

SHEEP HOUSING and Equipment

flexible arrangements for

- *Wintering flock*
- *Lambing time*
- *Shearing time*
- *Summer housing*

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1. SERVICE DOOR.
2. WINDOW FOR WINTER SUNSHINE.
3. SWING-UP DOORS FOR SUMMER VENTILATION.
4. SHELTERED AREA FOR SHEEP.
5. PROTECTED YARD.
6. WATERING PLACE.

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

BULLETIN 655

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COLUMBIA, MISSOURI

MAY, 1955

Housing and Equipment for Farm Flock

To make the sheep enterprise more successful, buildings and equipment must provide a suitable environment, labor efficiency, and an investment cost in line with income produced. Many flocks are too small to be profitable. A certain

investment is required for building and equipment and almost as much time is needed to handle a 20-ewe as a 40-ewe enterprise. Specialists have found that 40 ewes is the minimum size flock for a profitable enterprise.

ENVIRONMENTAL NEEDS.

There are four situations influenced by the climate and varying needs of the enterprise: (1) the stormy periods of winter, (2) the lambing season, (3) the period following shearing and (4) the time of high summer temperature.

Most operators agree that summer heat is more damaging to a flock than winter cold. Sheep can withstand low temperatures if their fleeces are dry. Thus, they need protection from winter rains, sleet, and driving snow. An east open-front building with three tight sides is suitable for adult sheep in most parts of Missouri. In cold windy weather the open front may be partly closed by tight gates, feeders or baled hay or straw, breaking the wind at floor level.

During the lambing period a well-ventilated area which still is not drafty, especially near the floor, is needed. It should have individual pens, one for each five or six ewes, made tight near the bottom to aid in reducing floor drafts. Electric outlets should be installed above each pen for heating facilities for young lambs. Windows are desirable to admit an abundance of winter sun-

shine. The sunshine helps warm the floor, dry bedding, and preserve health of lambs.

After shearing there may be need for housing space that is dry and free from drafts for a few days until the animals become accustomed to the loss of their wool coat.

The sheep barn should be equipped with reflective type roofing in summer to reduce the solar heat. Windows on the south and west should be covered to exclude sunshine and ample ventilation should be provided at the floor level. Gable ends need louvers to permit air movement through the attic. Manure should be removed to prevent heating. The sheep barn with these provisions will provide excellent shade for the flock. If pastures are far from the farmstead, shade, either natural or artificial, will be needed there. Lacking trees, a shed roof frame placed on four posts and covered with straw, aluminum, or white covered metal provides good protection from the sun. All shades should be located to take advantage of the prevailing summer winds.

PLAN FOR EFFICIENCY.

In addition to good environment, the buildings and equipment must provide for efficient operation, within the time and energy limits justified by the flock's contribution to the total farm income. The shelter and care requirements change from one season to another, making movable equipment desirable. Gates, feeders, and other equipment should be stored conveniently in the same building and an all weather watering system should be provided.

Sheep barns should provide 12 to 15 square feet of floor space for each grown animal. Ten to 12 linear inches of grain troughs and hay mangers should be furnished for each animal. Where a combination hay and grain feeder is used, some floor space can be saved. Feed mangers should be

made in convenient lengths for moving and for arrangement. An arrangement where the feed mangers fit between the interior posts or poles of the shelter is suggested. One or two feed mangers may be shortened to provide a small passageway for transferring animals.

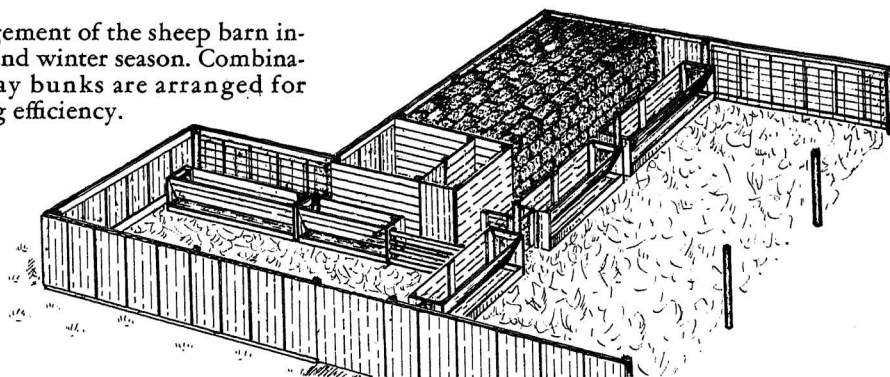
The sheep barn should be located on a well drained site and faced to take advantage of the southwesterly summer breezes and still provide protection from the northwest winter winds. A shelter opening to the east can be located to fulfill these requirements. Dog-proof fences around the night yard are essential in many localities. They are an added investment but return much in safety and good neighbor relations.

Housing for the Minimum Sized Flock

Plans for the building and equipment for a 40-ewe flock are presented here as this is considered the minimum for a principal farm enterprise. *The cover drawing shows the barn arranged for winter use.* The building is L-shaped, with the main stem of the L extending north, the shorter stem to the west, and the open front to the east. This arrangement is opposite to that used for other enterprises where the L-shape is used to provide a protected yard to the south or east.

This sheep barn, faced as indicated, provides protection from the northwest in winter and takes advantage of the winter sun through the easterly exposure and windows on the south. The fence on the north side of the lot can be constructed of solid boards for added protection.

Fig. 1 — Arrangement of the sheep barn interior for the fall and winter season. Combination grain and hay bunks are arranged for maximum feeding efficiency.



Fall Arrangement of Equipment

The suggested interior arrangement for fall and early winter months up to lambing time is shown in Figure 1. During this period the flock has the run of the regular open front shed space as well as the lambing quarters. Note that the combination feed mangers are set out from the hay and feed storage area far enough to allow for a feed alley. Hay and concentrated feed are stored in the back part of the shed for convenient feeding. An all-weather waterer should be located in the open portion of the shed where it is accessible to all animals.

Baled hay can be placed in the back portion, as indicated, through a double door in the north end of the building. The small grain can be placed in the storage bin through a small door on the west side of the building. The combination hay and grain feeders in the fall arrangement, Fig. 1, are shown in an enlarged cut-away view in Fig. 2. The feeder is constructed with tight sides or deflectors to protect fleeces from chaff and seeds in the hay. These feeders are made to fit between posts or poles, or shortened to provide a 20-inch passageway where needed.

The design of this building lends itself to use of various materials. Figs. 3 and 4 show it constructed with pole framing and sheet metal covering. Post frame with concrete foundation could

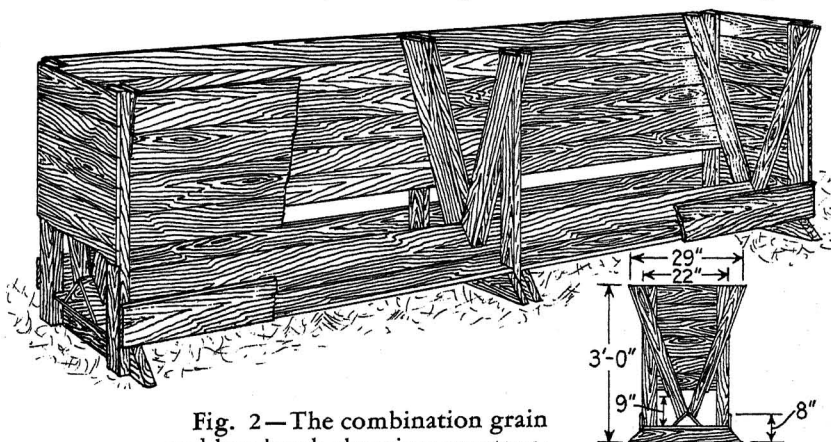
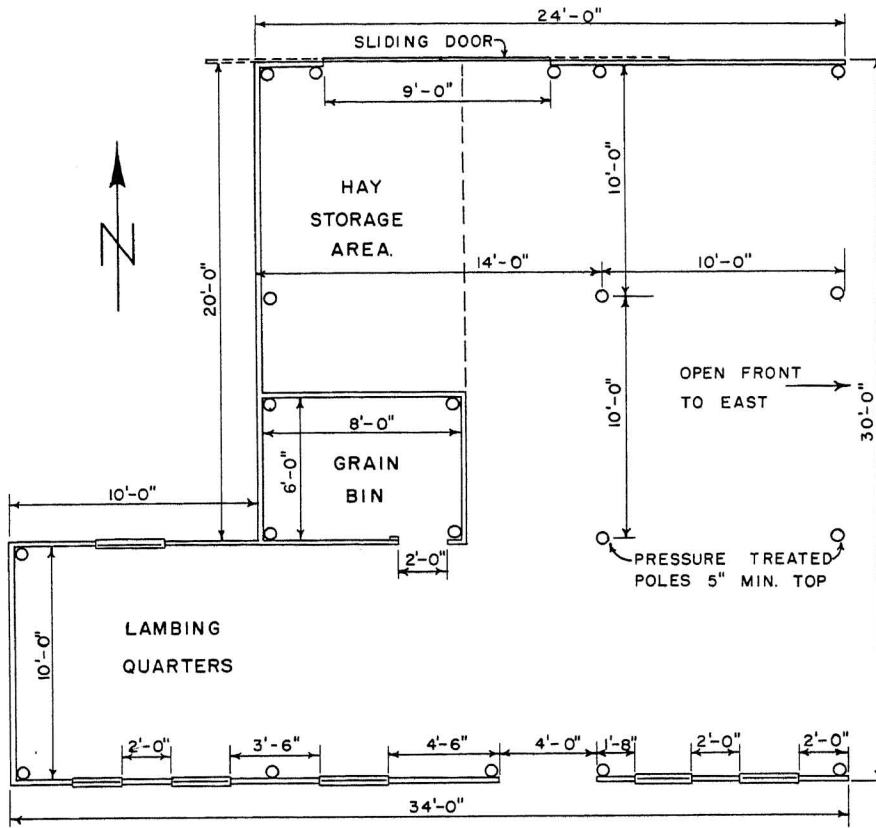


Fig. 2 — The combination grain and hay bunk showing construction details.

be used. The roofing might be of aluminum or steel sheet metal or other materials, although it is well to provide a light colored, highly reflective type material for comfort in summer. Metallic zinc, aluminum, or white exterior paints will serve this purpose. Siding materials may also be of aluminum or steel sheet metal or of barn boards and battens. These siding materials should be painted with a light colored, non-lead paint if they lack a shiny finish.



FLOOR PLAN

| BILL OF MATERIALS | | | |
|--------------------|-----|-----------------------------------|-------|
| ITEM | NO. | DESCRIPTION | f b m |
| <u>POLES</u> | | | |
| (PRESSURE TREATED) | 11 | 5" TOP 17' LONG | |
| | 9 | 5" TOP 14' LONG | |
| <u>LUMBER</u> | | | |
| SKIRTING BOARDS | 17 | 2" X 6" X 10'-0" PRESSURE TREATED | 170 |
| NAILING GIRTS | 16 | 2" X 6" X 10'-0" | 160 |
| | 3 | 2" X 6" X 14'-0" | 42 |
| GIRT STIFFENERS | 16 | 2" X 4" X 10'-0" | 106 |
| | 2 | 2" X 4" X 14'-0" | 19 |
| WINDOW ROUGH-INS | 12 | 2" X 4" X 4'-0" | 32 |
| PURLINS | 8 | 2" X 6" X 10'-0" | 80 |
| | 12 | 2" X 8" X 10'-0" | 160 |
| BRACES | 10 | 2" X 6" X 6'-0" | 60 |
| | 6 | 2" X 4" X 6'-0" | 24 |
| COLLAR BEAMS | 16 | 2" X 4" X 6'-0" | 64 |
| RAFTERS | 18 | 2" X 6" X 8'-0" | 144 |
| | 6 | 2" X 6" X 12'-0" | 72 |
| | 9 | 2" X 6" X 14'-0" | 126 |
| ROOF SHEATHING | 50 | 2" X 4" X 10'-0" | 334 |
| TRIM | 4 | 1" X 4" X 20'-0" | 54 |
| FASCIA | 6 | 1" X 6" X 10'-0" | 30 |
| | | TOTAL Bd. Ft. OF LUMBER | 1667 |
| <u>ROOFING</u> | 10 | SQUARES OF ROOFING MATERIAL | |
| <u>SIDING</u> | | APPROXIMATELY 1000 SQ. FT. | |
| <u>MISC.</u> | | | |
| GRAIN BIN | | | |
| STRAW LOFT | | | |
| DOORS AND WINDOWS | | | |

Fig. 3—Floor plan of the "L" shaped sheep barn and the bill of materials.

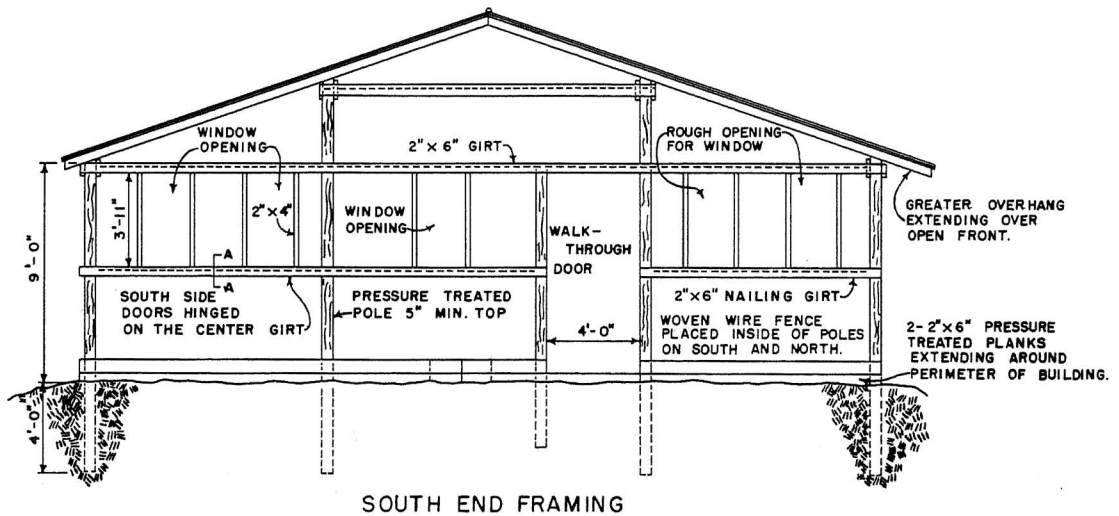
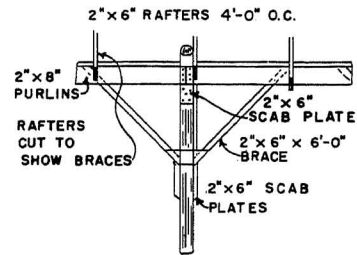
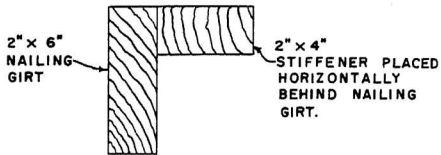
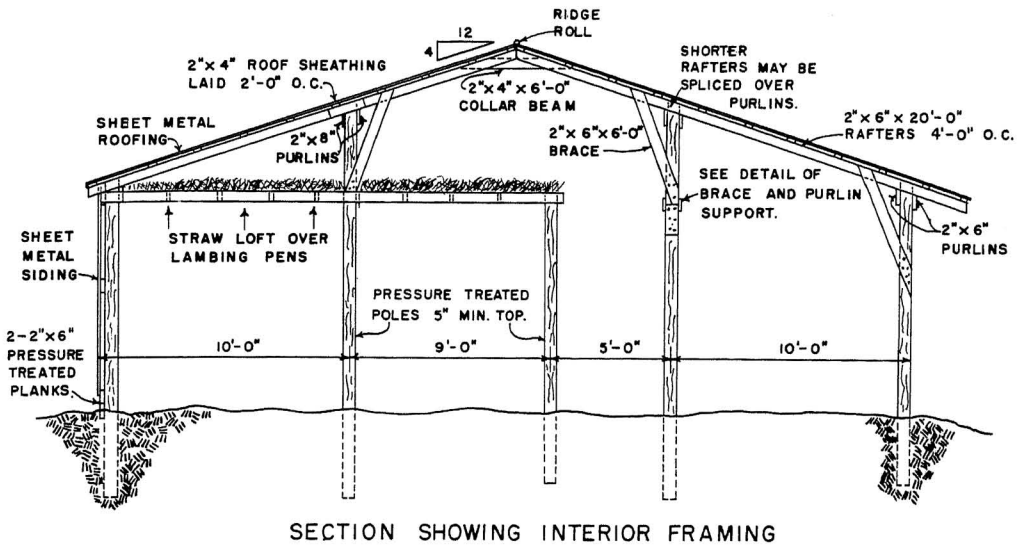


Fig. 4—End framing and cross section views of sheep barn showing details of construction.

Lambing Time Arrangements

A few days before lambing time some changes should be made in the interior arrangement of the building. Space for six lambing pens is available in the southwest corner of the building as shown in Figure 5. This portion of the barn provides a well-protected space for lambing. The area is enclosed on three sides and is far enough from the open front on the east to be free from drafts.

At the same time that lambing pens are provided, the flock should be divided in order that the ewes nearest to lambing may be placed in the

pen adjacent to the lambing quarters and given a different ration. Movable gates set between the poles may be used to form this separate pen as shown in Figure 5. Ewes are moved from the main flock to the smaller pen from time to time. When the lambs have been claimed by the ewe and have nursed a few times both are moved back into the main yard, making the small pens available for other ewes.

Lambing pens are easily made as shown in Figure 6 by hinging two small gates 36 inches high and 4 or 5

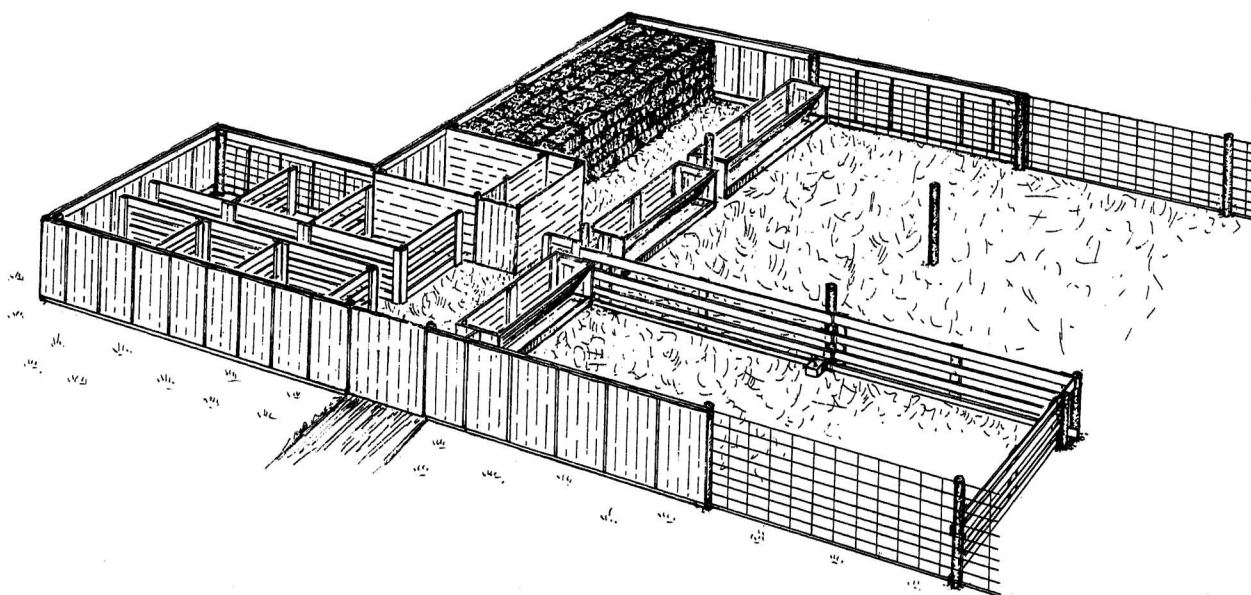


Fig. 5—Arrangement of the sheep barn interior for the lambing season. This provides for six lambing pens in the protected part of the barn and divides the main shed space.

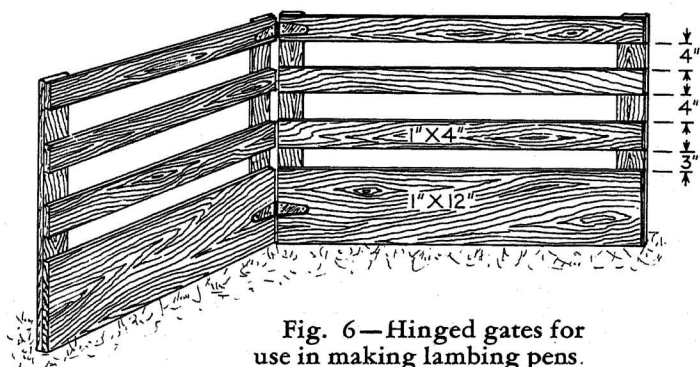


Fig. 6—Hinged gates for use in making lambing pens. One gate is required for each pen.

feet long. These hinged gates set as shown make pens 4 ft. x 4 ft. or 5 ft. x 5 ft. depending on the size of gates used. The wide boards at the bottom prevent drafts near the floor. The pens should be arranged to provide an alley adjacent to each pen for feeding and cleaning. The lambing area may be protected further by insulating the sidewalls between the woven wire and movable sidewall doors with bedding.

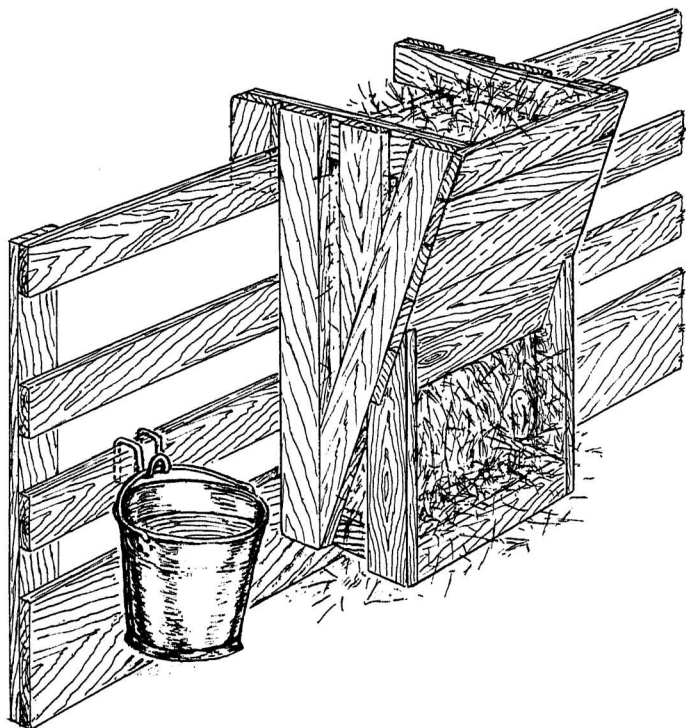


Fig. 7—Suspended watering and feeding equipment facilitate caring for the confined ewes and improve sanitation conditions.

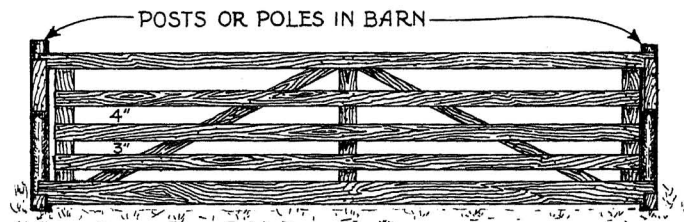


Fig. 8—A typical movable gate used in separating the flock. This shows one way to secure the gate to the posts.

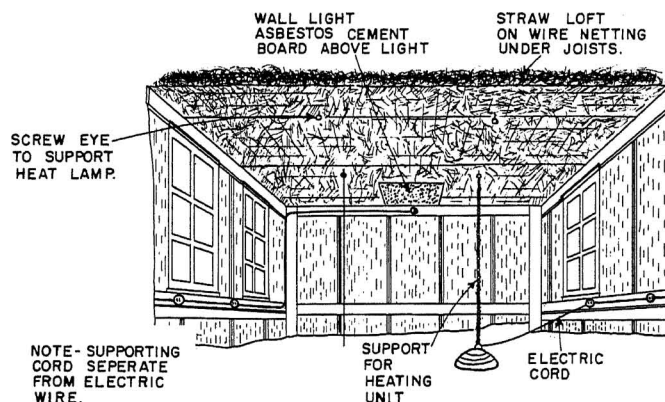


Fig. 9—View into lambing area showing the wire arrangement for lighting and heat lamps.

During the time the ewes are confined to the lambing pens they will need feed and water. The small feeder and the watering bucket shown in Fig. 7 will reduce this chore. The small individual feeder is similar to the regular feeders in design, being a combination forage and concentrate feeder. It should be made as light as possible so that it can be moved easily from pen to pen. The back part of the feeder is provided with a hook that fits down over the side of the lambing pens.

The hook for the water bucket is made of No. 9 wire and supports the bucket so that it will not be overturned. This arrangement eliminates the necessity of waiting each time for each ewe to drink water. It provides adequate water at all times, and prevents spilling.

Movable gates as shown in Fig. 8 are essential in making the various arrangements needed during the year. They should be constructed just long enough to fit between the interior posts of the building. They may be held in place by fastening hooks to the posts or by using regular gate hinges. When not in use they should be stored inside the building. Electrical outlets are provided on the side walls of the lambing area for convenient attachment of heat lamps (Fig. 9). Hooks are provided in the ceiling joists to support the heat lamps with chains. Lights may be placed on the side walls of the lambing area but should be protected from the flammable straw loft above with a piece of asbestos cement board as shown in the back of the ceiling area.

Heat lamps should be used with caution. Temperatures as high as 312° F. in the socket and 660° on the lamp face have been measured. Tests indicate that 250 watt heat lamps will char litter at a height of 6 inches and cause ignition of most litters at 3 inches. For safe operation, a 250 watt lamp should never be placed closer than 12 inches to the litter. For lambing operations they need not be placed closer than 30 inches. Lamps should be high enough to prevent animals from coming in contact with them.

Experience indicates that only the smallest heat lamps are needed for lambs. Under most conditions ordinary light bulbs with a reflector are sufficient. Supplemental heat is most effective following the birth of lambs, until their fleeces are dry and clean and they have obtained their first feeding. In extremely cold weather it may be desirable to continue the heat for a few days.

Shearing Time Arrangement

At shearing time the feed mangers may be removed from the lambing section of the barn and gates set up to facilitate shearing. Figure 10 suggests a convenient arrangement of pens for handling flocks at this time. Convenient electrical outlets should be provided for use of clippers. For the shearing operation it is necessary that the main flock be confined in a small area near where they are to be sheared. After the sheep are sheared, they are turned back into the main part of the barn.

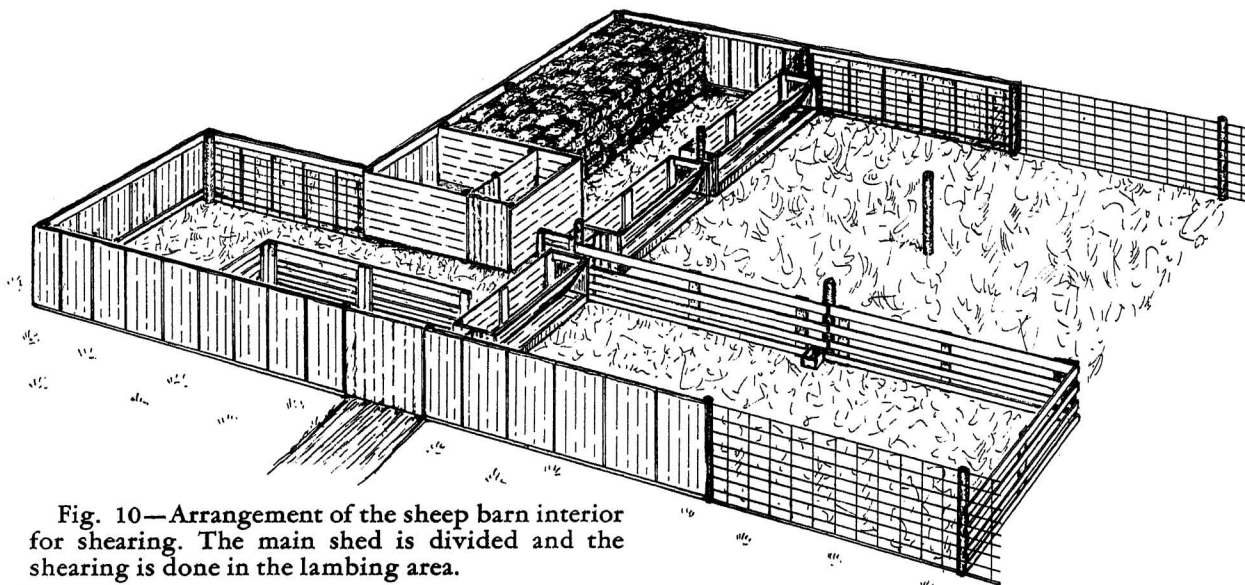


Fig. 10—Arrangement of the sheep barn interior for shearing. The main shed is divided and the shearing is done in the lambing area.

The fleeces must be packed in large sacks for shipment to market. In order to be able to fill these sacks conveniently as shearing progresses, a sack holder (Figure 11) is necessary. A convenient location for this holder is over the feed alley beside the feed bin. The platform and opening must be high enough to suspend a sack 7 or 8 feet long. A stationary ring and clamp must be provided to hold the sack in place during filling. The inside ring should be 22 inches inside diameter and made of $\frac{3}{16}$ by $1\frac{1}{2}$ inch strap iron. The clamp to fit over the ring is made of $\frac{1}{8}$ by $1\frac{1}{2}$ inch strap and is equipped with a takeup bolt. The open end of the woolsack is pulled through the ring about 2 inches and turned down over the outside. The clamp is placed over the ring and sack and tightened. To obtain the desired solid pack of wool in the sack it must be tramped as it is filled.

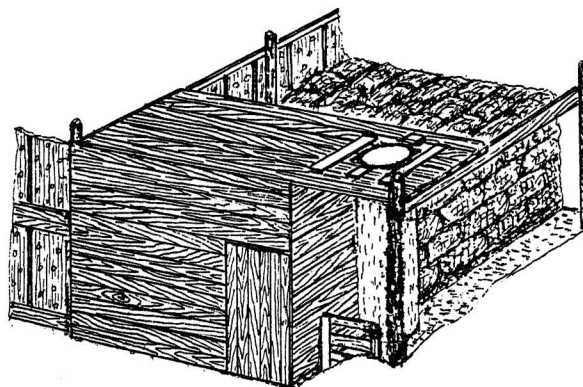
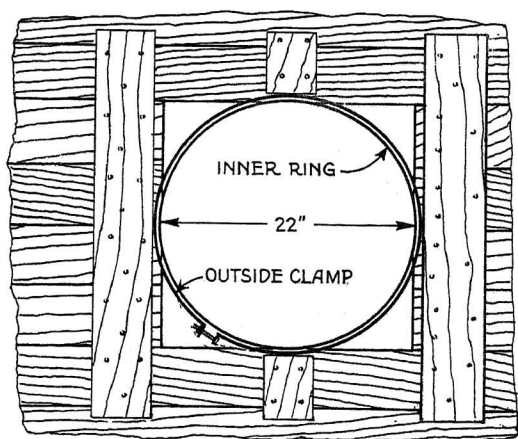


Fig. 11—A detail of the wool sack holder and a suggested arrangement for suspending the wool sack in the alley next to the grain bin.

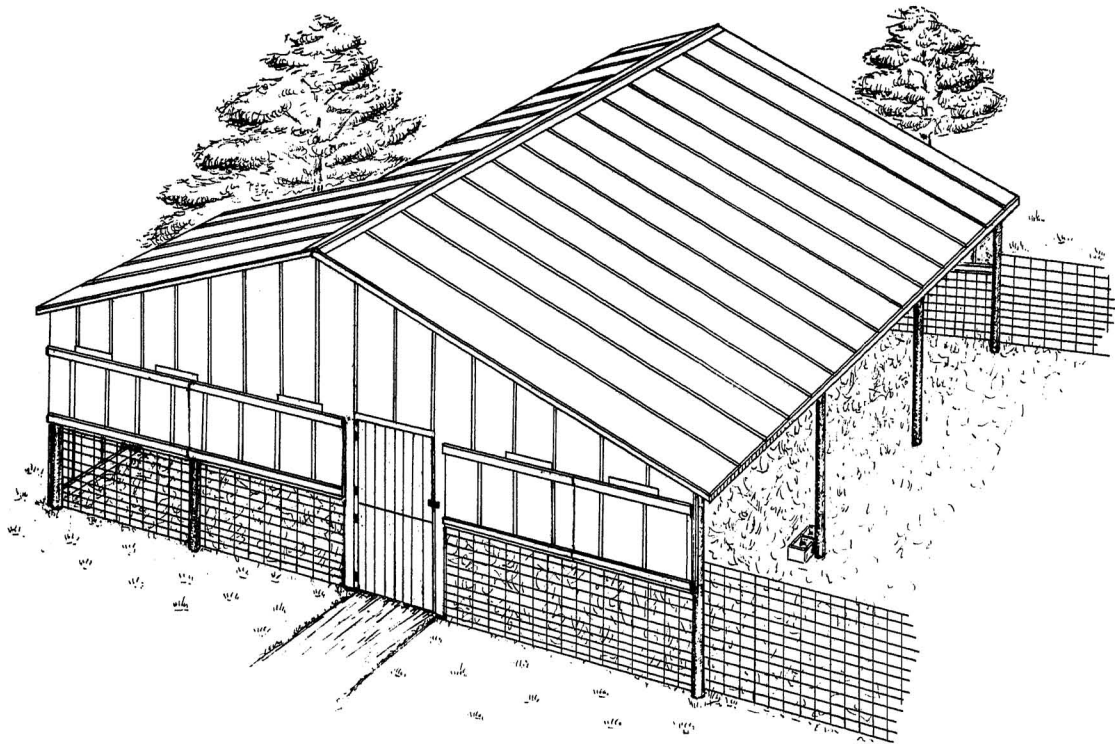


Fig. 12—The sheep barn arranged for summer use with the north and south doors turned up for free air circulation. Notice that the side doors cover the windows when in this position.

Summer Housing

Figure 12 is an exterior view of the sheep barn similar to that of Figure 1 except that the doors making the lower part of the south and north walls are turned up. This arrangement provides for free circulation of air through the building at ground level where it is most beneficial. The orientation of the barn permits full advantage of the prevailing southwesterly summer breezes. When the lower portion of the south wall is hinged and turned up as shown, it serves a second function of preventing the sun from entering the south windows. Woven wire under the siding is recommended to confine the sheep and give protection from predatory animals.

It is during the summer season that the reflective roof and side coverings play an important part in keeping out heat from the sun. When galvanized iron is used for roof and wall covering, the roof should be given a prime coat of metallic zinc and a top coat of white paint. The under side of the roof covering may be painted with aluminum paint to reduce the radiation of heat into the building. Side walls may also be improved by use of aluminum paint both inside and out.

By this provision for reducing the amount of the sun's heat entering the building, by covering the windows to prevent entrance of the sun's rays, by providing for free circulation of air at the ground level, and by removal of the manure pack built up through the winter, the structure is changed from a building that gives winter protection into one that provides good conditions for the summer season.

Equipment for Cutting and Loading

At various times throughout the season it becomes necessary to separate the flock. A chute and properly placed gates make it possible to accomplish this task quickly and easily. Figure 13 shows a suggested arrangement for this purpose. Cutting gates located along the narrow chute make it possible to divide the flock into desired groups. By opening either of the cutting gates, individual sheep may be directed into either yard. If animals are being loaded they may be directed to the loading ramp.

Alley Aids Counting and Cutting

It may be desirable in some cases to build a narrow alley with cutting gates in a permanent location so it is always available for use as the flock is turned out. In this way an easy count can always be obtained, some inspection and close observations made, and individuals separated out when desired. For permanent location the chute should be adjacent to one side of the building or lots so as to be out of the way, yet conveniently available when needed.

Loading Ramp Is Adjustable

The loading ramp consists of a trough, made with 2 in. x 6 in. sides and a 22 in. bottom width. Side racks are made of boards each fastened to the uprights with a single bolt. This allows some flexibility in that the ramp may be raised or lowered sufficiently for loading into larger trucks or into the somewhat lower pickup trucks. The bolts must be lined vertically and all boards placed parallel or the ramp cannot be raised and lowered.

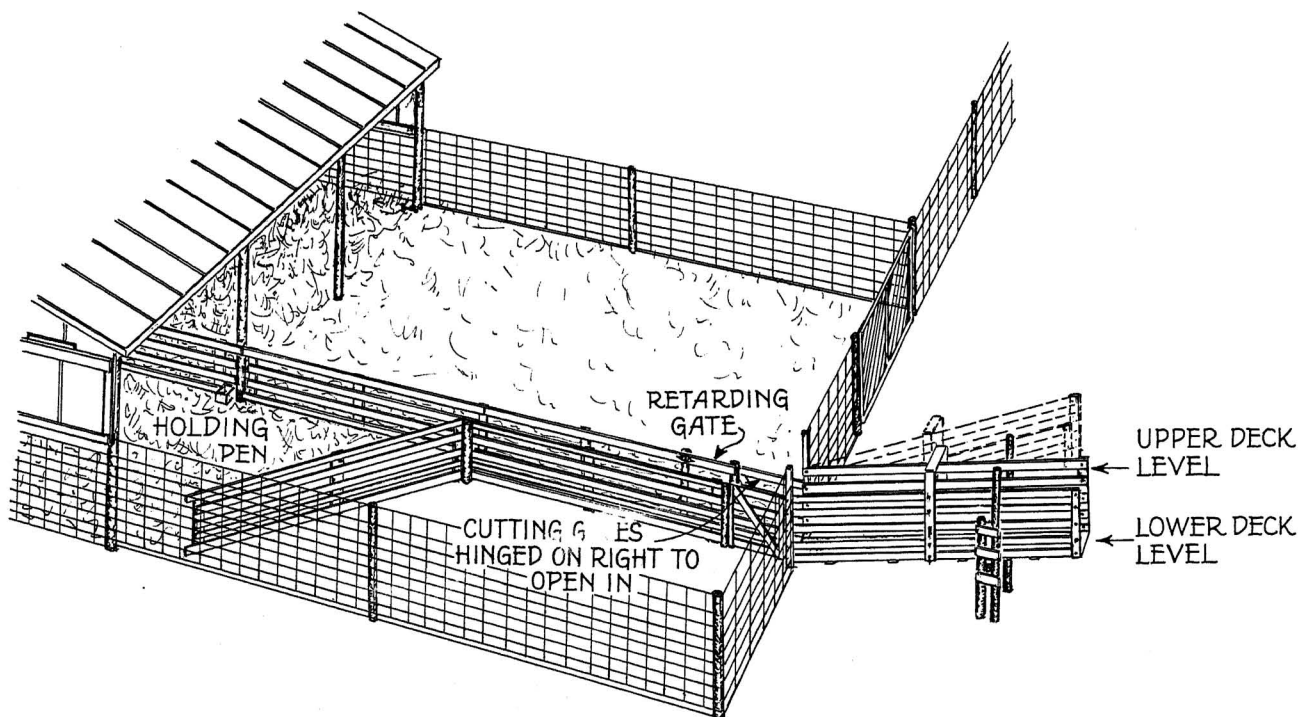
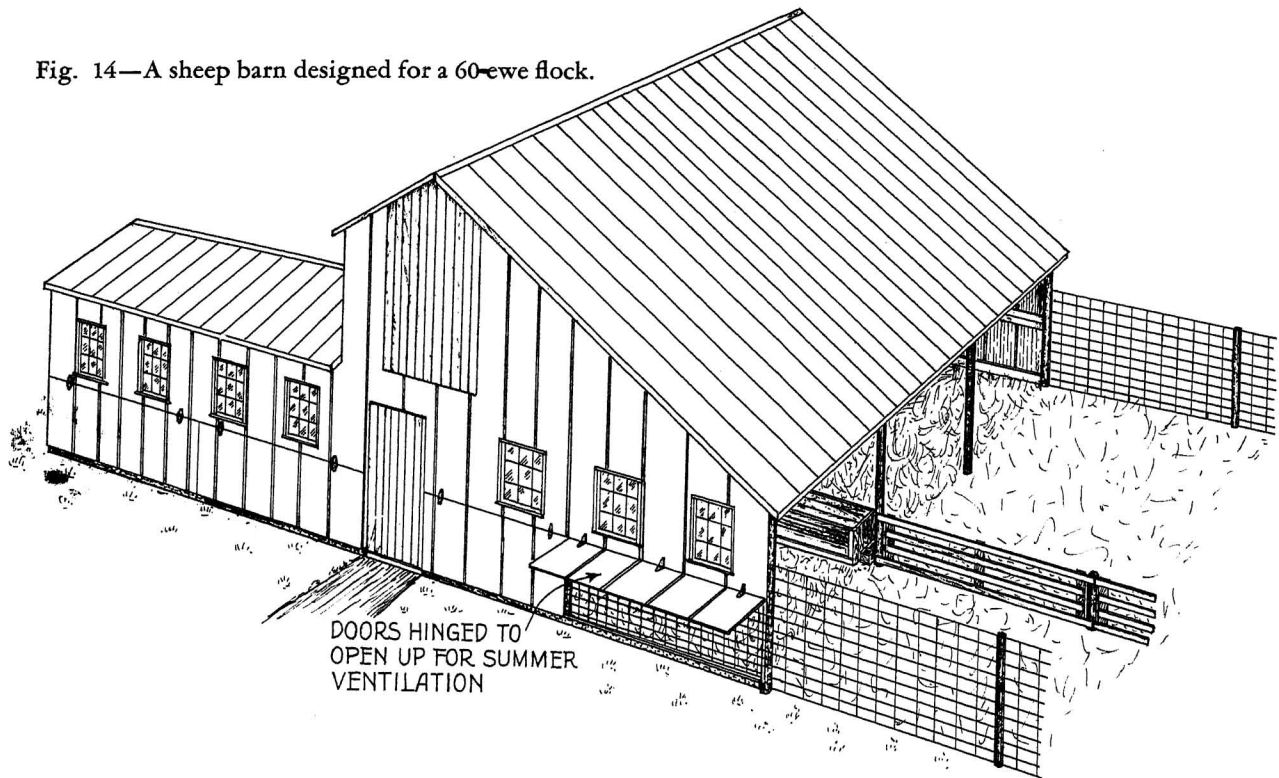


Fig. 13—A suggested arrangement for cutting and loading equipment. The gates are portable and easily set up in this position.

Fig. 14—A sheep barn designed for a 60-ewe flock.



Housing for 60-Ewe Flock

The building shown in Figure 14 is for a flock of approximately 60 ewes and includes many of the same features shown for the smaller 40-ewe barn. It retains the basic L shape and the same orientation to take advantage of an east exposure, summer southwesterly breezes and protection from the northwest. The doors in the lower portions of the north and south walls cover the windows when raised, keeping out the sun and providing air circulation through the building in summer.

The pitch of the roof is steeper on this building than on the smaller one to provide overhead storage for hay, bedding, and concentrated feed. The overhead storage increases the cost of this structure, somewhat, but makes more space available for the animals as well as placing the feed in a fairly convenient place. A straw loft over the lambing quarters and over the east side of the main barn is recommended. Louvers will be required for ventilation in the loft.

By extending the depth of the lambing quarters to 20 feet and including the center section, space is provided for 10 lambing pens. With this extension and the provision of overhead storage, the floor space is increased to 920 square feet, slightly more than the 15 square feet required per ewe.

Pole frame construction, strip sheathing, and sheet metal roof and siding reduce the cost of the structure to the point where it should contribute to an increase rather than a decrease in profits.

Seasonal Arrangements for the 60-Ewe Barn

During the fall season the ewes are given the run of the main floor of the building as shown in Figure 15. A suggested arrangement for the combination hay and grain feeder is as shown with two of them in the lambing quarters area. An all-weather watering place similar to that used in the smaller building should be located in the main open portion of the building. The feed room is designed to hold a small supply of the hay and bedding as thrown down from above and a small supply of the concentrates which are drawn through the spouts from the bins above.

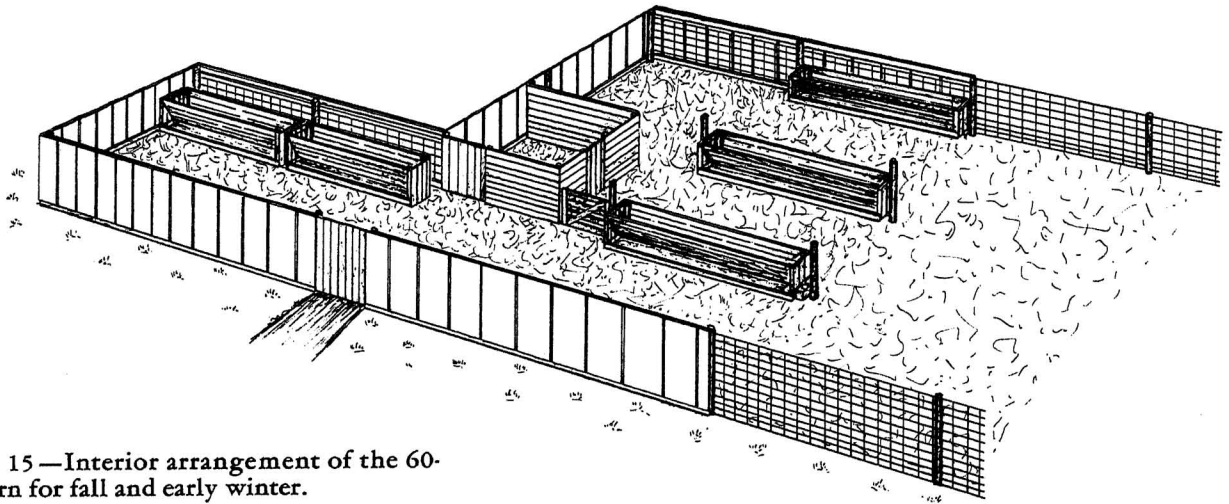


Fig. 15—Interior arrangement of the 60-ewe barn for fall and early winter.

At lambing time, 10 pens can be set up as shown in Figure 16. The same hinged type lambing pen gates are used and arranged to leave an alley for feeding and caring for the ewes and lambs. Large gates can be used to divide the main part of the building along the line of poles as shown. Other arrangements for handling the sheep could be worked out with this larger structure in the same general way as for the smaller one.

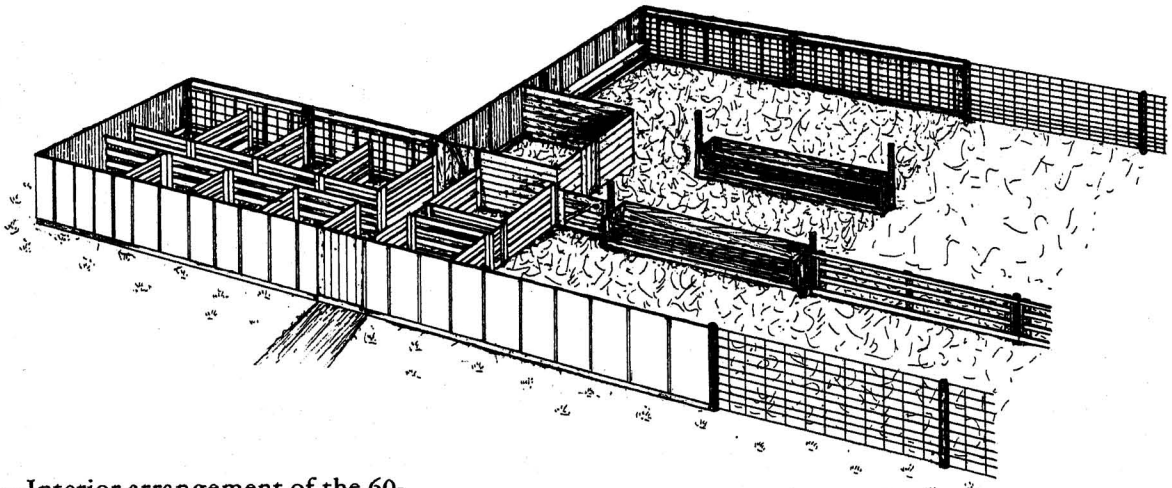


Fig. 16—Interior arrangement of the 60-ewe barn for lambing time.