



## *Ewes' Vacation Time Ends: Meet the Rams*

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**E**wes typically work 7 to 9 months of the year (5 months gestation and 2 to 4 months lactation). The rest of the time is spent on vacation. To begin their vacation, their body condition and other external characteristics may indicate they should be checked for stomach worms. Use the FAMACHA system for this check. Deworm younger ewes that have a score of 4 or 5. Those with a 3 are “on the bubble”. Older ewes with 4 or 5 scores should probably be culled. The beginning of the vacation period is a good time to trim feet and run ewes through a 10% zinc sulfate foot bath. Once milk production has ceased and udders have involuted, each needs to be palpated to identify any variations from soft, pliable, udders that are free from lumps. Consider culling those with abnormal udders.

The most important factor to consider when managing ewes on vacation is body condition; ewes should not become too fat. At lamb removal, healthy ewes should have a body condition score (BCS) of 1.5 to 2.0. They should retain this score until they come off vacation to begin the next nutritional flushing/breeding period. To accomplish this, shepherds must continually monitor internal parasite loads via FAMACHA, prevent foot problems and continually supply them with a complete mineral and cool, clean water. Control pasture forage intake by adjusting stocking rates and rotationally grazing pastures.

In contrast to ewes, rams may only work 1 to 2 months of the year. Many consider rams the most important members of the flock because they contribute half the flock's genetics. However, they are often the most neglected members of the flock.

### **Puberty**

Ram lambs typically reach sexual maturity (puberty) between 6 and 8

months of age, but onset of puberty may be delayed by low planes of nutrition. More prolific and hair breeds reach puberty earlier than other breeds and meat-type breeds reach puberty earlier than wool-type breeds.

### **Sperm Production**

It usually takes 6 to 7 weeks for sperm cells to reach maturity in rams. These cells are stored in the epididymis of the testicle, so palpation for a large, firm epididymis in a relatively large testicle is indicative of a large reservoir of sperm cells. Testicle size and sperm production are responsive to nutrition to the point that improving nutritional intake of rams during a 2-month period can double testicle size and sperm production. Testicle size, sperm production, and mating capacity of rams raised in temperate climates may vary in different seasons of the year, the highest during the fall and lowest in the spring. Rambouillet and Merino rams are the least seasonal in their breeding behavior, followed by the Polypay and Romanov.

**Table 1. Accepted scrotal circumference measurements for rams.<sup>a</sup>**

Acceptance	Lambs, 8 to 14 mo.		Mature rams, > 14 mo.	
	cm	in	cm	in
Questionable	< 30	< 11.8	< 32	< 12.6
<b>Satisfactory</b>	<b>30 to 36</b>	<b>11.8 to 14.2</b>	<b>32 to 40</b>	<b>12.6 to 15.7</b>
<b>Exceptional</b>	<b>&gt; 36</b>	<b>14.2</b>	<b>&gt; 40</b>	<b>&gt; 15.7</b>

<sup>a</sup> One inch = 2.54 centimeters

The most seasonal are meat-type breeds (Hampshire, Suffolk, Southdown).

### Mating

Ewes in heat may seek out the rams. They sniff, chase, and follow rams around. Rams may respond to urination of ewes by sniffing, extending the ewes' back legs, and curling their lips. If the females are receptive, they will stand for mating. Rams may mate with the same ewe more than once and may have a tendency to select older ewes over younger ones. In large flocks, multi-sire matings are usually necessary to get all the ewes bred. If more than one ram is used per flock, the shepherd should recognize that older rams usually dominate younger ones and may even prevent them from mating. Rams may fight. Also, it will be hard to identify infertile rams in multi-sire matings. Although these problems can be avoided in single-sire matings, low conception rates can be encountered especially if a ram with a reduced fertility or libido (sex drive) is used. Some breeds show libido continuously after they reach puberty while others may show reduced libido in the nonbreeding season (spring). Rams that are too thin or too fat lack libido. Age and lameness can also reduce libido and some rams have inherently low libido. The best way for producers to evaluate mating behavior is probably by observing breeding performance when rams are exposed to ewes. Use of a ram harness with paint or marking crayon that produces raddle marks can indicate breeding activity. Color of the paint or marking crayon should be changed every 15 days. If these rams fail to mark ewes, they may lack libido. On the other hand, if a high percentage of ewes re-mark after the first 16 to 17 days, this indicates mating occurred, but ewes didn't conceive because the rams were sterile.

### Breeding Soundness Exam

Preparing rams for a breeding season should begin at least 2 to 4 months before the season is to begin. Rams should be fed a balanced diet that will keep them from getting too fat or too thin. Keep them as cool as possible in shaded areas or open-sided barns and make sure they don't get hurt fighting with other rams. Then, conduct a breeding soundness exam (BSE) to evaluate potential ability of rams to impregnate a given number of ewes within a defined breeding (mating) period. Examine eyes, legs, gait, teeth, body temperature, and body condition. Depression, pink eye, foot rot, lameness, sore mouth, ring worm, or presence of other contagious diseases can render rams either unuseable or questionable for breeding. A BCS of 1 to 2 is questionable as is a 5. A BCS of 3 or 4 is satisfactory. Examine the prepuce, penis, and scrotal contents. Cryptorchidism, hernias, epididymitis, scrotal abscesses, and pizzle rot render rams unsatisfactory for breeding.

Testicles and epididymis will normally be firm (turgid) during the normal breeding season (fall), without any exposure to ewes. If not, the rams are probably not useable. However, flaccid (non-turgid) testicles are normal in the off-breeding

season (spring) or if rams have been with ewes for a week or so. Rams with any lesions, lumps, hard or soft spots, swellings, atrophy, or any differences in size of testicles should not be used. Scrotal circumference (width of the testicles at their widest point) is a good indicator of rams' breeding abilities. Sperm production is greatest in rams with the largest scrotal circumference, although it may vary with season of the year. Largest circumference and greatest sperm production invariably occurs during the fall of the year. Table 1 shows the accepted scrotal circumference measurements for rams. If rams are

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satisfactory or exceptional, the rest of the BSE may be unnecessary. If questionable, continue with the rest of the BSE, which is semen evaluation. Semen samples are usually collected by a veterinarian and evaluated under a microscope for sperm mobility, morphology, and white blood cells. White blood cells in the semen indicate an infection, such as epididymitis.

### Ram Management

Shear, treat for internal parasites (if necessary), and trim rams' feet 2 to 4 weeks before the breeding season begins. Also, feed the breeding season diet, especially the concentrate portion, for a month before the season begins. Rams' BCS should be 3 to 4 when the breeding season begins. The number of ewes a ram can successfully cover during a 6- to 7-week breeding season is shown in Table 2. The ram lambs in Table 2 should be 7 to 8 months old and should weigh 50 to 60% of their expected mature weights.

### Teaser Rams

Teaser rams have been vasectomized. They can ejaculate seminal fluid, but no viable sperm cells. They secrete testosterone like "intact" rams. Teaser rams are typically introduced to ewes 14 days before the breeding season is to begin. They are used to produce the "ram effect", which stimulates anestrus (noncycling) ewes to ovulate. Rams (and teasers) produce pheromone, the smell of which can stimulate the onset of estrus (heat) outside the normal fall breeding season. This effect can also synchronize estrus. For this to be most effective, ewes and rams need to be separated by at least 0.5 mile for a month before introduction of teasers.

Teasers appear to stimulate ewes to

**Table 2. Ram to Ewe Ratios during a 6- to 7- Week Breeding Season <sup>a</sup>**

Ram	Number of Ewes
Mature	35 to 50
Lamb	15 to 30
Synchronized Matings	5 to 10

<sup>a</sup> <http://www.sheep101.info/201/ramrepro.html>.

ovulate 3 to 4 days after introduction. This first ovulation will be in a "silent" heat, which cannot be detected by either teasers or fertile rams. Two normal estrus peaks follow the silent heat. Replacing teasers with fertile rams on day 14 will allow fertile rams to catch some ewes cycling around 4 days later. Another group of ewes should cycle around day 11 after introduction of fertile rams. Ewes that do not conceive at either of these times may return to estrus (heat) 16 to 17 days later. Theoretically, 60 to 70% of the ewes will conceive at the first estrus. Sixty to seventy percent of the remaining ewes should conceive on the second estrus. This means that at least 10% of the ewes may conceive later in the breeding season or may not conceive at all. Use of teasers instead of fertile rams for the first 14 days tends to synchronize estrus and, thus, the lambing season. Fertile rams will produce the same "ram effect", but some ewes may conceive during the initial 14-day period. These occurrences may eliminate some of the subsequent lambing synchrony.

The "ram effect" is not as effective with ewe lambs. It is most effective during the transition period when mature ewes have not begun to cycle, but are almost ready. This would apply to "seasonal breeders" with a breeding season from August 15 to October 1 and a

lambing season in January and February. The "ram effect" may not apply to ewes bred from November 15 to December 7 to produce April lambs because all breeds of ewes should be cycling during this period. The breeding season is only 3 weeks long in this scenario, so ewes tend to synchronize themselves. On the contrary, "seasonal breeders" to be bred "out-of-season" (in April or May) sometimes respond to teasers. Granted, these ewes are far away from their normal breeding season, but as many as 30% may respond to the "ram effect". Still, this response may vary from year to year because of environmental differences from one year to another.

### Summary

Sheep producers expect ewes coming off vacation to conceive early in the breeding season, so the subsequent lambing season will be short. Even though ewes may be ready, rams may ultimately be responsible for a successful breeding season. Introducing teasers to a group of anestrus ewes for 14 days may stimulate silent heats, but no pregnancies. The "ram effect" occurs when fertile rams replace teasers. Rams that successfully passed a BSE, have a BSC of 3 to 4, and have been separated some distance from ewes for at least one month can produce synchronized conception rates. This effect is most pronounced with ewes that are not cycling, but are almost ready (August/September breeding). Thirty percent of seasonal breeders bred out-of-season may respond to this "ram effect". Year to year success is dependent on uncontrollable yearly environmental conditions. 🐏

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