



Down to Earth: Reports from the Field

Innovative Small Farmers' Outreach Program (ISFOP): EAST CENTRAL REGION

Raising Meat Rabbits: A Potential Moneymaker for the Small Farmer *By Janet Hurst, Farm Outreach Worker*

Rabbits were once very popular as backyard meat producers. Most people seem to forget about this animal when laying out their small farm plans. Starting and managing a rabbit operation is relatively inexpensive. Pound for pound, rabbit provides more meat for less feed than any other meat source. Rabbit meat is very lean; it is a rich source of protein and can be adapted to many recipes. This versatile animal can be a good addition to any diversified small farm.

To begin a small rabbit operation, it is best to begin with two does (females) and one buck (male). There are two breeds used specifically for meat production. They are the California and the New Zealand White. These rabbits have the best bone-to-meat ratio, good pelts and are known for fast, efficient growth.

Before bringing home any stock, first consider housing. Rabbits need shelter for the cold winter months and shade for the hot summer days. Hutches are common types of housing that consist of a cage on legs with a roof overhead. This is very basic shelter. In the winter months, the hutches should be moved inside a barn or into an area with protection from the cold winds. Hutches need to have one square foot of floor space per pound of rabbit being housed. The minimum size for a hutch is 2 by 2.5 feet. A good hutch is large enough to allow for air circulation and prevents overcrowding of the animals. Hutches are usually covered with hardware cloth. Another type of housing is an all wire cage. These are intended to be hung inside a shelter. They are easy to clean, and the wire can be kept in a more

sanitary condition than a wooden hutch. Housing is basically up to you, depending upon the resources and space available.

After your rabbitry (housing for rabbits) is built, seek out a reputable rabbit breeder. You may buy kittens (young rabbits) or adults. Of course, the adults will be ready for breeding sooner. It is possible to buy pregnant females as well. The females should each have their own hutch, and the male should be separated from them.

You must find out what the rabbits have been eating. Do not make drastic changes to their diet. Pelleted feed is a good choice and is readily available. Hay is also recommended. If you have excess vege-



California (left) and New Zealand White (right) meat rabbits.

tables, feed in moderation; rabbits can get diarrhea when too much fresh produce is introduced into their diet. Monitor the amount of feed for each rabbit. An adult female rabbit that is not pregnant and is not lactating (nursing young) will eat about 3.8 percent of her body weight each day. For a 10-pound non-breeding rabbit, that means 6 ounces of pellets plus 3.5 ounces of hay. During breeding season, do not allow the does to become overweight or breeding will become more difficult.

Provide plenty of fresh, clean water. This is very important in the summer months. In winter, replace frozen water with fresh water twice daily so that the rabbits have water at all times. Water may be offered in open crocks or in plastic bottles with a ball bearing. When the rabbit nudges the ball, water trickles out, and the rabbit can drink. Rabbits also enjoy a salt and mineral block in the hutch.

When you are ready to breed rabbits, put the doe into the buck's cage. Do not put the buck into the doe's cage, or she may harm him. The doe will allow the buck to mount. The buck may attempt to mount the doe a second time. Allow this, and then remove the doe from the cage.

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Raising Meat Rabbits...*(continued from page 1)*



Rabbit hutch.

(Photo courtesy of Paula Dace)

Some breeders will bring the doe back to the buck's cage six hours after the first mating to make sure that the doe's eggs have been fertilized. Gestation (the time in the womb) for a rabbit is 30 to 31 days.

A pregnant doe needs her own cage and a nesting box. A nesting box is about the size of a standard shoebox with half of the top cut off at an angle. This box will be where the rabbit

gives birth. Put the box into the hutch about five days before the rabbit is due to give birth. Add some straw or hay to the box so that the mother can make a nest. She will also add her own hair to the nest.

Some rabbits get nervous around birthing time; for this reason, try to keep the rabbitry area quiet. Most rabbits are good mothers and will attend to their young. However, kits (short for kittens) can fall from the nest box, or the mother can ignore them. There are other things that can go wrong. Mothers sometimes reject their young. Some mothers eat their young. If this happens, give the mother one more chance at breeding. If she does it again, she should be culled (removed or killed) and replaced.

The rabbits are born blind, hairless and furless. Check the nest box, and remove any dead babies. Count the number in the litter. A normal litter is from four to six kits. Healthy babies will be moving and have slightly bulging stomachs from nursing. Make sure the mother is well fed and has plenty of water to drink. Leave the babies alone as much as possible, except for checking on them every other day. By day 10, the rabbits will be opening their eyes. The kits

will continue to nurse. At about three weeks of age, they will start hopping out of the nest and sampling the pelleted food. Increase the ration slowly so there is enough for all. Remove the nest boxes at about five to six weeks. At six weeks, the doe can be rebred. The kits should be on full feed. They can then be removed from the original hutch and placed in separate housing.

The rabbits should be raised for about two months. It is time to butcher when they reach four to five pounds. ■

Rabbit Resources

Plans to build a rabbit hutch from Penn State

Extension: <http://abe.psu.edu/extension/idea-plans/rabbit/ip-729-31/view>

Information on processing rabbits in Missouri:

<http://mda.mo.gov/animals/health/inspections/>. Chapter 3 of the Code of Regulations Rules of Department of Agriculture Division 30—Animal Health, Chapter 10—Food Safety and Meat Inspection concerning the home processing of rabbits).

Information on rabbit processing:

www.attra.org – Small Scale Sustainable Rabbit Production.

Hydroponic Fodder Production (Part II): A Profile of Be Whole Again Farm

By Jim Pierce, Farm Outreach Worker

Hydroponic fodder production and feeding is being used on small farms. More farmers now see it as one solution to deal with short-term drought. It also satisfies the consumer demand for grass-fed animals. Finally, farmers get more control over their feed bill and feed quality.

Fodder is the production of sprouts using seeds of grain and water. In general, the first step is soaking the seeds for a day or two. This is followed by spreading them out in a one-half to one-inch layer in a growing tray where they can be watered. Some commercial systems skip the soaking step and just sow in the trays. In a matter of only six to eight days, the grain grows into a mat of green grass and white roots about six to seven inches tall. Then it is fed to the animal, roots and all.

The Moser farm, Be Whole Again, sits on a gently rolling hill in western Missouri. Rachel and Scott Moser decided to use only grass-fed cows in their direct-marketed raw milk dairy. The first step was to use manage-

ment intensive rotational grazing (a system where animals are moved to various pastures). However, the pastures were full of fescue that was infected by endophytes (bacteria or fungus that live in a plant for at least some of its lifetime without causing harm). The pastures alone could not meet the nutritional needs of the cows. Summer dormancy (where the plant stops growing but does not die) of the fescue also posed problems; several cows struggled with fescue toxicity, but feeding fodder helped dilute the infected fescue and its effect. The Mosers needed to provide other feeds to dilute the toxin. Winter was an even bigger challenge. The Mosers used the concept of stockpiling (allowing pasture to grow until it is used at a later time) and the more traditional feeding of hay. Even so, the high nutritional needs of their dairy cows required an extra concentrate. This presented them with a problem; they wanted to avoid grains in general, especially grains with genetically modified organisms (GMOs) and still maintain good herd health.



Myra Moser holding a fodder mat and tray.

Their research showed that farm-grown fodder could be used as a substitute for feeding grains directly. The Mosers thought that this would be better for their cows' digestive systems. Barley is one of the few grains that has not been affected by GMOs. Barley is easy to sprout; it seems to produce the most nutritious fodder, with higher levels of protein than other grains. After much reading, the Mosers designed a production system made with components that they found at local *(continued on page 3)*

IPM Corner: Cover Crops and Soil Health

By Jacob Wilson, Integrated Pest Management Technician

Thanks to university researchers, seed companies and satisfied farmers, most vegetable growers in Missouri now know about cover crops. A cover crop is grown to protect and enrich the soil as well as to manage other agricultural issues. In this article, we won't focus on all the benefits or varieties of cover crops. Instead, we will zoom in on just a few types that are easy to use. They are also very versatile and effective at increasing soil health during the growing season and beyond. Among other vital roles, cover crops increase soil health by preventing erosion, scavenging nutrients and adding organic matter. They also relieve compaction (where soil becomes more dense and has less air within) and control harmful nematodes (roundworms).

Name	Season	Seeding Rate lb/A Drilled/Broadcast	Benefits
Medium Red Clover	Spring/summer	8-10/10-12	Adds N, conditions soil
Sorghum X Sudangrass(sudex, Sorgho, sorghum x Sudanese)	Summer	35/40-50	Suppress weeds, lots of biomass, breaks up compaction
Cowpeas	Summer	30-90/70-120	Adds N, suppress weeds
Radish(Oilseed, Tillage*Graza*Groundhog*)	Fall	8-13/10-20	Breaks up compaction, scavenges nutrients
Winter Rye(cereal rye, rye grain)	Winter	60-120/90-160	Suppress weeds, lots of biomass
Hairy Vetch	Winter	15-20/25-40	Adds N, suppress weeds
Buckwheat	Summer	48-70/50-90	Smother crop, fast growing, breaks down quickly

From the book *Managing Cover Crops Profitably* third edition, Sustainable Agriculture Research Education (SARE) program, 2007.

Spring is one of the most challenging seasons in which to establish plants. This is especially true when the soil is heavy and drains poorly. However, options do exist. Frost seeding is broadcasting small seeds into a field that was tilled in the fall or in which the previous crop was frost-killed. Frost seeding by using small seeded cover crops can be done any time from February until late March. The tiny seeds then work their way into the soil as it contracts and expands.



Sorghum x sudan grass between rows of tomatoes at Lincoln University.

This occurs as the soil thaws and refreezes and as a result of early spring rains. Traditionally, farmers have frost-seeded legumes into existing pastures; however, vegetable growers can also sow an early cover crop before late-planted winter squash or pumpkins. Clovers are the usual choice for frost seeding. You can also use other small-seeded, cool-season crops, such as turnips. An early spring cover crop will prevent those March and April rains from leaching all of your hard-earned nitrogen (N) into the nearest pond, ditch or stream.

Summer is a key season for cash crops. It can be hard to find the time or energy to plant a cover crop. Still, it is well worth the effort. Summer cover crop mixtures, such as cowpeas or a sorghum x Sudan grass (a type of sorghum originally from Sudan that grows in dry regions) hybrid can produce several tons per acre of biomass (living or recently living material). At the same time, these crops can relieve compaction, curb weeds and provide forage for livestock. Both cowpeas and sorghum x Sudan grass are easy to establish. They also thrive during the dog

days of summer. Cowpeas provide nitrogen to the soil and break down quickly when incorporated. Sorghum x Sudan grass can even be mowed regularly. As such, it can be maintained as a turf between rows of tomatoes. Or, it can be hayed once, then left to grow tall and provide organic matter to the soil. The vast fibrous root system of sorghum x Sudan grass even relieves compaction. Mowing once or twice during the season will help this process and stimulate root growth.

There is even a summer cover crop that will mature in 30 days if you have minimal time in your rotation. Buckwheat is easy to establish. It matures very quickly. When seeded thickly, it will smother out weeds; that is why it is called a "smother crop." Buckwheat residue is also quick to break down, so it is easily incorporated into the soil.

So, as you browse through seed catalogs and long for the warm sunny days of spring, remember that cover crops **build** soil health. To be productive, the soil needs to be healthy in all four seasons. ■

Hydroponic Fodder Production...(continued from page 2)

big-box stores. They chose to house the system in an insulated tractor-trailer with an aluminum floor; this type of truck is also known as a retired reefer (refrigerator) trailer, with the refrigeration unit removed. It was a good choice to house their system. The trailer lets them control the temperature, humidity and light. They later found that this was very helpful in preventing molds. The controlled environment also allows them to provide conditions that promote fodder growth.

The Be Whole Again herd is fed fodder at about 15 pounds per day per head when the pasture is growing. In the winter, they are fed about 30 pounds of fodder per head per day; they also have access to unlimited grass and legume hays.

Rachel and Scott have observed the following benefits of feeding fodder:

- Happy customers, who are important for any enterprise that wants to make a profit. Their customers are happy be-

cause they do not want to consume GMO products directly or indirectly. They want to support a grass-based dairy farm.

- Sweeter milk, with a rich golden color (probably from higher beta-carotene levels) and with more cream, which is able to make better kefir (fermented milk drink), according to customer feedback
- An increase in production per cow
- Less hay consumed in winter
- Fewer opportunities (continued on page 4)

ISFOP

If you are a small farmer and need information, please contact an ISFOP Farm Outreach Worker (FOW). FOWs live and work in your community. They can provide information on ways to better manage your resources, reduce expense and increase income. They can also provide information on other programs and resources that may increase your income and the overall quality of life for you and your family.

You are eligible to participate if you meet the following requirements:

- Your family lives on a farm, rural or urban.
- Farm products or income from the farm are necessary for you to live where you do.
- Your family provides the management and most of the labor for your farm.
- Your total annual family income is less than \$50,000.

How to Contact East Central Regional ISFOP Farm Outreach Workers:

- **Miranda Duschack**, East Central Regional Coordinator, St. Louis county and city
DuschackM@LincolnU.edu
(314) 604-3403
- **Janet Hurst**, Franklin and Warren counties
HurstJ@LincolnU.edu
(660) 216-1749
- **Joyce Rainwater**, Jefferson and Washington counties
RainwaterJ@LincolnU.edu
(314) 800-4076
- **Reneesha Auboug**, Lincoln and St. Charles counties
AubougR@LincolnU.edu
(314) 838-4088

**For general information,
call the LUCE ISFOP office at (573) 681-5312.**



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Hydroponic Fodder Production...(continued from page 3)

for *E. coli* to enter their animals' guts, which is very important for a raw milk producer

- Overall better general health of their cows and better breed-back (artificial selection of certain traits)

Rachel says, "On our property, I don't believe we could produce 100 percent grass-fed milk and make a profit without fodder." She explains that it was hard to find high quality, non-GMO alfalfa at a good price during the drought last summer. That taught her that there had to be another source of supplemental feed. The Mosers are gradually changing the fescue pastures to grow grasses and legumes, which will make the fields more suitable for milk production. Due to their renovation, a part of the pasture is out of production every year. Rachel is glad that their homemade fodder system takes up just 56 x 8 feet. This allows them to produce much more high quality "forage" than they would be able to grow on their limited acreage; it increases their stocking capacity. Rachel says, "We can also carry fodder to other properties nearby to help us grass-finish steers or supplement dry cows grazing on less than ideal leased pastures that I can't afford to renovate. Lastly, I don't have to pray for rain nearly as hard as if we were completely reliant on our pastures for green grass."



Pigs eating fodder produced on "Be Whole Again" farm.

The Mosers point to some other key factors that they believe will make or break a fodder operation on small farms:

- Start with an affordable fodder system.
- Many of the commercial systems available are priced too high to make the economics work.
- The system must be extremely labor efficient.
- Find a local supplier of reasonably priced grain seed. This might require buying bin run seed (seed that farmers hold onto for the next growing season) directly from a farmer at harvest time and storing a year's supply of grain on your farm. This has the added benefit of cushioning you against feed price hikes in times of drought.

Fodder has given the Mosers more control over their production system. It allows them to convert grains into a feedstuff that is better suited to their animals. It also satisfies the niche market that they have developed for their farm. Instead of relying on the cycles of nature with pasture or grain feeding and conventional haymaking, they can produce fodder from grain every day of the year. Contact Scott@BeWholeAgain.com for additional hints on low-priced, labor-efficient, do-it-yourself fodder system construction. ■