



BUL 1071

Recordkeeping for Your Small Ruminant Operation

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Introduction

Written records for your small ruminant operation have value. Without them, you do not know if you are reaching operational goals, production levels, or cost of production.

This bulletin helps ruminant operators more accurately monitor this kind of crucial information by discussing several types of records, whether the enterprise involves a farm flock or range band. Indeed, every operation has different capacities and record needs. A **farm flock** is usually small enough that operators identify each animal individually. Keeping tabs on ruminants in a **range band** is more challenging.

Animal Identification

Required: All small ruminant owners must follow federal and state regulations established by the United States Department of Agriculture for identifying animals. This is due to a degenerative disease affecting the central nervous system called **scrapie**. Currently, there is no cure for the disease, just the elimination of those affected.

Producers are *required* to tag individual animals with an official ID when moving them off their premises of origin. There are different tag types from which to choose, including ear tags and injectable transponders that have been approved by the Animal and Plant Health Inspection Service (APHIS). Records kept as required by APHIS include what animals left the herd and what new animals were added.

ID Types

Ear tags: The standard ear tag is a tag and button that comes in a variety of sizes and colors. Producers can print directly on them or order them with the desired information custom printed on the tag. Each company that sells tags usually has a specific tagging applicator. If you purchase tags and decide to write in your own information, opt for a tagging marker because it uses permanent ink.



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Radio Frequency Identification (RFID): Each RFID ear tag is a microchip with a unique identification number assigned to your operation. The microchip retains/records the number, which needs to be scanned by special RFID readers for verification. A convenient documentary feature is that the readers can transmit the number to a variety of digital devices.

Individual identification: The best, most accurate recordkeeping involves individual identification of an animal. Assign a unique identification number to each production female based on the scrapie tag number or on a numbering system that provides meaningful production information. For instance, the most common system associates the first digit with the female's birth year (the last number of the year born, e.g., 1 indicating 2021); another might rely on an alphabetic letter system where, for example, a "J" indicates 2021. In fact, there is a standard for the letters assigned to each year.

Other options include basing it on tag color (keeping a record of what color refers to the young's birth year). As each female produces, the young are tagged with her number. If she birthed multiple offspring, you might consider adding -1, -2, etc. to their numbering. The dash and number indicate whether the animal is the first born, second born, or third born of that numbered dam.)

You could also opt to tattoo a number on each animal, although this can be challenging because you'll need to restrain each animal to read the tattoo. Once replacement females are chosen (as breeders), retag them with their own unique identification number.

Large range bands more frequently require some form of temporary identification, like chalk or paint branding. In this case, the tags identify groups rather than individual animals.

Record Types

Lambing and kidding records: Research shows that young born early in the birthing season have higher weaning weights, which brings more money to the operation. By recording the birth date and number of young and by comparing birthing dates from year to year, a producer can determine the top producing females. They can also determine if the

males in the herd did their job and if the forage met the females' nutritional demands. Recordkeeping also allows producers to calculate the number of females producing and the number of females exposed to males and to determine the number of females impregnated during the first cycle of the breeding season.

Other useful statistics made possible by shrewd recordkeeping: lambing and kidding percentage analyses; comparisons of the number of live young to the number of dead within the first couple of days, which indicates the mothering ability of the dams; and, following that, scoring the dam on her mothering ability: a 5 for getting up and immediately licking and caring for her young or a 1 for showing no interest in her young.

Most range bands inhabit a confined situation for lambing or kidding. Consequently, records should include the number of females that give birth on a daily or weekly basis as determined by the operational goals. A producer should also record the number of young that are born within the same time frame. Although the ability to identify individual top producing females is limited, a producer can identify those giving birth in the first days/weeks of the season by utilizing the temporary identification of those animals. By recording the number of young born and the number of young that died, a producer tracks the initial production level of the females, their mothering ability, and how many of them mated during the first cycle of the breeding season.

Weaning records: Weaning weights are an important production statistic, but with small ruminants, several factors affect it, including the weaning age, birth type, rearing type, sex, and age of the dam. To accurately measure it across all young, examine the adjusted weaning weights. To make adjustments, the actual weaning weight needs to be adjusted to a 90-day weight. The formula for this adjustment: $90\text{-day weight} = \left(\frac{\text{weaning weight} - \text{birth weight}}{\text{age at weaning}} \right) \times 90 + \text{birth weight}$; then multiply that result by the following adjustment factors in Table 1 for kids.

Table 2 provides the adjustment factors for lambs. The formula for adjusted weight: $\text{adjusted weight} = (\text{weaning weight} / \text{days of age}) \times \text{adjusted days} \times \text{adjustment factor}$.

Table 1. Adjustment factors for weaning records for kids.

Item to Be Adjusted	Class	Adjustment Factor
Doe Age in Years	1	1.10
Doe age in Years	2	1.08
Doe age in Years	3+	1.00
Sex	Buck	1.00
Sex	Wether	1.08
Sex	Doe	1.11
Type of Birth and Rearing	1/1 = single raised as a single	1.00
Type of Birth and Rearing	1/2 = single raised as a twin	1.14
Type of Birth and Rearing	2/1 = twin raised as a single	1.04
Type of Birth and Rearing	2/2 = twin raised as a twin	1.18
Type of Birth and Rearing	3/1 = triplet raised as a single	1.08
Type of Birth and Rearing	3/2 = triplet raised as a twin	1.23
Type of Birth and Rearing	3/3 = triplet raised as a triplet	1.27

Notter, D. 2008. "The 2007 Boer Goat National Genetic Evaluation." Boer Goat Improvement Network Notebook. No. 4. Centennial, CO: National Sheep Improvement Program. 15 p. Cited in Barkley, Melanie, and Dave Notter. 2023. "Selecting Meat Goats Using Performance Data." PennState Extension. <https://extension.psu.edu/selecting-meat-goats-using-performance-data>.

For a farm flock, at weaning time, you can track back individual weights to the dam's production—if you recorded the weights. Weaning weights indicate the female's milk production and the nutritional status of the forage. With weaning records, a producer can calculate the percentage of young weaned compared to the number born.

For a range band, a producer may want to consider knowing two things: how many were weaned and what they weighed. Knowing these two statistics gives an idea of the females' mothering ability and the incidence of predator depredation. Knowing

Table 2. Adjustment factors for lambs.

	Age of Dam		
	3–6 years	2 years or 6+ years	1 year
Ewe lamb – single	1.00	1.08	1.13
Ewe lamb – twin, raised as twin	1.19	1.29	1.38
Ewe lamb – twin, raised as single	1.10	1.19	1.29
Ewe lamb – triplet, raised as triplet	1.38	1.54	1.80
Ewe lamb – triplet, raised as twin	1.27	1.38	1.51
Ewe lamb – triplet, raised as single	1.18	1.28	1.40
Wether lamb – single	.98	1.05	1.10
Wether lamb – twin, raised as twin	1.16	1.26	1.33
Wether lamb – twin, raised as single	1.08	1.16	1.25
Wether lamb – triplet, raised as triplet	1.33	1.50	1.72
Wether lamb – triplet, raised as twin	1.24	1.35	1.45
Wether lamb – triplet, raised as single	1.15	1.25	1.36
Ram lamb – single	0.98	1.05	1.10
Ram lamb – twin, raised as twin	1.16	1.26	1.33
Ram lamb – twin, raised as single	1.08	1.16	1.25
Ram lamb – triplet, raised as triplet	1.33	1.50	1.72
Ram lamb – triplet, raised as twin	1.24	1.35	1.45
Ram lamb – triplet, raised as single	1.15	1.25	1.25

American Sheep Industry Association. 1996. Sheep Production Handbook. Englewood, CO: American Sheep Industry Association Production, Education, and Research Council. Cited in Mathis, Clay P., and T. Ross. 2005. "Sheep Production and Management." New Mexico State University Extension Circular 604. 43 p.

the weight of groups of animals also indicates the nutritional value of the forage consumed, the milking ability of females, and number of young born early in the season.

National Sheep Improvement Program

Sheep producers interested in across-flock Expected Progeny Difference have the opportunity to register their flock with the National Sheep Improvement Program. The latter tracks economically important traits such as growth, maternal, carcass, wool, and parasite-resistance traits. Submit information electronically, but note that there are enrollment and annual flock fees. For more details, visit <http://nsip.org>.

Other Useful Records

Vaccination and Health Records

Accurate vaccination and health records are probably the most important record a producer can keep. Vaccination and health treatments have long-lasting effects on livestock and the meat they produce.

Vaccination records should include the vaccine used, what it prevents, the date it was given, the dosage, and the location of the injection. Record the lot number of the vaccine in case a “vaccine wreck” occurs so that the manufacture can identify exactly the product used. If the label recommends a booster, record that date so you know when to give it. If there is a withdrawal time, calculate and include that date as well. If animals are tagged (have an individual identification), record each animal vaccinated as well. If dealing with a large group or range flock, record the “group” vaccinated, including the product name, what conditions the vaccine prevents, the date given, the dosage, the injection location, and the booster or withdrawal dates. An easy way to keep this information and the lot numbers of the vaccine used is with an envelope: put the basic information on the box tops from the vaccine and place it inside.

Consumers today are concerned about antibiotic use in livestock. For that reason, correct, concise

treatment records are necessary. The information recorded when treating an animal should include what it was treated for, the signs and symptom they exhibit, the medication given, the dosage given, and the withdrawal time. Knowing the withdrawal time is vitally important—not letting it pass risks providing meat that has antibiotic residue. Indeed, it is illegal to sell or process an animal prior to a vaccine’s withdrawal date. If animals are individually identified, note the number of the animal and include that information on its permanent health record. If animals are in a range flock situation or not otherwise individually identified, use some type of temporary identification mark that will last longer than the withdrawal time to identify the animal.

Always read and follow the labeled instructions. Going “off the label” legally, either because the species or disease is unlisted on the label, requires a veterinarian’s prescription.

Parasites

Small ruminants are very susceptible to parasites. They cost producers money by weakening an animal’s immune system and compromising their production and health. Identify the parasites in your area then work with your veterinarian to develop a treatment protocol. Record all treatments given, including the product used, dosage given, how you administered them, and the parasites treated. Also, determine and record the date that meets the withdrawal time.

Feed Records

Feed costs are the largest expense in a livestock operation. Good records help determine the efficiency of a feed management plan. Feed records for baled forage should include the amount fed, forage type, and how well the animals consumed it. Having your baled forages analyzed for nutritional value will help you determine if you are meeting your animal’s nutritional requirements or if a supplement or different feed is needed.

If or when you use a supplement, read the label to ensure it meets your animals’ needs. Track how much you purchase, the feed times, and the animals fed. If provided using a tub or block, record when you put it out. Calculate how long it should last,

according to the label or recommendation and the number of animals that have access to it. Then check it on a regular basis. If it lasts longer than expected, not all animals are consuming it, so investigate why. If it is consumed sooner, they are eating more than needed and that issue also needs to be examined.

Grazing records are also important. Whether the animals graze on pasture or public lands, document the number of grazing days by pasture or location. The figure indicates the production of that pasture. If the number of grazing days increases, your forage management plan is working. If it decreases, investigate why and make the appropriate management changes.

Methods of Recordkeeping

The key to keeping good records is to actually keep them! Hence, develop a recordkeeping system and routine that you will maintain regularly. Using a calendar-based system works for many small operations. A notebook for each production year is also a nice, simple system.

A variety of computer programs are useful options too, like spreadsheets and apps. As you explore and review them, keep in mind the information you want to track and which one might best suit these needs. With a program like Excel, you can sort, average, and total information on a spreadsheet. Others, like an app, offer something to use in the corral or on a computer or tablet only. Read the reviews on the ones that look good and find out if the chosen apps require a fee, how helpful their technical support is, how often program updates occur, and what operating system they use. Find the recordkeeping system that tracks the information you need and that you are comfortable using.

Final Thoughts

Records are an important part of livestock production. They improve the efficiency of an operation and can help you to meet your operational goals. But you have to do your homework first before you can set up the best system. Determine the information you need to reach those goals and maintain the records to keep track of it all. Soon you'll be well on your way.

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