Grafting: A Lamb Saving Management Tool.

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Grafting (Fostering) is an alternative for producers who do not enjoy raising lambs on artificial milk. The ability to graft, or switch, a lamb from one ewe to another is a management tool that can save many lambs during a lambing season.

Grafting works best when you have a number of ewes lambing at the same time. When grafting, we are asking one ewe to adopt or accept another ewe's lamb or lambs. Grafting can be done for many reasons. Examples of situations where removal of one or more lambs will benefit the lambs and the ewe are:

1. A ewe has more lambs than she can successfully care for.
2. A ewe becomes sick or dies, leaving orphan lambs.
3. A ewe does not have enough milk to adequately feed the lambs she has.
4. A ewe lambs with multiple lambs but she is young, or old, or is very thin.
5. A ewe has only a half udder and has twins or triplets.

First let's establish names for the various animals we will be discussing.

Foster ewe. This is the ewe we are grafting the lamb onto.
Mother. The birth mother of the lamb we are grafting.
Alien. The lamb we will be grafting onto the foster ewe.

The selection of a foster ewe can make or break the adoption. A good foster ewe should:
1. Be above average in Body condition score. A thin ewe will have problems producing enough milk for two lambs.
2. Be calm by nature. A nervous or crazy ewe will not work.
3. Have a good milk supply.
4. Have teats suitable for nursing. Teats should not be too large and their location and angle from the body should make it easy for the lamb to find them.

Slime Grafting.

The slime method can be used only while the foster ewe is lambing. Due to the high maternal instinct of most ewes, they can be fooled into thinking they have given birth to two lambs instead of just one. To accomplish this graft, the shepherd must have in mind a lamb that will benefit from being grafted. Shepherds should make each lamb stand twice a day and observe their reaction. A healthy, lamb that has enough milk will stretch when it stands. A lamb that is not getting enough milk will not stretch but will immediately look for milk. A lamb that is obviously not thriving is also a good choice for an

alien lamb. The alien lamb must be able to stand and move about for any graft to be successful. If the lamb is down, it needs immediate intensive care.

When a potential foster ewe lambs, with a single, the shepherd should check to make sure. This is done by inserting your hand into the body cavity of the ewe and feeling for another lamb. Be as sanitary as possible doing this. Wear a plastic glove or breeding sleeve and lubricate it for ease of entry. If there is no second lamb then prepare the alien lamb for grafting. If possible, match the size of the alien with the size of the foster ewe's own lamb. If one is much larger than the other this can lead to problems with one lamb consuming most of the milk. Color does not seem to be a problem when grafting. A black lamb can be grafted onto a white-faced ewe that has a brockle or white lamb.

A ewe identifies its lambs by smell at first. Therefore, your plan is to make the alien smell like the foster ewe's lamb. Smear the alien lamb with the birthing fluids of the foster ewe. Hold the alien up behind the ewe and cover it with the fluid. Be sure to smear the underside and crotch area of the alien as well.

A very important part of the grafting process is to tie the legs of the alien lamb together so that it cannot just get up and walk away. A newborn lamb does not suddenly stand up and run off. It lies there for a period of time before struggling up. Alien lambs, if they are just a day old are probably pretty quick on their feet and will need to be restrained. I sometime tie all four legs together and sometime tie three.

You are now ready to simulate the birth of another lamb. The foster ewe is probably licking off her own lamb. We try to keep the foster ewe from seeing or hearing the alien lamb until it is "born". This is not always easy, as aliens tend to be quite verbal.

Place your hand in the birth canal of the foster ewe and make a fist. She should begin to strain as she thinks that she is having another lamb, which is what you want her to think! Let her strain against your hand for 2-3 minutes and the remove the hand. Produce the alien lamb and place it below her own lamb and wrap both lambs together as much as possible without hurting them. This will help to hold an active alien lamb down even more. Add more birthing fluids to both lambs if possible. Then, stand back and observe what happens.

If the foster ewe starts to lick both lambs and make mothering sounds, this is excellent. Do not rush her into making any decisions. Let her mother the lambs at her own speed. The longer that she licks and "talks" to the lambs the greater is the chance that she will accept the alien.

Keep the alien tied for at least a half-hour. Perhaps it is best to move everyone to a lambing pen. If you choose to leave them in the birthing area, be sure that it is escape proof. Remember that the alien may be very independent and may seek to leave when you untie its legs. Do not allow it to run away. If it is in an escape proof area and realizes that this ewe will allow it to nurse freely, it will stay around.

Continue to observe what is happening when you do untie the alien. The sign of a successful graft is that the foster ewe allows the alien lamb to nurse. Sometimes the alien has to be convinced that this is where he now lives. An escape proof pen and a foster ewe that "talks" to the lamb and allows it to nurse best accomplish this.

Watch to see that the alien, if a day or so older, does not dominate and drink all the Colostrum. It is best to allow the foster ewe's lamb to nurse first, or to milk the foster ewe and tube feed her lamb.

Keep the foster ewe confined in the escape proof pen for three to five days. Continue to observe how they interact. Be sure to identify that the ewe and the lambs belong together. Place a stripe on the backs of all three or paint brand each with the same number. Do something so you realize that the ewe has multiple lambs at her side, so they are not mistakenly separated at some time.

When you feel fine about the graft, move the foster ewe and her lambs to a mixing pen. This is a pen with a few other ewes and lambs. This will allow the foster ewe and her lambs to interact in a larger population. Continue to observe how they interact. Does the alien lamb "stay at home'? If not, then

return them to the smaller, escape proof pen. If everything goes right in the mixing pen, then move the whole group to the main flock.

After a few successful grafts, the producer develops a feel for lambs that need to be grafted if they are to thrive. Always be on the lookout for such lambs.

A producer should also be on the lookout for ewes that are potential foster ewes. Slime grafting works very well most of the time. The problem with it is that you have a very small window of time that you can attempt this type of graft. You need a ewe that is actually lambing, and one that produces a single. You also need to be present when she is lambing. Slime grafting is not the most commonly used method of grafting.

Stocking or Scent Grafting

Work at the University of Illinois and the University of California Hopland Research Center looked at the idea of transferring the scent of a ewe's single live (or dead) lamb to another to aid in the grafting process. To facilitate the scent transfer stockinette jackets made of elastic knitted fabric. A large sock (wool or other) with cutouts for the head and four legs can be substituted) were placed on a ewe's own live (or dead) lamb at birth. The stockinette jacket acquired the natural odor of the ewe's own lamb, and when the jacket was transferred to an alien, the alien was accepted about 85% of the time. In addition, about 40% of the ewes immediately accepted the alien upon first introduction. I suggest keeping her haltered and restrained so she cannot move her head a great distance for a day or so and then turn her free and observe her reaction. If she still rejects the alien, she needs to go through the Stanchion graft program.

A second study was done in which researchers used an artificial odor to facilitate grafting. Neatsfoot Oil (a natural animal product used to preserve leather) was smeared on a ewe's own lamb shortly after birth. An alien, smeared with the same material was introduced to ewe as well. Only 50% of the ewes accepted the alien with this treatment, however, 80% of those adopting the alien did so immediately.

Because of the high percentage of immediate adoptions, another experiment was performed using both the stockinet's and the Neatsfoot Oil. In this study, 80% of the foster ewes accepted the alien as well as their own lamb and, of those adopting aliens, 83% did so immediately. Because of the success using a strong odor, other strong smells may be able to be substituted for the Neatsfoot Oil.

To successfully use this system of grafting producers should identify each prospective foster ewe and place a stockinette or sock on her single lamb soon after birth. The sock should remain on the lamb until an alien lamb is identified. Then the foster ewe should be isolated in an escape proof lambing pen. I would suggest keeping both the alien and the ewe's own lamb away from her until they are ready to be presented to her. The sock would be taken off the foster ewe's lamb and inverted and placed on the alien. By inverting the sock the smell of the foster ewe's lamb will be intensified. The neatsfoot oil should be rubbed all over each lamb and then both are presented to the ewe at the same time. Observe for any reaction by the ewe. If she licks the alien and allows it to nurse, she will accept it. If she rejects it she will butt it. The sock should remain on the alien lamb for a few days before removal. Then the producer will need to observe again to make sure the ewe still accepts it.

If the producer places a sock on a lamb and the mother of the lamb is not used as a foster ewe, the producer should observe the lamb daily and remove the sock if it gets too tight on the lamb.

The above described methods of grafting are encouraging but it must be remembered that any ewe having lambs grafted onto her MUST have special treatment. She needs to be isolated in a lambing pen with her new lambs and observed for 2-3 days. The lambs grafted onto her MUST be identified as being on her and she needs to have some identification on her body that shows she has an alien lamb on her.

Stanchion Grafting

This method calls for preparation before lambing. Stanchions need to be built that foster ewes can be restrained in. They can be permanent or portable. The most important thing to remember is to build them to be very sturdy. They will receive a good deal of stress from ewes that do not wish to be secured. Most ewes readily adapt to the restraint however and become very calm.

A ewe that has lost her lamb from injury or disease that has a good milk supply as well as good teat placement and a better than average body condition score is an excellent candidate to be a foster mother. So is a ewe with a single lamb and the above credentials. Ideally she is well mannered and calm. For me a ewe is an excellent candidate for grafting for three days after she lambs. After that her desirability decreases every day. This is not to say that you cannot form a graft with a ewe that has a five-day-old lamb but they seem to be able to count higher after three days. Perhaps they just become less maternal. Ewes with pendulous udders, large teats or poor teat placement are not good candidates. They may be good mothers but it is more difficult to teach a lamb to nurse a big fat teat that is in an unusual position. Watch a lamb try to nurse and they stick their heads under the flank of the ewe and reach up, not down. Lambs nurse by instinct and do not "look" for the teat and go to it. Lambs can be taught to nurse from just about any position but it will take a commitment by the producer to do so.

There is usually a question as to which lamb should be chosen to graft. I suggest that you choose the strongest. If the mother of the lambs accepts both lambs then the smaller lamb (s) is able to nurse without trouble. It (they) should start to thrive as soon as the larger lamb is removed. The larger lamb is also stronger and better able to stand the stress of grafting.

Another trick that seems to help a great deal is not to let the foster ewe see the alien lamb. Keep her in a stanchion constructed so that she cannot see behind herself. Don't ever just tie her in a corner and drop the alien in the pen with her. I feel it is best that she not see the alien until she is released after 3-5 days

Sometimes real disasters can occur. A ewe with twins or triplets dies unexpectedly. You will need to find mothers for all lambs. This is a situation that it may be best to call a person in the area that has expressed an interest in raising bottle lambs. It is also possible to graft two lambs onto a ewe with a single if she meets the criteria as described above. It is also possible to graft lambs onto ewes for a day or a few days, keeping the ewe in a stanchion for that time until another foster ewe comes along.

An ideal stanchion graft would go as follows. A needy lamb is identified and a foster ewe as described above is located. The ewe and her natural lamb, if she has one, are placed in the adoption pen with the ewe's head secured by the stanchion. The alien lamb is placed in the pen behind the ewe and with her own lamb. The alien lamb is given aid, if needed; in nursing from the foster ewe. Both lambs are observed often to see that they are nursing. They will exhibit fullness to their stomachs, stretch when they stand up and their mouths will be warm when you insert your finger. The foster ewe stands and lies down quietly. After three to five days, the ewe's head is released from the stanchion. She turns and nuzzles and licks both lambs. (The lambs may show fear of the ewe when she is released, but remember, that she has been standing or lying quietly for a long time, and suddenly she pulls back and spins around, anything will be frightened). She allows both lambs to nurse. If this is the case, leave the new family in

the adoption pen or move them to another small, escape proof pen. Continue to observe their interaction for two or three days and then move them to a mixing pen and then if everything goes right to the large flock pen.

Sometime a foster ewe will be nervous and "dance" when a lamb tries to nurse while she is in a stanchion. Sometime a hand on her rump and a loud voice when she moves is enough to make her stop moving and relax. Sometimes this is not enough. It may become necessary to hit the ewe on her back or side when she moves. Do this as gently as possible. If a ewe is determined to not to let a lamb nurse then stronger "coaching" may be necessary. In this situation, I am 100% on the side of the lamb. I do not wish to hurt the ewe but I will do whatever is necessary to help the lamb be successful in its quest to be adopted. Over the years I have promised ewes that they will stand in that pen forever if they don't accept the lamb. Sometimes they listen and once in a while they refuse to. In that case you just have to start over. When another possible foster ewe is identified, release the uncooperative ewe and her lamb, making sure she still claims it, and start over. I feel that we can make successful grafts over 90% of the time using the stanchion method. You can save yourself and the ewes a lot of aggravation if you develop an ability to recognize ewes that will not accept an alien lamb and replace them as quickly as possible.

Skin Graft

A fourth method of grafting may be the most successful, but also the most difficult for most producers. That is the method of skinning (removing the skin) of a dead lamb and then attaching that skin onto an alien lamb. For many producers, this is not a satisfactory method but it should be successful.

Important Thoughts on Grafting

After reviewing the above grafting methods, it is suggested that producers be alert to the possibility of grafting alien lambs as soon as possible after they have been identified.

While the first choice would be to use either the slime or the Skin Graft, but both of these methods have drawbacks. First, a producer must be present at lambing to accomplish a slime graft. That by itself can be a problem. The drawback for the Skin graft is that many producers do not feel, for a number of reasons, that they can actually skin a dead lamb.

The next preferred method would be to use the stockinette/odor graft. The advantage of this, if the research is correct, is that you will know quickly if the alien lamb is accepted or not. If it is accepted you have saved time and effort. If the foster ewe rejects it, you can still use the Stanchion Graft to get that foster ewe to accept that alien.

Producers should realize that none of the described methods are miracle cures for the grafting problem. They cannot be accomplished with a minimum of effort. In each case, the ewes and lambs need time to bond and to be observed to make sure the graft succeeds.