

# MARYLAND BEGINNING FARMER LIVESTOCK MANUAL

A manual to help  
Beginning Farmers start  
a livestock farm



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BEGINNING  
Farmer Success 



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## Foreword

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The Maryland Livestock Manual was created as part of the Maryland Collaborative for Beginning Farmer Success. It is intended to be a resource for agricultural service providers and farmers in the region. The manual should be used as a companion to the Beginning Farmer Guidebook and website <https://www.extension.umd.edu/newfarmer> which contains additional resource material to support farmers in Maryland. The Manual contains various publications often requested by beginning farmers interested in livestock production.

The Maryland Collaborative for Beginning Farmer Success builds on existing University of Maryland Extension resources and partnerships with Future Harvest-CASA; Southern MD Agriculture Development Commission, University of Maryland Eastern Shore, regional nonprofits, agricultural organizations, and experienced farmers to provide beginning farmers with easily accessible tools and practical experience-based training on farm production, marketing, land management, business planning, and financial resources.

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- <https://extension.umd.edu/newfarmer> - Sign up online for newsletters and announcements of workshops, conferences and other events
- Beginning Farmer Guidebook - <https://extension.umd.edu/newfarmer/farming/beginning-farmer-success-guide-book>
- <https://www.facebook.com/beginningfarmersuccess>
- <https://twitter.com/NewFarmerMD>
- <http://www.youtube.com/c/UMEBeginningFarmerSucess>

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## UNIVERSITY OF MARYLAND EXTENSION

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University of Maryland Extension (UME) is part of the University of Maryland, College of Agriculture and Natural Resources and extends non-formal, research based knowledge and resources from campus to each of the 23 Maryland counties and Baltimore City and 5 research stations. There is an office in each county and Baltimore City. These offices offer a number of farm and community programs and would be a great resource to a new and beginning farmer getting started. Contact your local Extension office to get on their email list to find out about farm and educational programs in your area. To find your local Extension office visit - <https://extension.umd.edu/locations>.

**UME Beginning Farmer Success Program** - Established in 2012, the UME, Maryland Beginning Farmer Success Project provides new farmers with resources and contacts to be able to explore enterprise options, refine business ideas, develop strategies, and implement their farming practice. The goal is to increase the number of successful beginning farmers and the acreage farmed by them. This statewide program uses a number of education and outreach methods to connect new farmers with the information and tools they need to be successful. **These include: field days, workshops, coaching, conferences, email blasts, online education.**

### University of Maryland Crop/Livestock Production Information

Agriculture Links	<a href="http://www.extension.umd.edu/topics/agriculture">www.extension.umd.edu/topics/agriculture</a>
Aquaculture	<a href="http://www.extension.umd.edu/aquaculture">www.extension.umd.edu/aquaculture</a>
Beef Production	<a href="http://www.ansc.umd.edu/extension/beef-extension">www.ansc.umd.edu/extension/beef-extension</a>
Beginning Farmers	<a href="http://www.extension.umd.edu/newfarmer">www.extension.umd.edu/newfarmer</a>
Dairy	<a href="https://extension.umd.edu/dairy">https://extension.umd.edu/dairy</a>
Equine	<a href="http://www.extension.umd.edu/horses">www.extension.umd.edu/horses</a>
Field Crops	<a href="http://www.psla.umd.edu/extension/md-crops">www.psla.umd.edu/extension/md-crops</a> <a href="http://www.extension.umd.edu/grain">www.extension.umd.edu/grain</a>
Grain Markets, Leases, Custom Rates	<a href="http://www.extension.umd.edu/grainmarketing">www.extension.umd.edu/grainmarketing</a>
Grapes and Fruit	<a href="http://www.extension.umd.edu/smallfruit">www.extension.umd.edu/smallfruit</a>
Marketing	<a href="http://www.extension.umd.edu/agmarketing">www.extension.umd.edu/agmarketing</a>
MD Rural Enterprise Development	<a href="http://www.extension.umd.edu/mredc">www.extension.umd.edu/mredc</a>
Environment and Natural Resources	<a href="http://www.extension.umd.edu/topics/environment">www.extension.umd.edu/topics/environment</a>
Nursery, IPM landscape, greenhouse	<a href="http://www.extension.umd.edu/ipm">www.extension.umd.edu/ipm</a>
Pastures	<a href="http://www.psla.umd.edu/extension/maryland-forages-program">www.psla.umd.edu/extension/maryland-forages-program</a>
Plant Clinic – plant pest diagnosis	<a href="http://www.extension.umd.edu/plantdiagnosticlab">www.extension.umd.edu/plantdiagnosticlab</a>
Poultry – Small Flock	<a href="http://www.extension.umd.edu/poultry">www.extension.umd.edu/poultry</a>
Sheep and Goat	<a href="http://www.extension.umd.edu/sheep-goats">www.extension.umd.edu/sheep-goats</a>
Vegetables	<a href="http://www.extension.umd.edu/mdvegetables">www.extension.umd.edu/mdvegetables</a>
Urban agriculture	<a href="http://www.extension.umd.edu/urbanag">www.extension.umd.edu/urbanag</a>

# BEGINNING FARMER LIVESTOCK

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## General Information

- ★ Goal Setting
- ★ Basics of Livestock Farming
- ★ Biosecurity and Zoonosis
- ★ Veterinary Care

I like animals and am thinking about starting a livestock farm

I reviewed general information about livestock

## Business of Livestock

- ★ Record Keeping
- ★ Livestock Laws and Regulations
- ★ Marketing
- ★ Full Time or Part Time

I understand the business side of livestock production

## Species

- ★ Beef Cattle
- ★ Dairy Cattle
- ★ Equine
- ★ Poultry
- ★ Sheep and Goats
- ★ Swine
- ★ Alternative

On your way to establishing a successful farm!

I have done my research and ready to start farming



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### **Business of Livestock**

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- Marketing Your Product
- Full-Time or Part-Time

### **Species**

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# **General Information**

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## General Information

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### Goal-Setting on a Small Livestock Farm



Why set goals?

In any new endeavor, it is important to set goals. These can act as an outline for new ideas so that you can reach your dream as efficiently as possible and with purpose. This is especially important when raising livestock on a small farm in order to get the most out of your livestock, land, time, and investment.

Why do you want to add livestock to your farm?

Whether you are already farming or looking to begin a new enterprise, you have to ask why you want to add livestock to the farm. Did you grow up raising beef cows and miss the aesthetic on your land? Do you want to be a local source of goat's milk for the community? Do your children want to raise 4-H animals? Is your property empty without the presence of animals? The first step to raising livestock on a small farm is to answer these questions. Try filling in the prompt below to set your first goal as a livestock farmer!

#### Goal Setting Questions

	Short Term Goals	Long Term Goals
1. I want to add livestock to my farm because		
2. Market for livestock, products and services		
3. Financial goals for livestock enterprises		
4. Environmental goals for the farm		
5. Personal and family goals for the farm		

Once you understand why you want to add livestock to the farm, you can continue setting goals for what species to raise, what industry to work in, what breeds to choose, and building your farm business.



## ***The Basics of Livestock Farming***

Livestock, just like humans, have basic needs when it comes to their survival. From a young age all children learn that they need food, water, and shelter to stay healthy, and this same principle applies to raising livestock. With that in mind, we now have a few more questions to ask during the planning and goal-setting stage of establishing a livestock farm. Examples of these questions can be found below. These are not all the questions that you may have when considering the three basics of livestock farming but they are important considerations when getting started.

### **Water**

- Where will my animals get water?
- Is this a safe water source?
- How/where will I refill it?
- Do seasons affect the availability of this water?
- Is it available at all times?

### **Food**

- Where will my animals graze?
- Where will I feed the animals?
- Will they need to be separated?
- What will I need to feed during the winter months?
- Where will I get this food for winter?
- Do my animals need any supplements and when?

### **Shelter**

- What kind of shelter do my animals require?
- Is the area comfortable and safe?
- Is there space when the animals need to be separated?
- Where will I put their shelter so it doesn't take up prime pasture space?

## *Pasture Management*

What is pasture management?

Pasture management is one of the most important aspects of raising livestock. It is a combination of weed control, soil health, grass growth, and managing your animals in the midst of all this. As you design a livestock farm, here are some tips to help get the most out of the pasture.

I have a big, grassy area, but how do I know if it's a good place for a pasture?

**Measure It!** - The first thing to know about your potential pasture is how many acres it is. There are many ways to find out this information, including measuring the area of the pasture by hand or using online mapping services to determine the size of the pasture from satellite images. Once the size of the pasture is known, you will have a better idea of how many animals it can sustain and how much room they will have for grazing. Also keep in mind a shelter for the animals will be needed, so some of the pasture space will be taken up by run-in sheds or barns. To calculate acreage multiply the length x width to get the square footage and divide by 43,560 (square feet in an acre).

**Test It!** - After determining the size of the pasture, submitting samples for a soil test is the second most-important step to learning more about the grazing area. This will allow you to see what kind of soil is most prevalent, as well as the pH and current nutrient levels. For animals to get nutrients from the grass they are eating, the grass must be grown in soil that contains those nutrients in the first place. So, if the soil is deficient in something like nitrogen or phosphorus, you will have a harder time keeping animals happy and healthy in the long-run. For more info on soil health, soil types and testing reference the chapter in the Maryland Beginning Farmer Guidebook <https://extension.umd.edu/newfarmer/farming/beginning-farmer-success-guide-book>.

**Identify It!** - The third most important part of pasture management is weed control and grass identification. Knowing what types of grasses (or weeds) are already growing in the pasture can tell you a lot about what to expect in the future. For example, is a cool-season grass growing or a warm-season grass? Is the type of grass growing in your pasture meant for dry, arid climates, or would it do okay in wet ground? Are there any weeds present, and if so, what are they? Are these weeds toxic to the animals grazing on the pasture? What can I do to reduce the weeds on my farm?

The local Extension Office is a great resource for identifying plant and providing recommendations to control unwanted weeds. Extension agents can also help create a management plan for an entire pasture system on the farm.

Getting to know a pasture in these ways is important to understanding what nutrients an animal on the farm can get from grazing alone. Taking these steps before adding livestock to

the pasture will also put you ahead of the curve on tackling issues like nutrient deficiencies and poor grass growth. As you learn more about a pasture, record findings in the chart below, and keep it handy in case of any questions later on.

NAME OF PASTURE: \_\_\_\_\_

MEASURE YOUR PASTURE! NUMBER OF ACRES: \_\_\_\_\_

SUBMIT A SOIL TEST!

RECORD YOUR TOP THREE QUALITIES OR CONCERNS:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

IDENTIFY GRASSES AND WEEDS ALREADY GROWING!

WHAT DID YOU FIND GROWING IN YOUR PASTURE?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

***Rotational Grazing***

To improve productivity, many farmers include rotational grazing in their pasture management plans. Not only does this technique help keep pastures growing healthy, it can also reduce the number of parasites in an animal’s environment without having to use deworming products. Rotational grazing is just what it sounds like – moving a herd of animals around to different pastures on the farm in a prescribed pattern. Although it may sound easy, this management strategy takes a lot of skill and forethought.

An example of a simple rotational grazing plan for a sheep farm explains the theory behind rotational grazing systems with the goal of forage for the animal and a break for the pastures so they can regenerate.

Term 1 – 2 weeks

- Sheep graze on pasture A
- Spread manure in pasture D
- At end of 2 weeks, move sheep to pasture B

Term 2 – 2 weeks

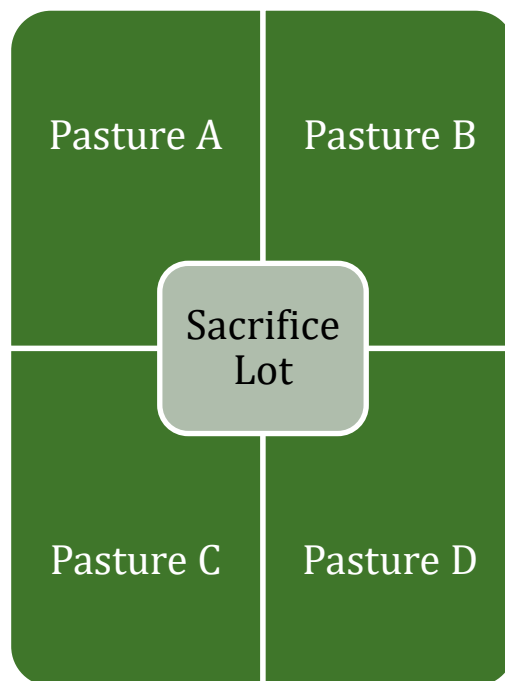
- Sheep graze on pasture B
- Spread manure in pasture A
- At end of 2 weeks, move sheep to pasture C

Term 3 – 2 weeks

- Sheep graze on pasture C
- Spread manure in pasture B
- At end of 2 weeks, move sheep to pasture D

Term 4 – 2 weeks

- Sheep graze on pasture D
- Spread manure in pasture C
- At end of 2 weeks, move sheep to pasture A



In this grazing system, the sheep are moved to a fresh pasture every two weeks. This is an estimation and will depend on many factors including the size of the pasture, number of animals, quality of forage and seasons (grass grows more in spring and fall, less in the summer). Precautions should be taken not to overgraze an area. Overgrazing is when a pasture has been grazed too long and desirable grasses have become stressed or nonexistent. This will cause the grasses to take more time to grow or allow weeds to invade.

When the herd is moved off of a pasture, the manure piles should be spread out as soon as possible. This can be done by hand or by a drag. There are two purposes – first, the manure will fertilize the grass, promoting growth (if manure is left in piles it can create dead spots in the grass), and second, any parasite eggs in the manure will be separated and hopefully exposed to more sunlight, thus killing those eggs and preventing reinfection.

Also, don't forget that the animals will need access to food, water, and shelter while they are out in those rotational pastures. Two common ways to provide this are as follows:

1. Sacrifice Lot (sometimes called a paddock) - Most livestock farmers choose this option. To make a sacrifice lot, a central space is created that is accessible to rotational pastures (see graphic above). The space has water, shelter, and access to any grain or supplements the

animals need. As pastures are rotated, all a farmer has to do is shut gates to prevent access to other pastures. Sometimes lanes are created to help move animals from one area to another. A sacrifice lot is a great place to house the animals overnight, when they have consumed their daily nutritional needs and when a vet visit is scheduled.

2. Fully-Equipped Pastures- This option is also viable but does take more resources. Each pasture would contain a water source, shelter, and way for the animals to access grain and supplements. This may work for a farm where rotational pastures do not have common fence lines with each other, pastures are not close together, or where a sacrifice lot would not be possible for any reason.

## **FENCING**

Fencing is another important part of raising livestock successfully. The State of Maryland is what is known as a “fence-in” state, meaning that all livestock must be kept within the perimeters of some kind of fencing on your property. There are many different types of fencing from electric wire to simple boards to wire-netting, and the type chosen will largely depend on the species of animals raised on your farm and available funds.

Take time to plan out a pasture system on paper and do the research to decide what type of fencing materials or mix of types is best for your operation. For now, just remember that a good fence seems like a lot of work at first, but over time it can save a lot of hassle and money if done right the first time.

## **MANURE MANAGEMENT**

Manure management will be inevitable on a livestock farm. There are a number of considerations depending on if the animals are confined and manure is being collected or if they are in a pasture system. Many livestock operations have times of year that the animals are confined mostly winter months, when pastures are too wet or grass is dormant. Confinement is generally in a smaller space such as the sacrifice area, stalls or feedlot.

In a pasture situation manure is deposited on the pastures as the animals graze. Manure can be picked up or using a drag that break up and spread out the piles of manure. As mentioned earlier this helps with grass regrowth and parasite control.

In a confinement situation planning for the amount of manure and mud is important. Designing a base that is comfortable and safe for the animal but also must withstand the amount of “hoof traffic” it will receive. Depending on the species there is footing and recommendations in designing a high traffic area. The manure in this situation gets collected on a regular basis and will need an area to store it until ready for use. Large farms have manure sheds or lagoons and smaller farms construct compost or holding areas. Manure management should be part of your farm planning.

University of Maryland has published manure estimates by species that can be helpful in calculating how much manure will be produced on the farm. Nutrient Management Advisors are also helpful in making that estimation.

<https://extension.umd.edu/sites/extension.umd.edu/files/docs/programs/anmp/Updated%20Manure%20Production%20Sheet%20Aug%202018.pdf>

## BIOSECURITY AND ZONOSIS

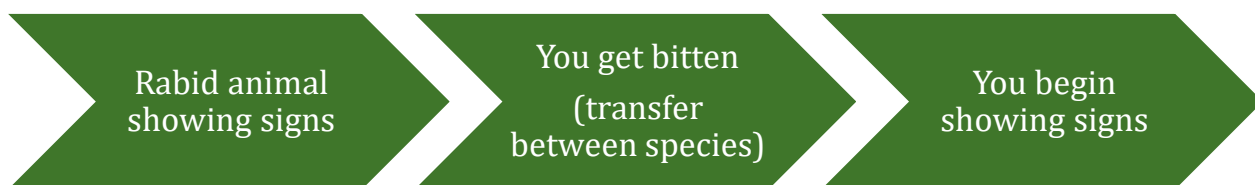
Biosecurity – security from exposure to harmful biological agents (also: measures taken to ensure this security)

Zoonosis – an infection or disease that is transmissible from animals to humans under natural conditions

*From Merriam-Webster Dictionary*

Biosecurity and zoonosis are two of the most important words in the field of animal science today. This is because, as global trade increases, more animals across the globe are being exposed to diseases that were previously only native to one small region. This is the reason that so many farms now bear “Biosecure Farm, No Entry,” signs at the edge of their driveway. But what do “biosecurity,” and “zoonosis,” mean for an up-and-coming livestock farmer?

First, let’s understand the concept of “zoonosis,” by using rabies as an example. It is widely known that if you see an animal stumbling around, foaming at the mouth, and maybe getting a little too close for comfort, you can assume that it’s suffering from the rabies virus. Let’s say that you were walking your dog when you came across this potentially rabid animal, and as you tried to walk past the animal, it bit you. If you do not immediately go to the hospital and begin receiving injections, there is a very high potential that you will start showing the clinical signs of rabies. This spread of a disease between two animals of different species is the basis for the concept of zoonosis.



Now that you understand more about zoonosis, we can begin to talk about “biosecurity.” Put simply, biosecurity is all of the precautions taken to prevent the spread of any diseases on a farm. A specific example of biosecurity on the farm could be as follows:

Strangles in horses is a contagious disease that causes lymph nodes and the surrounding tissue to abscess and become infected. It is a disease many horse barns avoid through proper quarantine methods and keeping close watch over their animals. However, imagine that a new horse owner has brought a horse to a local barn, and insists their horse has a clean bill of health and should be allowed to spend time in the pasture with the other horses. The barn manager, seeing no obvious signs of disease, allows this horse to skip the usual quarantine time due to the insistence of the owner. One week later, five horses, including the new horse, are showing signs of strangles. Worse yet, the farm just had a regional horse show over the weekend, so there are over 200 horses who have been potentially exposed to strangles. This is a huge problem for the horse farm and could have easily been avoided if the quarantine and biosecurity protocol had been followed.

The quarantine protocol mentioned is a form of biosecurity because it is a measure taken to

prevent the spread of disease. During that period, the new horse would have been given time to show clinical signs of strangles and be treated before he could spread the disease to other animals on the farm. This is the reason why biosecurity measures should be followed diligently and with no exceptions. Poultry and hog farms have strict biosecurity precautions.

There are many diseases that can be prevented by having proper biosecurity measures in place. These practices can also make a farmer more aware of his or her herd/flock and help the farmer be more vigilant to their animals’ individual and overall health.

If you have more questions about how to implement biosecurity protocol on your farm, feel free to reach out to your local Extension Agent or visit the UME poultry website at <https://extension.umd.edu/poultry/commercial-poultry-production/biosecurity-protects-your-birds>.

Signage

All visitors must use shoe covers

New gloves, needles, etc. must be used for each animal

No outside animals allowed on the property

Cleaning and Sanitation

## VETERINARY CARE

Just like humans, when animals are sick, they must be seen by a doctor, otherwise known as a veterinarian. When a farmer, new or experienced, is purchasing livestock to add to his or her farm, finding a veterinarian to rely on can be the difference between success and failure for the new animals. But, for some, finding the right veterinarian can be a tricky endeavor.

*Can my dog or cat's vet treat my livestock?*

The answer to this question depends on a lot of factors. If you are raising cattle or pigs, you'll likely need someone more experienced in what is known as "food-animal medicine." Your small animal veterinarian may sometimes be willing to treat poultry and sheep or goats. Horses can require a very specific skillset, and often require a vet that works with mostly horses on a day-to-day basis.

Even though you may want to seek out another veterinarian for your livestock, that does not mean you have to switch to another practice altogether. Many times, large and small animal veterinarians will work together in a clinic so that they can better serve their local community. The small animal veterinarians will stay in the office to examine and treat dogs, cats, and other pets, while the large animal vets typically spend their days on the road making farm-calls. Check with your vet's office to see if they have large animal vets on staff that could treat livestock. If not, talking to local farmers and asking on social media can be the best ways to find large animal veterinarians in your area. Just remember that, ultimately, you have to get along with the vet, so don't feel bad if you end up trying multiple people until finding someone who works with your goals, needs, and ideas.

Because the needs of livestock differ so greatly, even throughout a state as small as Maryland, this book cannot offer specific details about vaccination protocols and deworming schedules. However, your local veterinarian can offer you this information as well as helpful strategies to managing your animals to the best of your ability.





# **Business of Livestock**

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## Business of Livestock

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### RECORD-KEEPING

In any business, record-keeping is an essential task. The type of record-keeping discussed here has to do with giving medications and is an important part of keeping track of your animals' health status, but many other types of record-keeping can be used to manage a small livestock farm. Examples include animal health records, expenses, breeding, herd maintenance records, etc.

There are many types of animal record keeping systems from paper based to spreadsheets to mobile apps. Experiment with different systems and decide on one that makes sense, is easy to use and helps with farm decisions. There are records that may be required or part of the law. Examples include tax records, registration records, pesticide and nutrient management.

Below is an example of a medication treatment record for a livestock farm.

Animal ID	Date and Time Given	Product Used	Dosage	Route of Administration	Withdraw Period	Withdraw Date and Time	Person That Administered
B-1060	5/25 10:30am	Bovikalc	1 bolus	Oral	None	5/25 10:30am	Bob Jenkins

- Animal ID – the name or number assigned to that specific animal whether it's a name given, registration or a number on an ear tag
- Date and Time Given – when did was the medication administered?
- Product Used – what medication was given to the animal?
- Dosage – how much medication was given to the animal? (don't just write 1 dose, some bottles have different concentrations and therefore different dosing instructions)
- Route of Administration – how was the medication given to the animal?
- Withdraw Period – medications can have a certain period after the drug is given that milk and meat cannot be consumed by humans because the drug residue will still be present within these products (most medications list it in large letters on the container). This is extremely important in order to prevent drug residues in animal products. It is not a being a good steward to the consumer and there can be fines if the drug is found.
- Withdraw Date and Time – what will the day and time be when the meat or milk of this animal can be consumed again (day drug was given + withdraw time = withdraw date)
- Person That Administered – if you have questions about the administration of this drug, or if an animal has an adverse reaction, there is a person of reference who gave the drug in the first place

## **Livestock Laws and Regulations**

*Disclaimer: The following is intended for educational purposes only and is not legal advice.*

There are a number of laws and regulations a livestock farm will be required to meet depending on the species, type of production, markets, and number of animals. This section is a brief summary of common regulations farmers should be aware of.

Animal Health Regulations and Executive Orders:

<https://mda.maryland.gov/AnimalHealth/Pages/Regulations.aspx>

Farmers Guide to Permits:

[https://mda.maryland.gov/resource\\_conservation/Documents/farmpermitguide.pdf](https://mda.maryland.gov/resource_conservation/Documents/farmpermitguide.pdf)

### Zoning

Depending on where your farm is located, county and town zoning laws could have a major impact on the farm's usability, how many animals can be raised there, and even what species of animals can be raised. The county zoning office can help answer questions regarding that as well as any farm signage and on farm sales requirements. If you are searching for a farm property these are questions to ask before purchasing. Homeowner rules or covenants in communities may also have livestock restrictions. You may want to ask about covenants when deciding on a farm enterprise or making a purchasing decision.

### Nutrient Management

Nutrient management is to balance soil nutrient inputs (fertilizer, compost, manure) with crop requirements. There are number of benefits from nutrient management and include the optimum conditions for crop growth, protection of water resources, enhance profitability through efficient nutrient use.

The 1998 Water Quality Act made it mandatory for farms in Maryland to have a nutrient management plan. Farmers with a gross income of over \$2,500 or with over 8 animal units (1 animal unit is 1000 pounds) on their property must have and follow a nutrient management plan. These can be created by a nutrient management advisor at your local Extension Office, or by a private entity certified to create these plans. You as a farmer may also become certified to create nutrient management plans for your farm. More information can be found here:

<https://extension.umd.edu/anmp>.

### Conservation Plans and Programs

While not mandatory, there are state and federal conservation programs for farmers to enroll in that can help increase environmental stewardship. Programs like these can help with grazing, water ways, tree planting, fencing, manure storage, and feeding. To find out more about conservation programs or to get a conservation plan written, contact the local Soil Conservation Office

[https://mda.maryland.gov/resource\\_conservation/Pages/technical\\_assistance.aspx](https://mda.maryland.gov/resource_conservation/Pages/technical_assistance.aspx).

### “Fence-In” and “Fence-Out” States

As mentioned previously in the fencing section, Maryland is what’s known as a ‘fence-in’ state. This means that you are required to restrict livestock’s grazing area to property that is either owned or have permission to use for farmland. Animals must stay within this perimeter fencing to protect both themselves and surrounding farms, neighborhoods, and towns.

For curiosity’s sake, we will mention that ‘fence-out’ states do not require that livestock be contained on your property. States like Colorado, Montana, and Wyoming actually require that a farmer fence in his or her property if they want to keep out roaming livestock. In these states, this principle can also apply to keeping bison, elk, and other wildlife out of a piece of land in addition to keeping out cows, sheep, or other livestock. For more information visit the publication <https://extension.umd.edu/learn/publications/understanding-agricultural-liability-maryland-fencing-law-eb-419-0>.

### Animal Health and Transporting Livestock

If you have ever attended a county fair, livestock auction, or other event, you have probably encountered animals from different towns, counties, and states. At places like this, it can be hard to keep a runny nose from spreading to a whole barn because all the animals are so close together. However, there are state and federal laws that regulate the transportation of livestock and help keep animals healthy when they travel off the farm.

An example of this regulation the Coggin’s test for horses. Before a horse can travel anywhere off its home farm, it must test negative for Equine Infectious Anemia, a deadly, contagious disease that can spread rapidly throughout a barn if not monitored and tested for. This test is done through a blood analysis by a veterinarian and tested at a state vet lab.

For other livestock species, there are various tests and paperwork that must be completed before leaving the farm. Much of this is regulated by the USDA Animal and Plant Health Inspection Service, the same people who regulate things like the international travel of dogs and the importing of monkeys for medical research.

And, as always, remember to check with the farm or event venue you plan to travel to, because they may require extra testing or vaccines that are not standard practice for a veterinarian to perform. County fairs have special requirements for exhibiting.

### Slaughter

When raising animals for meat, it is important to consider not only how to get animals to market weight, but also what to do with them once they reach that weight and are ready for slaughtering and butchering. The slaughter process is federally regulated by the USDA and animals must be slaughtered by a USDA approved facility. More specific meat production information, regulations and a directory of facilities is located at: <https://www.extension.umd.edu/mredc/specialty-modules/meat>.

Once processed at a USDA facility, farmers can apply for the Maryland On-Farm Processor License. Licensed producers can sell their USDA-slaughtered and processed meat products on-farm to individual customers, or transport their products to local restaurants, markets, etc. for sale. For more information on this specific process, see the following website: <http://smadc.com/farmer-resources/tutorials/meat-processing-license/>.

### Species-Specific Regulations

Different livestock species will have different regulations including health, slaughter and sales. Below are a number of links depending on the type of livestock you will have on the farm and how you intend to raise them and sell them.

Specific Foods Overview: <https://extension.umd.edu/mredc/specialty-modules/rules-specific-foods>

Poultry and Egg Laws: <https://mda.maryland.gov/animalHealth/Pages/poultry.aspx>

Dairy Regulations: <https://extension.umd.edu/mredc/specialty-modules/dairy>

### **Other Important Links**

USDA APHIS State Regulations for Maryland health requirements governing the admission of animals - [https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-and-animal-product-import-information/import-live-animals/sa state require/ct +state regulations for maryland](https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-and-animal-product-import-information/import-live-animals/sa%20state%20require/ct%20state%20regulations%20for%20maryland)

Maryland Department of Agriculture Animal Health – Includes reportable diseases, species specific information, livestock dealers permit, disease traceability and state veterinary news. <https://mda.maryland.gov/AnimalHealth/Pages/default.aspx>

Livestock Liability: <https://extension.umd.edu/learn/publications/understanding-agricultural-liability-livestock-and-other-animals-fs-990-0>

Right-to-Farm Law: <https://extension.umd.edu/grainmarketing/right-farm>

### **Other Regulatory Information**

Depending on how your farm is set up, there may be additional laws and regulations to comply with that are not listed. Here are a few good websites for more regulatory information.

- Maryland One Stop (state online portal): <https://onestop.md.gov/>
- Maryland Department of Agriculture, Regulatory Information Center: <https://mda.maryland.gov/Pages/Regulatory-Information-Center.aspx>
- University of Maryland Agriculture Law Education Initiative: <http://umaglaw.org/>

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## Regulations for Meat Sales

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The increasing consumer interest in purchasing locally raised meats and poultry products provides producers with an expanding market for farm-raised cattle, lambs, goats, hogs, and poultry. Capturing a profitable share of this market requires producers become well educated about meat processing regulations, food safety regulations, and cultivate niche markets.

Meat and poultry processing and food safety issues are complex and differ among states. There are basically three levels of inspection: federal, state, and uninspected or custom-slaughter plants. Meat and poultry processed at a federally inspected plant may be sold in any state, while meat from state-inspected plants can usually only be sold in-state, and is subject to state regulations. Uninspected plants usually process for the owners' use, and meat processed in these plants must be stamped "Not For Sale." Maryland no longer has a state inspection program for meat packing and depends on the USDA inspection program to inspect any facilities that slaughter and cut meat for resale. The level of inspection required for poultry processing depends on the total number and type of poultry carcasses processed over a year's time.

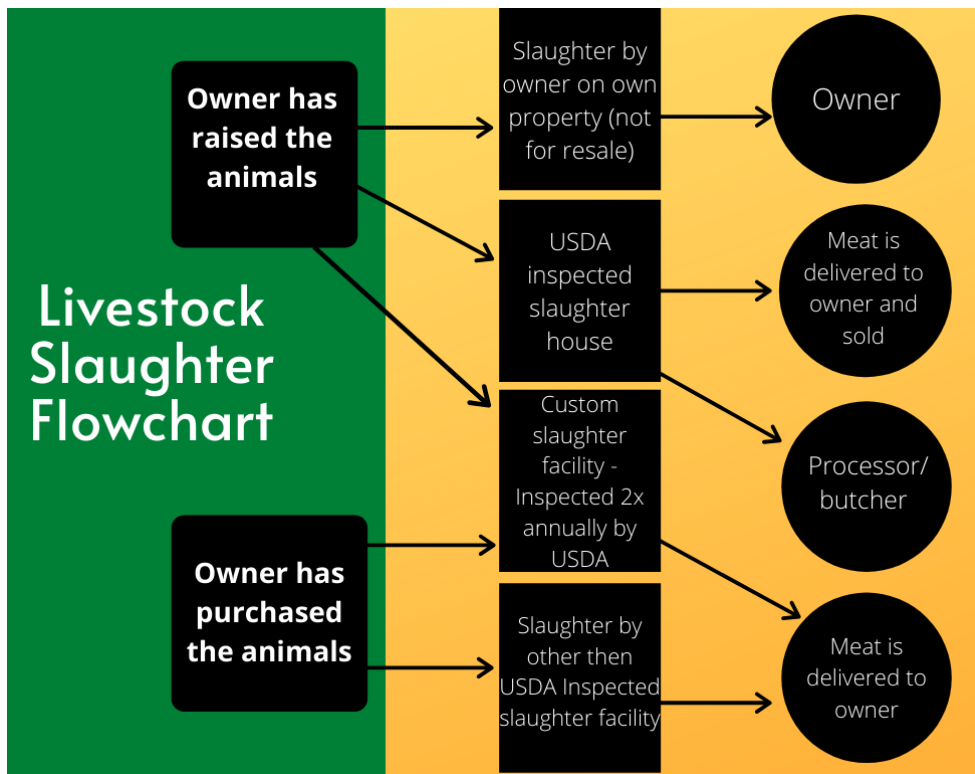
Non-amenable state inspected meat (for example - elk, deer, antelope, water buffalo, or bison) is eligible for sale in all states. Just because it is eligible for sale does not guarantee that it is legal for sale. It is not legal to sell deer meat in Maryland. State or local health codes may prohibit the sale of non-inspected non-amenable meat. It is recommended the producer call the State Department of Agriculture and the State Department of Natural Resources. Federal law prohibits the interstate sale of cured meat products made of state-inspected non-amenable species (e.g. deer hams) and state-inspected multi-species meat products containing more than 3% amenable species (e.g. elk sausage with added pork fat).

Since Maryland no longer has a state inspection program to inspect any facilities that slaughter and cut meat for resale, all meat and poultry offered for sale in Maryland must be slaughtered in a facility inspected by the U.S Department of Agriculture's Food Safety and Inspection Service (Title 9, Code of Federal Regulations, part 417, 9 CFR 417). See graphic. There are some cases of meat and poultry regulations containing "exemptions."

### Federal Meat Regulations

Federal USDA inspection is required for cattle, swine, sheep, goat, and equine ("Amenable livestock species") and in many cases poultry. "Amenable poultry" includes turkeys, chickens, geese, squab, guinea fowl, and ratites, for plants slaughtering more than 20,000 poultry per year (9 CFR 381.10 (b) (1)). Growers can request voluntary, fee-based inspection for poultry (fewer than 20,000 poultry carcasses) rabbits, pigeon, game, and exotics (e.g. elk, deer, antelope, water buffalo or bison (9CFR 352.11)).

Maryland farmers who raise meat - beef, pork, lamb, chevon, and veal- on their farms can sell their USDA processed frozen products and frozen cuts directly to the public from their farms. These products can also be sold at farmers' markets, to restaurants, and also to retailers. All meats sold in this manner must have been processed through a USDA federally inspected facility



### Product Development

Consider having the

USDA processor cut, vacuum wrap, and label the individual cuts or packages. It is much easier to apply a label to the package before freezing. Clear, vacuum sealed packaging makes it easier for customers to see what they are purchasing and also helps keep meat fresher and freezer burn resistant.

Most USDA processors have contact information for a label designer and printer. A label should include the following information:

- Name of the product
- Your farm name and address
- The processor's name and address
- The processor's USDA stamp
- Safe food handling instructions

More specific meat production information, regulations and a directory of facilities is located at: <https://www.extension.umd.edu/mredc/specialty-modules/meat>.

Once processed at a USDA facility, farmers can apply for the Maryland On-Farm Processor License. Licensed producers can sell their USDA-slaughtered and processed meat products on-farm to individual customers, or transport their products to local restaurants, markets, etc. for sale. For more information on this specific process, see the following website: <http://smadc.com/farmer-resources/tutorials/meat-processing-license/>.

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## Marketing Your Product

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A marketing plan is a major component of a larger business tool - the business plan. Other business plan sections include finances, production, and human resources. A business plan is a written set of business goals, the reasons they are attainable, and an implementation plan for reaching those goals. Tools for developing a complete business plan are available at the Maryland Rural Enterprise Development Center, [www.extension.umd.edu/mredc](http://www.extension.umd.edu/mredc). These tools include a business plan template, spreadsheets, case studies, and a business plan assessment tool.

Marketing should serve as a key consideration in your business plan for designing a sustainable business. Your marketing decisions will impact a wide variety of production decisions – what breed(s) to raise, pasture establishment and maintenance, grazing rotations, breeding and meat harvesting schedules, and the labor needed for both production and marketing tasks. The most successful producers consider their marketing strategies long before they purchase their first animal.

In today's competitive markets, just being able to produce a good product does not assure a good price. You not only have to be able to produce a consistently, high quality meat product and sell it, but sell it at a price high enough to generate a sustainable profit. Production and marketing decisions must work in tandem.

Review the publication Marketing Planner by Ginger Myers because the old adage, “failing to plan is planning to fail,” still applies for any business enterprise (<https://extension.umd.edu/learn/publications/meat-marketing-planner-strategic-marketing-farm-table-meat-enterprises-eb-403>). Businesses are more likely to reach our goals and marketing targets when the time has been spent to strategically evaluate options and develop an intentional marketing plan.

The topics covered include:

1. Marketing Channel Options
2. Pricing Strategies
3. Managing Logistics
4. Promotion and Marketing Claims
5. Customer Service
6. Feedback and Refinement

Additional marketing information is found on the UME Ag Marketing website including a Marketing Farm Raised Meats in Maryland Module <https://extension.umd.edu/agmarketing/value-added-products/meats-and-poultry>.



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## ***Business Planning for Livestock Producers***

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A farm business plan will be important for the planning, implementation and growth of the farm. There are UME resources in business planning that can guide you in completing this task. In the area of livestock production, a serious look at markets, finances and labor will be essential. The UME website: <https://www.extension.umd.edu/mredc/business-modules/farm-business-planning-workbook> includes a business planning template along with spreadsheets and a case study (Hayin Beef Acres) that provides a sample.

### Full-Time or Part-Time?

Now that you know more about livestock farming, and have thought about goals and the resources available, you can decide how much of a commitment to make to a farm and what style of farm will work best for your situation.

### Full-Time Livestock Farm

This type of farm requires the most effort, but if you really want to make this into a full-time career, it can be the most rewarding. Full-time farmers typically have a reasonably flexible schedule other than when they feed their animals, and normally the majority of their day-to-day work involves mending fences, managing other parts of the farm, bookkeeping, and marketing their product. Being a full-time livestock farmer can be great if you want a more flexible work schedule but still want to make money at what you're doing – there are some great opportunities in the ag industry, and all you need is passion to make the dream a reality!

### Part-Time Livestock Farm

Part-time livestock farmers are typically people who already have a full-time or part-time career and want to add another, maybe more interesting aspect to their daily lives. Feeding schedules are still the same, and farm chores must still be done, but most part-time farmers complete these either before or after their regular work hours. A part-time farmer may also not derive the bulk of their income from their livestock farm, but they still do want to plan for profit.

### Other Resources:

USDA Economic Resource Service, Animal Products  
<https://www.ers.usda.gov/topics/animal-products/>

USDA Agriculture Marketing Service, Livestock, Poultry and Grain  
<https://www.ams.usda.gov/market-news/livestock-poultry-grain>

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## *Terminology*

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- Avian – Relating to birds
- Bovine – Relating to cattle
- Breed Associations – An organization that promotes breeds of animals and registers them if they meet certain qualifications
- Breed Characteristics – Physical traits that differentiate one breed from another
- Cull - to reduce or control the size of by removal, especially weak or sick individuals
- Crossbreeding - Breeding of two animals that are different breeds within the same species
- Dystocia – Difficulty giving birth
- Equine – Relating to horses
- Marbling – fat molecules within muscle tissue; used as a measure of meat quality (more marbling leads to better taste and higher grade of meat)
- Porcine – Relating to swine
- Purebred - bred from parents of the same breed or variety
- Ruminant - various even-toed hoofed mammals, stomach is divided into four compartments and chew a cud consisting of regurgitated, partially digested food. Ruminants include cattle, sheep, goats, deer, giraffes, antelopes, and camels.
- Replacement – an animal selected to stay in the herd as breeding stock
- Small Ruminant – term commonly used to describe sheep and goats; producers divide the ruminant category into small and large ruminants to separate sheep/goats from cattle

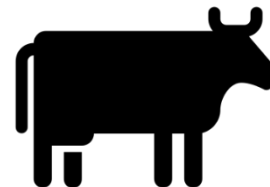
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## Beef Cattle

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### Terminology

- Calf – immature bovine
- Bull – male bovine, not castrated
- Heifer – young female bovine that has not yet given birth for the first time
- Steer – male bovine, castrated
- Cow – mature female bovine, has given birth at least once
- Calving – process of giving birth
- Beef – meat derived from cattle



For centuries, cattle have been used as an all-purpose farm animal; they can pull carts, produce milk, and give a healthy meat source when needed. In the United States, beef is one of the most popular meats consumed by all ages of people, and it comes in many different forms. Some choose to have a top-notch steak at their favorite restaurant, while others enjoy grilling the perfect burger for a backyard barbecue. Below, you will find more information on the beef industry as well as some common breeds of beef cattle.

### Business Opportunities

Many people who are interested in raising beef cows are not aware that the beef industry has many segments within it. A farm can be a part of any one of these smaller industries and still play a role in the beef industry as a whole. The following chart briefly describes the different sectors of the beef industry. Producers may participate in one or multiple segments of the industry, and some may also find opportunities to market their product directly to consumers on or off the farm.

As with any business, goals and plans can grow and change over time. Not all beef farms stay in the same sector of the industry for their lifetime. Remember, the most important part of a small business is that it makes you happy, and if you're unhappy with any part of your farm, find ways to change it and make it better!

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#### 1. Seed Stock

- Sell high-quality bulls, heifers/cows to other producers for breeding
- Most income is from breeding animals and selling them to others, not from meat production
- Purebred and registered with a breed association
- Breeding goals must conform with the type of breeding stock buyers want therefore goals may change over time to meet client requests
- A focus is on reproductive and genetic management to maximize superior breeding stock for sale

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## 2. Cow/Calf Operation

- Most common type of beef production in Maryland
  - Main focus is on producing calves that will be grown for beef
  - Calves usually sold to other producers after weaning (~6-8 months old)
  - Females calve once per year, usually in spring
  - High-quality bulls and heifers/cows kept as breeders; others enter beef supply chain
  - Can be rewarding, but calf-care and reproductive management can be challenging and labor-intensive
- 

## 3. Stocker

- Purchase weaned calves (6-8 months old, ~300 to 700 lbs) and grow them until they are large enough to enter the feedlot (12-20 months old, ~500 to 1000 lbs)
  - Least labor-intensive (focus is on feeding calves)
  - Calves are 6-12 months old at this stage
  - Generally feed low-cost, high forage (hay, grass, etc.) diets
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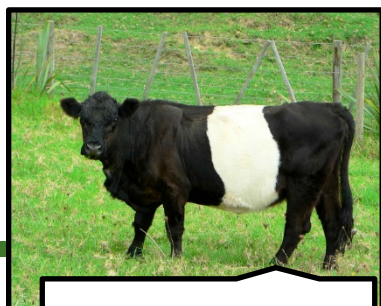
## 4. Feedlot

- Most feedlots in Maryland are small relative to large feedlots in the Midwest
  - Cattle are fed high energy diets consisting mostly of grain so that they can gain 3 to 3.5 lb per day
  - Cattle may spend between 3 and 6 months in the feedlot depending on entry size
  - Cattle enter the feedlot either directly from the cow-calf operation or from a stocker operation
  - Cattle are usually between 12 to 20 months of age at entry
  - Finished weight (~1100 to 1500 lb) depends on the breed (smaller breeds will finish at a lower weight than larger breeds)
- 

## Beef Breeds

When selecting cattle to raise for beef, it is important to consider every aspect of the cow from its ability to give birth easily to the quality of meat it can produce. Some farms decide to focus on one characteristic over another, and this helps them choose what breed of cattle they want to raise. The next pages contain two charts with a list of the most common breeds of cattle used for beef production in the Eastern United States.

## Heritage Breeds of Cattle



Belted Galloway



Scottish Highland



Dexter

## Traditional Beef Cattle Breeds



### Angus

- Most common beef breed in the U.S.
- Known for high quality meat and marbling
- Good maternal traits
- Commonly used in crossbreeding programs



### Hereford

- Second most common beef breed in the U.S.
- Good maternal traits and high meat quality
- Docile
- Fairly hardy breed



### Simmental

- Third most common beef breed in the U.S.
- Dual-purpose breed (milk and meat production) in some countries
- Larger carcass than Angus or Hereford



### Shorthorn

- Known for high meat quality and feed efficiency
- Often crossed with other breeds to improve growth, carcass traits, fertility, and docility



### Brahman

- Known more as an oxen breed (used to pull carts, do work, etc.)
- Raised by some producers as a "specialty" meat breed
- Does well in hot climates (heat tolerant)



### Texas Longhorn

- Another specialty breed
- Does well in hot climates
- Known for lean meat production, docility, and longevity

### Breed Information

As previously stated, every breed of cattle has qualities that make it different from others. One way to achieve maximum production from cattle is to choose a breed that will fit in well on the property and with the goals you have for the operation. You may find that one single breed does not possess all the traits needed to meet the goals of the farm. This is where crossbreeding is important in the beef industry, because it allows producers to tailor their herd to the specific traits desired. For more in-depth information on each of these breeds, as well as more on the beef industry visit beef association websites.

### Feeding and Nutrition

Cattle require the five main nutrients (water, energy, vitamins, minerals, protein) in their diet. The amount depends on a variety of factors regarding the animal's age, activity and environment. Feed will be the major expense in raising beef cows so very specific rations should be created so the animal is getting what it needs and you are managing expenses.

Cattle have a ruminant digestive system meaning that they have the ability to digest fibrous feeds that other animals and humans cannot. A cow's diet will consist of forage such as pasture, hay or other fiber source. Along with forage grain is used to supplement the animal and provide extra protein and fats. The amount is dependent on the age of the animal and goal of the farm. On average cattle will need to consume 3% of their body weight daily. Mineral supplements will often be provided in the ration or free choice. Lastly clean available water is a necessity at all times. Cattle consume from 4 to 20 gallons of water per day depending on their size, age and weather.

### Summary

There are a many types of cattle operations and ample research is needed when considering one for a livestock enterprise. Beef production may require larger facilities and longer time until market ready.

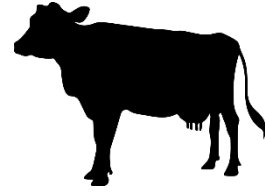
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## Dairy Cattle

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### Terminology

Much of the terminology between beef and dairy cows is the same, so take a quick look back at the chapter on beef production to catch up on those important terms.



### Business Opportunities

Changes in technologies, breeding practices, business models, and farm sizes have all moved the U.S. dairy industry toward higher levels of production and better efficiency during the last century. Modern dairy farms have allowed for growth and ample supply of the many milk-based products you can find in supermarkets.

Nationally, the trend within the dairy industry is for larger farms, however, smaller farms can be valuable; the recent movement for consumers to understand where their food comes from provides small dairy farms with unique opportunities. Most small-scale dairy farms consist of 25-150 cows that are milked twice daily (once every 12 hours). Depending on the farm, these cows may be traditional milking breeds, or they may be a specialty breed, producing a different type of milk that is of interest to the farmer's customer base. No matter what direction you choose to go in the dairy industry, it definitely requires the most commitment of all the types of livestock you could raise on a small farm.

The largest hindrance to most farmers starting in the dairy industry is the amount of equipment and facilities required to be successful. Not only do dairy cows need pasture and shelter, they also need a dedicated milking barn as well as a place for calves to live before they are weaned and can be turned out with the rest of the herd. To be successful, dairy farmers must manage the cow as a whole, which means understanding how different aspects of production and management interact. For example, farmers must understand that nutrition after calving can have dramatic effects on a cow's productivity and reproductive success later on. Dairy farming, like any other industry, has its stressful moments, but many farmers find it to be very rewarding.

Now that we have discussed some of the ins and outs of the dairy industry at large, let's get into some of the more specific details regarding raising dairy cows.

### Selling Local vs Cooperative

If you decide that a small dairy farm is the right choice, the first major decision to make is whether to sell your milk commercially to a wholesale market (cooperative), or to sell it locally to individual customers and businesses. Read on to learn about some reasons why farmers choose either side of the milk market.

Selling locally may be of interest in order to gain more of the consumer dollar. Selling fluid milk or value added products such as ice cream, cheese, butter or yogurt allows a farm the highest amount of income. However, selling milk and milk-products in the local community can be complicated (logistically and financially) and requires marketing on your part as well as meeting a number of regulations. Take the time to initially assess consumer trends as well as your interests in the dairy industry, in order to successfully sell milk and milk-products locally.

If you are interested in selling milk commercially, the first step will be to speak with the Maryland Department of Health and Mental Hygiene (DHMH) Division of Milk Control and a representative from a milk cooperative. A milk cooperative is an organization of producers who work together to collectively sell their milk to buyers. Those who sell their milk through a cooperative are known as "members" and each has some ownership to it. Generally, members are all equal owners in the cooperative. When looking for a cooperative to sell your milk to, choose one that has a good, upstanding reputation and is available to service your area. This will help ensure that your milk has a place to go in the future and can secure a source of income for the farm. Once a cooperative has been identified, get in touch with them and start asking questions – the most important part of this process is making sure that you are happy with the cooperative's contract terms.

## Local Market

- Individual customers
- Premium prices
- More self-marketing required
- Must follow value added and food safety regulations
- Need to process/package your product
- Dependent on public image of your product and farm

## Commercial Sales

- Contracts with larger companies
- Wholesale prices
- No marketing on your part
- Milk ships from tank, no packaging
- Not always a guarantee that they'll take your milk (too much supply translates to no demand)

### Breeds

Traditionally, crossbreeding was not utilized in the dairy industry, but has become more popular during the last 10 to 15 years as a tool to improve certain traits. In the United States, there are six common purebred breeds of dairy cattle, although two breeds, the Holstein and Jersey, make up the majority of that population. These breeds are descended from all around the globe but have been brought here and bred for high production-value. As with beef cattle, each of these dairy breeds has a different purpose, and you should assess their characteristics



carefully before deciding on one breed or another. Holsteins are generally suited for the production of milk intended for drinking, while the remaining breeds are useful for producing other dairy products such as cheese, butter, ice cream, etc.

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Ayrshire - Not used commonly in production facilities

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Brown Swiss - Largest breed of dairy cattle, high milk protein (second to Jersey)

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Guernsey - Not very common, known for "golden milk" high in Beta Kerotene

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Holstein - Most common breed in U.S., known for ability to produce large quantities of milk with moderate fat and protein content

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Jersey - Second most common breed in U.S., smaller size, milk has higher fat and protein content (ideal for cheese and butter)

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Milking Shorthorn - Rarely used for high-production facilities, more of an aesthetic breed, may be less prone to dystocia, lameness, and infertility

### Summary

The world of dairy production is an ever-changing scene full of opportunities and adventures. Starting a dairy farm can be a challenge getting started because of the facilities needed and expense of purchasing and feeding the cows. Dairy products are highly regulated for consumer health and must be explored before getting started.

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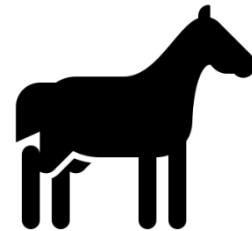
## Equine

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The equine industry is very different from other sectors of the livestock world. Most people who own horses ride them for pleasure and do not gain any income from them. However, there are some branches of the equine industry that can be a source of income, but these areas also require knowledge and abilities before reaching profitability. Below are a few common terms used in the industry.

### Terminology

- Foal – baby horse up to a year old
- Weanling – a foal that has been removed from mother’s milk
- Yearling – a foal that is between 1 and 2 years of age
- Filly – a female foal
- Colt – uncastrated male foal
- Stallion – male horse, uncastrated
- Gelding – male horse, castrated
- Mare – female horse
- Brood Mare – a female horse used for breeding
- Foaling – process of giving birth



### Sports and Disciplines

There are dozens of sports around the world that people can do on horseback, and within these are hundreds of different jobs and services that are provided by equine enthusiasts. Each stage of a horse’s life is closely managed by a large team of professionals, and this is the same for each stage of a rider’s career. In Maryland alone, there are thousands of jobs provided by the horse industry in everything from serving hotdogs at the racetrack to performing duties as a veterinarian, and the list of employment opportunities in the equine industry is exhaustive. Whether you decide to breed horses, train horses, or simply manage a horse boarding facility, you will likely be involved with one of several disciplines within the industry.

### Business Opportunities

Many times, in the horse world, people start out being involved on a hobby level. Some parents enroll their children in riding lessons or buy their child a pony, and they grow up loving horses and the industry around it. This oftentimes leads those children to working in the horse industry later on in their life, and thus their involvement grows into a business.

For those who are in that situation, or for those who would like to make a business in the horse industry, there are many opportunities to have such a career. The key to being successful in the horse industry is being educated in your sector of the industry, so the first step for any new horse breeder or trainer is to spend time with professionals and learn more

about what your interests are. Below is a chart listing some of the most common sections of the horse industry.

Opportunities in the Horse Industry	<b>Breeding</b>	Breed horses for any industry from racing to dressage to polo
	<b>Management</b>	Manage a barn of any size to help trainers, boarders and breeders make the most of their space
	<b>Boarding</b>	Keeping horses which are not owned for a fee. Options can include full, part or pasture.
	<b>Training</b>	Work with horses to make them more desirable for competitors, lesson barns, and casual riders alike

### Breeds

There are hundreds of horse breeds all around the world, all of which have different abilities and dispositions as well as coming in many sizes and colors. The number of breeds you could have on a farm is too exhaustive to list here. Breed registries are a great way to get more information.

### Summary

As you may suspect, there is much more to the horse industry than just picking your favorite job in one discipline and beginning a farm. To find out more about Maryland's horse industry, contact your local Extension Office, or visit UME website <https://extension.umd.edu/horses> or the Maryland Horse Industry Board [https://mda.maryland.gov/horseboard/Pages/horse\\_board.aspx](https://mda.maryland.gov/horseboard/Pages/horse_board.aspx).

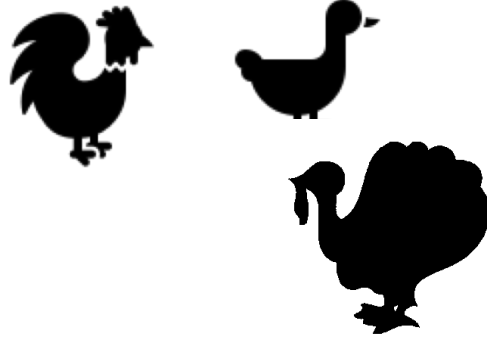
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## Poultry

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### Terminology

- Chick – ‘baby’ bird
- Biddy – another term for ‘chick’
- Hen – female bird
- Rooster – male bird
- Pullet – young female bird
- Broiler – chicken raised for meat
- Fryer – another type of meat bird
- Layer – chicken raised to produce eggs
- Cloaca – common opening for digestive, reproductive, and urinary tracts to secrete waste products



The State of Maryland is one of several East Coast states where poultry is a popular industry, especially on the Eastern Shore. Most of this industry is in commercial production, but there are also opportunities in private poultry production as well as raising other species of birds. This section of the book will cover all types of poultry, including some exotic birds and game birds.

### Business Opportunities

There are three main divisions within the modern poultry industry: meat production (broiler), egg production (layer), and other products. Meat production consists of raising poultry to a pre-determined size and then sending them to be processed for various meats, whether for human consumption or for animal feeds. Egg production requires that a farmer have a flock of hens that ideally produce one egg per bird per day. This provides eggs either for commercial operations or for local customers. Other products that come from poultry include feathers, leather, dried eggs to use for art, etc. Many times, a farmer will end up selling other products to specific customers who are looking for something they cannot find anywhere else.

As discussed previously, there are two larger sectors of the poultry industry as far as business strategies go: small flock or commercial flocks. Small flock farms include people who raise backyard chickens to sell their eggs, or someone who grows turkeys each year for Thanksgiving. Commercial farms work through a contract with a larger company and produce a set number of flocks each year of either egg laying chickens or meat chickens.

### Types and Breeds of Birds and Their Uses

There are many different groups of birds within the broad ‘poultry’ category. The most well-known of these are chickens, ducks, and turkeys.

Chickens – They can be divided into three categories – egg laying, meat birds or dual purpose. Egg layers are the most popular. Hens will begin laying eggs around six months of age and will produce one egg a day. The amount and quality will depend on their environment, light and amount of feed. For those looking to raise meat birds it will be important to identify a processor that is willing to take your birds for local meat sales. In either production system you will need to learn more about the poultry laws in your area to make sure you follow all the appropriate guidelines for storing, selling, and marketing poultry.

Ducks and turkeys - These are raised less-often but are still a viable niche within the poultry market. There are specialty markets and restaurants that have interest in duck meat and eggs, and some families may prefer to consume duck for one reason or another. Turkeys are typically raised to be at market weight for the Thanksgiving season, but there are also markets for lunch meats and restaurant-quality cuts of turkey that could provide at least a part-time income.

Exotic birds and game birds - There are many different types and breeds that make up this category. The most recognizable are ostriches, emus, pheasants, quail, guineas, and pigeons. As far as game and exotic birds go, there is not a lot of market for their meat and eggs. However, some game birds can be quite popular if raised for hunting. Birds like quail, pheasant, and pigeon are often raised in large buildings and, once grown, are released into hunting preserves to stock up for professionally guided hunts and sport shooting.

### Summary

Raising poultry can be an interesting and exciting endeavor for a first-time livestock farmer. When considering poultry production on your farm you will need to learn more about the animal's behavior, nutritional needs, biosecurity and predator control. Small flocks of birds are especially easier to manage than many of the other species of livestock, so it can be a good introduction to raising animals on your property. Check out this link for more information: <https://extension.umd.edu/poultry/small-flock-production/small-flock-production-0>.

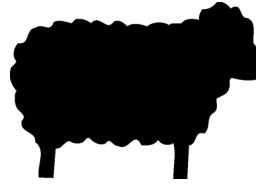
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## Sheep and Goats

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### Sheep Terminology

- Lamb – young sheep
- Ewe – female sheep
- Ram – male sheep, not castrated
- Wether – male sheep, castrated
- Wool – ‘fur’ that sheep grow on their bodies, typically shorn twice each year
- Lambing – process of giving birth



### Goat Terminology

- Kid – young goat
- Doe – female goat
- Buck – male goat, not castrated
- Wether – male goat, castrated
- Kidding – process of giving birth



All over the world, sheep and goats have been used for centuries as a small, hardy livestock species. This is especially true in Middle-Eastern countries where land is a precious commodity, and most farmers are trying to make a living off limited amounts of barren lands. Sheep and goats are both resilient animals, and each individual breed has different qualities that make it more or less suited for varying parts of the world.

### Sheep vs. Goats

With all the breeds of sheep and goats that exist in the world, it can be very easy to lose track of which animals are sheep and which are goats. Even experienced livestock producers sometimes get them mixed up if they do not have a lot of experience in this area. However, there is a simple way to tell if a certain animal is a sheep or a goat... its tail! Goats have tails that stick straight up in the air like a flag, and sheep always have tails that hang down to cover their genital area. This method of identification is a foolproof way to tell the difference between sheep and goats.

### Business Opportunities

With an increased ethnic presence in America, the demand for sheep and goat meats has increased dramatically. In major cities like Philadelphia and New York, populations of Middle-Eastern families as well as other goat-consuming cultures are constantly on the lookout for markets selling goat meat that has been processed to their religious standards. This industry presents a great opportunity for farmers who would like to raise meat and sell it to a premium-priced market that is in demand right now. However, as the farmer, be aware that many of

these cultures have religious standards that the animals must be raised, slaughtered, and butchered by, so check into this before buying and raising any animals on your farm.

Another up-and-coming opportunity for someone interested in raising small ruminants is that of sheep and goat dairies. Across the world in places where sheep and goats are more popular livestock animals, their milk has been used to make specialty cheeses, yogurts, and other dairy products as well as skin-care products that can bring a high price to the right buyer. Sheep dairies are relatively new in the US, while goat milk production has been going on for several years. If you are considering the dairy production side of raising small ruminants, you may want to look back at the dairy chapter of this book to get a better idea of what this may look like for a small farm. Also, be aware that dairy goats produce much more milk than dairy sheep do, because goats have been bred for dairy production for hundreds of years, while dairy sheep are a relatively new idea. So, it is recommended that raising sheep for dairy products not be a sole source of income for someone interested in the enterprise.

Another opportunity in the sheep and goat industry is in wool production. For thousands of years, humans have made clothing and other goods from the wool and hair of sheep and goats. Wool is a great all-around product that is waterproof, fire resistant, and biodegradable, along with being very sustainable. If you are interested in keeping sheep to produce wool, specific breeds will need to be chosen such as those that are genetically predisposed to having good-quality fleece. You will also need to decide whether to simply sell raw wool to a processing plant, or if you want to process the wool and market it to knitters and fiber enthusiasts. The wool industry has possibilities, and can be a way to add value to the farm.

### Breeds

Between sheep and goats, there are hundreds of breeds for a producer to choose from. The breed you pick for your farm depends a lot on goals and experience with the species. Below are two lists, one with sheep breeds and one with goat breeds. These lists are only a fraction of the breeds out there, so feel free to do more research on your own if you think sheep or goats are the right choice for the farm!

### Summary

As we have said throughout this entire book, this is not a complete manual of everything needed to get started in the sheep or goat industry. For more information visit the website <https://extension.umd.edu/sheep-goats>.

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## Swine

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### Terminology

- Piglet – ‘baby’ pig
- Barrow – male pig that has been castrated
- Boar – male pig, not castrated, used for breeding
- Gilt – female pig, has not given birth to her first litter of piglets yet
- Sow – older female pig, has had at least one litter of piglets
- Farrowing – process of giving birth



Pigs were one of the first animals brought to North America when settlers began coming here to establish their colonies. Since then, there has always been a demand for pork products whether for human consumption, production of animal feeds, or more recently for uses in human medicine. If you think you might like to raise pigs on a small livestock farm, read on to find out more about the swine industry and how it could make a difference for you!

### The Difference with Pigs

One of the first things to know about pigs is just how careful you have to be when raising them. Remember back in the Biosecurity and Zoonosis chapter when we discussed how diseases can spread through a herd and even from farm to farm? Pigs as a species have the highest number of zoonotic diseases that can be spread to humans of any livestock animal. For this reason, many modern swine facilities are very strict about their biosecurity protocols and their farms have limited access to people not working for the farm specifically. Also, hogs are one of the only livestock species where it is recommended that they be kept indoors in a closed system all the time, especially if they are being raised for commercial meat production.

There are a lot of people and small farms who enjoy raising pigs, and many youth find them well-suited as 4-H animals. But, be sure you are ready for the commitment that comes with the need for stricter biosecurity on a farm. Pigs are definitely an animal that requires a lot of forward thinking, but they can also be a very rewarding species to raise.

### A Modern Hog Farm

Commercially raising pigs today requires more care than ever before, mostly to make sure that your hogs stay happy and healthy throughout their lifetime. Pig farms typically have seven different stages of production, sometimes split between rooms or even multiple buildings on different farms. Smaller modern hog facilities contain all seven production rooms in one large building. This cuts down on having to move pigs from one barn to another and virtually eliminates any potential exposure to disease from outside environmental sources. All of the rooms are a necessary part of commercial hog production and make it easier as a producer to care for the animals. The pigs are sent to market as an entire group. Usually a whole production room will go together since they are all around the same age and weight. After the



pigs have left the facility, the barn is then disinfected and another group of hogs is moved up to that level, whether from another room or a new truckload.

### Business Opportunities

Pork is a popular meat and very versatile. There are three main types of small farm hog farms. They include: farrow to finish, farrow to feeder and feeder to finish.

Farrow to finish has the longest term commitment and facility requirement since you are birthing, raising and feeding for market. The entire process will take about 10 months to raise a marketable pig to 280 pounds.

Farrow to feeder involves the birthing process to feeder pigs averaging about 30 to 60 pounds. It is less labor intense and quicker to market. Selling the young pigs to someone that will feed them to market size reduces costs however the feeder pig market can be volatile.

Feeder to finish involves the purchase of young pigs and raising them to market weight. This reduces the farrowing labor but increases the need to managing the health and sales of the finished animal.

### Small Scale Pork Production

When deciding on raising pigs and hogs, you need to first determine how much meat you want to produce. Just enough for your own needs or do you want to raise enough to market to others? If just for your own needs, then housing, feeding, and processing will be your main concerns. If you plan to process any of your hogs to sell cuts to others, then you need to refer to the Regulations for Meat Sales contained in another section of this guide.

### How many hogs should you raise?

To determine how much meat you need, first determine how much pork you eat in a year. Because most people eat pork as related to special occasions, it might help to first know the cuts available from a whole hog

If you are looking to sell meat, raising more than one pig is highly beneficial, as the cost of care for those pigs can be spread out over more pigs, lowering the amount of money invested in each pig, and increasing possible profits per pig sold.

Where and how will you raise your pigs? Determining how many pigs you want to raise will also depend on how much space you have for their shelter and care. For growing pigs, it is recommended that you plan for around 8 square feet of space per pig. Pigs can be fairly destructive because of their rooting behavior. While they don't need space to run, it is good to provide extra space to avoid crowding and possible disease transmission from over-crowding. Additional space also helps with the spreading of their manure over their confinement area.

Pigs do need a shelter from the elements. It is also important to understand the pig's behavior of rooting to develop a cooler place to lay. In periods of hot weather, you must provide your pig with a wallow (a hollowed dirt hole filled with water large enough for the pig to lay down in). A wallow provides a place for the pig to stay cooler and provides protection from the sun's UV rays which may cause the pig to sunburn or possibly develop sunstroke.

You should plan to feed you pigs a commercially formulated hog ration. Pigs of different stages of growth require different rations. High protein, particularly high lysine content, and energy is very important for growing pigs. A local feed mill or store will stock different types of hog feeds based on their stage of growth. While you can feed food waste, extra vegetables, or waste products as a means of lowering your feed costs, they should be fed with discretion. Feeding pigs damaged grains or garbage can actually result in lower feed efficiency. As with all livestock, pigs must have a daily, reliable source of clean water.

Start your pig operation with healthy stock. Where possible, purchase your pigs from a reliable breeder. Pigs purchased through auction barns can carry disease back to your farm with them, resulting slow growth or even death. Pigs can pick up soil-based parasites and bacterial infections from rooting. Pigs are also susceptible to a range of viral infections, including diseases that can be mutated from human illnesses, such as the influenza (flu) virus. Having a mentor who has raised hogs or a veterinarian who can advise you about disease prevention and treatment are valuable resources when raising pigs.

### Breeds

There are several breeds of pigs used for commercial meat production. Each of these breeds has different qualities that add to its value in the production system. As with other species research breeds and find ones that fit your farm goals.

### Summary

There are a number of options when looking to add pigs to a farm. Biosecurity will be a consideration and should not be taken lightly. Pork products are versatile and tend to have strong consumer demand. Feed and facilities will be important consideration in the farming system.



# **Alternative Species**

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## Alternative Agricultural Animals

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For the final section of this book, we want to discuss some of the less common animals people raise for agricultural products. There will always be farmers who choose to raise alternative agricultural animals for one reason or another, and some of these animals do have a very important place in the livestock industry. Below is a chart of some of the unique and exotic animals that people might raise to make a profit.

<b>Bees</b> Raised for honey consumption or to pollinate local crops	<b>Llamas and Alpacas</b> Raised as sheep guards, companion animals, or for fiber	<b>Bison</b> Not common in Maryland because they need space to roam, raised for meats and leather/hides
<b>Venison</b> Raised for hunting preserves and for meat consumption	<b>Crickets/Insects</b> Usually raised for fish food, reptile food, etc.	<b>Aquaculture</b> Fish, oysters, turtles, etc. raised for release, bait, and restaurant consumption
<b>Fur Farming</b> Raising animals to be used in clothing, other uses for furs (becoming less common)	<b>Rabbits</b> Raised for meat and fur, also commonly used as 4-H projects because of their size	

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## Conclusion

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This manual was created to provide a very broad overview and some considerations when starting a livestock enterprise. Each species, market and farm will be very different depending on resources available and business goals. Getting started a marketing plan will be essential to determine how the animals and/or animal products will be sold including the regulations that livestock farmers must adhere to. A small farm will need to be able to find consumers that are looking for quality products and raised to a certain standard. Considerations in how the animal will reach market and then to the consumer are primary decisions.

When looking at a livestock farm startup expenses need to be estimated. This includes the largest expenses including land and facilities as well as the purchase of the animals themselves. The next step is the quantity of feed and forage that the animal requires and the ability to source it in your area. Livestock require regular maintenance whether it is feeding, cleaning, mending or managing the animals have ever changing needs that the farmer must find time to take care of.

Adding animals to your farm is a great way to diversify and supply local products to consumers. Hopefully this manual has provided some thoughts and considerations as you make decisions on your farm dream. Continue to research and learn more about livestock management, markets and regulations to make that dream come true.

### Other Resources and Next Steps

Your local Extension office can help get you in touch with livestock specialists that have expertise in areas like pasture management, nutrition, marketing and regulations. To find an office near you go to <https://extension.umd.edu/locations> .

Follow the Beginning Farmer site by joining the newsletter <https://extension.umd.edu/newfarmer/contact-us> and the social media account <https://www.facebook.com/beginningfarmersuccess>

Review the Beginning Farmer Guidebook <https://campus.extension.org/enrol/index.php?id=1610> and take the online course

Begin working on a Farm Business Plan <https://extension.umd.edu//mredc/business-modules/farm-business-planning-workbook>

Reach out for a Virtual Coaching Session <https://extension.umd.edu/mredc/business-modules/virtual-entrepreneurial-coaching-session>

