

Adoption Crates for Grafting Orphaned Lambs

One lamb in ten in the U.S. is lost as a result of starvation, because it didn't get enough milk during the first few days of life. In recent years, there is increased grower interest in rearing the endangered lambs "artificially," using liquid milk-replacer diets. Milk replacers formulated especially for lambs are available, and effective liquid feeding systems have been developed. These can reduce losses from baby lamb starvation, but a major drawback is the expense. Cost of the milk replacer, feeding equipment, and labor often is so high that there is little profit.

In most flocks there are ewes that have a surplus of milk, even while some lambs are starving due to an inadequate milk supply. And the most economical way to raise these extra or "bonus" lambs is on the ewes that have surplus milk. The problem is to get the ewe with the milk to accept a lamb that is not her own.

For the first few days, a ewe seems to recognize her young by sense of smell. When it is desired to transfer or "graft" a lamb to a foster mother, deception in the sense of smell is often an effective approach. A number of techniques have been developed by producers to accomplish a successful graft. Although there are others, the traditional techniques are slime grafting, wet grafting, or skin grafting.

Slime grafting can be most successful immediately after birth, while the newborn lamb is still slimy wet and there are lots of placental fluids and membranes available to completely cover and soak the "bonus" lamb before the mother has thoroughly identified her own offspring. The sooner the graft is made after birth, the greater the chance of success. Once the newborn lamb starts to dry and the ewe has become acquainted with it, the chance for success is reduced.

Wet grafting is a technique that can be used if it is not possible to do a slime graft. The ewe's own

lamb, although still very new, is too dry to provide enough slime for grafting. Both the ewe's own lamb and the "bonus" lamb needing a milk supply are immersed to the neck in a warm salt water solution with some of the solution splashed on the lambs' heads. The lambs are then thoroughly rubbed together, and the "bonus" lamb also rubbed with any placental membranes that might be available. After this procedure, some lambs may be rejected. Therefore, the new family must be put in a maternity pen or "jug," and observed carefully until a firm mother-offspring bond is established with both lambs.

Skin grafting can be used when a ewe loses her own lamb through accident or disease. The dead lamb can be skinned and the pelt slipped onto the "bonus" lamb which needs a milk supply. The head and tail of the graft are smeared with the blood and body fluids of the dead lamb. Some of these skin grafts are successful at once, but others require tying the ewe in the pen for several days before she will adopt the new lamb.



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The three methods of lamb grafting described require that the graft be made onto a ewe that has recently lambed. All too frequently, however, a ewe with only one lamb, but adequate milk to rear two lambs, gives birth at a time when no foster mothers are needed, or the ewe is identified as a good milk producer too late for a slime or wet graft to be successful. Recently, interest has been focused on the adoption crate as a new tool to facilitate the grafting of lambs—not only onto re-

cently lambed ewes but also onto those that have not so recently lambed. Basically, the adoption crate is a device in which the ewe is restrained in a stanchion so that she has little choice but to let the "bonus" lamb suckle. After a few days in the stanchion, the "bonus" lamb smells much like the ewe and her own lamb and is generally accepted by the ewe.

Figure 1 shows plans for an adoption crate developed and used by the Oklahoma State Uni-

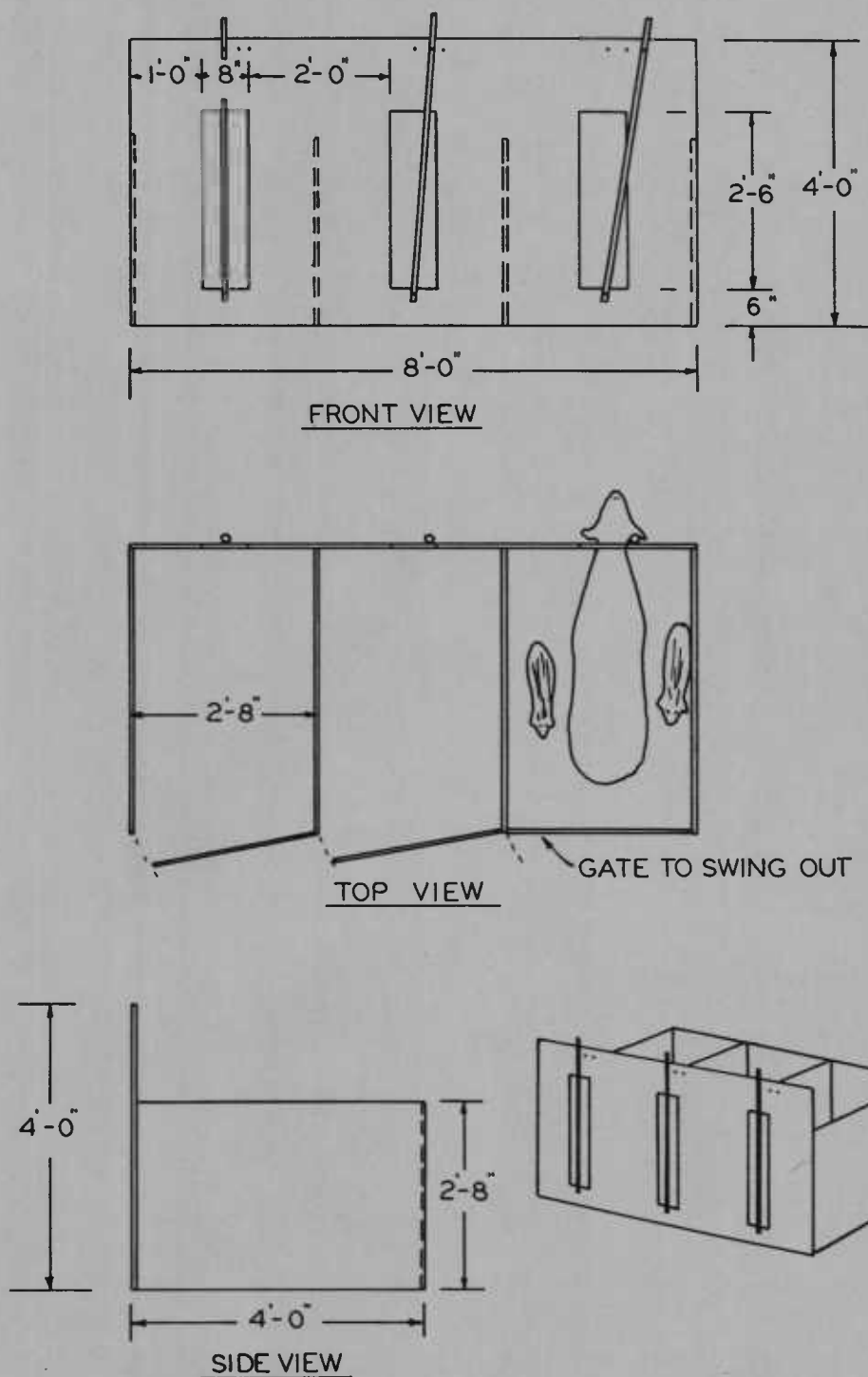


Figure 1. Oklahoma adoption crate. A 4' x 8' plywood sheet, $\frac{3}{4}$ " thick, serves as the front for three crates. The front of each crate is solid except for a vertical section (8" x 30") that is removed for the stanchion. One side of this opening becomes the permanent side of the stanchion and an adjustable $\frac{3}{4}$ " pipe is the movable side of the stanchion. The partitions between crates are hinged to the front. The partitions are 48" long and 32" high. A door is hinged to the back of each partition to serve as the back of the crate. Water and feed are provided at the front of the crate.

versity Agricultural Experiment Station. The crates are built in three-unit blocks. In using the crates, ewes are fed and watered in containers in front of their crates and are tethered in their stanchions for 4 days. After 4 days, they are released from the stanchion but remain in their crates. If they appear to accept their lambs, they are turned into a small pen with a few other ewes and their lambs after the 5th day. Within a week, they are turned into the larger group of ewes and lambs. Ewes that do not accept their "bonus" lambs are stanchioned again. Testing of the adoption crates at Oklahoma showed:

- In cases where ewes with a single lamb were used as foster mothers, 83 percent of the grafts were successful.
- Ewes that had produced and lost a single lamb accepted a "bonus" lamb more readily than

ewes that had produced multiple lambs and lost one or more of them.

- The stalls were used successfully with several ewes that had rejected even their own lambs.

- Generally the "bonus" lambs did not gain as well up until weaning as did the foster mothers' own lambs. However, the "bonus" lambs were smaller in most cases and thus expected to gain at a slower rate.

If a sheep producer has enough individual lambing jugs (pens) to keep some occupied for up to 5 days with the same ewe, an inexpensive and effective adoption crate can be constructed to fit in the jug. Figure 2 shows such a crate, designed at Oregon State University to fit in a 4' x 4' jug. It can be modified easily to fit jugs of different dimensions. The headboard should be constructed out of

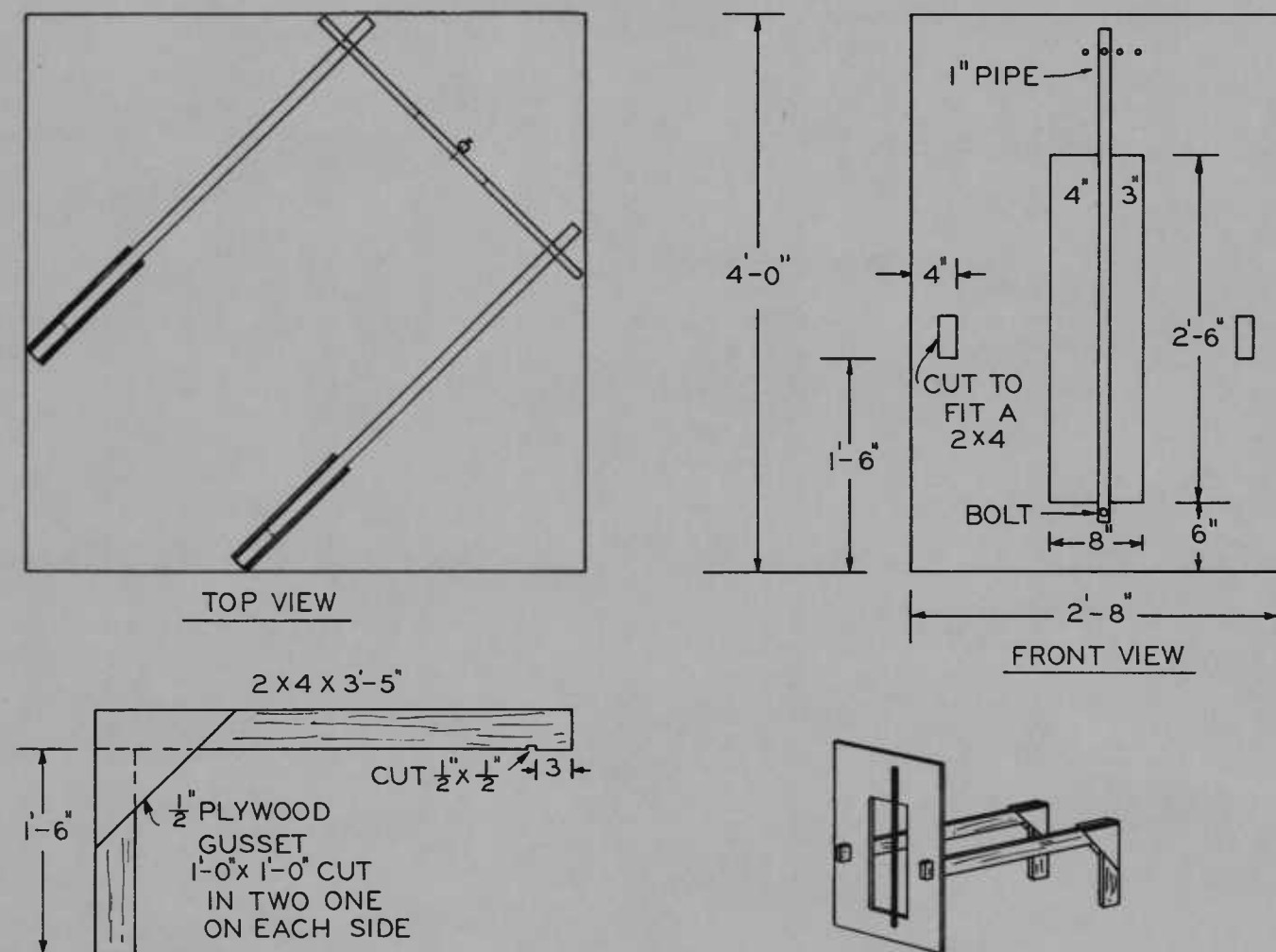


Figure 2. Oregon adoption crate. The crate shown is designed to fit in a 4' x 4' lambing jug. In order to accommodate larger jugs, the 2' x 4's will need to be longer than 3' to 5". The plywood used for the headboard should be at least 1/2" thick. Feed and water should be provided to the ewe in the corner of the jug in front of the headboard. The adoption crate can be dismantled easily and stacked for convenient storage.

plywood at least $\frac{1}{2}$ " thick. Feed and water are provided to the ewe in the corner of the jug in front of the headboard. When not in use, the crate can be dismantled and stacked for storage.

The U.S. Sheep Experiment Station, at Dubois, Idaho, has conducted a trial using adoption crates in jugs with good success. In the study, ewes and lambs were left in the adoption crates for 4 or 5 days. They were then placed in a trial jug (without the crate) where the ewe was completely free to observe and suckle her lambs. If after 1 or 2 days in this trial situation, the lambs were accepted, the ewes and lambs were turned out into a mixing pen with other ewes and lambs and managed as all other sheep. If acceptance was not good, the ewe and lambs were returned to the adoption crate. Of 120 grafts attempted in one lambing season, 102 (85 percent) were successful. In 5 cases (4 percent) the ewes did not have enough milk, and there were 13 other failures (11 percent), which included lamb deaths as well as rejection. The average time required to make a successful graft was 4.8 days. The Dubois researchers estimated in 1978 that the savings in feed costs alone for adoption-crate-grafted lambs,

when compared with costs of artificial rearing, were from \$22.50 to \$30.25 per lamb.

In summary, the following statements can be made concerning lamb grafting:

- It is generally more economical to graft a "bonus" lamb onto a foster ewe than raise it artificially.
- Use of adoption crates probably will result in a high percentage of successful grafts.
- Ewes and lambs should remain in the adoption crate for approximately 5 days.
- A number of different types of adoption crates can be constructed. Two are presented here.

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