

# **PASTURED RABBIT FOR PROFIT**

**A Letterbox Farm Guidebook**

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**by Nichki Carangelo**

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## **Additional Thanks:**

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# INTRODUCTION

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*Dear Farmers,*

*I owe a lot of my farming career to Polyface Farm's Joel Salatin, or maybe, to a woman named Amy, who gifted me her worn out copy of his book, Pastured Poultry Profits. This was six years ago, when I was on the first leg of what proved to be my very short training period in commercial farming. With less than a year's experience behind me, and virtually none with raising chickens, my now-husband Laszlo and I went for it and ordered 100 cornish-cross chicks to raise on a friend's rocky pastures.*

*At the time, we had no money, no markets and no land. To be honest, we didn't have any reason to think we'd ever have the resources to get our own farm. What we had instead was energy and that indestructible drive that I find most beginning farmers have in common. This is why I will always feel indebted to Amy and Joel Salatin, and of course, to Kingsley, who lent us those rocky pastures for two whole years. They provided us with a place to put that energy while we got our education, while we found our team, while the rest of our vision became more clear.*

*Starting a small, low-risk enterprise kept us safe while still giving us skin in the game. It encouraged us to make moves towards our long-term goals: to name our business, to open a new bank account, and to comb through land access listings all over the Northeast. Most importantly, it gave us a reason not to quit when things got hard. Never underestimate the combined power of commitment and momentum - in my humble opinion, these are the two most important factors in any start-up farm.*

*Our baby broiler enterprise rewarded us emotionally and, thanks to Salatin's thoughtful animal husbandry guidelines and clear enterprise budgets, financially. The success of our first batch made us excited to get another, and the success of that one made us get more still. Five years later, we raise 3,000 pastured meat birds a year- all in addition to our 25 heritage hogs, 400 laying hens and the 500 rabbits that are the focus of this guide. This is a life we couldn't even imagine back in the day, when we ordered those first hundred little chicks.*

*Pastured Poultry Profits outlined a system that was realistic and functional. Most importantly, it made sure to take good care of the animals and the farmers. It saved us countless years of trial and error and it reliably produced the results it promised. A guide this good in farming is a treasure and we were lucky to have it during those fragile early years where failure and frustration can be so prevalent.*

*Which brings me to the reason for writing this guide. We've been raising rabbits for four seasons now, working out the kinks and fine tuning our operation. We've made a ton of mistakes, but, thankfully, also many solid improvements. At long last, we have a system that is at once humane, profitable and replicable. While this humble guide does not claim to hold a candle to the great works you undoubtedly have in your farm library, I write it with the hopes that it will save you time, money and most importantly, that precious precious energy that drives us farmers forward.*

*Sincerely,*  
Nichki Carangelo

# WHY RABBITS?

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In a 2010 article published by Salon Magazine, locavore kingpin Michael Pollan made the following claim:

*Rabbits make more sense than chicken.*

In a country with a \$41 billion broiler chicken industry, Pollan is making a pretty bold statement, but it's not unsubstantiated. Time Magazine agreed in their piece, "How Rabbits Can Save the World" and The New York Times has been quick to jump on the bandwagon with catchy headlines like, "Hip-Hop Cuisine." The world is all abuzz about the supposed super-protein, and yet very few farmers are stepping up to meet the rapidly increasing interest in sustainably-raised rabbit meat. Here are some of the reasons we think maybe *you* should:

## Rabbits

- ***Are easy to raise.*** They are small and docile, suffer from few health problems & are simple to process, package & store.
- ***Are easily moved.*** They require only light, portable infrastructure. This can be a major asset to farmers who lack secure land tenure and may need to relocate throughout their careers.
- ***Require minimal startup capital.*** A well-managed rabbitry can repay its entire initial investment in a single year.
- ***Have increasing market potential.*** D'Artagnan has reported to several sources that their rabbit sales have doubled over the past 4 years.
- ***Are an asset to the diversified farmscape.*** Rabbit manure is especially high in nitrogen and phosphorus. It can be applied to the land to increase both fertility and soil structure.

# THE CHALLENGES

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Like all farm enterprises, rabbits come with a unique set of challenges. It is important to consider each one before making any investments. A rabbitry, like most livestock enterprises, has low profit margins and so the success of your operation is directly related to your ability to manage the following:

- ***Animal health and wellbeing.*** Rabbits are particularly sensitive to disease and illness, which is why they are not commonly raised in large-scale, commercial settings. Good management practices and wise breeding can eliminate many issues over time.
- ***Uniform and reliable production.*** Unlike many poultry producers, rabbit farmers must do their own breeding. Poor or inconsistent litter sizes and growth rates can be common, so breeding for positive traits is important.
- ***Good production and sales.*** Lower margins mean a successful rabbitry relies on optimal production and strong sales at the right price.
- ***Keeping costs low and efficiency high.*** This is true of all farm enterprises, but is paramount in the low-margin world of livestock.
- ***Access to a good, legal and affordable processor.*** Laws vary from state to state, creating unique challenges for each individual producer.

The purpose of this guide is to walk you through each of these challenges while demonstrating how we at Letterbox have tweaked our production systems and marketing relationships over the years in order to grow a successful rabbit enterprise.

## Rabbits on Our Farm



Since Letterbox has been a diversified farm since its inception, rabbits were super easy to fold into our existing production plans and sales outlets. To give a better picture of how rabbits fit into our farm's bigger picture, here's a snapshot of our last season:

In 2016, Letterbox Farm was run by three full-time, year-round managers and three full-time, season crew members.

### Our annual enterprises included:

- 3 acres of intensively managed greens, herbs and vegetables
- 2800 pasture-raised meat birds
- 300 laying hens
- 24 pastured hogs
- 24 doe rabbitry

### Our markets during this season included:

- A 30 member full-diet CSA
- 3 high traffic farmers markets
- 10 local restaurant accounts
- 3 wholesale accounts
- 1 humble, onsite farm store

## Our Goals

Letterbox is a for-profit commercial farm that prioritizes:

- Land stewardship & animal welfare
- The production of highest quality products sold at appropriate prices
- The health and well-being of its farmers

In regards to this last point, our target goals for our farmers include:

- 40 hour work weeks
- Paid time off & sick leave
- A teacher's salary
- Work that is diverse, meaningful, engaging and reasonable

Every potential new enterprise is vetted for its ability to contribute to these goals. Thankfully, our rabbit enterprise has passed the test. We hope it could do the same for you.

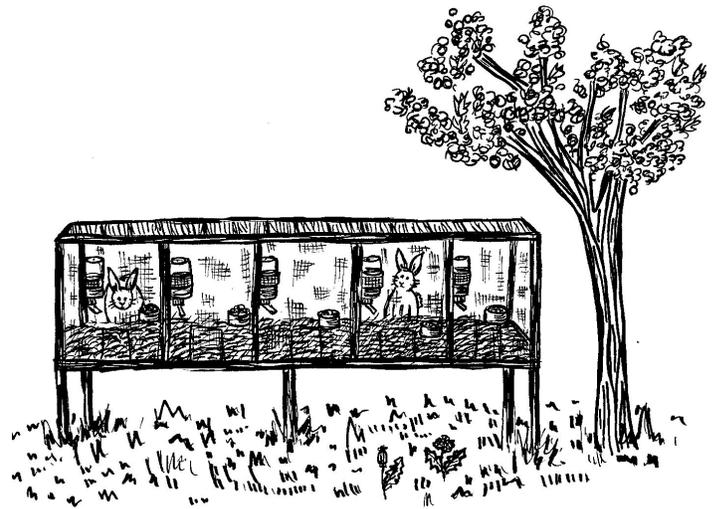
# CHOOSING YOUR PRODUCTION METHOD

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Rabbits can be successfully raised using a variety of different production methods. At Letterbox Farm we use hybrid of two different methods: raising on wire and pasture-raising in colonies.

## Raising on Wire

Raising on wire is the most common method used in commercial rabbit production. In a wholly wire-based system, all breeding rabbits and their offspring are raised in a series of cages with wire bottoms. These types of cages allow waste and debris to fall through the wire and onto the ground. This method is the most efficient in terms of space, time, management and growth. It also has the lowest risk of disease transmission because the three most common causes are greatly reduced: outside contact, rabbit-to-rabbit interaction, and fecal-oral (poop to mouth) transmission. There is little risk of predation or environmental stress in a wire-based system.



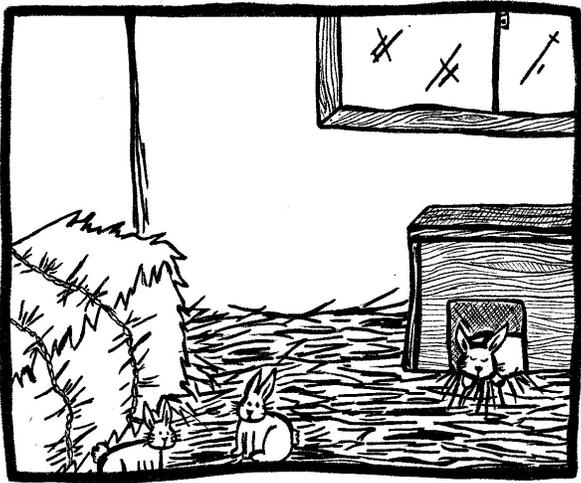
However, wire systems have a few big disadvantages. Raising in cages doesn't do much to encourage the animals' natural behaviors and this system offers little dietary variety (unless the producer is actively supplementing feed rations).

From an economic perspective, a wire-based system requires a higher initial investment than certain colony systems and may require more maintenance in terms of daily chores and manure removal in comparison to pasture-based operations.

## Colony Raising

"Colony raising" is a catch-all term for raising rabbits in groups or "colonies." There are many different ways farmers practice this method and both indoor and outdoor methods are common. At the core, a colony is a cage-free environment in which breeding does and their offspring live together in groups of varying sizes. Generally bucks are kept separate to prevent unintended breeding. A colony may be housed outdoors in a rabbit tractor or large pen or indoors in a stall. The variations are endless and can be dictated by the scale of the operation and the farm's available resources.





### ***Colony Raising at Deep Spring Farm***

Ellen Fagan and Joshua Hall operate a commercial rabbitry in Earlville, NY using their own unique colony method. In their system, breeding does are housed together on the ground in large pens in their barn. The bucks are kept separately to avoid unintended breeding.

### ***Julie Engel and the Coney Garth System***

Julie Engel runs a pasture-based rabbitry in Jefferson, WI. Her operation is similar to Deep Spring's in that does and their offspring live together in large groups, while the breeding bucks are kept separately. Also similarly, does give birth while still in the herd, using nesting boxes and other resources that have been made available.

However, Julie's animals are raised outdoors in large paddocks using a portable barrier made of interlocking hog panels. Rabbits are moved daily during the warmer months and subsist only on forage and hay -

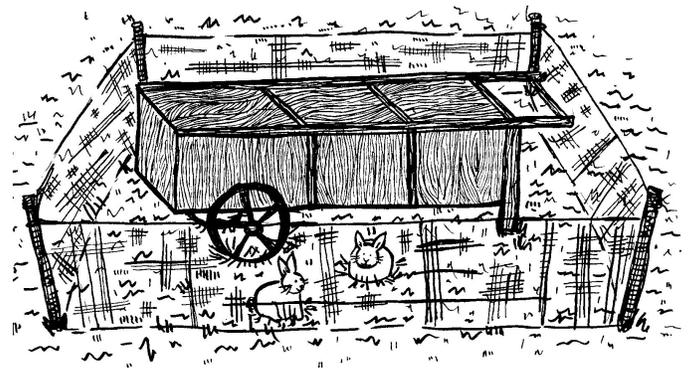
When pregnant does are ready to give birth, they are free to make a nest with any of the materials that Ellen and Joshua have made available, including boxes, hay, straw and shavings. When the young rabbits reach six weeks of age, they are moved outside into a rabbit tractor, which at Deep Spring Farm is a covered, floorless pen with a one foot interior perimeter of chicken wire stapled to the edge to discourage the rabbits from digging out. The pen is moved daily or twice daily, keeping the rabbits in a clean environment and allowing them access to fresh pasture.

Ellen and Joshua use a pelleted feed as their primary nutrition source for their rabbits, while supplementing with hay and forage. They slaughter their animals between 12 and 16 weeks of age.

Photos and a link to the Deep Spring Farm website can be found in the appendix.

no pelleted feed is used in Julie's system.

A link to Julie Engel's SARE funded report on the Coney Garth System can be found in the appendix.



We are big fans of both colony raising and pasture raising at Letterbox. We especially love how these types of systems encourage natural behaviors, increase diversity and nutrition in diet, build soil and save money. However, colony and pasture raising come with some serious risks that should be taken into consideration before diving in.

## Challenges in Colony Systems

### *Record Keeping*

Since does only feed their kits two times per day, it can be challenging to know who's offspring is whose in a colony setting. Once they begin to wean it can be nearly impossible. To remedy this issue, farmers can tattoo or tag their breeders and their offspring (this is good practice in any system—mixups do happen!).

### *Growth Rates*

It's simple. Rabbits that have more room to run around burn more calories. Likewise, rabbits raised on forage grow slower than those raised on pellets. However, animals who grow slower and have more variety in their diets can produce meat that tastes better and that's better for you. Producers have to strike the right balance between quality and efficiency.

### *Labor Requirements*

While Ellen and Joshua actually have very low labor requirements associated with their system, Julie reports that just moving her paddocks takes one hour per day. By comparison, a wire based operation of a similar scale requires 15-30 minutes to execute all daily tasks associated with the operation.

## Choosing a Method at Letterbox

If our research (which included lots of reading, personal experimentation, site visits to other farms and watching a lot of Youtube videos) taught us anything, it 's that there is no one perfect way to raise rabbits. Each method's benefits came with a tradeoff. So, while developing our rabbitry, we took the utilitarian approach in our decision making process—seeking the greatest possible balance of good over harms.

### *Fighting*

Not all rabbits play well with others. This can be especially problematic with pregnant does, who can become territorial. However, you can correct some bad behavior by culling your aggressive rabbits and breeding for docility.

### *Higher Risk of Kit Mortality*

Does and kits that aren't separated from the others are at risk of being injured or killed by other rabbits. If does kindle on pasture, exposure to the elements can lead to illness and death. Depending on the housing setup, predation can also be a serious issue. In a published report about the Coney Garth method, Julie Engels noted that of 305 kits born on pasture, only 75 lived past five weeks of age.

### *Higher Risk of Illness*

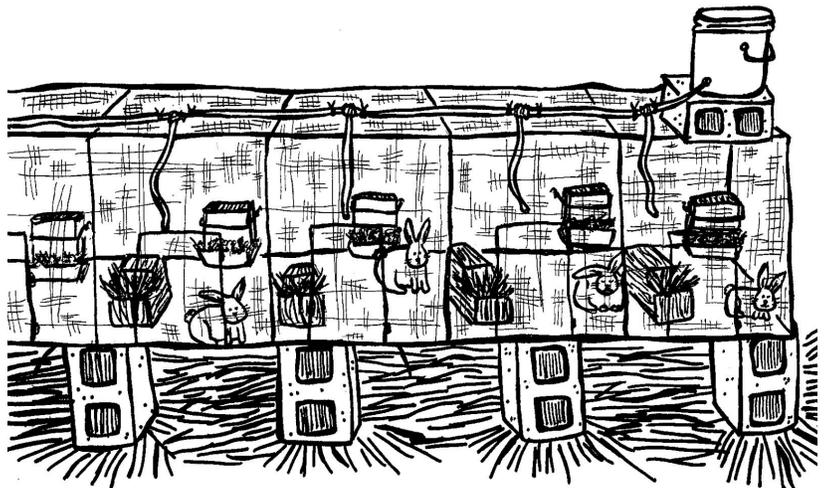
Rabbits raised outdoors may experience contact with wild rabbits who can be passive carriers of *Pasteurella multocida* (a bacteria that can cause respiratory illness). They will also be exposed to parasites that live in the soil, which can lead to serious health issues over time. Disease, once present, is spread most rapidly through rabbit-to-rabbit contact and fecal-oral transmission. Colony systems encourage both of these behaviors.

We knew our rabbitry would have to strike that balance three different ways in order to be sustainable long term: once for our animals, again for our farmers, and lastly for our bank accounts. Wire raising was easy on the farmers and the wallet, but didn't offer much for the animals. Colony raising was good for the animals and the farmers, but challenges in record keeping and slower growth made this method a labor of love rather than an economic opportunity. Coney-Garth, while cost effective thanks to limited infrastructure and greatly reduced feed costs, was labor intensive and the risk for mortality was too high. Enter, the Wire/Pasture Hybrid system.

## The Wire/Pasture Hybrid

In our effort to prioritize good and minimize harm, we decided to take the best of each method and make our most sincere effort to ditch the worst. We call the resulting melding of practices the "Wire/Pasture Hybrid."

In our system, breeding stock is kept on wire in order to mitigate degenerative pasture-based diseases (like parasitic infestation) and communicable illnesses (like *Pasteurella* outbreaks) while also greatly reducing kit mortality. Since each doe and buck is kept in its own cage, record keeping is super simple and there's zero instance of escape or predation on our breeding stock.



To increase natural behaviors to the greatest extent possible within a wire-based setting, we invested in extra large cages and provide our breeders with fresh forage in an effort to mimic the diversified diet obtained on pasture.

At or around six weeks of age, growing kits are moved outside into pasture pens, or "rabbit tractors," where they stay until they're big enough to process. Exposure to *Pasteurella* is still a risk in our system, but parasites are much less of an issue. This is because infestations take several months to cause health problems in healthy, young rabbits. Except for in the case of a particularly bad outbreak, our rabbits have already been processed by the time something like *coccidiosis* would need to fully manifest itself into something harmful. This is why it makes sense to keep our shorter-lived growing rabbits on the ground, and not our breeding stock, whom we keep for two years or more.

The tractor design we use is featured in greater detail in the "Housing" section of this guide, but to summarize, we have several 6'x9' pens, each housing up to four litters (24-30 rabbits) at a time. They are solid and sturdy, but easily moved by one person. The floor of the tractor features 2"x4" welded wire, which prevents digging out while still allowing rabbits to forage and waste and debris to be left behind with each move. Some sources claim that rabbits won't eat vegetation that is lying flat due to flooring. In our experience, this is totally untrue. So long as the pasture is not too long or coarse (so no unmown hay fields), our rabbits have no problem spending the day tugging their treats through the wire.

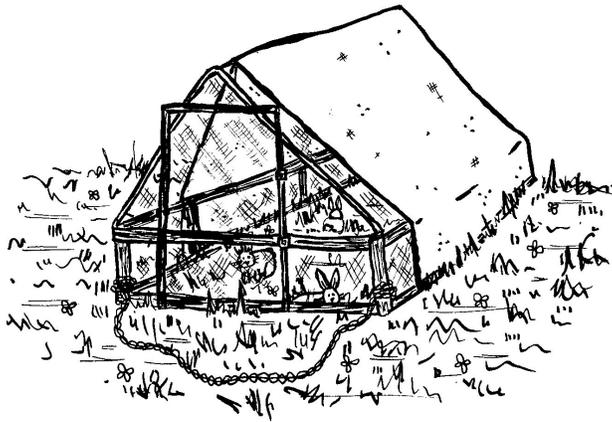
There are endless options for how you build your rabbit tractor, and many of them will work just fine. Just be sure that whatever you build is:

- **Portable.** You want your tractor to be easy to transport without injuring the animals inside or the farmer doing the moving.
- **Covered from the elements.** Your tractor should be well ventilated, provide shade and protect the rabbits from the rain and wind.
- **Inescapable.** There are several methods for preventing “dig-outs” while still providing forage. Welded wire, slatted wood floors and chicken wire perimeters have all been used effectively.

We move our tractors once per day, every day. The first couple of moves for a new group of rabbits can be a little challenging, but they very quickly learn to stand on the wire and enjoy the ride to fresh snacks. However, it’s important to move slowly and be observant: you do not want to injure anyone in the process.

There is no need to sex your rabbits or separate them by gender in your tractors. They are too young to breed at this stage, so accidental pregnancy won’t be an issue so long as you process on schedule. We pull our rabbits for slaughter anytime between 12 and 16 weeks of age. If you plan to grow them beyond that, you’ll want to separate the does from the bucks.

Unless we’re experiencing an outbreak of disease, we don’t sanitize our tractors between batches (just the waterers & feeders). The sunshine typically does the rest of the disinfecting for us.

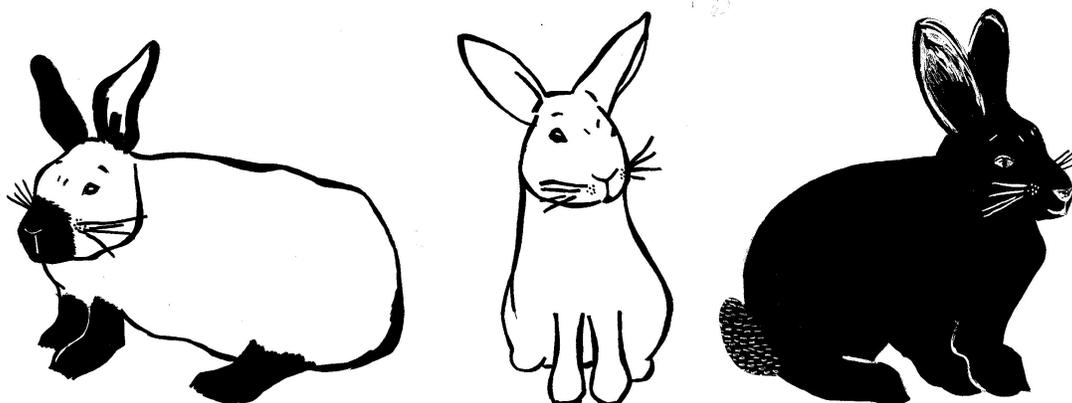


It is good practice to keep running your rabbits on new land for as long as possible, however we find that we can get away with a thirty day rotation. If you are experiencing a persistent disease outbreak, sanitize your tractor once it’s empty and move it to completely fresh ground. This should be enough to end the disease cycle for the next batch.

When bringing together multiple litters in a tractor from their separate cages, we sometimes notice a lot of running around while they feel each other out and adjust to their new surroundings. This is normal and it should vastly slow down after a few hours. We haven’t experienced much fighting in our colonies, since only our bred does ever show aggression. However, on the rare occasion we’ve had a bad apple. If this happens to you, just separate the instigator and resume business as usual.

No matter what production system you choose, most rabbit husbandry basics will remain the same. The following sections in this guide will walk through breed selection, breeding, feed and water requirements, housing and processing. Each one of the methods discussed here can be tweaked to fit any system.

# CHOOSING YOUR BREED



The American Rabbit Breeding Associates recognizes 49 different breeds of rabbits. Of these, 16 breeds are considered large enough for meat production, 9-12 pounds full grown. The most well-known of these breeds include:

**American:** *A dual purpose (meat & fur) breed that can be blue or white. Known for docile nature and good mothering skills.*  
**Adult Weight:** 9-12 lbs  
**Status:** Threatened

**Californian:** *One of the most popular breeds for commercial production. Commonly crossed with other breeds for hybrid vigor.*  
**Adult Weight:** 8-11 lbs  
**Status:** Common

**New Zealand:** *Hearty, healthy and fast growing. New Zealands are the second most common breed used in commercial production.*  
**Adult Weight:** 9-12 lbs  
**Status:** Common

**American Chinchilla:** *Broad shouldered with a deep loin. Known for it's good meat to bone ratio.*  
**Adult Weight:** 9-12 lbs  
**Status:** Critical

**Flemish Giant:** *XL rabbits that can grow to be 20 lbs at maturity. Young Giants mostly put on bone during their first 70 days, rather than meat. Despite their size in adulthood, they are generally not considered great for commercial production of fryers.*  
**Adult Weight:** Up to 20 lbs  
**Status:** Common

**Satin:** *Known for their silky, lustrous coats that come in a range of colors. Satins are productive medium to large rabbits that have a history of good breeding that contributes to their health.*  
**Adult Weight:** 9-10 lbs  
**Status:** Common

**Giant Chinchilla:** *XL rabbit with docile nature. Due to their heavy stature, they can be prone to getting sore hocks when raised on wire and may require extra deep bedding or solid wood floored hutches.*  
**Adult Weight:** 12-16 lbs  
**Status:** Watch

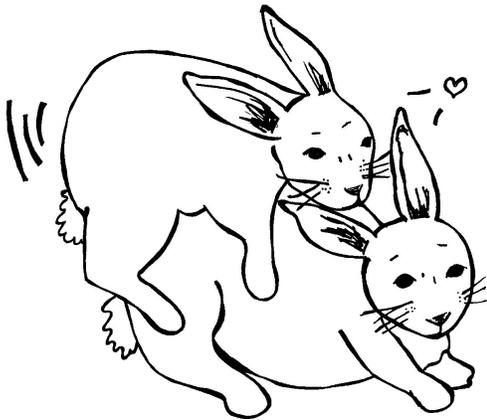
**Champagne d'Argent:** *One of the oldest French breeds. Known for their good mothering skills and beautiful, silvery coats.*  
**Adult Weight:** 8-9 lbs  
**Status:** Common

**Silver Fox:** *One of the earliest types of rabbits bred in the US. They are known for their large litters and excellent mothering skills.*  
**Adult Weight:** 9-12 lbs  
**Status:** Threatened

At Letterbox, we raise a combination of purebred New Zealand Whites, California and New Zealand Cross and New Zealand x Satin Cross. If you aren't planning to show your rabbits, crossing breeds can result in what's called "hybrid vigor."

*Hybrid vigor, or heterosis, is the tendency of a crossbred animal to demonstrate qualities superior to both parents. These qualities can include meat-to-bone ratio, growth rates and general health.*

## BREEDING



### When are your rabbits ready to breed?

Larger rabbit breeds will become sexually mature between 6 and 7 months of age, while smaller breeds will mature faster. Extra large breeds, like the Flemish Giant, do not reach maturity until 8 months of age.

### The Breeding Process

If everyone is in good health and feeling cooperative, breeding rabbits is extremely easy. Does release eggs at the onset of intercourse, rather than in sync with particular hormone cycles. This means they can be bred at almost any time.

To breed your rabbits, take your doe to your buck. *This is important.* If you bring the buck to the doe's cage instead, he might spend too much time smelling around this new environment and the doe could become territorial rather than submissive. Once you bring the doe to the buck, she should sit still and lift her tail while the buck mounts her from behind. The act of intercourse takes less than thirty seconds and a successful mating will end with the buck ceasing movement and falling off the doe onto his side. If you've never seen what a successful breeding looks like in real life, just take a look on Youtube (how wonderful it is to farm in the 21st century, sometimes).

How long you leave the doe with the buck is up to you. Some farmers remove the doe from the buck's cage after witnessing a single good mount. Others leave the pair together for a half hour or more. At Letterbox, we like to see two good mounts take place within a minute or two, since additional breedings can yield larger litter sizes. Unless the pair is being fussy, which tends to happen with rabbits being bred for the first time, we separate them right after these two mounts take place. If the buck only wants to mount the doe once, we immediately stick her in with our other buck so he can finish the job. Once she's been bred twice, we put her back in her own cage. Leaving a buck and doe together for too long can lead them to fight (and an angry doe can injure a buck in no time at all).

### *It's best to supervise your breedings so you can:*

- *be sure it was successful*
- *keep an eye on everyone's behavior.*

If your buck has mounted your doe, ceased movement and fallen off, chances are your doe is pregnant. If he mounts her, then dismounts or she moves out from under him, it's unlikely your doe has been successfully bred. Sometimes, the does aren't cooperative and they'll run around the cage while the buck follows or loses interest. This frustrating behavior is common with first time mothers and young bucks. It can also be triggered by the season in more experienced rabbits.

#### ***Breeding Woes at Letterbox Farm***

Last December we found it nearly impossible to breed 75% of our then, 30 rabbits. We had just increased our herd and had many young does who had never been bred before. We were spending hours in the greenhouse moving does in with our bucks, only to watch them run in circles until both rabbits totally lost interest. Sometimes we would try moving the pair up on a high table where we would hold the doe still while the buck mounted. While a few of the mounts appeared successful, it almost never resulted in an actual pregnancy.

After consulting with some other rabbit producers, we developed a three-phase plan of attack. We purchased a new, young but proven buck, just in case the problem was with Frank, our four-year-old New Zealand. We added apple cider vinegar to the water, hearing the small amount of alcohol might encourage our does to get a little frisky. Lastly, we began supplementing their feed with black oil sunflower seeds.

The new buck was wonderful and he gave his best effort, but still our does wouldn't lift their little tails. The apple cider vinegar, while always a good supplement, had no immediate effects. Black oil sunflower seeds are nice and fatty and oily, so while I can't confirm they helped with the low libido of our herd, they did wonders for body conditioning (we now feed a tight fistful to each of our breeders every day, regardless of breeding performance).

What did serve as a marker of improvement was the coming and going of the winter solstice. Beginning on December 22nd, our success rates began to climb, and by the second week of January, all of our does were breeding as usual and they've continued to breed on schedule ever since. My advice to you, should you encounter this problem during the darkest days of winter, is to turn some lights on and ensure your herd is experiencing 14-16 hours of light. And the black oil sunflower seeds definitely don't hurt.

## **Problem Solving**

If your rabbits aren't breeding, here's a short list of things you can try:

- Remove the doe and try again in a few hours or the next day
- Try breeding the doe to a different buck
- Breed your rabbits first thing in the morning
- Make sure they're not both bucks (it's happened to us!)
- Increase feed for a few days
- Add artificial light to simulate longer days

## **Fat Rabbits**

Overweight bucks tend to lack stamina and can lose interest in a doe who does not lift after one or two of his advances. If your buck seems a little lazy and is looking chunky, it's time to put him on a diet. Overweight does may lift for their buck, but extra fat can choke off an otherwise successful mating. If your doe is having a difficult time conceiving, or producing small litters (2 or 3 kits), she may be overweight. Use the target weights for your specific breed as your guide.

## Who to Mate? Line Breeding versus Outcrossing

*“Line Breeding”: the breeding of animals that are closely related in order to select for desirable attributes, for example, breeding a doe back to her sire*

*“Outcrossing”: the breeding of animals that are not closely related*

Many rabbit producers believe firmly in the benefits of line breeding, and understandably so. An educated farmer with a firm grasp on the genetics of their own herd can rapidly breed out undesired characteristics and consistently obtain desirable ones in just a few generations. In fact, every purebred rabbit is at least distantly related to every other rabbit of its same breed. Line breeding is how new breeds of rabbit are created, after all.

As part of my research for this project, I visited Daniel Salatin, arguably one of the most successful small rabbit producers on the East coast, at Polyface Farm in Swoope, VA. He is an avid line breeder, with an excellent eye for positive and negative traits in his herd.

For less experienced farmers, line breeding can end up causing more harm than it does good. In the same way professional breeders use this method to maximize good traits, a novice might accidentally lock in bad traits in their herd. Once this mistake has been made, there’s no way to undo it aside from bringing in new rabbits and starting over.

At Letterbox, we generally practice “outcrossing,” or the practice of breeding animals that are not closely related. In our case, we rely on careful selection and hybrid vigor to produce big, healthy rabbits. Currently, we are using New Zealand bucks from two different lines and Californian does. For variety’s sake, we have saved some of the best Satin x New Zealand does that were sired by our retired Satin buck and our New Zealand does.

Do not be afraid to cull your breeders if you find you’ve made the wrong selection. As was mentioned in the beginning of this guide, uniform and reliable production is imperative to running a successful rabbitry and nothing affects this more than developing quality breeding stock. Since we’re breeding for commercial production and not for show, our baseline for performance is fairly simple:

### Our Rabbits:

- Must be easy to handle and breed. This means consistently lifting or mounting within 30 seconds of being introduced.
- Must be good mothers who produce a minimum of 6 kits per litter and ideally, 8 or more
- Must be part of a genetic line that is healthy, does well on pasture and finishes between 2.75 and 3.5 pounds in 12-16 weeks

We do not breed for pelts on our farm, but if you have a market for them in your area you may want to consider breeding for color and fur quality as well.



## Techniques for Detecting Pregnancy

Being able to accurately detect a pregnancy (or lack thereof) will save you time by allowing you to rebreed any unbred does without having to wait 30 days to be sure. Since we all know that time is money, here are a few tips:

- Right after mating, flip over the doe and check to see if her vent is glossy. If it is, she's most likely bred. If not, rebreed within the next 24 hours.
- *Palpate* your doe 10-14 days later. This means checking her abdomen for developing embryos by pressing on it from underneath. <sup>1</sup>
- *Test-breed* your doe 10-14 days after the initial breeding. If she readily accepts the buck, it is likely the first breeding was unsuccessful. If she growls or becomes aggressive towards the buck, she's most likely pregnant.

**Be advised:** In rare circumstances, a doe will accept the buck even though she is already pregnant. Since female rabbits have two uterine horns and two cervixes, it is possible for a doe to become pregnant with two different litters at the same time. This can cause health complications later on.

*I've watched ten+ Youtube videos and was trained by a professional, yet I still have no idea how to palpate a doe. I asked Daniel Salatin how to palpate and was relieved to hear he didn't know either. It's tricky, and since I'm still learning, I can't rely on this method. However, palpating is the most effective way to tell if your doe is pregnant. I recommend mastering this elusive skill if you can.*

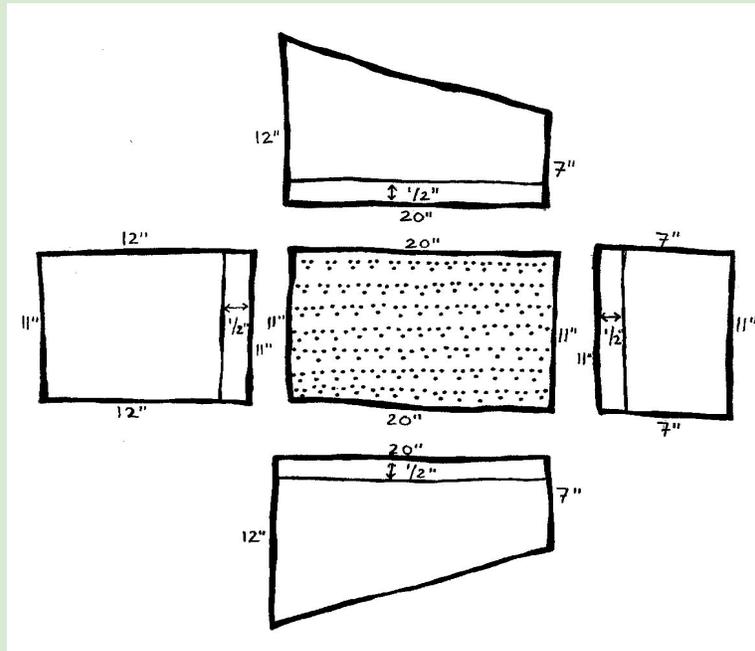
## Gestation and Kindling

Rabbits typically gestate for 31 days, although they've been known to give birth anywhere between 28 and 35 days after being bred. We have never had a doe kindle early at Letterbox, but we do experience the occasional overdue rabbit.

On day 28, separate your pregnant doe from other company and give her a nesting box stuffed with any combination of hay, straw or pine shavings. We use hay at Letterbox, because it's what we have available, but prefer straw. Straw has better insulating capabilities and the does don't eat it all before remembering it's for their nests - an annoying occurrence we've seen happen with the hay. Don't put your boxes in too early, or the rabbits might use it as a bathroom, soiling the bedding before the kits are born.

## What is a Nesting Box?

*A nesting box is exactly what it sounds like—a small box for a doe to build her nest in. At Letterbox, we make our boxes out of wood, but you can purchase metal boxes that do the trick just fine. Here are the plans for your typical nesting box:*



*We use untreated  $\frac{5}{8}$ " plywood for our nesting boxes and secure the pieces together using 1  $\frac{1}{4}$ " staples. You can also use nails or screws. If using the latter, pre-drill your holes to avoid splitting the wood. Some nesting box plans call for hardware cloth on the bottom, rather than wood. In our experience, hardware cloth is easier to clean but can lead to frozen kits on cold nights due the lack of insulation.*

*To clean your nesting boxes after each use, scrape out any material and submerge the box into a diluted bleach water solution. Let them air dry in the sun before using them again.*

Sometime between day 28 and kindling, your doe will shift around the contents of her box to make her ideal nest. This may involve taking out everything you've lovingly put into the box just to put it all back in the way she wants it. Either just before or after kindling, the doe will pull fur from her dewlap (the flap of skin below the neck) and line the nest with it in order to keep her kits warm.

The insulating properties of rabbit fur and hay never cease to amaze me. We keep our rabbits in an unheated greenhouse during the winter months, and while daytime temperatures are mild, the nights can still get very, very cold. This year, we had 6 of our does kindle during a night when it was 7 degrees out, and every kit survived.

Experienced mothers usually prepare their nests well in advance of kindling, but first timers are often caught off guard by their litter. It's common for does to line their nests after birth, so don't worry if yours seem behind schedule. After we separate the doe and give her a nesting box, we let nature take its course. As our rabbits tend to kindle at night, we check on our expectant doe during morning chores on day 32.

What We Look For	Potential Problem	Solution
a nice layer of fur inside the box	a poorly lined nest resulting in exposed kits	Save a bag of clean fur from nesting boxes that are no longer in use to add to a poorly lined nest.
movement from kits under the fur and bedding	no noticeable movement could indicate stillborn, frozen or very cold kits	Remove the fur and bedding to see if the kits are alive. If alive but looking sluggish and feeling cool to the touch, warm them up immediately. (We do so by tucking them into our shirts against our skin. You can also use a hairdryer, set on low, or a heat lamp.) When they are no longer cold, reline their nest with fur and put them back in. Check on them frequently to make sure they are warm. If any kits froze or were stillborn, remove from the box. If all the kits have died, you can rebreed your doe immediately.
kits outside the nesting box	kits outside the nesting box can freeze, get trampled, or starve to death	Make sure they're warm enough and tuck them back into the box. If the mom appears to have rejected them, use another doe with new kits as a foster. Try to breed your does in pairs, so this is always an option.

If we can see movement and the nest looks well insulated, we leave the kits alone for a couple of days. On day three, we take the box out to count and record the litter. This is when we remove any dead kits and soiled bedding. Dead kits aren't terribly uncommon, especially in litters of 8 or more. At Letterbox, we anticipate a 10% loss and do not worry unless we exceed this threshold or something else seems unusual.

Now that your doe has kindled, free feed her and her kits until they are weaned. When you wean your rabbits is up to you, but it's usually safe to do so after four weeks. We typically wean after six weeks, since we want our rabbits a little bigger before they go out into their pasture pens.

## Nursing

Rabbit milk has a whopping 12% fat content (that's more than *three times higher* than your average cow or goat) and for this reason, does only need to nurse their kits twice a day to keep them healthy and growing. So, if you notice that your doe never seems to be in her nesting box, do not panic. It's actually a rare treat to see a new mom nursing her kits.

## False Pregnancies

If your doe goes through the act of making a nest but never kindles, she likely experienced a false pregnancy. Ovulation and hormonal triggers can take place in a doe even if she wasn't successfully bred, causing her to go through the motions of preparing for a litter that will never arrive. For whatever reason, false pregnancies are a common occurrence in our herd. If you find your doe has had one, just remove the nesting box and breed her again.

## Breeding Schedule

Technically, a doe can be bred almost immediately after giving birth. This means rabbits have the potential to rear almost 100 babies in a single calendar year. However, just because it's possible doesn't mean it's a good idea. Overaggressive breeding will most certainly wear out your rabbits and compromise their health. However, breeding too conservatively can have a serious impact on economic viability. The chart below assumes each doe produces 6 viable kits per litter, with each being sold for an average price of \$25.

<b>Days After Kindling</b>	<b>Litters Per Year</b>	<b>Fryers Per Year</b>	<b>Gross Income Per Year</b>
42	5	30	\$750
35	5.5	33	\$829
28	6	36	\$900
21	7	42	\$1052
14	8	48	\$1,216

On our farm, we breed our does 28 days after kindling. This schedule gives our animals adequate rest between litters and gives the kits plenty of time to wean naturally. If a doe has an especially small litter, 4 kits or less, we might breed her a few days to a week earlier than usual next time, in an effort to make up some lost time. Since she's rearing fewer kits, breeding a little earlier shouldn't be a problem.

## **RECORD KEEPING**

Record keeping in the Wire/Pasture Hybrid system is simple. Each breeding rabbit has a name and each cage has a tag with that name. When a doe is bred, the date and the sire (the buck used to service the doe) is recorded. Around thirty-five days later, the litter is recorded. Any losses are noted and the records are updated to reflect them.

We use a free software system called KinTraks for our records. It automatically updates a printable calendar that tells the user when to put in a nesting box, when litters are due and when to breed again. It also organizes all your data so you can easily see how each doe or buck is performing.

We don't tag our growing rabbits in order to keep track of them once they're in the tractors. However, doing so can be useful if you're closely tracking performance. If you want to monitor your growing rabbits, you can tag each one with a permanent marker inside their ear.

## **FEEDING YOUR RABBITS**

As with all livestock, there are several different ways you can feed your rabbits.

Feed is the biggest expense in our rabbitry. Last year, rabbit pellet made up 43% of our total expenses for this enterprise, so it's important that we keep a close watch on what we're spending on it. Remember, this is a low margin enterprise.

At Letterbox Farm, we use organic and non-gmo feed whenever possible. We are very fortunate to have an affordable organic feed mill just five miles down the road, and that's where we purchase feed for our meat birds, laying hens and pigs. Unfortunately, there are simply not enough rabbitries in our area for this mill to produce organic rabbit pellets at a price that fits within our margins and our current accounts are unwilling to absorb a higher price per pound to make up the difference. So, in our rabbitry we use a conventional pellet from another mill in Oneonta, NY.

If using organic feed is a top priority, be sure to find your mill and negotiate a price before you begin your operation. In our area, organic rabbit pellets are nearly \$800 per ton, which is double what we pay at our conventional mill. Since the projections in this guide are based on feed that is \$400 per ton you will also need to adjust your numbers accordingly. From there, you can make a decision as to whether or not you can: A. Increase the price of your produce or B. Operate with lower margins.

We use a 16-18% protein pelleted feed on our farm. No one on our team is a trained animal nutritionist, so we're careful to partner with mills that we trust to take good care of us and our livestock. There are a lot of different ways to feed your rabbits and different mills will have different recipes. Don't be afraid to shop around, talk to other producers, or ask questions.

## How Much to Feed

### *Breeding Stock*

For bucks and does without litters, four ounces daily. If they eat quickly, increase an ounce or two. Be careful not to overfeed.

### *Growers*

Free feed nursing does and growing litters. Once litters are weaned and separated, return breeding does to normal rations.

## Supplements

When our growing litters are out on pasture, we just give them pellets and let them find their own supplements. Since our breeding stock is up on wire, we provide them with a few treats to round out their diet. Some of our favorites are include:

- ***Comfrey***. A good source of Vitamin A that aids digestion and boosts general health. One big leaf per rabbit - too much will cause diarrhea
- ***Hay***. Low grade timothy or meadow hay for fiber. Alfalfa hay can be too rich for mature rabbits
- ***Black Oil Sunflower Seeds***. Great for body conditioning, especially in the winter. Give a small handful per rabbit
- ***Twigs***. Good for their teeth and general health. Varieties that are high in tannins will help prevent coccidiosis. Consider pear, willow, ash and juniper, among others.

## Schedule

We typically feed once per day. Our herd tends to snack a little while the sun is up and finish off the rest in the evening. If we've got full tractors or cages with large litters who are finishing up their food early, we fill up their feeders again in the evening as needed.

## Storing Feed

Rabbit pellets spoil faster than other animal feeds, so be sure to store it somewhere dry and out of the sun. If you can, buy only one month's supply at a time, especially during the summer months. For us, this is conveniently one ton, or 40 bags.

## Water

As with all living things, the availability of fresh clean water is paramount. Depending on the weather and how much the waterers are leaking (have plenty of extras on hand, they always break), our breeding stock needs between 15 and 30 gallons per day, and each tractor of growers needs another 5-10. We use 5 gallon buckets hooked up to plastic tubing, rather than individual bottles to save time and money - the details for which are in the "Housing" section of this guide.

Ideally, your rabbits should have access to water 24 hours per day. This can get tricky during the colder months, as waterlines, bottles and bowls can freeze up. When this is the case, just be sure your rabbits have access to fresh water at least twice per day. Individual steel bowls are a good option here, since they'll take longer to freeze and they won't crack like plastic dishes. Bowls that can hook onto the cage are better than free standing containers since even thirsty rabbits have an annoying habit of tipping over their dishes before they take a good drink.

We move our rabbits into an unheated greenhouse for the colder months. While it dips below freezing after sunset, it heats back up during the day, allowing our plastic water lines to thaw and function just fine by about 10 am. We keep a set of bowls around for cloudy days, just in case.

## Signs of Dehydration

If it's winter and your water availability is sketchy, knowing the signs of dehydration is important for monitoring the health of your herd. Look for:

- **Sunken appearance:** Your rabbits should look full and round. If parts of their body appear sunken or thin, your animal may be dehydrated.
- **Good skin turgor.** With two fingers, grasp the skin on the back of the rabbit's neck and hold in a tented position for a few seconds. If well-hydrated, skin will quickly snap back to its original position.
- **Loss of appetite:** Rabbits won't eat without water. If they haven't eaten their rations, they may not be getting enough access to fluids.

If any of your rabbits seems dehydrated, make sure they have constant access to fresh water. To encourage drinking, you can add a splash of apple cider vinegar to their water supply.

# HEALTH AND DISEASE

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The most difficult part of any livestock manager's job is dealing with the heartbreak of death and disease. Like a lot of farmers, we rely on prevention being the best medicine. To this end, we follow a few simple rules:

- Keep feed and water clean
- Rotate animals through fresh pasture
- Maintain sanitary cages, tractors, and nesting boxes
- Protect livestock from the elements
- Limit outside contact as much as possible

For the most part, following these guidelines will keep your rabbitry running smoothly. At the end of the day, though, disease is all around us, and no pasture-based livestock operation goes unscathed forever. When something erupts, stay calm, and try not to trust the Internet. It's full of pet owners and small scale homesteaders, not livestock veterinarians and experienced production farmers. With the rare exception, advice found online won't be very helpful, and what you read will make you feel bad. If you can find one, build a relationship with a small livestock veterinarian and get in touch with other rabbit producers near you. They'll be your best resources in times of trouble.

## Common Health Issues

### *Sore Hocks*

**Signs:** Sores and/or calluses on the underside of the legs and on the feet

**Cause:** Sore hocks are often the result of stress on a rabbit's joints and/or feet and can be caused by improper support in wire cages, obesity and unclean/damp housing.

**Treatment:** Make sure your housing is clean, dry and that the flooring has enough support so that it does not cause unnatural bowing of your rabbits' legs. Add a wooden plank for your rabbit to rest on while it heals. If the problem is pervasive, there is likely an issue with your housing setup and you should contact a veterinarian or an extension agent for a site visit.

### *Ear Mites*

**Signs:** Excessive ear scratching or head shaking, waxy brown buildup in the ears, visible scabs inside the ears.

**Cause:** Mites are easily spread through rabbit to rabbit contact and are especially common in rabbits housed outdoors and in tractors. Mites can also be present in hay or straw and may spread from there.

**Treatment:** Separate any infected rabbits from the rest of the herd and disinfect all housing, waterers, feeders and nesting boxes with a diluted bleach solution. In mild cases, adding a few drops of vegetable oil into the affected ears will smother the mites and eliminate the problem. You will need to repeat this process every other day for two weeks, and then twice more over the subsequent two weeks to keep the mites from returning. Do not remove any scabs - they will fall off on their own. Once treatment has been completed, the rabbit can be returned to the herd.

### *Snuffles*

**Signs:** Runny eyes, runny nose and frequent sneezing are the tell-tale signs of the Snuffles.

As the illness advances, infected rabbits may become lethargic and stop eating or drinking, resulting in weight loss and dehydration.

There are a number of other health problems that can result from Snuffles, including neurological disorders and abscesses.

**Cause:** Snuffles is the result of a bacterial infection, usually caused by *Pasteurella multocida*. Rabbits with strong immune systems can carry loads of this bacteria without issue, but weak or stressed animals may experience severe health problems as a result. *Pasteurella* can be picked up almost anywhere, although animals in poorly ventilated, dusty, moldy or damp settings are particularly vulnerable. Likewise, animals

kept on pasture are at risk as the bacteria can be in the soil or carried by wild rabbits that could have contact with your herd.

**Treatment:** The Snuffles is a tricky disease to treat, especially in a meat production setting where antibiotics can't be used. If you see signs of an infected rabbit, quarantine it immediately, as the disease can spread quickly to vulnerable animals. Sanitize all the feeders, waterers and housing with a diluted bleach mixture. If the sick animal was out on pasture, move your tractors to fresh ground to reduce potential spreading. Some infected animals will recover on their own, while others will continue to worsen. Animals that fail to recover should be culled to reduce potential spreading and to end suffering.

Rabbits susceptibility to *Pasteurella* is a major reason they are so rarely raised outdoors in commercial production. The bacteria is so prevalent in the natural world that it's almost impossible to avoid it forever. We experienced our first outbreak after two full seasons without issue and it scared the heck out of us. Rabbits that were perfectly healthy one day were suddenly lethargic and emaciated the next. After a very expensive trip to the vet and a \$200 necropsy, we were told that all we could do was clean the barn, sanitize all the equipment, move the tractors to fresh ground and let nature take its course. And that it did: We lost more than a dozen young rabbits in just a week and we were terrified we'd soon lose the entire herd. Thankfully, that never happened, despite what the internet said. The strongest rabbits either recovered or never became sick and we were left with those that had a natural resistance to the disease. Daniel Salatin told me he experienced the same thing when he first put his rabbits on pasture. The only way to truly guard against the Snuffles is to breed for resistance, and unfortunately, it takes some time.

## Coccidiosis

**Signs:** Soft stool, diarrhea, weight loss, slow growth, loss of appetite. At necropsy, enlarged and distended liver.

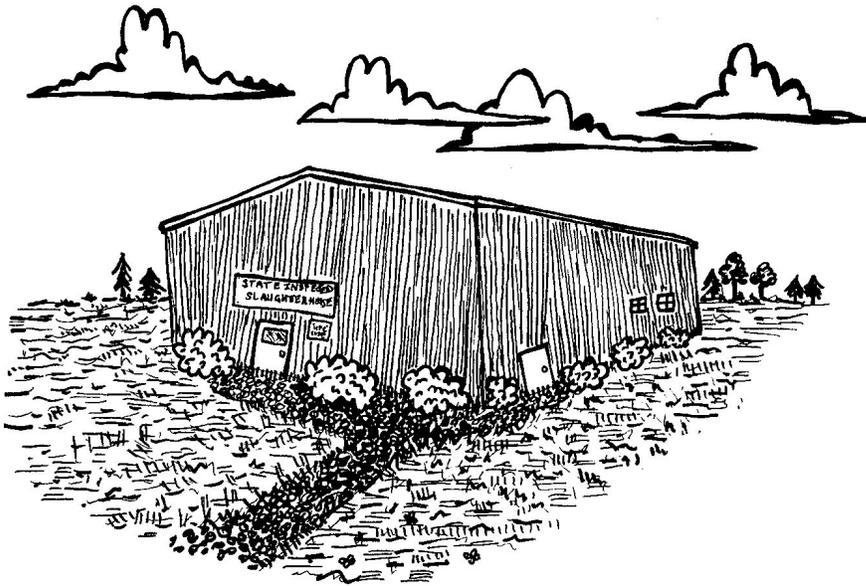
**Cause:** Coccidiosis, or "cocci", is a prolific parasitic disease that can affect the health of virtually every type of livestock. However, strains are species specific, so a cocci outbreak in chickens won't affect turkeys, for example. Cocci is often present in the environment and can become prevalent during warm, damp, and humid weather. After it's ingested by an animal, it proliferates in the gut and spreads

to other hosts through fecal matter. Once cocci is present in the environment, it is very difficult to get rid of - oocysts can survive and remain viable without a host for over a year. In rabbits, cocci infections cause damage to the liver and intestines, which over time can result in serious illness or death.

**Treatment:** Coccidiosis can be easily treated with antibiotics (coccidiostats). If you're experiencing a serious outbreak in your breeding stock, you may want to consider taking a break from breeding, and treat your sick animals to get the situation under control.



# PROCESSING YOUR RABBITS



If all goes according to plan, your litters will be ready to process at 12-16 weeks of age. We pull rabbits for slaughter when they've reached between 5.2 and 6.5 pounds, live weight. Meat rabbits typically dress out at 55% of their live weight, with the head removed, so pulling at this size gives us 2.9-3.5 lbs rabbits for our markets.

Eyeballing live weight is tricky business, so don't hesitate to get out the scale. At \$8 or \$9 per pound, pulling too many underweight rabbits can wreak havoc on your year-end sales numbers so it's worth taking the extra step while you develop your intuition.

Depending on your genetics and method of raising your rabbits may reach market weight in as few as 8 weeks. This is the gold standard for conventional rabbitries, but alas, we at Letterbox Farm have never even come close. That's fine by us, though - we've found that what we lose in efficiency we gain in texture and flavor.

Finding a good and legal method for processing rabbits is essential for any start-up rabbitry. We recommend researching your options well before you get your first breeding stock, since on-site slaughter is restricted or prohibited in many states.

## Know Your Rules & Regs: How to Avoid Doing Business in the “Gray-Area”

Unlike chickens, pigs, sheep and cattle, rabbits are considered “Exotic” or “Non-Amenable” Livestock. Therefore the USDA is not funded or required to inspect them.

In order to compensate for this fact, producers of non-amenable livestock (like ostrich, deer and pheasants) in any state can opt to pay for a “voluntary inspection.” This is costly and impractical for small producers for a couple of reasons:

- It's \$90/hr to hire the USDA inspector
- The inspector must remain on site and be paid for the duration of the entire process, even the cool down

This really only works for big companies like D'Artagnan who are processing huge quantities at large slaughterhouses. But don't worry— many states have their own regulations and inspected facilities that allow farmers to circumvent these federal guidelines.

*Please note:* The regulations for processing rabbits varies wildly from state to state. If your state is not listed below, contact your local Department of Agriculture & Markets and your Health Department for a list of guidelines.

## Processing in the Northeast: A State by State Breakdown

***New York:*** New York has an independent, state-run inspection program for exotic livestock as documented in NYS Ag & Markets Law Article 5-A. Therefore, you can use any slaughterhouse with a 5-A license to process your rabbits. These animals can be sold anywhere within state lines, including farmers markets, restaurants, grocery stores and on-farm.

*Please note:* Rabbits DO NOT qualify for New York State's P.L. 90-492 exemption (more commonly known as the 1,000 Bird Limit Exemption) and therefore no farm is allowed to process for sale any rabbits onsite unless they obtain a 5-A license.

***Massachusetts:*** In our research, we found this state had the murkiest regulations of all. After several conversations with the Department of Agriculture and the Department of Public Health we were told that while Massachusetts has no state-run inspection

program of its own, rabbit producers here may be able to use the licensed facilities in other states that have similar regulations.

***Connecticut & New Jersey:*** Neither Connecticut nor New Jersey have a state-run inspection program, but both allow on-site slaughter. This means farmers in these states are allowed to process rabbits for sale on their own farm, without submitting to inspection of any kind. However, both states only allow for pre-sold direct-to-consumer sales. This means:

- Rabbits must be sold live and to the person who intends to use them
- At least some amount of money must be exchanged before the animal is slaughtered
- The farmer is technically choosing to slaughter the animal on site, *as a favor*
- Dressed rabbits may not be sold to restaurants, grocery stores or at farmers markets

If you are planning to raise

and sell rabbits this way, be sure to keep clean and accurate sales records, in case you are asked to present them to the Health Department or Department of Agriculture.

***Rhode Island:*** Rhode Island has one state inspected facility: Baffoni's Poultry Farm in Johnston. There are no other approved facilities or methods in the state, however rabbits processed at Baffoni's can be sold anywhere within state lines.

***Maine & New Hampshire:*** Maine and New Hampshire do not have a state-run inspection program, but they do have producer exemptions for slaughter and inspection of rabbits. Both states permit farmers who raise 1,000 or fewer rabbits per year to process their own rabbits for sale within their respective state lines. These rabbits may be sold on farm, in Title 7 farmers markets, and to local restaurants and grocery stores.

**Vermont:** When it comes to processing, Vermont is a particularly great place to be a small livestock farmer. For rabbits, Vermont state law allows for on farm, uninspected processing without limit. These uninspected rabbits may be sold anywhere within state lines.

**Pennsylvania:** Pennsylvania does not have a state-licensed program, however, rabbit producers are allowed to use “custom” slaughterhouses or butchers. A custom slaughterhouse is a facility that is not subject to federal inspection or oversight. Producers can work with an

existing facility or build their own, so long as it complies with state rules and regulations.<sup>2</sup>

In most cases, custom facilities are only permitted to process animals intended for consumption by the owner and their immediate family and all product must be labeled “NOT FOR SALE.” In Pennsylvania, rabbits may still be processed at a custom butcher even though they will be offered for sale.

However, the processor must comply with the state’s requirements for antemortem and postmortem examinations of each animal by an approved

veterinarian OR veterinarian’s designee. This means a rabbit producer has the option to hire a veterinarian to be present during processing OR train with a veterinarian and obtain a written designation that they are competent to carry out the required examinations on their own. Then, proof of these examinations must be kept on file with the processor.

Rabbits that have met the above slaughter and inspection requirements may then be sold anywhere within state lines.

<sup>2</sup> *Requirements at:*  
[www.agriculture.pa.gov](http://www.agriculture.pa.gov)

## The Economics of Processing

Letterbox Farm is in New York, so we use a licensed 5-A facility for all of our rabbit and poultry processing. Since good slaughterhouses are hard to find around here, we drive 70 miles, each way, to get there. We also pay \$5 per rabbit, which adds up fast. Processing makes up 25% of our overall expenses for this enterprise and it would be much higher if the rabbits weren’t piggybacking on our meat birds, who we take to the same processor on the same day, in much higher volume.

Before you start your rabbitry, figure out how you’re going to process and do the math. If you live in a state that allows uninspected onsite processing, you may want to consider doing the work yourself. Rabbits are simple to process and package and they don’t require any expensive specialized equipment (like a chicken plucker or a scalding tank). If you can legally process your own rabbits, you’ll save a ton of money.

If you’re using a slaughterhouse like us, make sure the numbers work for you as far as fees, travel-time and mileage are concerned. If they don’t, see if you can get creative. For example, if your slaughterhouse is too far away for weekly trips, look for accounts who will take frozen product instead of fresh. If another farm in your area uses the same slaughterhouse for poultry, see if it makes sense to take turns bringing each other’s animals.

We make it work by combining our slaughter day with an office day. We send one manager from our team to the slaughterhouse to drop off, and then while they wait for the animals to be

ready they use the local library to catch up on emails, records, payroll, etc. This, in addition to hitchhiking with our meat birds, allow the rabbits to share some overhead costs, increasing what would otherwise be narrow margins.

We love our slaughterhouse and it's important that you love yours too. After all, their work represents your business. If it's good, your customers will think you're good. If it's sloppy, they'll think you're sloppy. So, if you're going to use a slaughterhouse, take your time and do your research. Talk to other farmers, get references, find samples of their work and go and meet the folks who will be responsible for the final step in all your hard work.

Once you find the right people, treat them well. Book your appointments in advance, show up on time and try as hard as you can not to cancel. Running a slaughterhouse is a tough job that not many people want. We have to support them every way we can. After all, without them we can't do our job.

## THE ECONOMICS OF SUSTAINABLE RABBIT PRODUCTION

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The economics of your rabbit enterprise will depend on your:

- Initial investment
- Operating expenses
- Breeding schedule
- Marketing and overhead costs
- Sales

In this section we'll break down each one of these costs using actual data from our records. Even though there is nothing particularly unusual about our farm, every farm is different so you will need to make adjustments to these figures to fit your unique situation.

### Initial Investment

One of the best things about small livestock like rabbits is that they require a relatively low initial investment comprised of light and portable infrastructure. Assuming that you have a structure like a barn, shed, garage or greenhouse to host your rabbitry, here is all you'll need to get started:

#### *Housing Cages*

You'll need one cage per breeding doe, one cage per buck and a few additional cages for growing out winter litters. At Letterbox, we have 30 cages total for our 26 breeding rabbits.

We use wire cages that are 36" x 30" x 18", which is large enough for growing out an average litter along side the mother if need be. Ours came from KW Cages in California and are the "Baby Saver" models, which have tighter wiring on the floors to prevent leg injuries in growing kits.

*Please note:* The cages do not come with legs, so you'll need to decide how you want to elevate them off the ground and factor that into your total cost. Some options include hanging the cages or building tables. A quick google image search will demonstrate just how limitless the possibilities are.

Since we're still planning and developing our permanent rabbitry, our cages are simply propped up on cinder blocks for the time being. This allows us to easily move and reconfigure our setup when we go from the barn to the greenhouse or vice versa, as the seasons change. However, they make it difficult to clean up underneath the cages and poop can build up in the corners where the cages rest on the blocks. Oh yeah, and they're heavy as heck.

***Pasture Pens:*** Our system requires one 9'x6' pasture pen per four does for growing out our meat rabbits. After much trial and error, we decided to use a modified version of John Suscovich's "Stress Free Chicken Tractor" and are very happy with the design for a number of reasons. For starters, it is strong and sturdy, but still easily moved by one person. The high arched design allows for maximum ventilation while still providing the rabbits with shade and protection from the elements. The tractors are affordable, and if built correctly they will last for many years. Lastly, they are nice to look at, which, while not paramount on our farm, is always our preference.

Photos of our tractors are in the appendix of this guide, along with our simple modifications, but for complete building plans download John's e-book, available on his website, [www.farmmarketingsolutions.com](http://www.farmmarketingsolutions.com). It's well worth the \$10.

***Feeders and Waterers:*** Our plans include one 68oz "siftomatic" metal feeder for each cage and two mounted inside each tractor, also from KW cages. For water, we use five gallon buckets attached to 5/16 plastic tubing, with a nipple water attachment on the end (easily found on Amazon and other websites). We use one bucket per ten cages in our barn and one bucket per tractor in the fields. In the tractors, we use plastic tees to split the water from the bucket to two different lines, so multiple rabbits can drink at a time.

***Breeding Stock:*** Your desired number of does, plus a minimum of two bucks. Getting does in increments of four will reduce your per doe cost, since each tractor can hold four litters at a time.

***Miscellaneous Items:*** Rabbits require, at a minimum, a few buckets, a couple of transport crates, a shovel, wire brushes for cleaning cages and a pair of j-clip pliers to assemble your wire cages.

If you're maximizing your resources, your initial investments will look something like the following:

**Per Doe Costs**

<b>ITEM</b>	<b>COST</b>
3x2.5x1.5' wire cage (baby saver)	\$33
4 lb feeder	\$5.15
Plastic tubing	\$0.50
Nipple waterer attachment	\$0.75
5 gallon bucket (1 per 10)	\$0.70
Pasture pen (1 per 4)	\$75
Breeding stock	\$30
<b>TOTAL:</b>	<b>\$145.10</b>

A new rabbitry will also have fixed costs that will stay the same, no matter the size of your operation:

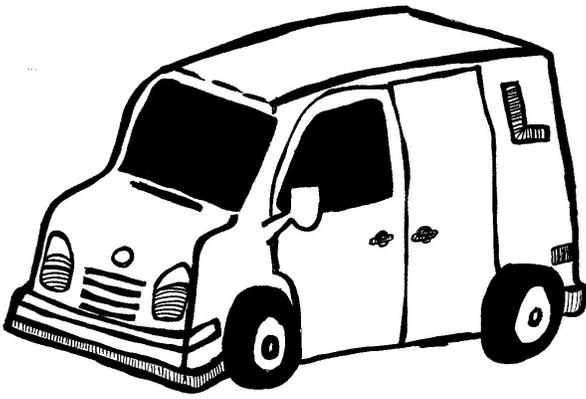
**Fixed Costs**

<b>ITEM</b>	<b>COST</b>
Misc. supplies	\$75
Breeding Buck x2	\$60
Transport crates x2	\$120
<b>TOTAL:</b>	<b>\$255</b>

**Total Start up Cost by Size**

<b>NUMBER OF DOES</b>	<b>INITIAL INVESTMENT</b>	<b>PER YEAR COST<sup>3</sup></b>
10	\$1,706	\$170.60
20	\$3,157	\$315.70
30	\$4,608	\$460.80
40	\$6,059	\$605.90

<sup>3</sup>Per year cost is based on a 10 year depreciation



## Operating Expenses

Your operating expenses include any costs associated with producing a product after you've made your initial investment. These expenses will change based on production and include feed, transportation to and from the slaughterhouse, processing, labor and depreciation on your equipment.

The following expense and income chart is based on a 30 doe rabbitry producing 6 litters of 6 kits per year, with a 15% product loss factored in. The terms are the actuals for our business, but they should also be adjusted to fit your particular circumstances.

ITEM	TERMS	COST
Feed	\$401/ton @ 11 tons	\$4,411
Transportation	See note <sup>4</sup>	\$202.50
Processing	\$5 x 900 rabbits	\$4,500
Labor	182.5 hr/yr @ \$12/hr	\$2,190
Depreciation on equipment	\$4,608/ 10 years	\$460
<b>Total Operating Costs:</b>		<b>\$11,763</b>
<b>Gross Income:</b>	900 rabbits @ \$25/ea	<b>\$22,500</b>
<b>Net Profit:</b>	Income-Expenses	<b>\$10,737</b>

<sup>4</sup>(\$990/3,700) (total number of animals we bring to slaughter) x 900 (total number of rabbits)

The above chart assumes your rabbitry is functioning at max capacity with only a few minor hiccups in production. The more conservative adjustment below accounts for the same exact production expenses, but assumes 20% of the final product produced has gone unsold.

ITEM	TERMS	COST
Feed	\$401/ton @ 11 tons	\$4,411
Transportation	See note <sup>a</sup>	\$202.50
Processing	\$5 x 900 rabbits	\$4,500
Labor	182.5 hr/yr @ \$12/hr	\$2,190
Depreciation on equipment	\$4,608/ 10 years	\$460
<b>Total Operating Costs:</b>		<b>\$11,763</b>
<b>Gross Income:</b>	725 rabbits @ \$25/ea	<b>\$18,000</b>
<b>Net Profit:</b>	Income-Expenses	<b>\$6,237</b>

Keep in mind that if you are experiencing issues with production, rather than sales, your numbers will look differently. For example, if you're having difficulty getting your does bred or finding that poor mothering traits in your breeding stock is resulting in fewer viable kits, your potential gross income will drop, but so will some of your production costs like feed and processing expenses.

To see how rabbits stack up against our other livestock enterprises, we took a look at our margins. Gross margin is the difference between revenue and the cost of goods sold, divided by revenue and expressed as a percentage. So, using the numbers from scenario 1, which has been abbreviated in the chart below, the equation would look like this:

$$(\$22,500 - \$11,749) / \$22,500$$

SCENARIO	EXPENSES	GROSS INCOME	NET PROFIT	% MARGIN
1	\$11,749	\$22,500	\$10,751	47%
2	\$11,749	\$18,000	\$6,251	34%

For the purpose of comparison, our meat birds and pigs have average gross margins of 36% and 20% respectively. Due to scale and market limitations, rabbits make up only a small percentage of our annual income. However if our clients could support an increase in production, rabbits would be our most profitable livestock enterprise by far.

In addition to having higher margins than other livestock enterprises, rabbits are a low risk investment. Even if you're off to a rough start as you build production skills and markets, it's not very difficult to break even in just one season:



## Model Scenario

You invest in a 12 doe rabbitry with two bucks. Difficulty breeding leads to two missed litters per doe for the year. Poor breeding stock selection means the does have small litters and each only produces 25 viable kits per year.

300 rabbits are grown and processed, but sales are slower than anticipated and 40 rabbits go unsold. \$1,000 worth of inventory sits in your freezer.

Here's how the numbers break down:

<b>INITIAL INVESTMENT</b>	\$1,995	(\$145.20/doe + fixed costs)
<b>OPERATING COSTS</b>	\$4,590	(includes feed, processing, transport, depreciation, & labor—30 min per day, year round @ \$12/hr)
<b>TOTAL EXPENSES</b>	\$6,585	(\$4,395 without labor)
<b>INCOME</b>	\$6,500	(260 rabbits x \$25)
<b>PROFIT W/ LABOR</b>	<b>-\$85</b>	
<b>PROFIT W/O LABOR</b>	\$2,105	(or \$11.50/hr)

Even in this scenario, the farmer was able to pay off their initial investment in a single year and pay themselves \$11.50 an hour for their labor. Better yet, they got to eat 40 rabbits!

## Setting Your Price

Think about where you're going to sell your rabbits and set your pricing wisely. The difference of \$0.50/lb makes a fairly small difference for the individual consumer, but will matter greatly in the scheme of an enterprise at scale.

WHOLESALE (75%)	RETAIL (25%)	GROSS INCOME	NET INCOME
\$7.50	\$8.50	\$16,740	\$4,977
\$8.00	\$9.00	\$17,820	\$6,057
\$8.25	\$9.50	\$18,495	\$6,732
\$8.50	\$9.75	\$19,035	\$7,272

*based on Scenario 2: 30 does & 2 bucks producing 720 rabbits/year at 3lbs each*

## Choosing Your Markets

If demand permits, make informed decisions about where you choose to sell:

WHOLESALE (75%)	RETAIL (25%)	GROSS INCOME	NET INCOME
100%	0%	\$17,280	\$5,517
75%	25%	\$17,820	\$6,057
50%	50%	\$18,360	\$6,597
25%	75%	\$18,900	\$7,137
0%	100%	\$19,440	\$7,677

*based on Scenario 2: 30 does & 2 bucks producing 720 rabbits/yr at 3 lbs each, at \$8.00/lb wholesale, & \$9.00/lb retail*

## Choosing Your Scale

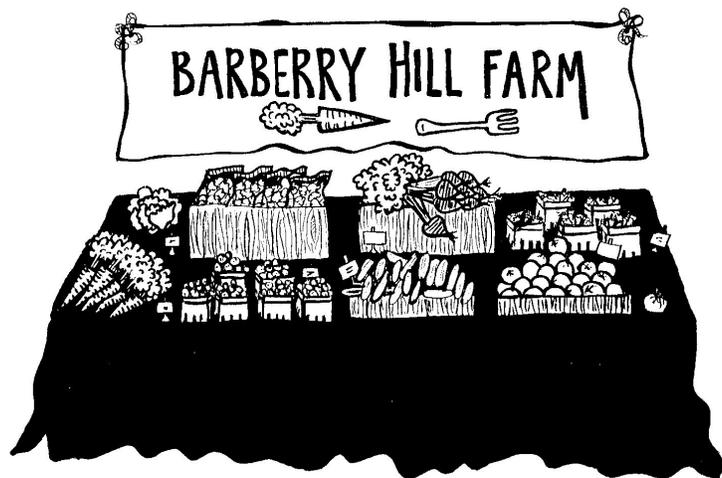
Determining the scale at which a rabbitry is worthwhile depends on two things: your farm's overhead expenses and how much money you want to make.

Overhead expenses include all the expenses necessary to operate a business that cannot be conveniently traced back to any particular enterprise. This includes things like marketing costs, accounting fees, advertising, insurance, rent, utilities, webhosting, vehicle maintenance, office supplies, etcetera. The more your rabbit

enterprise can piggyback on existing costs, the more profitable it will be. The more investments you need to make in order to store, market or sell just your rabbits, the less profitable it will be.

At Letterbox Farm, adding rabbits made almost no change to our overhead costs: we were already paying for a website, marketing fees, cold storage, transportation to the slaughterhouse, insurance - everything we needed to produce and sell rabbits aside from enterprise specific equipment and labor. We were also already tending livestock year round, so little changed in terms of required labor. Therefore, producing rabbit on even a small scale made sense for us.

Building a profitable business with rabbits at the core would look very differently than what we do on our farm. The chart below is by no means comprehensive, but it illustrates what the minimum income requirements could look like for a successful "rabbit only" business:



EXPENSE	TERMS	ANNUAL TOTAL
rent	\$250/month	\$3,000
utilities	\$150/month	\$1,800
market stand	\$190/wk @ 28 wks Including booth, gas, tolls, labor	\$5,320
webhosting	\$200/yr	\$200
insurance	\$1000/yr	\$1000
cold storage	\$50/mo	\$600
city deliveries	\$100/wk	\$5,200
farmer's salary	\$30,000/yr	\$30,000
part time salary	\$10,000/yr	\$10,000
	<b>TOTAL:</b>	<b>\$57,120</b>

Based on these estimates, a single farmer would need to efficiently produce and sell 4,800 rabbits per year at an average price of \$25. This is by no means impossible, but finding a market for that many rabbits at that price could be quite challenging.

## SUMMARY

Based on our research and personal experience at Letterbox Farm, we've concluded that a pasture-based rabbitry offers good economic opportunity for the small scale farmer, given the following criteria are being met or will be met in the future:

- Other, larger enterprises exist to help carry overhead costs.* As we learned from the data above, in order to carry all of its own overhead costs a rabbitry would have to scale up considerably. However, for farms that are already producing a variety of products and serving a range of outlets, rabbits can be easy to integrate. Likewise, they're an asset for existing markets and enterprises because they increase product diversity and produce free fertility.
- The farm is operating year round.* An economically sound rabbitry requires efficient production. The numbers in this report are based on each doe producing 6 litters per year. Therefore, farms with year round staff and sales teams will fare better than those without. However, developing markets for frozen product eliminates the need for year round sales (although it still requires four-season production).

- ***You can find good feed at an affordable price.*** There are a lot of options out there, from conventional to organic, to growing your own. Just be sure to do the math and set your pricing accordingly.
- ***You have consistent access to a legal processor.*** This is the wild card, since it may be totally out of your control. If you live in a state that allows on-farm processing, you're all set. Otherwise, contact your state health department, extension office or department of agriculture and markets

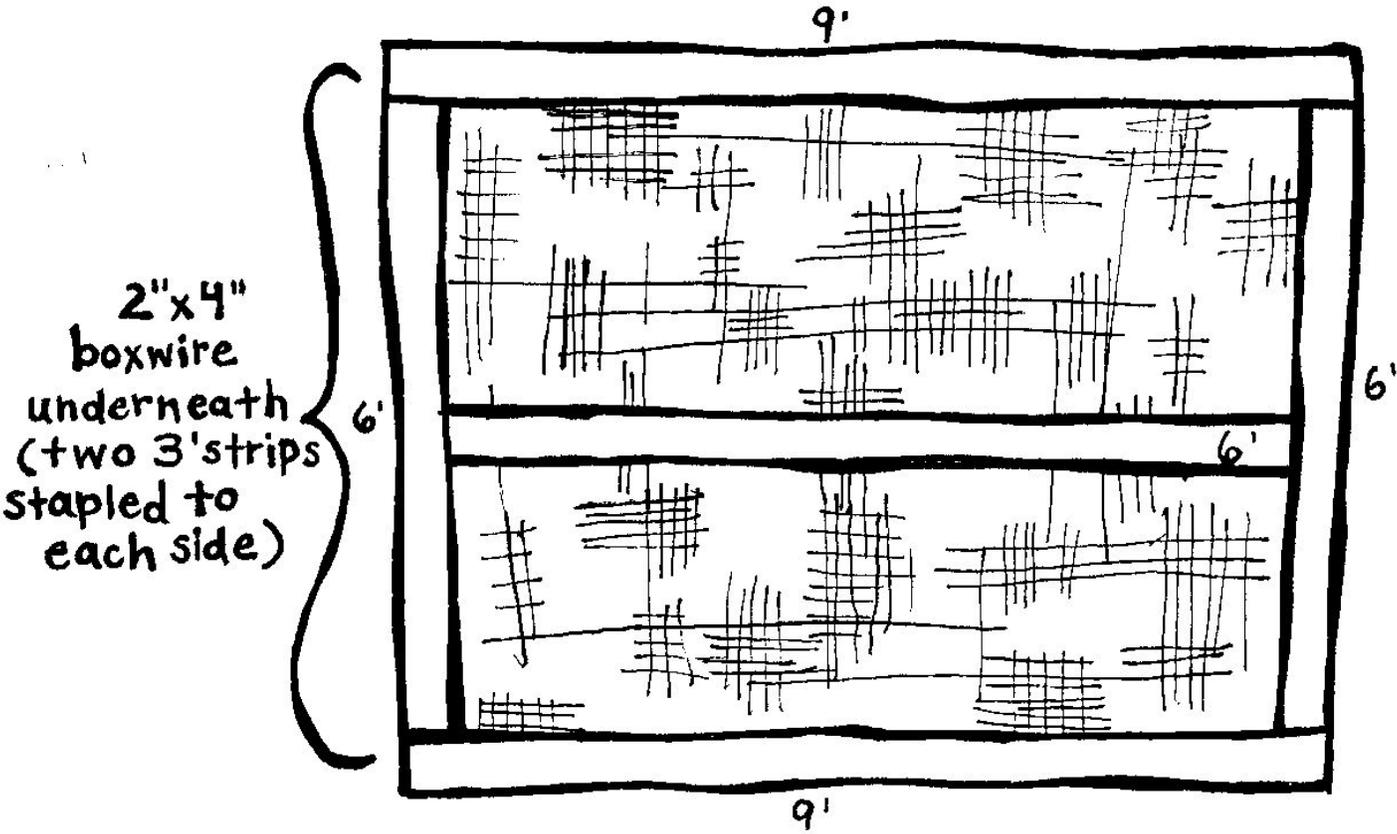
to find a licensed slaughterhouse near you.

- ***Markets in your area support appropriate pricing and purchase in high enough volume.*** Selling five hundred rabbits a year may seem difficult at a glance, but when you break it down, that's only ten rabbits per week. One anchor restaurant account might be all you need to make it happen. However, it's worth feeling out your potential markets before you invest in your rabbitry. Consistent sales at a fair price are the absolute crux of your success.

Not quite there, yet? That's okay - neither were we back when we started our little broiler enterprise. Developing a small rabbitry is a great way for a new farmer to get some skin in the game while they build the rest of their business. Low start-up costs along with minimal space requirements and light, portable infrastructure make rabbits an ideal starter enterprise, especially for part time farmers without permanent land tenure.

# APPENDIX

underside of tractor



Our Tractor Modifications



**Ellen Fagan, of Deep Spring Farm. In her design, the roof of the tractor slides on and off for easy access to the rabbits inside.**



**The breeding colony at Deep Spring Farm is inside a large stall in the barn.**



**The front view of our rabbit tractor.**



**The rear view of our rabbit tractor. A hanging 5 gallon bucket connects to multiple lines of plastic tubing with nipple waterers at the ends.**



**A side view of the tractor, with the wheels on, ready to move.**



**Rabbits inside the tractor at Letterbox Farm. Mounting the feeders inside the tractor keeps wild animals away and keeps pellets dry.**