ROTATIONAL GRAZING

USING ROTATIONAL GRAZING TO INTEGRATE SMALL RUMINANTS WITH PRODUCE PRODUCTION

Having animals on the farm is a common and effective strategy for diversifying production systems and managing nutrients on a small farm. The income streams from each enterprise can offset one another when one enterprise has a bad year. Using animals for manure application, grazing crop residue, and weed management can help reduce overall farm production costs by reducing reliance on chemical fertilizers and pesticides. Despite the advantages, animals can carry germs so there are food safety risks from having them close by. The greatest risk is from animal feces, so fencing is extremely important to making sure the animals do not get in the fields when you do not want them there. This publication focuses on using small ruminants in a diversified system and building an effective electric fence to manage rotational grazing on a diversified farm.

GETTING THE MOST OUT OF THE PASTURE:
ROTATIONAL GRAZING AND SMALL RUMINANTS

The anatomy and physiology of small ruminants allow them to browse on a wide range of vegetation, mostly woody and weedy plants. Small ruminants can also eat some plants that are poisonous to other livestock without getting sick. Rotational grazing is a management strategy used to maximize forage growth and optimize forage use by animals. In rotational grazing, small ruminants are moved into different paddocks of fresh pastures over time, allowing a grazing rest period for forage regrowth. After considerable forage regrowth, animals are rotated back to the original paddocks. When produce fields are part of the rotation, grazing to harvest intervals should be strictly followed.

Section §205.203 of the National Organic Program provides guidance:

⚠️ For crops with edible parts that are in contact with soil, there should be **120 days between grazing and harvest**.

⚠️ For crops with edible parts that are not in contact with soil, there should be **90 days between grazing and harvest**.

A successful rotational grazing system requires knowledge of animal nutrient requirements, plant species in the pastures, and soil nutrients necessary to grow desired forages. Rotational grazing allows producers to be more in control of the timing and intensity of forages grazed.
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WHAT ARE THE BENEFITS OF ROTATIONAL GRAZING?

- Allows the currently grazed paddocks a rest period that permits forages to initiate regrowth, renews carbohydrate stores, and improves yield. This rest period is also key to reducing food safety risks.
- Helps improve productivity, weight gain or milk production per acre, and overall net return to the farm.
- Makes it possible to better manage manure distribution that acts as a source of nutrients to forage and crops.
- Allows better control of internal parasites in small ruminants by increasing rest periods and reducing the chance of animals grazing below 5 inches of forage height where the barber pole worm lives.
- Makes it possible for producers to extend the grazing season by feeding stockpiled forage paddocks. The surplus forage can also be harvested as hay.
- Makes it possible to examine animals easily and frequently.

HOW DOES ROTATIONAL GRAZING WORK?

In rotational grazing, a large pasture is divided into smaller paddocks allowing livestock to be moved from one paddock to the other easily. Rotational grazing can be more labor intensive as well as expensive to establish compared to a traditional continuous grazing system; however, electric powered fences that are easy to install and move can make it easier and more economical for establishing and improving rotational grazing.

USING SOLAR-POWERED PORTABLE ELECTRIC FENCES TO GRAZE ANIMALS IN TIGHT SPACES IS A CLIMATE-SMART PRACTICE THAT CAN REDUCE THE USE OF FUEL THAT WOULD HAVE BEEN USED TO MOW THOSE AREAS. USING ALL THE GRASSY AREAS AVAILABLE ALSO REDUCES DEPENDENCE ON BUYING FEED AND THE FUEL THAT WOULD BE USED TO PRODUCE IT.

KIKO SMALL RUMINANTS AT AAMU’S WINFRED THOMAS AGRICULTURAL RESEARCH FARM
PHOTO CREDIT: VALENS NIYIGENA, ALABAMA EXTENSION
ROTATIONAL GRAZING

STEPS TO ESTABLISH A ROTATIONAL GRAZING SYSTEM ON A FARM

The resources provided at the end of this factsheet can help you:

- Determine your paddock sizes
- Decide the stocking rate and how often animals will be rotated on pastures
- Determine your forage species and regrowth rate
- Determine the water source and plan to provide water so that animals do not have to walk long distances to the well or tank (daily water consumption for a sheep or small ruminants is between 1.5 - 3.5 gallons per day depending on weather)
- Determine the fencing style (temporary or permanent)

Many small ruminant producers prefer to use portable electric net fences. Prefabricated electric nettings come in different sizes. The energizer used to power the fences depends on:

- Number of flexible nettings to be electrified
- Source of power (solar, electricity)
- Species of animals to be contained
- Amount of vegetation around the fence

Using permanent fencing for rotational grazing offers a method to effectively move animals between paddocks with less effort. Although it may be costly to establish initially, it is less effort to move livestock through an established gate opening rather than moving and establishing the perimeter of areas grazed.

ADDITIONAL PRODUCE SAFETY CONSIDERATIONS

Following the NOP guidelines on grazing to harvest intervals will significantly reduce the risk of produce contamination, but there are a few more things to think about:

- It is possible for germs to be spread by people working on the farm. Contamination could occur if an employee goes from trimming hooves (getting feces on their hands and clothes) to harvesting tomatoes. These activities should be planned so that different employees are doing them, or the tomatoes are harvested first.
- In the last few years, foodborne illnesses out west have been linked to cattle nearby and one way that the germs got to the produce field is by wind. There is a great deal of research going on in this area. For now, we know that risk is greater when animals are closer to the field and when it is close to harvest time. Designing rotational grazing strategies so that animals are further away during harvest will reduce risk.
- Vegetative and woody buffers can help reduce wind spread of germs. These areas can be rotationally grazed when produce is not in the field and can support pollinators that are important to fruit and vegetable production.
- Runoff from manure piles or high-intensity animal production areas can contaminate produce fields and water sources. Minimizing runoff and making sure it is directed away from the field and water sources will reduce risk.

AVOID OVERGRAZING!

⚠️ When small ruminants are browsing on woodland area, do not remove more than 50% of the leaves and twigs of desirable plant species.

⚠️ Maintain forage grazing height above 5 inches tall to allow grazed forage to regrow and minimize small ruminants being exposed to harmful internal parasites.
Portable electric fencing allows a good rotational grazing system as well as predator control on the farm. It is important to follow the manufacturer's instructions for installation, especially when a solar panel is used as a power source.

### TOOLS
- Safety glasses and gloves
- Measuring tape
- Chalk or pencil
- Saw
- Drill & drill bits to match your screw size
- Sledgehammer
- Compass
- Fence post driver
- Linesman pliers
- Shovel
- Post hole digger

### MATERIALS
- Fencing (polywire, galvanized wire, or netting)
- Solar panel
- Energizer
- Grounding rods
- Solar panel mounting support and battery holding base
- Fault finder to identify faults in fence
- Battery
- Screws to assemble frame, mount solar panel, and mount charger

### STEPS TO INSTALL A PORTABLE ELECTRIC FENCE USING A SOLAR PANEL AS AN ENERGY SOURCE

#### STEP 1
- Determine a location that will get full sun for effective use of the solar panel. Use the post hole digger for digging holes to hold the solar panel mounting support and battery holding base. Build the frame to hold the solar panel, fence charger, and battery that you have. Each frame may be a little different.

#### STEP 2
- Use post drivers and a sledgehammer for grounding rod installation. Longer rods will give you a more consistent connection. We recommend three feet in the ground. Depending on the size of the pasture and energizer, you may need more than one.

#### STEP 3
- Use a screwdriver to attach the solar panel to the wooden support base. The panel should always face south and be angled 30 to 45 degrees.
Follow the manufacturer’s manual to connect the solar panel, battery, and grounding rod connectors to the energizer.

Step 5
Connect the energizer to the fencing (electric netting, permanent fence or polywire).

Use the fault finder to check if the energizer is supplying the electricity to the entire fence. Fallen branches, fence contact with metal posts, and dense vegetation can reduce the electricity supplied to the entire fence.

When properly managed, rotational grazing can be profitable, improve the overall forage use on pasture, and be part of a whole farm nutrient management strategy. Solar-powered electric fence can help divide pastures into paddocks. Rotating animals to maintain grazing height over 5 inches will help prevent animals from being exposed to parasites. A good decision about fencing type is important to minimize expenses on fencing materials and labor as well as minimize food safety risks.

The USDA Natural Resource Conservation Service (NRCS) may have funding that will help you implement rotational grazing in wooded areas. The NRCS Environmental Quality Incentives Program (EQIP) contains a practice of “Woodland Grazing for Small Ruminants”. This practice is for New and Beginning or Socially Disadvantaged farmers and can help offset the costs of land clearing and fence installation on up to 100 acres. Typically, this practice is combined with the “Livestock Watering Facilities” practice to facilitate rotation without overgrazing watering areas. See your local NRCS office for details.
ADDITIONAL RESOURCES

Determining Your Stocking Rate - Utah State University Extension
https://extension.usu.edu/rangelands/ou-files/Determine_Stocking_rate.pdf

Prescribed Grazing with Goats - Natural Resources Conservation Service

Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System

Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System

Preparing Your Property for Dairy Goats/Sheep - Alabama Cooperative Extension System
https://www.aces.edu/bilo/topics/sheep-goats/preparing-your-property-for-dairy-goats-sheep/

Electric Fence Design - University of Maine Extension
https://extension.umaine.edu/livestock/pasture-course/lesson-3/electric-fence-design/

Paddock Design, Fencing, and Water Systems for Controlled Grazing - NCAT ATTRA Sustainable Agriculture Program
https://attra.ncat.org/product/paddock-design-fencing-and-water-systems-for-controlled-grazing/

Small-Scale Livestock Production - NCAT ATTRA Sustainable Agriculture Program
https://attra.ncat.org/product/small-scale-livestock-production/


Woodland Grazing for Small Ruminants - National Resource Conservation Service