

Forage Extension Program

Running Sheep on Irrigated Pasture: Some Commonsense Advice and Producer Experiences

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There are currently about 600,000 acres of irrigated land in Montana. Much of the crop residue on this acreage is grazed in the fall by either cattle or sheep. Very few operations in the state utilize irrigated acreage for sheep pasture in the summer. It could be that combining a labor-intensive sheep operation with a more labor intensive irrigation schedule is a recipe for disaster for most people. At least that is what my wife has decided. Starting our operation, I received some very good information from the Extension Service and several producers. This article is meant to be a simple combination of those two sources of information.

The Montana Extension system is a good place to start for some basic information. You can find a wealth of useful information in the following publications from Montana State University: Raising Sheep on Irrigated Pasture (EB 29) and Species Selection, Seeding Techniques and Management of Irrigated Pastures in Montana and Wyoming (EB 99).

I've condensed some of the main points from these two publications in the following discussion. Returns on investment in irrigated pastures are generally higher with increased levels of management. I would say this applies equally well to sheep operations. One of the biggest challenges facing the sheep



producer is the difficulty of balancing the supply of forage on irrigated acreage with the animals demand. Forage supply can be extended and increased through different species, fertilization, irrigation, and lastly grazing. The productivity of irrigated land increases with the level of grazing rotation. An ideal grazing system would allow the sheep to be rotated to fresh pasture every three to four days, and plants would have from 21 to 28 days to re-grow between grazing periods. The rate of forage regrowth of a pasture is related to the amount of stubble left following grazing. Most pastures should not be grazed shorter than four inches during the growing season, but some species require eight inches of stubble. During periods of rapid growth, irrigated grasses may be ready for grazing in 14-20 days. As the plant matures, the growth rate slows and from 35-45 days of rest may be required. Water should be applied immediately following grazing. Do not graze a pasture while it is being irrigated, or until soils have dried.

Irrigated pasture should be fertilized annually. Nitrogen fertilizer should not be applied before the stand is seeded nor during the first growing season. Adequate amounts of P, K, and S should be applied during seedbed preparation at rates determined by soil analysis. Nitrogen fertilizer is usually not needed on pastures where legumes make up more than 50% of the vegetation, but are essential on all other pastures. Risk of livestock loss is reduced if legumes make up less than 40% of the stand. So one has to find a trade-off between killing all your sheep by bloat or going broke buying fertilizer. A non-bloat legume like sanfoin makes a good trade-off. Internal parasites are one of the major constraints of

raising sheep on irrigated pastures. Systematic rotation of sheep to new pastures will reduce, but will not eliminate infections of many parasites. De-worming ewes in the winter, prior to lambing, is often recommended. Both ewes and lambs need to be de-wormed at least once during summer.

A simple grass-legume mixture is usually recommended for irrigated pasture. Complex mixtures are usually dominated by one or two species after several years. Do not rely strictly on production estimates when choosing the mix. What's good cow grass may not be ideal for sheep. One also needs to take into account if the species is adapted to your soil type and pH, fertilizer requirements, longevity, palatability, bloat potential, re-growth potential, rest period required, season of growth, ease of establishment, and whether you want sod or bunchgrass.



Steve and Doris Sherick Missoula, Montana

Steve and Doris Sherick from Missoula have been running sheep on irrigated pasture for 28 years. Steve is now retired from the Forest Service and Doris grew up on a large commercial sheep operation in the Madison valley. Their 15 deeded acres will run 75 head of Targhee ewes from June through October. To control grazing, there are eight permanent pastures and the largest pasture is subdivided with temporary electric fence. Steve tries to maintain a 21 day grazing rotation. The forage base is a commercially available blend called "Bighorn". Every three years, they graze a pasture down hard in spring, broadcast the mix and chain drag. This is a very low input system for renovating pastures and works well for them.

The operation no longer fertilizes and relies on clover in the mix for nitrogen. Irrigation starts in mid-June and runs until mid-September. Two in-line, big guns are used to apply the water. This system can put 3" of water on in an 8 hour set. Pastures are irrigated every 9 days. The soil is 8' of sandy loam to gravel being on the banks of the Bitterroot River. A 10 hp pump on a well supplies water for the irrigation. One of the things Steve cautions about is the cost of electricity in your area. It costs him \$350 a month to run a 10 hp pump. He had to give up some irrigated lease land due to the cost of running a 30 hp pump all summer. Make sure you check utility rates before deciding on an irrigation system.

Lambs begin arriving at the end of March. Ewes are de-wormed out of the jugs. Sheep are on pasture in May and all ewes and lambs are de-wormed on June 15th. Lambs are weaned on July 1st with top weights at 100 lbs. Ewes will wean around 180% lamb crop per ewe exposed to bucks. Some ram lambs are castrated at this time. Lambs are run ahead of the ewes through the rest of the summer. Steve feels it's imperative to have the lambs on a 17% crude protein creep to keep them gaining through July and August. Ram lambs are separated from ewe lambs at the end of July and more ram lambs are castrated. Lambs are on pasture and creep until August 15th and sold through the lamb pool. Ewe lambs are exposed to bucks, but if they don't lamb as yearlings they are still kept. Normally the ewes are kept until they are seven years old. Steve doesn't flush his ewes, as they are already in good condition and wouldn't see a benefit. Steve and Doris select ewes for multiple births, ability to raise at least twins, and good quality wool. All hay for the winter is purchased in the fall. Ewes are on hay from November through May.

Steve feels the most important trait of a successful operation is to have a spouse you can work with and one who is involved at every level of the operation. He also advises getting information through extension service, wool pools, and neighbors with sheep. Another must is finding a "sheep" vet and then using them. He cautions people new to the business to pick a breed of sheep that there is a market for. Also use all the tools you have available to manage for predators.



Dick and Marie Everett Stevensville, Montana

Dick and Marie Everett have been running sheep for 32 years on the Sunset Irrigation District east of Stevensville. Of the 100 acres they have, 83 acres are divided into 3 permanent pastures and 17 acres are used for hay and fall grazing. Dick figures the place will run 280 ewes, 40 yearling ewes and 40 bucks. They typically wean 160% per ewe exposed using registered Targhees and commercial Targhee/Merino cross ewes.

Dick practices a take half, leave half grazing philosophy. He feels leaving lots of stubble is the key to faster re-growth. They average a 34 day grazing cycle, but graze faster in spring and slow down in summer. No renovation of their pastures has been required, but they do fertilize with 50 lbs of nitrogen and some P and K in March of each year. The pastures are comprised of Orchard grass, fescue, White Dutch clover, bluegrass, quack grass, and vetch.

The operation uses flood irrigation and three waterings per summer are applied. Water is available in early May and lasts until late August. The first watering is applied to 10 acres in a 24 hour period. The second watering is put on at 20 acres in 24 hours and third at 40 acres in 24 hours. The Sunset Irrigation District is comprised of 2800 acres. The district was originally comprised of 9 ranches and now has 132 permittees. They have 960 acre feet of water storage, of which the district can use 750 acre feet. About 61% of users have sprinklers and the rest flood. The district is discussing a major project to convert to a gravity fed system to increase efficiency.

Lambing starts April 17th to miss the last severe spring storms. Sheep are on pasture from May 15th until October 10th. The ewes are de-wormed out of the sheds and all ewes and lambs are de-wormed at least once during the summer. Lambs are weaned in mid to late August and fed in confinement on a 17% CP pellet and corn until sold in October at around 95 lbs. Ewe lambs are then developed on hay and corn. Ewes graze hay aftermath after weaning and are on pasture until January 1st About 1 week before bucking, ewes are de-wormed, have their feet trimmed, and are tagged. Replacement yearling ewes are usually vaccinated for Chlamydia prior to bucking. All ewes are fed a tetracycline pellet prior to lambing.

Dick and Marie select commercial replacements with an emphasis on lamb production. In addition, the registered Targhee ewes are also selected on confirmation and wool quality. Dick's advice to be successful is that you need to have a strong work ethic and know where and when to spend your money.

Dean and Charleen Von Krosigk Riverton, Wyoming

The Von Krosigks are multi-generation sheep operators. Dean and Charleen have been running sheep on irrigated pasture since 1973. Dean's dad always ran sheep and farmed. Dean and Charleen purchased the farm in 1966 from Dean's dad and tried raising Shorthorn cattle from 1966 until 1973. They discovered Shorthorns weren't suited to the irrigated pastures and everyone wanted the new exotic breeds. They converted totally to sheep in 1976 and at one time ran 250 ewes on 80 acres.

Dean said they used a nine pasture rotation system and hayed 22 acres. They had water from the April 15th through October 1st and flood irrigated. Fifty pounds/acre of available nitrogen was applied every year and phosphorus every other year or so for the clover. Dean planted one pasture to tall fescue in 1968 and has grazed it every year since with no renovation. Dean says people either love the fescue or hate it. He likes it because the grass greens up early and stays green through fall and early winter. It's not the most palatable grass, so the ewes have access to "Sheep-lyx" tubs in the fall and winter. He also uses an orchardgrass and alfalfa mix for hay ground. The production is good for about four years and then he over seeds it with red clover and uses it for pasture. Tall fescue eventually dominates these pastures also. They could usually find some off-farm grazing locally to supplement the winter forage, so hay was only fed from January 1st through May 1st.

The operation at one time was tailored to produce Targhee-Finn cross ram lambs to sell to commercial sheep producers in south-western Wyoming. To have two hundred ram lambs available for fall breeding, they started shed lambing on February 10th. Ewes were fed 0.5 lbs/hd/day of a 22% protein cake with tetracycline added. Ewes were drenched in the fall (before bucking), May 1st, and once during the summer. Lambs were drenched May 1st and every 35 to 40 days during the summer. The Von Krosigk's mainly selected for multiple births, as this is what the buyers wanted.

Although they have leased most of the grazing, Dean and Charleen still run a group of Targhee ewes and have been placing more selection pressure on scrapie resistance. Dean agrees with Steve Sherrick in that you can't run the operation by yourself. Dean spent most of his life working in the oilfield, while Charleen ran the day-to-day operation at home. On weekends, they worked together to get the bigger jobs done.

Jim Moore Belgrade, Montana

For several years Jim Moore was the managing partner in an irrigated sheep and hay operation out of Belgrade. The operation consisted of 115 acres of hay-ground and 85 acres of grazing. Approximately 350 Polypay ewes were grazed for about 120 days through an intensive system beginning May 22nd. A portable 3-wire electric fence system was used to build a pasture between 4 and 8 acres. Each pasture would be grazed 3 times during the summer. While the sheep were in one pasture, the next pasture would be constructed using another portable fence system. Once the sheep were in the new pasture, the old pasture fence would be moved ahead to a new location. The first grazing cycle through the field, the pastures were grazed between 1 and 2 days. A total of 16 pastures would be built over a 22 day period. During



the second cycle, these 16 pastures would be grazed for about 2 days. This would extend the grazing period to 31 days. During the third grazing cycle, each of the 16 pastures would be grazed for about 3 days. This would give 45 days grazing in the third cycle and 98 days of grazing overall. Several buffer pastures were used if the sheep got ahead of the pastures. Ewes had access to Bloat-guard and trace mineralized salt while on pasture. After weaning, the ewes were run on the hay aftermath for the winter and ewe lambs would go back into the pastures. Ewes were fed 2nd cut alfalfa hay and 1 pound of barley before and through bucking. Ewe lambs were fed this from bucking through lambing. Ewes were bunk fed hay during the winter.

Ewes were wormed out of the jugs and in the fall before bucking. They were also vaccinated for Vibrio. The lambs were vaccinated for Clostridium C and D and tetanus. The ewes never had a problem with foot rot, because it wasn't brought onto the place and the ewes always grazed dry ground. One major shock the first year was mastitis after weaning. With such high producing ewes, Jim learned to hold them off all feed and water for 48 hours after weaning to get them dried up. Jim figures they would wean about 500 pounds of lamb per irrigated acre.

The place was irrigated with two half-mile hand lines. Pastures were renovated when necessary by planting 1 pound of Orchard grass and 8 pounds of alfalfa per acre. Pastures were drug in the spring to spread manure and 200 pounds of 16-26-0-12 was applied in the fall. Jim feels the sulfur was essential for pasture mix to perform and was also good for the sheep. A second application of 60 pounds of nitrogen was applied around July 4th. The two things they had not budgeted for were the Bloat-guard and electricity to run the 30 horse pump.

Summary

Irrigated pastures are an expensive investment. Intensive grazing rotation should be first, proper water management the second, and fertilization the third priority of grazing managers. Through proper management one acre of irrigated ground can support 5 ewes with lambs for 4 months. Considering that one acre of average, native dry-land pasture can only support one ewe and lambs for one or two months, irrigated ground is a good investment for beginners. However, the lower initial investment in irrigated land needed to run a ewe is offset by increased labor and monthly cash flow requirements. Each operation is unique and one should plan on trying different methods for several years; until a strategy is found that matches your environment and production requirements. Before starting an irrigated sheep operation, you need to address the following questions:

- Do you and your spouse have time in the summer to properly manage the irrigation schedule and keep the sheep on a grazing rotation schedule?
- Can you afford the higher cash flow requirements of electricity and fertilizer?
- Do you have the right sheep to maximize production on irrigated pastures?
- How long each season will you have water available to irrigate with?
- How will you break your field into pastures given your type of irrigation?
- Do you have an estimate on what it will cost to run your pumps for the season?
- Do you have a cheap source of winter feed?