

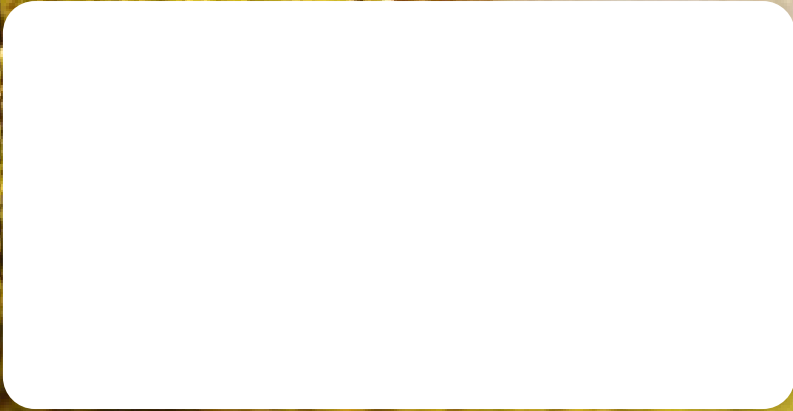
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SINCE

CROSSBREEDING SHEEP CAN INCREASE PRODUCTIVITY

SHEEP PRODUCERS CAN EASILY INCREASE PRODUCTIVITY IN THEIR FLOCK THROUGH CROSSBREEDING.

Flock productivity is essential to the profitability of any sheep operation. Productivity can be realized through many different methods such as increased lambing percentage, heavier weaning weights, higher quality lambs or more efficient use of feed resources.

A very easy method to increase productivity in a sheep flock is through developing a crossbreeding system to take advantage of desired characteristics from two to three breeds of sheep. Combining these characteristics, or traits, not only builds improved maternal or terminal characteristics, but can also take advantage of heterosis, also known as hybrid vigor.



Heterosis, or hybrid vigor, is defined as increased productivity of the crossbred offspring as compared to the average of the parent breeds. Deb Aaron from the University of Kentucky describes this as increased vitality or “doing ability.” We also know that crossbred lambs tend to be more vigorous at birth, have a higher rate of survivability and often grow faster. In addition, crossbred females tend to mature earlier and on average are more fertile. This is particularly important for producers who wish to breed ewe lambs to produce lambs at a year of age.

Research by Dave Notter shows that crossbreeding leads to more lambs reared per ewe exposed and increased weight of lambs weaned per ewe exposed. (Notter, 1978, Breed Utilization for Meat Production in Sheep. Animal Breeding Abstracts 46: 131-143.)

Let’s take a closer look at some breeds used to produce certain desired characteristics in lambs. Breeds such as Suffolk, Hampshire, Dorper, Southdown and Texel are known for their growth and carcass characteristics. They are in general referred to as terminal breeds. Maternal breeds feature traits such as earlier maturing, increased lambing percentage, and higher wool quality. Typical maternal breeds include Border Leicester, Finn, Katahdin, Merino, and Rambouillet. However, there are some breeds that exhibit both maternal and terminal characteristics. These would include Cheviot, Columbia, Corriedale, Dorset, Montadale, and Polypay. Keep in mind that a great deal of variation can be found within each breed. There are also other breeds that exhibit terminal or maternal characteristics that could be selected to include in a crossbreeding system.

As we consider crossbreeding, we also know that crossbreeding has the greatest impact on low heritability traits. Often, crossbreeding focuses on improving traits such as reproduction, ability to withstand stress, survivability, and longevity. High heritability traits such as growth and carcass traits exhibit less improvement through crossbreeding.

When developing a crossbreeding program, there are some different options to consider. The easiest option would be a two or three-breed rotation that produces terminal lambs, or in other words all lambs produced are marketed. A two-breed cross utilizes a ram from one breed and ewes from another breed. The three-breed cross becomes more complicated because the ewes must be sorted into groups for breeding. However, the addition of the third breed essentially takes advantage of 100% of the heterosis potential in both the ewe and in the lambs.

The two breed or three breed crisscross system allows a producer to generate replacement ewe lambs from each cross. They are then backcrossed with one of the parent breeds to continue the breed rotation. In the two-breed crisscross system, replacement ewe lambs are bred to a sire from the second breed. For example, a Dorset ewe bred to a Suffolk ram would produce a crossbred ewe lamb that would then be mated back to a Dorset ram. In this manner, the two breeds continue to remain in the flock although the producer would need to maintain two breeding groups.

continued on page 2

A three-breed crisscross system requires three different breeding groups and ewe lamb replacements can be produced through this system. This system becomes the most complicated due to maintaining three different “flocks” within a flock. Only rams would need to be purchased. Heterosis within the three-breed crisscross system runs around 87% of the potential heterosis effect, while the two-breed cross system runs around 67%.

Increasing sheep productivity can easily be achieved through a crossbreeding system. Carefully planning breed selection and breed rotations can both yield good results that improve reproductive traits, lamb survivability, ewe longevity within the flock and can also help to improve both growth and carcass characteristics.

FEEDING THE FLOCK

KEEPING FEED COSTS LOW WHILE STILL SUPPLYING THE NECESSARY NUTRIENTS TO KEEP THE FLOCK HEALTHY SHOULD BE THE GOAL OF EVERY SHEPHERD.

Listed below are some guidelines on feeding the flock. Because an ewe’s feed requirements change as her reproductive status changes, there are several distinct feeding periods. The rations below are designed to keep feed costs at a minimum, while supplying all the necessary nutrients required by the ewe. Keep in mind these are guidelines and may need to be adjusted for your operation.

In drawing up these guidelines there were several assumptions made that you should be aware of. The flock should always have access to a loose trace mineral salt formulated for sheep. They should always have access to plenty of clean, fresh water. Always change feeds gradually.

Pasture refers to a well-managed grazing system containing improved grasses and some legumes. There should be several small pastures so that rotational grazing can be practiced. With a good pasture system, sheep should be able to eat all the fresh herbage they want every day. A good pasture has lime applied as needed and is fertilized every year. Over 90% of all sheep pastures in this area do not qualify as good pasture, so be honest with yourself. The amount of hay in each ration is the amount the ewe must eat, not necessarily the amount you put in the feeder. You must take into account any wasted feed and adjust accordingly.

Alfalfa hay refers to average alfalfa with a crude protein content of 17%, while clover hay was assumed to have 15% crude protein. Mixed hay assumes a 50:50 grass:legume mix (timothy/clover, etc.) with 13% crude protein and grass hay assumes 10% crude protein. In this area, grass hay is usually either timothy or orchardgrass. “Meadow hay” of unknown grass species and weeds should not be fed to sheep.

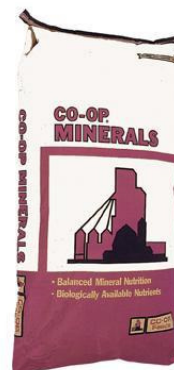
Corn refers to coarsely cracked corn, and commercial feed refers to complete feeds prepared at a feed mill. The % is the amount of crude protein in the feed. All rations are the amount to be fed daily.

Rations are shown for 130 pound and 150 pound mature ewes. If your ewes are smaller or larger, you will need to make the appropriate adjustments. Past research has shown that the ideal size ewe for commercial production is about 135 pounds. Ewes much larger than this do not wean off any more pounds of lamb and cost more to feed.

Purebred producers who are trying to sell breeding stock and compete on the show circuit will need to maintain a ewe which meets the breed standards for size and weight. For many breeds, that is well above 175 pounds.

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NONLACTATING AND FIRST 15 WEEKS OF GESTATION

During these two periods, a ewe's nutritional needs do not change a great deal, and her feed requirements are fairly low. Therefore, her needs can be met with any of the following forage rations. Because legume hay is generally more expensive than grass hay, it would be economically sound to feed the cheaper grass hay during these periods. You will note that commercial feeds are not recommended because they cost more and are not necessary during these periods. Choose one:

130 POUND EWE; CHOOSE ONE

- Pasture, if adequate
- 3 lbs. of alfalfa or clover hay
- 3.5 lbs. of grass or mixed hay

150 POUND EWE; CHOOSE ONE

- Pasture, if adequate
- 3.5 lbs. of alfalfa, clover, mixed or grass hay

FLUSHING

Flushing simply means providing a little extra feed for your brood ewes prior to the breeding season. Research has shown that ewes on an increasing plane of nutrition during the breeding season are more likely to have twins. Two weeks prior to the breeding season start giving the ewes 1/4 to 1/2 pound of corn or other feed each day. Lush pasture can also be used but avoid pasture with a high percentage of red clover - it adversely affects reproduction. Continue flushing 2 to 3 weeks into the breeding season and then discontinue. Do not flush fat ewes, as you will only be compounding reproductive problems.

LAST 6 WEEKS OF GESTATION AND LAST 8 WEEKS OF NURSING SINGLE LAMB

A ewe's nutritional requirements during the last 6 weeks of pregnancy and the last 8 weeks of nursing a single lamb are about the same and are treated as one feeding period for ration formulation. The ewe's energy and protein requirements are higher during this period and the ration must be adjusted accordingly. You will note that some of the rations are completely hay. Many ewes in late pregnancy cannot consume that much forage because their digestive system is squeezed by the lambs in the uterus. Therefore, you may find that you have to use a combination of hay and grain during this period.

130 POUND EWE; CHOOSE ONE

- Pasture, if adequate
- 4.25 lbs alfalfa, clover or mixed hay
- 2.75 lbs alfalfa, clover or mixed hay and 1 lb. corn
- 2 lbs. alfalfa, clover or mixed hay and 2 lbs. corn
- 3.75 lbs. grass hay and. 5 lb. 14% commercial feed
- 3 lbs. grass hay and 1 lb. 14% commercial feed
- 2 lb. grass hay and 2 lbs. 14% feed

150 POUND EWE; CHOOSE ONE

- Pasture, if adequate
- 4.5 lb. alfalfa, clover or mixed hay
- 3 lb. alfalfa, clover or mixed hay and 1 lb. corn
- 2 lb. alfalfa, clover or mixed hay and 2 lb. corn
- 4 lb. grass hay and. 5 lb 14% commercial feed
- 3 lb. grass hay and 1.5 lbs. 14% commercial feed
- 2 lb. grass hay and 2 lbs. 14% commercial feed



As with the first feeding period, the ewe's needs can be met with the cheaper mixed hay and that is the most economical feed for this period. However, many ewes cannot eat large amounts of hay in this stage of pregnancy, because the lambs take up most of the space in her abdomen. Therefore, most shepherds cut back on the amount of hay and increase grain. This also helps avoid Pregnancy Toxemia. Several rations with reduced hay and some grain are listed. Good pasture will still meet the ewe's needs during these periods if it is available, and if she can consume enough with the limited gut capacity during pregnancy. By the time the lambs are eight weeks old, the ewe's milk production has dropped off and her nutritional needs can usually be met with good pasture.

FIRST 8 WEEKS NURSING SINGLES AND LAST 8 WEEKS NURSING TWINS

During these two periods a ewe's daily requirements are very high and she requires a considerable amount of feed per day. As you can see from the rations below, these periods are the time to use good legume hay. Once the ewe has lambed, grass hay needs to be supplemented with high protein commercial feeds in order to balance the ration. Commercial feeds are generally a good deal more expensive than legume hay.

130 POUND EWE; CHOOSE ONE

- Pasture, if adequate
- 4 lbs. alfalfa or clover hay and 1.75 lbs. of corn
- 4.25 lbs. alfalfa or clover hay and 1.5 lbs. of corn
- 4 lbs. mixed hay and 1.75 lbs. 16% commercial feed
- 2 lbs. grass hay and 3.75 lbs. 16% commercial feed

150 POUND EWE; CHOOSE ONE

- Pasture, if adequate
- 4 lbs. alfalfa hay and 2 lbs. corn
- 5 lbs. alfalfa hay and 1.25 lbs. corn
- 4.25 lbs. clover hay and 2 lbs. corn
- 4 lbs. mixed hay and 2.25 lbs. 16% commercial feed
- 2 lbs. grass hay and 4 lbs. 16% commercial feed

Do not feed the full amount the first few days after lambing. Provide the ewe with hay and plenty of clean fresh water. Gradually increase the feed to the desired level during the first week after lambing.

FIRST 8 WEEKS OF NURSING TWINS

There is no other time in a ewe's life when her nutrient requirements are higher than when she is nursing twins. This period requires a great deal of high quality feed. As in the previous examples pasture is included in the event you are on a lambing system where the lambs are born during warm weather. Pure grass pastures will be a little short on protein, but not critically short. A grass pasture with a small amount of clover will meet all energy and protein requirements.

130 POUND EWE: CHOOSE ONE

- Pasture, if adequate
- 4.5 lbs. alfalfa or clover hay and 2 lbs. of corn
- 3 lbs. mixed hay and 3.5 lbs. 18% commercial feed
- 2.5 lbs. grass hay and 4 lbs. 18% commercial feed

150 POUND EWE; CHOOSE ONE

- Pasture, if adequate
- 5 lbs. alfalfa hay and 2 lbs. corn
- 6 lbs. alfalfa hay and 1 lb. corn
- 5 lbs. clover hay and 2 lbs. 16% commercial feed
- 5 lbs. mixed hay and 2 lbs. 18% commercial feed
- 3 lbs. grass hay and 4 lbs. 18% commercial feed

Replacement ewes and lambs being fattened for slaughter have their own special requirements. A couple of example rations are listed below.

90 POUND REPLACEMENT EWE GAINING. 4 POUNDS/DAY

- Pasture, if adequate
- 3.5 lbs. alfalfa, clover or mixed hay
- 2.5 lbs. grass hay and 1 lb. 18% commercial feed

90 POUND LAMB BEING FATTENED, GAINING. 6 POUND/DAY

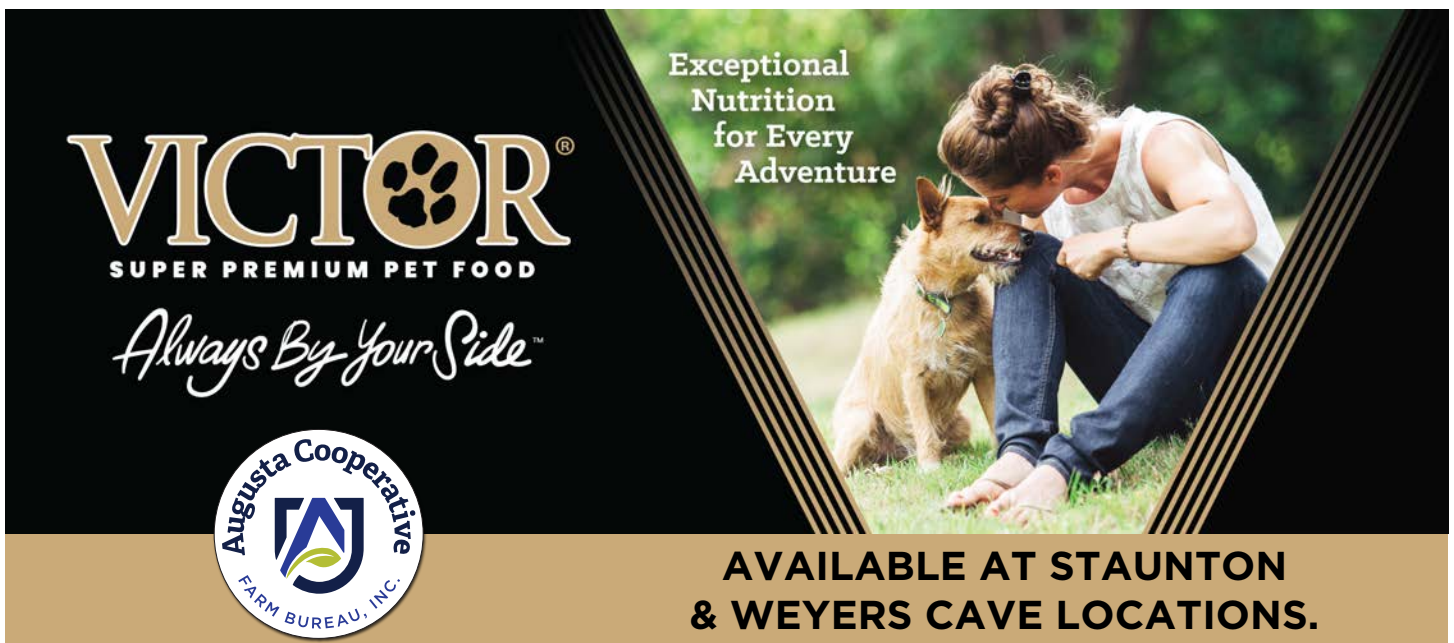
- Pasture and 1/2 pound corn
- 2 lbs. alfalfa hay and 2 lbs. corn
- 1 lbs. alfalfa hay and 3 lbs. corn
- .5 lb. clover, mixed or grass hay and 3.5 lbs. 14% commercial feed

Mature rams can get by on pasture or hay through the entire year, except during breeding season. Depending on the number of ewes he is breeding and his size, a ram may need a little corn or 14% feed to keep him in shape during the breeding season.



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EVENTS / CALENDAR

AUGUSTA CO-OP VENDOR DAY

Wednesday, February 22 | 4 PM – 8 PM

Augusta Expo - Multipurpose Building

277 Expo Rd, Fishersville, VA 22939

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