one of the end gates raised to let the pig enter. After the pig has been placed in

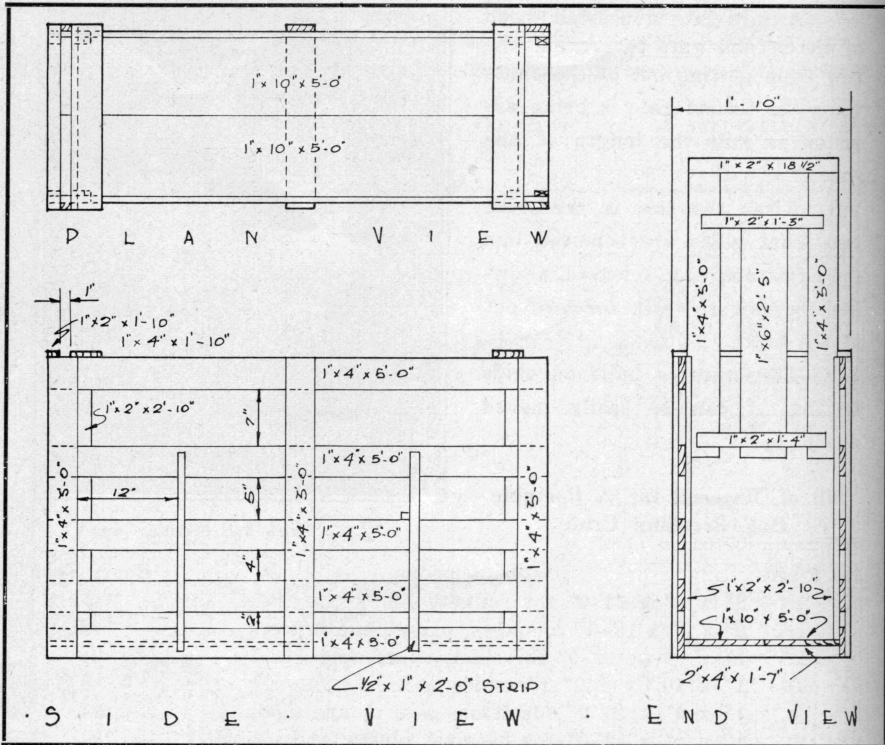


Fig. 28. Plans for weighing crate for hogs

the crate the gate is closed. If platform scales are not available a pair of cotton scales can be used.

Bill of Material for Weighing Crate

No.	Pieces	Dimensions	Board Feet
1		$1/2'' \times 1'' \times 10'-0''$	1
2		$1'' \times 2'' \times 16'-0''$	3
4		$1'' \times 4'' \times 16'-0''$	22
2		$1'' \times 4'' \times 12'-0''$	8
1		$1'' \times 6'' \times 4'-0''$	2
1		$1'' \times 10'' \times 10'-0''$	9
1		$2'' \times 4'' \times 6'-0''$	4
Total			49

Nails, 8-penny

Shipping Crate

When hogs are to be shipped they should be placed in a well-built crate that has room enough for comfort but not enough to allow too

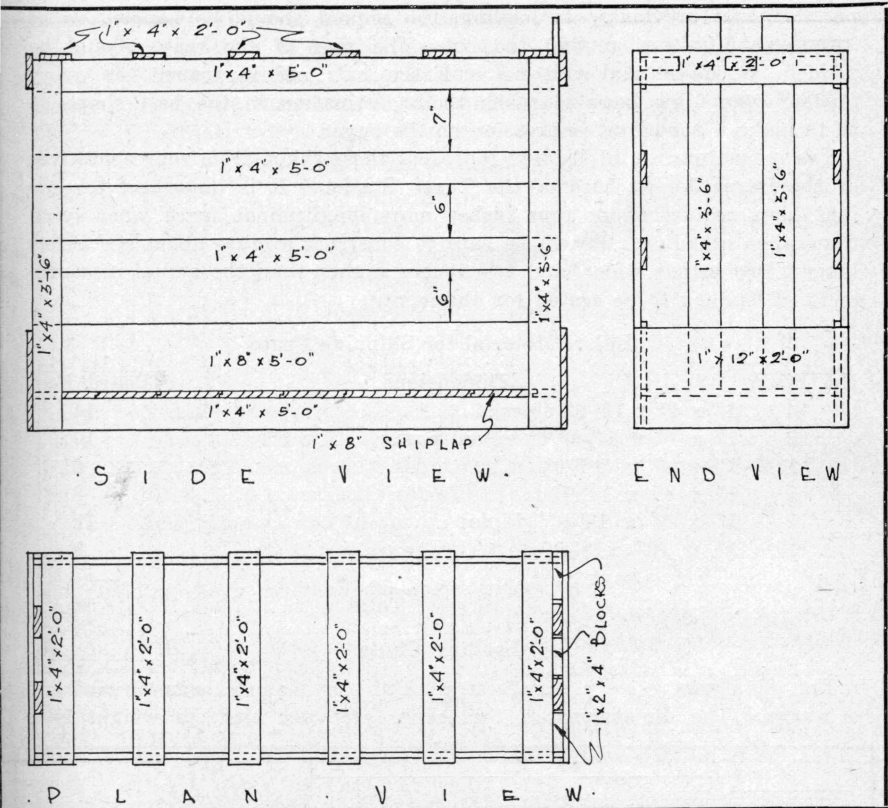


Fig. 29. Plans for shipping crate for hogs

much freedom. The drawings in Fig. 29 show the method of constructing a crate suitable for shipping hogs three feet in height and four feet in length. Hogs should be shipped during the cool part of the day when

Table 2. Sizes for shipping crates for hogs of different sizes

Age of hog	Length of hog, inches		Height of hog, inches	Width of hog, inches	Size of crate (Inside dimensions)		
	Standing	Lying			Length inches	Height inches	Width inches
6 months	53	58	34	15	64	36	17
12 months	61	65	37	15	71	39	17
18 months	64	68	37	15	74	39	17
24 months (sow)	68	73	42	19	79	44	21
24 months (boar)	74	78	44	20	84	46	22

possible, and previously to loading, the animal should be handled so as to prevent it from getting too hot. The rear of the crate should be padded so the animal will not rub the hair off in transit, as every breeder wants his hogs to reach their destination in the best shape so as to make a good first impression on the buyer.

The measurements in Table 2 represent those taken from representatives of the Duroc Jersey herd of the Texas Station. It is important to note that hogs require about four inches more longitudinal space when lying than when standing. It will be safe to construct a crate about six inches longer, two inches wider, and two inches higher than the actual measurement of the hog to be crated for shipment.

Bill of Material for Shipping Crate

No. Pieces	Dimensions	Board Feet
4	1" x 4" x 10'-0" sides	14
2	1" x 4" x 14'-0" ends and post	10
1	1" x 4" x 16'-0"	6
1	1" x 8" x 10'-0"	8
1	1" x 8" x 16'-0" shiplap	12
1	1" x 12" x 8'-0"	8
Total		58

Nails, 8-penny

Loading Chute

Fig. 30 shows a very satisfactory chute for loading hogs on and off a wagon. The dimensions of this chute are such that its weight is a

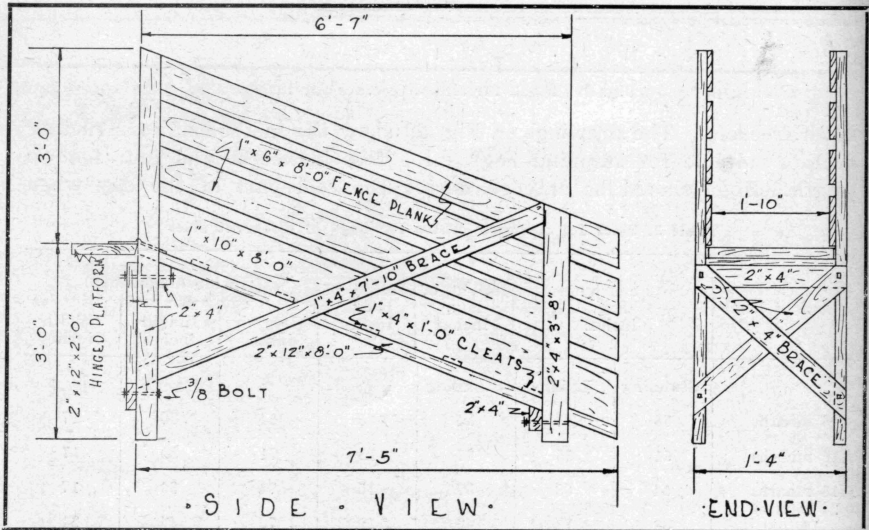


Fig. 30. Plans for loading chute for hogs

minimum, which makes it easy to transport from place to place. For loading a large number of hogs at one time a wider chute may be desired, but for the average farmer this chute is altogether adequate.

Large hogs cannot turn back in this chute, a feature which is of considerable importance when one is loading old sows or boars.

Bill of Material for Loading Chute

No. Pieces	Dimensions	Board Feet
1	2" x 12" x 18'-0" for floor and platform	36
2	2" x 4" x 14'-0" for post and braces	20
1	1" x 4" x 14'-0" for brace and cleats	6
2	1" x 10" x 8'-0" for sides	14
6	1" x 6" x 8'-0" for sides	24

Hardware: Total 100

1 pr. 6" strap hinges

4 3/8" x 6" bolts with washers and nuts

2 3/8" x 8" bolts with washers and nuts

12 1/4" x 2 1/4" stove bolts for hinges

Nails, 8-penny and 16-penny

HOG-KILLING EQUIPMENT

For scalding hogs a small platform placed next to a scalding vat (Fig. 31) is one of the most convenient arrangements. This platform is also used for scraping, and when cleaned with scalding water can be used for a cutting table. The

Fig. 31. Scene showing equipment for dressing hogs. Note the scalding vat and dressing table in foreground.



post with cross bar (Fig. 31) is a very useful set-up to hang the hogs to for removing the entrails. Fig. 32 shows another very good set-up where several hogs are to be killed at one time. The tripod and extension were easy to construct and will help to make the work easier and faster. A common 6- or 8-inch butcher knife, a steel, a hog-hook or claw hammer,

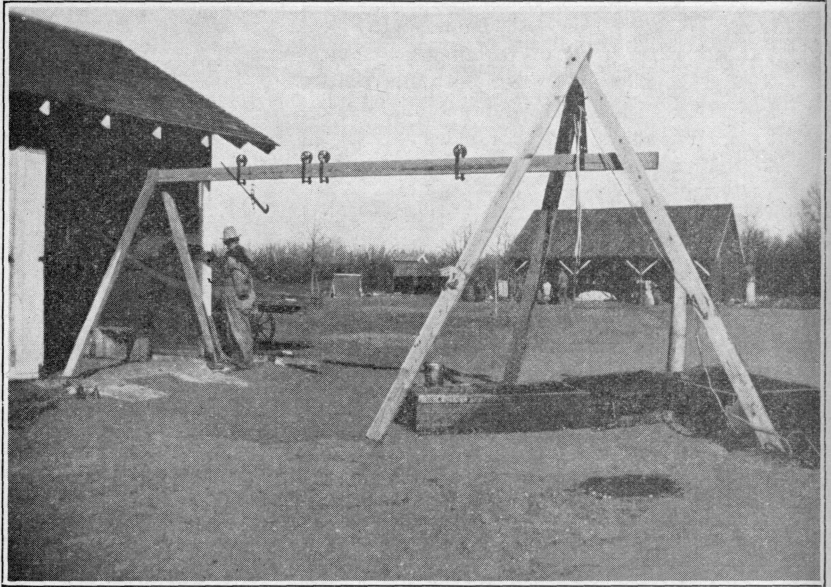


Fig. 32. Equipment for killing a large number of hogs

bell scraper, and a hog gambrel are the tools necessary for farm butchering. A singletree makes a good gambrel, and a dull butcher knife may be used in place of the bell scraper if necessary.

SMOKE HOUSES

Smoking imparts a pleasing color to meat, and aids in its preservation. The Texas Station has found the A-type house (Fig. 33) to be a satisfactory smoke house. By using the A-type house one can construct the smoke house with less cash outlay than is required for a four-sided house. It is not necessary to have a floor in this type of smoke house. The house can have any length desired. The height should be not less than nine feet. A house 8' x 8' x 9' is large enough to enable one to smoke the hams, bacons, and shoulders of four hogs at one time; the hams are hung from the highest point, or gable, of the house and the bacon and shoulders from nails along the walls on each side of the hams. Meat may be smoked successfully in other types of houses or in barrels but the average

farmer will find the A-type house a cheap and adequate structure for smoking meats.



Fig. 33. A-type hog house being used to smoke meat. The fire can be built in an ordinary galvanized tub which has been partially filled with dirt. The tub should be partly covered with a piece of sheet iron to deflect the heat away from the meat.

MISCELLANEOUS EQUIPMENT

Other equipment which may be needed in hog production will merely be mentioned but not illustrated, such things as natural and artificial shade, feeding floors, hog wallows, dipping vats, tool for notching ears, teeth nippers, portable fence panels, hurdles, instruments for worming pigs, creeps for feeding pigs, feed grinders, mineral boxes, hay racks, scales, herd record book, spray pump for oiling pigs, hog rings and ringer, ear tags, and fencing plans for commercial hog production.

A valuable piece of equipment is a dump cart, which may be either hand drawn or horse drawn. In Fig. 34 a typical horse-type cart is shown.

The dump cart is a convenient aid in cleaning hog pens, filling mud holes, hauling feed, and doing many other odd jobs.

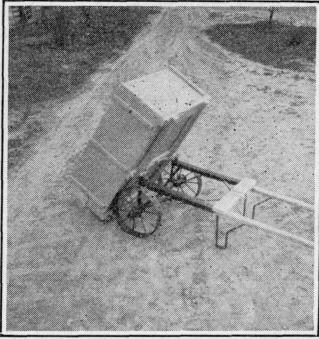


Fig. 34. Handy dump cart for use about the hog lot and barn

In constructing shade for fattening hogs in hot weather one should figure not less than 15 square feet per pig. Mature sows or boars will require not less than 20 square feet per animal. Make the shade at least 5 feet high.

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SUMMARY

Simple and inexpensive houses and equipment that make it possible to raise hogs at less cost by reducing the hours of labor and the amount of the investment are shown.

A new design of the A-type hog house adapted to all sections of the State is presented. Easily handled and convenient doors of ample size provide, when open, shady and breezy quarters in summer, and when closed, comfortable quarters in winter. Slats across all openings except the entrance and new arrangement of guard rails are additions to the A-type house that make it quite satisfactory as a farrowing house.

A shed-roof house suitable for Texas conditions includes improvements consisting of doors located on each side of the house, openings provided with slats, well-braced walls, short demountable guard rails, and runners bolted to the floor.

Improvements on the half-monitor and gable-roof types of hog houses are: concrete floors extending beyond the walls, better arrangement of doors, different installation of windows, which permits the free circulation of air.

New self-feeders adapted for fattening hogs, brood sows and suckling pigs have been developed, which help to simplify the feeding problem.

A water trough consisting of a rectangular box having lids at each end keeps the drinking water for the hogs clean. Pigs cannot get their feet in their drinking water.

A new design of breeding crate has been developed in which gilts or thin, weak sows can be bred to large, heavy boars.

Other equipment described includes weighing and shipping crates, loading chute, hog-killing equipment, and smoke house.

Plans and bills of materials for various types of houses and equipment are given.