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# COUNTRYSIDE

*& Small Stock Journal*

Volume 110 • Number 1  
JANUARY/FEBRUARY 2026

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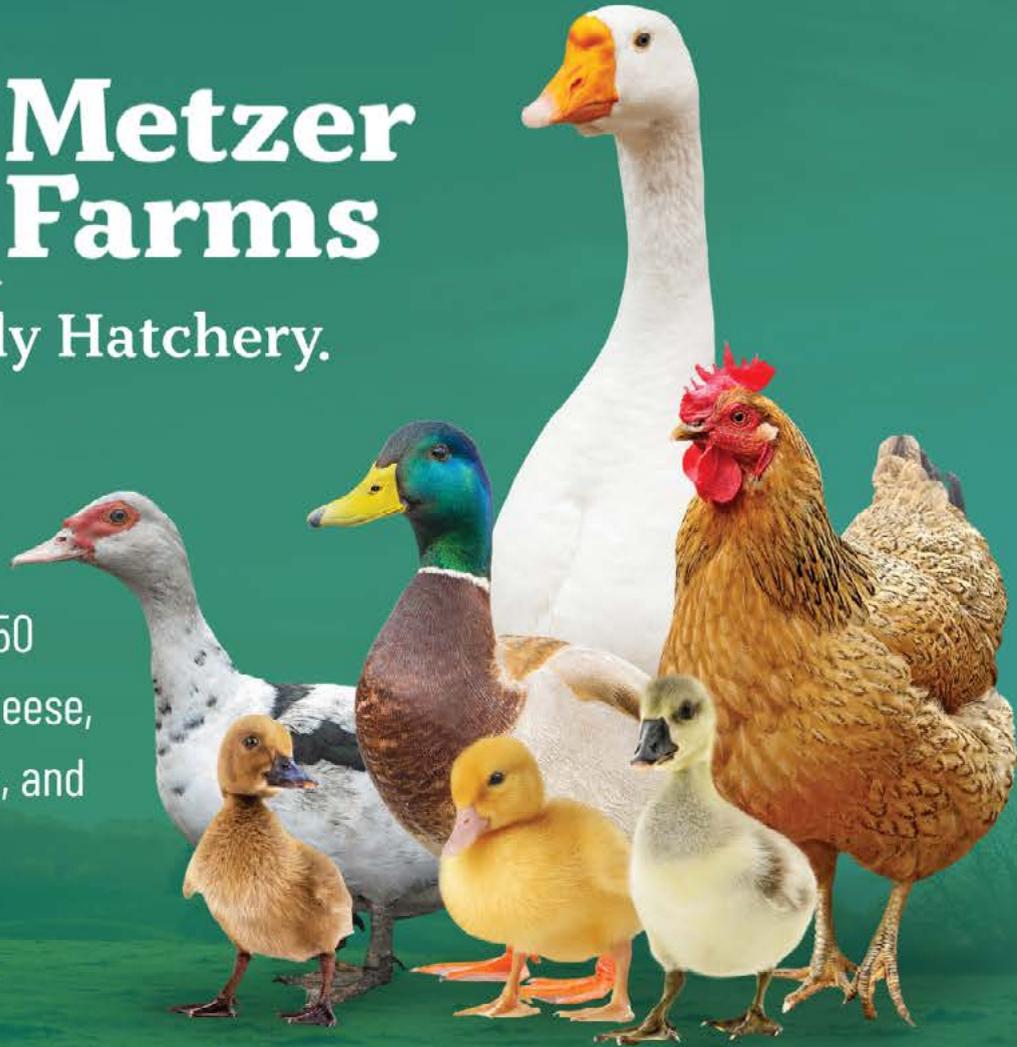




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I AM COUNTRYSIDE



# KLEINSHIRE FARMS, LLC

BY FRANZ AND ROSEMARY KLEIN  
@KLEINSHIRE FARMS, LLC

**W**E'RE HUSBAND-AND-WIFE PARTNER-farmers with seven rambunctious boys in tow. In 2017, we moved back to Wisconsin to take over my family's Cashton area farm that hadn't been worked in more than a quarter of a century. The barn had fallen in, and the woods had encroached on the pastures.

I grew up here with my family, enjoying the wide-open spaces while renting out the tillable acreage. My husband, Franz, grew up in town, but in a big family that raised a large garden and kept chickens. Our goal in taking over the farm was to bring it back to life. We had a dream of a traditional farmstead — one that would provide for our own needs but also pay for itself.

Our design has involved a lot of trial and error. Five acres of squash requires a lot of weeding. Making hay consistently means keeping half-century-old equipment functioning. Keeping livestock involves a lot of fence repair. It's a lot cheaper to buy wheat berries to grind for flour than it is to hand-harvest and thresh our own wheat.

These days, we raise almost everything we eat. We have a herd of goats that have helped restore our pastures, and our fences are repaired enough to (mostly) keep in the steers we raise for family and friends.

The overabundance of our homestead can be found weekly at the Sparta farmers market. We offer all the produce that one would expect in season. We have green garlic, rhubarb, and asparagus first thing in the spring. This gives way to radishes, greens, young carrots, summer squash, and wild-foraged mushrooms as the summer progresses. As August turns to September, we have kale, chard, onions,

cabbage, winter squash, apples, and pie pumpkins. Coincidentally, at the time of this writing, we're taking reservations at *Kleinshire.com* for the 40 turkeys that we pasture-raise and sell locally at Thanksgiving.

A lot of this is an "evangelization" of sorts — simply our love of sharing what we do with others who also have the idea that food should come from a place where you can actually talk to your farmer and know that they care for the land they steward.

Our major moneymaking crop has turned out to be our USDA certified-organic garlic. We started with a garden-sized amount of a single heirloom variety from my parents. Adding numerous varieties and planting back the best of our seed, we've grown that to an annual crop of over an acre, yielding more than a ton of garlic each year, which we market mostly to seed companies, but direct to consumer, too.

Emphatically, the most important crop on the farm is our boys. They're the reason we've chosen this lifestyle, as it provides them with wide-open spaces where they can learn the value of hard work. These days, our eldest wants to be independent, and has hired himself out to other local farmers as summer help. Our second oldest is entrusted with one of the varieties of garlic, reaping all the profit and learning the value of putting money away. Our third oldest son partnered with his dad in growing a wholesale crop of zucchini and summer squash this past summer.

All the boys are comfortable with the animals, and with growing food and putting it away for the colder, slower, snowier months of winter, when our attention turns to homeschooling. Ultimately, it's a lifestyle choice, and we feel that it's a great way to raise a family! ©





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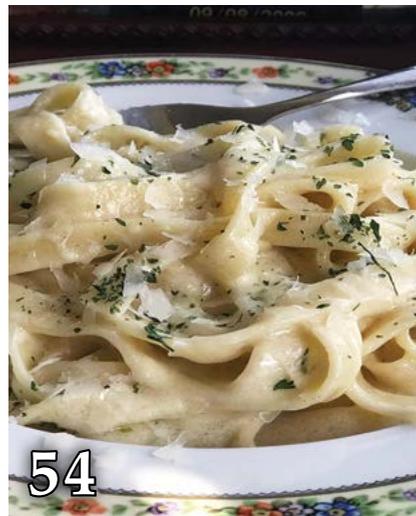
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At *Countryside*, our purpose is to inspire self-reliant living on any level.

We acknowledge that the path to self-sufficiency is as unique as the person who accepts the journey.

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We teach our readers how to grow and raise their own food; build, fix, and craft with their own hands; and walk as gently on this planet as possible.

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# FROM THE EDITOR

## Where Does the Time Go?

**H**ELLO COUNTRYSIDE FRIENDS, AND HAPPY New Year! Another year has come and gone, and January 2 marks 30 years since I was hired at Countryside Publications. Boy, does that make me feel old! I'll never forget when I nervously walked into what used to be an old tavern for my job interview with Diane Belanger. The place smelled of old books and stale cigar smoke. Jd (Jerome Belanger) was running an envelope-inserting machine, cursing, as it kept jamming.

Diane nicely greeted me at the door and walked me back to her office, which was a tiny room with papers and magazines stacked about. We had a nice talk and interview but then came the typing and data entry test. I couldn't type to save my soul, and I thought for sure that I'd be continuing with my job search. Somehow, I managed to get through the tests and was told I'd be hearing back about the job within the next few days.

If I remember correctly, it was the following day that I received the call, informing me that I had gotten the job and would start on January 2. Luckily, a data entry employee wasn't necessarily needed, but what was needed was someone to run the envelope-inserting machine! I was intimidated by that machine, not only from the size of it but also from witnessing Jd trying to run it without much luck.

After a bit of training, I had that thing running like a charm. Jd was impressed daily as he watched me run it without fail, and he just couldn't understand what he was doing wrong with it.

I was taught several other tasks, such as operating the postage meter, filling book and back issue orders, and making trips to the post office to mail books, back issues, renewals, and invoices. I even took a couple of Jd's goats for a ride to the post office once.

During the summer months, when I was caught up inside, I would often go outside to help weed the gardens, pick produce, and perform any other tasks that needed to be done.

Several years later, Jd and Diane's son, Dave, took over the business, as they were ready to retire. He was a wonderful boss, just as his folks were. We eventually outgrew the little old bar-office and moved to a much larger building in town. It was heaven! Our staff increased, and so did our yearly subscriber numbers.

Dave did amazing things with the business, but eventually, he too decided it was time to retire. He sold the business to Swift Communications, based in Colorado and, luckily, we were able to stay at our location in Medford, Wisconsin.

After several years of hauling truckloads of mail to the post office, my boss at the time decided maybe it was time for me to switch to a more easy-on-the-bones type of job. He asked me to be the editor of *Countryside and Small Stock Journal*. I was excited, but also quite nervous, as I didn't know how to be an editor!

But with many years already under my belt at that time, I took the job, and my knees, arms, and back thanked me.

In January 2022, Ogden Publications acquired Countryside Publications from Swift Communications. Of my coworkers, only one who was hired by Dave remains with the company: our amazing designer, Samantha Ingersoll. Sam and I have many memories of working together over the years.

I've had the pleasure of working with many wonderful people over my 30 years at *Countryside* and look forward to many more years to come.

Thank you to our subscribers, both old and new, who support our publications. Wishing you all a healthy and happy 2026.



*Ann Tom*

Ann Tom  
Editor, *Countryside*

**HAVE AN IDEA OR STORY TO SHARE, A QUESTION TO ASK, OR PERHAPS AN ANSWER TO A QUESTION? WE WANT TO HEAR FROM YOU!**

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**Home Remedy for Cats**

Watching your pet friend get sick is heart-wrenching. I had a female Blue Point Siamese cat named Babe (after Paul Bunyan’s blue ox, Babe). She had more personality and loving kindness than most. She loved our wooded homestead and was a ferocious hunter of anything that moved. When she came in at night, she climbed on my lap, demanded attention, and purred and purred.

One day, she came to me, moving slowly, sounding like she had a cough and was wheezing. We took her to our vet. Dr. S. said that house cats have small lungs and can run only for a relatively short distance, where a dog can go and go, like our four Dobermans could.

The trouble with cats is that they’ll only eat what they can smell. When they get a cold and can’t smell, they stop eating. This makes the cold get worse, and, quite often, leads to pneumonia and then death.

Babe had pneumonia and there wasn’t much that could be done 48 years ago. Her last time at home, she slowly came in the house, climbed onto my lap, put her paws around my neck, and purred and wheezed. I lost a good friend.

About four years later, I was driving a ¾-ton van, and I could hear a small kitten meowing over the sound of the engine, windshield wipers, and the heater fan going. I found and rescued a small,

dripping-wet kitten from the city park. My wife met me and took the kitten to the vet. Dr. S. didn’t think that Gordon would make it 24 hours. What did we do? We had beef liver in the freezer from our last steer. My wife cut thin-sliced, frozen liver and fed him till he stopped eating.

When we told Dr. S. about this, he smiled and said “Perfect! The frozen liver gave him all the needed nutrition and cooled him down from his fever.” He said he’d tell the other vets in his office to use frozen liver for cat colds and pneumonia. So, all that said, you need to have a frozen, homegrown beef liver to feed your family and heal your cats. The dogs begged for the liver, too, even though they were all robust and healthy.

I pray this can help even one of you save a friend and companion.

*Dennis Young*

**In Response to “What are some outdoor activities that you enjoy?” (Nov./Dec. 2025)**

In summer, I’m hunting for morel mushrooms, picking black raspberries, fishing on our pond, or

jumping on my dirt bike and riding it back in the woods on the trails we made.

We’re into fall now, so we have fun going back to the woods and having cookouts while roasting hot dogs and marshmallows and fixing s’mores.

Winter will be here soon; I can feel it in the air. The leaves are falling, and soon I’ll wake up to snow on the ground. I make sure the outdoor animals are taken care of by leaving birdseed out for the birds and food for the rabbits.

My son, River, and I tried snowboarding down the hill by our pond last year, but we both lay at the bottom, laughing. Neither one of us could get up; we were helpless. We couldn’t even help each other to stand. But we did it, and then we got up and called it quits.

*Diana Johnson, Ohio*

.....  
**In Response to “Raising an Orphan Calf” (Sept./Oct. 2025)**

I received my copy of the Sept/Oct 2025 issue, and I was most interested in the article about orphan calves. I never had to deal with animals orphaned

at 2 to 3 months, but I used to buy 2- or 3-day-old Holstein bull calves at the local sale barn.

They were scouring, and some were so weak that the sellers had to carry them into the sale ring. They sold for only \$10 or \$12. The dealers would buy them from dairies in the north and sell them quickly, without feeding them. This is where I bought mine.

At the sale barn, I’d feed them warm water with a packet of sugar and salt dissolved in it. I could get them to drink it by letting them suck on my finger first.

When I got them home, I fed them cooked, warm oatmeal, with salt and sugar to make it tasty. As soon as possible, I started feeding them from a large, flat pan rather than a bottle. At this point, they had to be separated, so they didn’t suck each other’s ears.

To keep the flies off them, I’d wash their backs and when they finished eating, I’d offer them warm water. Then I soaked their faces with a washcloth and brushed them with a scrub brush. If I had to do it over, I’d use a fly repellent made from chrysanthemum flowers.

As soon as their poop came through green, I added a little milk to their oatmeal. When they were old enough and healthy, I’d add a little sweet feed to their dinner.

*Marilyn Chandler*

## We want to hear from you!

### January/February Question of the Month:

With the cold months of winter upon us, now is the time when I like to bake. From cookies and cakes to muffins and bread, I enjoy the extra warmth and the lingering smells that baking fresh treats creates.

## What are your favorite treats to bake?

Send your responses to:

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# Why We Decided to Homeschool

ARTICLE AND PHOTOS BY MARK HALL

TEN YEARS AGO, MY wife and I took a trip to Cincinnati, “the Queen City,” where a yearly gathering of like-minded people was taking place. We’d traveled there numerous times, but never for something like this. Like us, a growing number of

families nationwide were choosing to school their children at home, and for a myriad of reasons. We were hopeful that this homeschool convention would provide us with the information, supplies, and confidence needed to make this endeavor a reality.

Fortunately, it fulfilled all our wishes. Witnessing firsthand the thousands of homeschool families filling the expansive hallways of the convention center was astounding. Encouraged, we squeezed into dozens of informational workshops and gaped at the mounds of varying curriculum for sale throughout the gigantic exhibit hall. The prospect of choosing the right materials for our family was overwhelming, but after much prayer and loads of advice, we finally made our decisions.

At the end of the day, we loaded the car with stacks of books, media, and resolve. Both terrified and excited, we drove home that evening, knowing that our lives, and those of our children, would never be the same again. We’d be solely responsible for their education, and we certainly didn’t take that lightly.

Why did we decide to put ourselves through all of this? What’s so special about homeschooling that would make parents willing to reorder their lives so they can teach their children the three Rs — and so much more — at home? After all, in Ohio, as in many other states, we’re blessed with the freedom to choose from a wide variety of educational options. Indeed, each private, public, and charter school offers something a little different, but only our own homeschool could fulfill our hopes and dreams for our children’s education.

First and foremost, we chose homeschooling because of the freedom it gives parents to incorporate religious instruction and expression into their education. It’s the policy of many schools to avoid the mention of God and religion altogether. In contrast, our faith in God is the very bedrock of our educational philosophy, and we



provide each child the opportunity to learn and grow in their own spiritual faith, integrating it into their school subjects.

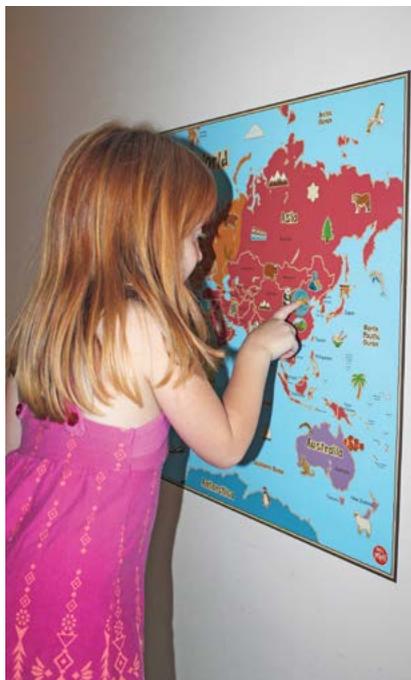
Another reason we decided to homeschool is that it gave us the opportunity to customize a more effective and engaging education for each child. One teaching style doesn't fit all, for every kid is unique. Our visually observant, artistic daughter learned best when she drew pictures of what she was studying. Her strong-willed sister, who hated to sit still, remembered her math facts better when she could dance and jump around while learning them. When spelling was difficult, we could switch curriculum, slow down, and spend the time this daughter needed to improve. And when math wasn't challenging enough, we could move faster and add in real-life baking applications in the kitchen. Homeschooling gives us the flexibility to personalize each child's education.

Strengthening family relationships is very important to us, so we jumped at the chance to homeschool for this reason as

well. We'd be doing life together — not just in the evenings after school, but throughout each day — acting out verbs one minute and learning to play badminton the next; practicing plant identification in our field in the morning and working together to make a meal for an older friend in the afternoon. This “doing life together” would provide us with countless opportunities to make wonderful memories, bring us closer together, and help us to better mold the characters of our children. Certainly, non-homeschooling parents can intentionally do all this as well, but the extra time we spend together makes it much easier.

We'd also heard that homeschooling can be a great way to instill in children a lifelong love of

learning. And indeed, we've found that to be true. Homeschooling allows us to foster creativity, curiosity, and self-motivated learning. One time, we watched a giant snapping turtle lumber across our yard, and afterward the



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girls were excited to learn more about these amazing creatures. Another time, we eagerly investigated our creek water under the microscope, when we studied microscopic organisms in our science curriculum. As we were raising baby chicks, the girls wrote a song describing the development of a chick inside the egg. And there was the time we lay under our apple tree for art class, looking up at the flower-laden branches as we drew from a different perspective. Homeschooling provides so many ways to encourage our kids to love learning and integrate it into their daily lives beyond school.

Now, what about socialization? Mixing with other children is all-important for social development, we were reminded by those outside of homeschooling circles. Many people conjure images of children sitting alone at a desk all day long, experiencing no interaction with other children their own age. However, this couldn't be further from reality. Homeschool families have numerous options for socializing. Many homeschool co-op groups

offer weekly classes, field trips, and social gatherings. In some states, homeschooled kids can participate in sports and other extracurricular activities through their local school district. In many communities, there are drama, band, choir, orchestra, and sports teams specifically for homeschooled students, and others that they can participate in with non-homeschooled kids. Local businesses in our area even offer homeschool-specific activities on a monthly basis — the roller skating rink, ice skating rink, movie theater, gymnastics studio, swimming pool, and bowling alley — which all provide fun opportunities to meet up with other homeschooling families in the area.

Yet another reason we decided to homeschool runs counter to what some critics of homeschool education still unknowingly insist. As did a stranger who accosted me on the subject 10 years ago, some people still erroneously claim that the college success of homeschooled kids will be significantly impaired. Some studies have shown that homeschooled

students score above public-school students on standardized academic achievement tests. In addition, research reveals that homeschool students have higher ACT scores, higher college GPAs, and higher college graduation rates than traditionally educated students. The independence, love of learning, and self-motivation fostered by homeschooling most likely contributes to the college success of homeschooled students.

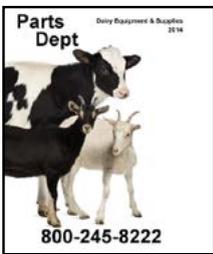
As we expected, homeschooling has been quite a challenge, but it certainly has been worthwhile. There are so many advantages, and it didn't take long to discover them. This labor of love has changed our perspective, for now we look back and can't imagine our kids' education playing out any other way. More importantly, neither can they. ©

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**MARK M. HALL** lives with his wife, their three daughters, and numerous pets on a four-acre slice of paradise in rural Ohio. Mark is an experienced small-scale chicken farmer and an avid observer of nature. As a freelance writer, he endeavors to share his life experiences in a manner that is both informative and entertaining.





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# DIY Picnic Table Plans

ARTICLE AND PHOTOS BY CAROLE WEST

**G**INGHAM TABLECLOTHS, good food, laughter, and family and friends are among the things we think of when picnic season rolls around. These gatherings can be set for an afternoon lunch or an evening dinner, nestled under the trees where minutes turn into hours.

Picnic tables have been around since the 1800s, and can be used for all types of outdoor or indoor gatherings, such as birthday parties, garden harvesting, canning preparation, crafting, schoolwork, and enjoying quiet time. This traditional table is a simple design where a group of 6 to 8 can gather and appreciate each other's company any time of day.

I have clear memories of gathering at the beach with family and friends, sharing a picnic dinner

while watching the sunset. The menu consisted of fried chicken and potato salad; several tables were gathered for eating and serving. What I remember most is that those tables were made from thin wood, and many times the boards were warped. There was always a curiosity about whether the table would hold our entire family or not.

Those were the days, weren't they?

It didn't seem to really matter if the table would hold us or not, as long as we had a tablecloth to keep germs away and good food to occupy our time.

Fast forward several years, and the picnic table has changed quite a bit; yet it hasn't changed at all in its purpose. Designs can now be found using different materials such as plastic, metal, and stone. They can be quite

nice and add a wonderful attraction to any outdoor space. But isn't it interesting how the beauty of a simple, solid, wooden picnic table continues to hold the grace and beauty of a natural gathering?

## DIY Picnic Table Plans

Imagine an outdoor table that's sturdy and easy to build. With access to a few power tools and basic carpentry skills, anyone can build their own picnic table right where they live. Get the family involved in this project so you can learn new skills and enjoy time together.

All the necessary tools and supplies can be purchased at any home improvement store. Choose your wood carefully and make sure each board is dry and straight. I found a table saw to be sufficient for this project. A circular saw or even a hand saw would also be acceptable. The approximate building time is under two hours, and you can cut your wood as you assemble.

## Tools and Materials

- Drill and bit
- Table or circular saw
- Electric sander and sandpaper
- Measuring tape
- Pencil
- 2x8, 8 feet long (6)
- 2x4, 8 feet long (8)
- Deck screws or similar
- Stain or paint to finish
- Paintbrush



## STEP ONE

### Measure and Cut Tabletop and Benches

1. Take four 2x8s, lay on a flat surface with any flawed side facing up.
2. Measure and cut three 2x4s at 30 inches each — line them at the table ends and center.
3. Lay two 2x8s on a flat surface with any flawed side facing up.
4. Cut 3 inches off of two 2x4s and double-check this with two blocks of 2x4s.

Prior to connecting the table and bench with table supports, and bench supports with screws, drill pilot holes. A pilot hole will keep the wood from splitting during assembly. Pilot holes should

be drilled before each screw is inserted into the wood. The drill bit should be slightly smaller than the width of the screws.

## STEP TWO

### Connect Table and Benches

1. Connect the three 30-inch 2x4s to the tabletop using six screws per board — two screws at each end and two in the center. Repeat this with each board, for a secure tabletop.
2. Connect the bench seats to supports by centering the support board and inserting five screws at 3½ inches apart. To center that bottom 2x4, use a small 2x4 block at each end and mark the distance from the edge for correct placement.



Each support board on the underside of the tabletop can be secured with six screws — two at each end and two in the middle. For the middle screws, make sure each middle tabletop board is fastened to the support board.



The legs of the project don't have to be angle-cut at the bottom.



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At this point, the tabletop and benches are completed. Next, we'll connect these three pieces with legs and crossbars. The project will be heavy, so it's ideal to have more than one person working on the project from here on out.

### STEP THREE Cut and Connect Table Legs and Cross Boards

1. Cut four legs at 31 inches from 2x4s, and make a 1-inch angle cut at the top only.

2. Connect each angled leg end from the corners underneath the table. Insert two screws from the outside — this will secure the legs to the tabletop.

3. When the legs are connected, measure 15 inches from the bottom of each leg of the table. Mark this spot; this is where the support crossbars will be drilled in place for the bench installation. This measurement is adjustable and should be based on what's comfortable and the average height of the people who'll be sitting at the table regularly.

4. Cut two 5-foot 2x4 boards for crossbars, these pieces will define and connect your table and bench. Use two screws to connect from the outside of each leg and repeat at the other end of the table.

The legs aren't flat at the bottom because you'll want the table to dig into the lawn a little to keep it from moving around. However, if you plan to place the picnic table



Drilling pilot holes first ensures none of the lumber cracks.

on cement or hard ground, you might want to cut these at an angle so they're level.

### STEP FOUR Add the Benches

1. Connect each bench from the ends first, using 2 screws. The bench will fit directly on top of each crossbar support, making it easy to attach with screws from the top. Repeat on the other side.

2. Flip the entire table upside down so that it lays flat on its top.

At this point, the project looks nearly finished, but there are still a couple additional pieces that need to be included, which will add even more support so the table will last for years without warping. With just a couple of simple angle cuts and installs, you'll be able to sit and enjoy this beautiful project.

### STEP FIVE Add Additional Support Beams Underneath

1. Take two 2x4s and measure the distance from the center support beam to the center of the leg crossbar. Cut each end at an angle and attach with screws to those connecting boards.

*Do not skip Step Five* because these support beams will secure the longevity of this picnic table. Once the table is built, run a sander over the rough edges, prepping the wood for a stain finish or paint of any color, based on preference.



Cut 3 inches off of two 8-foot 2x4s, and double-check this with two blocks of 2x4.



Additional supports ensure durability.

For a protective finish with a shine, add a couple coats of polyurethane over the entire table. Remember, the better you care for the table, the longer it'll last.

The great thing about this picnic table design is it's easy to customize, so if you're seeking something smaller or even a little larger, make the appropriate adjustments. Choosing larger boards, such as 2x10s, will offer you a larger table and seat base. And you can obviously adjust the bench placement if you prefer sitting lower. You might even measure the height of a favorite chair or sitting surface and implement those measurements as you build.

The beauty of a picnic table is about getting outdoors and enjoying life beyond the home. Slowing down and appreciating the company of one another is something that could be an added blessing to most anyone. And these tables are easier to build than you may have previously thought! 🌿

**CAROLE WEST** is the author of three books, *Garden Up Green*, *Ground Raised Quail* and *Quail Getting Started*. She currently writes a blog that's focused on encouraging goodness, and has been published in several national magazines. Now an empty nester, she lives in the piney woods of East Texas with her husband, Robert, and dog Kramer. She spends quality time outdoors in her garden growing their own food, herbs, and flowers. The countryside is her paradise. You can find her at [www.CaroleWest.net](http://www.CaroleWest.net).



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# FIRE

## on the Homestead

BY KARMIN GARRISON

**“IF YOU’RE COLD, THEY’RE COLD”** IS A common adage. Unfortunately, it’s led to many preventable fires. Winter brings a chill, and with it, heat lamps, heaters, and plenty of other hazards for the barn.

No one wants to walk into their barn and find frozen livestock, so here are some tips on keeping your critters comfortable and as safe as possible—though there’s no such thing as zero risk when it comes to heating a space.

### Common Electrical Terms

Often, barn fires are caused by electricity. And, understandably, an electrical fire is one of the scariest things that can happen, given the many unknowns electricity represents for many of us. So, first things first: Let’s unpack some basic terms. Amps are the measurement of the flow of electricity through a circuit. Volts are the measurement of two points in a circuit. Watts are the rate the electricity is produced as one amp flows through a volt.

A standard residential outlet is 120 volts (V); the heavy-duty outlets, say for a dryer, are 240V. You can’t plug a welder into a 120V outlet and expect it to work. Heaters are considered more on the heavy-duty side as well; it takes more electricity to power a heater than to power an air conditioner. (Truly! A 10,000-BTU window unit takes about 800 to 1,000

watts to run, while a standard space heater takes about 1,500 watts.)

The wattage rating of the appliance should match the amp rating of the outlet. A standard 120V outlet will generally be 15 amps. Watts and amps aren’t equivalent; to calculate an amp, divide the watts by volts. An 1,800-watt space heater divided by 120 volts equals 15 amps. Don’t plug more than one appliance into an outlet if you’ve already hit that amp limit, as the wattage required will also increase, thereby upping your risk of starting a fire.

“But Karmin,” you say, “I’ll just have 240V outlets in my barn instead!” Not a good plan. That’s a great way to destroy (or explode) the appliance and start a fire nearly immediately. It’s safest to simply not overload an outlet and to make sure it’s wired correctly from the start.

### How to Prevent Fires from Starting

Now that the math and science-y bits are out of the way, let’s talk prevention. Barns are full of things that seem to want to be on fire—fuels, paints, cleaners, hay, straw, various fabrics (saddle blankets), feed bags, and more.

**Safe Storage**—Safely storing flammable items away from heat sources is the first step in prevention. Next, create a separate, stand-alone storage area for hay (one of the most common

items on any farm or homestead), as hay can self-ignite without any outside heat source. Additionally, create a separate, stand-alone workshop or shed to store your tools and all of their flammable bits and liquids (i.e., don't throw gas on the fire).

Other steps to prevent a barn fire include avoiding heat lamps, extension cords, and surge protectors in your barn, as well as keeping a proper fire extinguisher on hand.

**Heat Lamps** — There's truly no safe way to use heat lamps — bulbs explode, the lamp itself can short out, they easily fall if not safely secured, and they can overheat combustible materials and ignite a fire. Just because they're sold in any farm supply or general store doesn't mean they're safe; it simply means they're cheap and easy to produce.

**Extension cords** are intended for temporary usage only. Extension cords can overheat, especially if coiled, causing an electrical fire. Only use the length needed to accomplish the intended job, as the more excess cord you have, the more likely it'll be a danger. Extension cords must be rated for outdoor use if you intend to use them in a barn — dirt and all sorts of "farmy" things can get on the plug bits and cause a bad connection or cause damage to the cord itself (think nicks, scrapes, and anything that'll expose the wiring).

**Surge protectors** tend to give us a false sense of security. We think they'll shut off if they have too

much running through them, or that we can simply plug in more items. The surge protector isn't going to prevent anything if all the things plugged into it equal more than the outlet can handle.

**Fire Extinguishers**  
Not all fire extinguishers are the same. Extinguishers are rated by class: A, B, C, D, and K. ABC (A: combustible; B: flammable liquid; C: electrical) are the "standard" fires you'd encounter



in the home or on the farm, and you'll want an extinguisher that'll safely tackle all three, just in case.

An important note: Never try to extinguish an electrical or liquid fire with water; this will only make it much worse, compounding the fire's spread with potential injury, such as conducting that electricity right to someone's feet.

## Planning and Detection

You've prevented fire as much as possible — you've stored all of your flammables away in their own cabinet; you've stored hay elsewhere; your outlets have the proper voltage; you've secured any heaters and aren't overloading surge protectors; you even have two ABC fire extinguishers! What now?

Unfortunately, there's still a risk of fire. Fire happens; lightning could strike the barn, a failed circuit could set a stall on fire, or exceptionally dry conditions could cause the compost pile to combust or ignite nearby dry wood. The best thing you can do now is to be prepared.

Smoke detectors are great, if you can hear them. (I couldn't hear the one by my coops in my sleep if something happened.) I recommend a baby monitor to solve that particular problem — there are outdoor and video (both Wi-Fi and non-Wi-Fi) versions available, and they're less likely to break the budget, depending on how fancy you'd like the monitor to be — some even come equipped with carbon monoxide detectors.

Having an actual plan in case the worst does happen is essential. Don't wait till the barn is on fire to make a plan. Have an actionable plan and practice it to keep you, your folks, your livestock, and your property as safe as you can. Call 911 at the first sign of smoke or fire and learn how to use your extinguishers. Account for your family, first and know your evacuation plan and where everyone is supposed to meet. Once your family is safe, decide if you can evacuate your livestock (we don't condone running into a burning building to be a hero). Consider and plan out all of these steps well before an emergency happens, and review your plans regularly. ©

**KARMIN GARRISON** is a word nerd, herbalist, "accidental gardener," and DIYer, living on a 1-acre almost-homestead in East Texas. When not magicking up words or chasing after kids or grandkids, she can be found wandering the woods, fishing, beading or sewing, sharing wild stories, gallivanting across the South, or with her nose in a book. Sometimes she sleeps, but that's usually by accident.

# DIY SEED STARTING STAND WITH ADJUSTABLE GROW LIGHTS

ARTICLE AND PHOTOS BY JENNY UNDERWOOD

**O**NE OF MY FAVORITE things about winter in our neck of the woods is seed-starting time. When everyone's still bemoaning the cold weather, I'm tucking my seed-starting stand up beside the woodstove and getting a head start on the spring planting season.

First, I start my own seeds for several reasons:

1. It's so much cheaper, and I can start hundreds of seedlings for less than the cost of one or two store-bought starts.

2. I have a much wider variety. In fact, my growing zone is really the only limiting factor when picking out which varieties I want to grow.

3. It decreases my boredom during the cold months and makes

me focus on spring, sunshine, and growing things!

4. It gives me a little extra income when I sell or trade my extra plant starts. My goal is usually to pay for our seed and soil amendments each year with the sales.

One of the main things you need for your seeds to start successfully is plenty of light. Just bite the bullet and buy the bulbs made for growing. Your plants will thank you for it. You can buy fixtures for your plant stand from hardware stores, nurseries, or online. We found ours when a school was selling their ceiling fixtures. They were in perfect condition and professional grade with solid cages over the glass. We bought two of these 4-bulb fixtures for \$20 each! Then we replaced the regular bulbs with the full-spectrum bulbs.

## MATERIALS LIST

- 8-foot 2x4s (5) (or equivalent)
- 3-inch screws for all joints (alternately, use nails or staples)
- 1½-inch screws for securing the top to plant stand (unless you're using boards; then make sure the screws are long enough to go through the top plus the frame, to hold it securely)
- 2-foot-by-4-foot plywood or alternative for top (give yourself some wiggle room and extra stand top material in case your measurements weren't exact)
- Light fixture
- Chain (enough to hang right over the tops of your plants)
- 2 heavy-duty hooks

Our table is made from completely recycled materials. We first ripped 2x4s to make



This is how our stand get sets up in winter.



You can put a lot of starts on a 2-foot-by-4-foot stand.

the frame. You can make yours whatever length and width you prefer. However, consider these things when making your decision: How wide is your light? Can you comfortably reach across the table? Is it easy to move, take down, and store, and can it fit through your doors? Don't make it much wider than your light, as the seedlings at the edge or right outside the light will struggle and get leggy as they reach for the light. Our table is 2-feet wide by 4-feet long. Just a note on lumber: 2x4s from the store aren't 2-inch-by-4-inch, so ripping them in half widthwise doesn't give you a true 2-inch-by-2-inch board, but I'm referring to them as such to simplify things. You can just use 2x4s without ripping, but ripping lightens the weight of the table.

Begin by ripping your 2x4s into 2-by-2 strips. Measure and mark the center and rip on a table saw. (Again, these will actually measure



Bottom view of stand.

about 1.5 by 1.75 versus the 2-by-2, so measure and mark well.) These will be your frame. Rip three 2x4s into 2x2s. Take two, 2-foot-long 2x2s and lay them out on the ground as your ends. Place two 4-foot-long 2x2s and place one at the top and one on the bottom to form a

rectangle. Pre-drill all your holes to help prevent the boards from splitting. Screw each end together, making sure the top and bottom boards go on the "top" of the end joints. Use at least two screws per joint. Repeat this process for the other long side. For the narrow

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You'll need to raise the light as they grow.

ends of your plant stand, place four 2-foot-long 2x2s in a square. Make certain the top and bottom boards are on the top of the outside pieces. The bracing is next. Cut four braces for each side (total 16) by cutting 90-degree squares

that are 4-inch-by-4-inch. Place these in each corner and screw into them on the sides that are touching the stand frame. (Two screws per side on each brace.) We did this slightly different on ours, but this method works well, especially when just beginning.

Now, assemble your plant stand by standing one 4-foot section up and one 2-foot section at a 90-degree angle to it. Place the 4-foot section on the "inside" of the end piece. (Remember, you're building a rectangle.) Screw the end 2-foot section into the 4-foot section. Place screws every 4 to 6 inches on the whole joint. Join the other long side, again placing it in the same inside position as the other long side. Repeat the joining process. Finally, place the last end piece on and attach as previously described. Measure across the

width in the middle of your stand and cut a brace piece. Attach on each side. If desired, you may place two braces equal distances apart.

Measure the top and either cut out one piece (or multiple pieces if using scraps) of solid top. If using scraps, measure one piece at a time, install, and remeasure. Screw the top to the frame all around the edge, making sure the top connects securely to the frame. Alternately, you may use a staple or nail gun on any of this process.

Now it's time for the supports that'll hold the light fixture. We place two, 2-foot-long 2x4s vertically in the center at each end (attach with screws) with a 4-foot 2x4 run lengthwise, connecting the two ends. On the bottom of these, mark the distance of your light hangers. Place hooks in these spots. Make sure these hooks are sturdy enough to hold the weight of the light fixture. Buy some strong chain to attach to both ends of your light fixture. Be certain that it's rated for at least double the weight of your light. You don't want it breaking and crushing your plants!

Go through your scraps and see what you can come up with to build your plant stand. I think you'll find this project can help you save money, decrease the winter blues, and give you a head start on the spring growing season! ©

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**JENNY UNDERWOOD** is a homeschooling mama to four lively blessings. She makes her home in the rural foothills of the Ozark Mountains with her husband of 20 years. You can find her reading a good book, drinking coffee, and gardening on their little fifth-generation homestead.



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Ground cherries.

# Entice Chefs with IRRESISTIBLE BERRIES

BY MICHAEL BROWN

**B**ERRIES ARE PERFECTLY suited for small suburban or urban growing areas. They can be grown in a relatively limited space (and some even in pots), they don't travel well (making locally grown more attractive), and they command a good price. Suburban and urban areas are also the places you're most likely to find restaurants with chefs interested in using high-quality, less common berries and able to pay the price to acquire them.

First, a clarification. For the purposes of this article, I'm not referring to the most common berries that are grown extensively

in large commercial operations. This includes strawberry (more on that later), blueberry, raspberry, and blackberry. Growing these berries on a small scale for an upscale market offers few advantages for the local farmer.

In many instances, dealing with a restaurant as a small grower can be challenging for both the grower and the restaurant. A small grower may face issues of quantity and variety, while the restaurant may not always be interested in dealing with small quantities from multiple growers.

These disadvantages can be substantially decreased with less-common berries of high

quality. Offering a novel, versatile ingredient to a chef will open doors and perhaps even help you to add other more conventional crops down the road once you've established a relationship with the help of your "door opener" berries.

The first thing to do is find the right buyer. Stay away from chain restaurants where one executive chef oversees the menu and purchases. Look for places that focus on seasonal and local produce and where the chef is excited about supporting these goals. Once you've located some possibilities, I've found it most effective to make an appointment with the chef, or stop by after lunch and before the dinner service starts to see if the chef has a few minutes to spare. This is usually a quiet time at the restaurant.

There's a huge difference between stopping to chat and stopping to show off your berries. You'll make the best impression if you can bring some of the early-harvested berries with you to show the chef. This will also allow you to show the chef that you can produce quality produce. At the same time, you can discuss items you have in the pipeline.

Here are some berries to consider:

### GROUND CHERRY

These sprawling members of the nightshade family are easy to grow and very productive. In favorable growing conditions, the plants can get quite large, so it's preferable to consider some kind of support before planting.

*Uses:* Garnish, fresh, or processed.

*How to Grow:* Best grown in-ground with full sun and well-drained soil. If growing in containers, use at least 5 gallons.

*Protect against:* Typically hardy against pests, but spider mites, aphids, whiteflies, flea beetles, hornworms, and cutworms may attack the plants.

### CURRANT

Currants come in black, white (pink), and red. From my experience, red currants command the most interest and are also the most attractive. The berries grow on long strigs that are very attractive — almost like a string of red pearls. These “strings of pearls” (called strigs) vary in length, with the longest being the most attractive. Fresh strigs of currants with large berries can command a good price and can be used by chefs as an attractive garnish. Shorter strigs, or those with fewer ideal berries can be de-stemmed (or sold as-is) to be used individually as decoration or as an ingredient in food preparations. They're also of interest to pastry chefs.

*Note:* Legality of currants varies by location because of white pine blister rust. Check local laws before jumping into growing them.

*Uses:* Garnish, fresh, or processed.

*How to Grow:* Best grown in-ground on well-drained soil. Will



Black currant branch.

tolerate partial shade, though production may suffer. If growing in containers, use at least 5 gallons.

*Protect against:* Birds can be a problem. Protect with netting if possible.

### GOOSEBERRY

There are a number of gooseberry cultivars to choose from. From my experience, it's advisable to trial a few different varieties to see which works best for you.

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*Uses:* Fresh or processed. Gooseberries make a fantastic jam and filling for pastries. There's also a limited market for craft beer.

*How to Grow:* Best grown in-ground, though they also do well in containers of at least 5 gallons. Will tolerate partial shade and do very well in raised beds.

*Protect against:* Chipmunks favor low-hanging berries.

### ALPINE STRAWBERRY

Though certainly a strawberry, the alpine strawberry is much different from the standard strawberry we usually see at

markets. The berry itself is quite small, but the taste and fragrance are very intense once it's fully ripe. Because of the small size, you need to find a chef who's able to afford the price. For those living in high-value areas, this could be a reasonable crop and certainly something to pique the attention of chefs.

*Uses:* Best fresh.

*How to Grow:* They can be grown in a 3-gallon container with good quality potting soil. Full sun is best, but they also will tolerate some shade. Keep well-watered, especially during the heat of summer. The plant will produce

from early spring until frost, with a break during the hottest part of summer.

*Protect against:* Plants should be netted against birds, and watch for chipmunks and squirrels.

### ELDERBERRY

Like gooseberry, elderberry is best used in pies, tarts, and other preparations. However, while gooseberries can also be used fresh, elderberries must be simmered first, for at least half an hour, to make them palatable and safe. The part of the country where you live will influence the variety that grows best for you. If you decide on European elderberry (*Sambucus nigra*), an added benefit is that this variety produces fragrant blooms that are hard to find and much sought-after at high-end restaurants and bars.

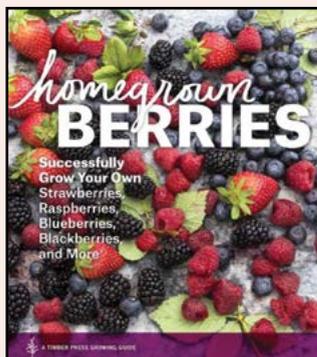
*Uses:* Processed. Also used in production of beer, wine, and medicinal syrup.

*How to Grow:* Elderberry isn't suitable for container growing. They can grow up to 10 feet or more, depending on the variety. Full sun is preferred for best berry production. American varieties (*Sambucus canadensis*) will sucker under favorable conditions.

*Protect against:* Birds love elderberries. For smaller plantings, it's possible to use mesh fruit bags to cover the berry clusters, which is very effective. 🍷



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**MICHAEL BROWN** is a retired school librarian and enjoys hanging out with his five grandchildren. He enjoys growing and learning about native species and teaching his next generation about the joys of growing food.



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# Living with MEADOW VOLES

## Prevention, Mitigation, and Recovery in an Apple Orchard

ARTICLE AND PHOTOS BY JASON AND LIESL GAPINSKI

**S**HARING LAND WITH creatures in our world, while most often a blessing, can sometimes feel like a curse. Three years after purchasing a small farm in Michigan's Upper Peninsula, we experienced the latter. On a beautiful winter's day typical of the area, snow 3-feet deep blanketed the orchard. Gearing up in snowshoes, we set off for a hike. Even though all 30 of the 10-year-old apple trees had been well-protected from deer with fencing around each one (6 feet in diameter by 5 feet high), we saw signs of damaged bark. Upon further inspection, digging back the snow, we noticed the worst. The trees had been girdled. (A girdled tree is one that's had a complete ring of its bark and the cambium layer removed around its entire circumference. If left untreated, this will eventually kill the tree.)

As this was the middle of winter, there wasn't much to be done at the time; we'd take action in the spring. We searched the internet for the cause, hoping to find a quick fix. The rough terrain from tunneling "critters" the fall before should have been our first clue. Voles!



Jason screening trunk.

In spring, we discovered the extent of the damage — all trees were completely girdled, 3 feet up from their roots. We did what the cursory search suggested: painted each one from the base to the top of the usual snowline and lined their base with ash from the fireplace. However, these efforts might only help prevent future damage.

Upon further research, we learned that any hopes of recovery would require a technique called bridge grafting ([www.CANR.MSU.edu](http://www.CANR.MSU.edu)), which involves inserting a scion from the tree between the damaged areas, to serve as a conduit that restores the flow of nutrients and water. A scion is the young growth (a shoot or twig) from the top of the tree. Placing the scion between the roots and the top portion of the living bark functions as a “bridge” over the damaged area.

For grafting, scions need to be cut at the appropriate time, when trees are dormant. In March, we cut six scions from each tree, labeled the tree number with tape, and stored them in buckets of peat



Painted graft area close up.



Vole damage trunk.

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Painted tree trunk.



Proof of concept survivor tree.

in an insulated garage. Playing to our strengths, Jason cut scions while Liesl labeled them to ensure we kept track of the which scions belonged to each tree.

When the trees were waking up in May, they were ready for grafting, or what we like to call “tree surgery.” Jason cut each end of the scion again, this time with long, tapered angles that could easily be inserted into the tree. He looked for live cambium at the base of the tree, and in the intact bark just above the girdling.

Using a utility knife, he cut an inverted “T” above the girdled bark, and a simple slot the width of the scion at the base of the tree. Then he used a screwdriver to gently peel back the areas. One end of the scion was inserted in the slot at the base and the other end was inserted in the cut above the girdled bark. We wrapped both insertion points with



Scion insert, damage after painting.



Scion “T” insert.

electrical tape to hold the grafted parts in place.

Girdling from voles in our area is primarily a wintertime phenomenon, and, at this point, there was nothing more we could do for the season but hope that our efforts were successful.

In June, we found nearly all the trees leafed out, which wasn't surprising because there's typically enough energy stored to support growth the following spring, even if grafting hadn't occurred. However, none of the trees produced as many apples as they had before.

We painted the trunks and scions again, hoping to deter further damage. Despite our efforts, we found voles had girdled the scions over winter! By the next May, only 13 trees had survived. A second stint at bridge grafting was required. This time, we decided that more aggressive measures were needed. We bought aluminum window screen (Saint-Gobain ADFORS) and wrapped the remaining trees from the base to 4 feet, securing with electric fence wire at the top and bottom.

In June that year, most trees had leaves and were in bloom. We wished we'd screened the trees initially, as it was the only effective method that prevented the girdling. While nearly half of the trees lived a year or two after girdling, in the end, only one tree survived the third year. The lone survivor has produced apples ever since. As it had been grafted and screened, we now had it, our proof of concept.

As they say, an ounce of prevention is worth a pound of cure. In the end, we learned that neither painting nor depositing ash deterred voles. The best prevention is to screen young apple trees above the snow line. If you find severe girdling damage, wire protection combined with the bridge grafting technique can save your trees. ©

#### RESOURCES

- Bulatovic-Danilovich, Mirjana. (2011, March 8). *Planning ahead will increase your trees' survival from rodent damage.* Michigan State University Extension. [www.canr.msu.edu/news/planning\\_ahead\\_will\\_increase\\_your\\_trees\\_survival\\_from\\_rodent\\_damage](http://www.canr.msu.edu/news/planning_ahead_will_increase_your_trees_survival_from_rodent_damage)
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- Product:  
Saint-Gobain ADFORS, 48 in x 84 in aluminum window screen, [www.adfors.com](http://www.adfors.com)

**JASON GAPINSKI** retired from the restaurant industry and now focuses on managing the farm through sustainable living practices.

**LIESL GAPINSKI** is an associate professor at the University of Wisconsin-Whitewater. She loves to inspire future teachers in designing outdoor learning projects for their students.



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# Predatory Insectary Strips?

ARTICLE AND PHOTOS BY LEAH SMITH



Cornflower.



Rudbeckia.

**P**OLLINATOR PLOTS OFFER food and nesting resources to a variety of pollinating insects, including native bees, butterflies, and moths. Honeybee pastures are concerned with maximizing the quantity, variety, and periods of availability of pollen and nectar sources for the “hive bee.” But insectary strips go further. They’re designed to support not only a variety of pollinating insects, but also those that parasitize and predate garden pests.

Insectary strips are strips of flowering plants used in agriculture and gardening to support beneficial insects such as pollinators and natural pest predators. These strips provide nectar, pollen, and habitat, which helps to increase populations of natural enemies and enhance biological pest control.

## Duration and Location

Annual (or temporary) insectary strips are intended to stay in place for one season only. They’re comprised of easily sourced, cheaply priced, frequently non-

native annuals (both flowers and herbs). Commonly used plants include borage, buckwheat, cilantro, cornflower, cosmos, dill, dwarf sunflower, lacy phacelia, marigold, rudbeckia, runner bean, and tulsii. These strips can be kept for additional seasons; the use of self-seeding annuals and readily available herbaceous perennials add to their effectiveness for prolonged periods.

In contrast, permanent insectary strips are typically composed of native wildflowers, grasses, and herbaceous perennials (and even canes and shrubs) that take longer to establish and come with higher initial costs. Of course, once established, they’ll be in place for

many years. Also, the use of native plants will better meet the needs of specialist bees, butterflies, and moths that have highly specific feeding requirements. The strips’ permanency (and the limited soil disturbance) offers nesting and overwintering locations that annual strips aren’t able to. Frequently used permanent strip plants include bee balm, blackberry, bluestem grass, chamomile, clover, elderberry, figwort, goldenrod, hawthorn, lemon balm, lobelia, mint, penstemon, wild rye, and yarrow.

Diversity is of great importance for insectary strip effectiveness. Mixtures that include plants from a variety of plant families,



Wasp-parasitized tomato hornworm.

and therefore offer differing shelter from root systems, foliage, stems, and flowers of various sizes, shapes, and bloom periods, means that a myriad insects will be supported with food and shelter.

The other key to the success of strips is their placement. They should be located along field edges and periodically enter into fields themselves; an interconnected network of strips is ideal. Their close proximity to crops helps to that ensure maximum pollination and pest control benefits take place.

### Calling All Beneficials!

When selecting plants for insectary strips, a good approach is to consider the pests you wish to control and the beneficials that control them specifically. A few principal beneficial insects (followed by the pests they control) are:

**FIREFLIES** — caterpillars, snails, slugs

**GROUND BEETLES** — aphids, beetles (e.g., Colorado potato beetles), caterpillars, grasshoppers, insect eggs, snails, slugs (and even weed seeds!)

**LACEWINGS** — aphids, mites, thrips, whiteflies

**LADYBUGS** — aphids, mites, scales, thrips, whiteflies

**MANTIDS** — anything from aphids to grasshoppers (i.e., generalist eaters)

**ROBBER FLIES** — anything from lacewings to beetles (i.e., another generalist eater)

**SOLDIER BEETLES** (e.g., Pennsylvania leatherwings) — aphids, insect eggs, snails, slugs



Tulsi in the foreground and rudbeckia behind.

**SYRPHID (flower or hover-) FLIES** — aphids, mealybugs, scales, spider mites, thrips

**TACHINID FLIES** — beetles, caterpillars, earwigs, grasshoppers

**WASPS (parasitic and predatory)** — aphids, beetles, caterpillars, grasshoppers

The next step is to note which plants attract which beneficials. Here are some plants and the insects that favor them.

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APIACEAE FAMILY (see below) — lacewings, ladybugs, robber flies, soldier beetles, syrphid flies, wasps

BUCKWHEAT — syrphid flies, wasps

CHAMOMILE — robber flies, syrphid flies, wasps

CLOVER — wasps, lacewings, ladybugs, hoverflies, mantids

CORNFLOWER — lacewings, ladybugs, wasps

FIGWORT — syrphid flies, wasps

GOLDENROD — ladybugs, wasps

LEMON BALM — syrphid flies, tachinid flies, wasps

MARIGOLD — wasps, lacewings, ladybugs, hoverflies, mantids

MINT — robber flies, syrphid flies, wasps

PENSTEMON — ladybugs, syrphid flies

RUDBECKIA — ladybugs, soldier beetles, syrphid flies

DWARF SUNFLOWER — fireflies, soldier beetles

YARROW — wasps, ladybugs, lacewings, damsel bugs, hoverflies, tachinid flies

### Plants on Overtime

Some plants are so useful in insectary strips that they deserve special emphasis. For example, the Apiaceae family contains angelica, anise, caraway, chervil, cilantro, dill, fennel, lovage, parsley, and sea holly. These upright plants with umbel-shaped flower heads have numerous, shallow, readily accessible pollen and nectar sources to offer; they're a preferred food

source of many beneficial insects.

Also, plants with extrafloral nectaries (nectar sources not located within flowers but on vegetative plant parts) will support large populations of beneficials (including many parasitizing and predatory insects) due to this edible abundance. Cornflower, cowpea, elderberry, partridge pea, dwarf sunflower, and trumpet creeper (vine) are great options.

Lastly, some plants are doubly useful in that they provide excellent ground cover in addition to food sources; such plants are essential for overwintering in general but also to support terrestrial beneficials such as ground beetles. Try alyssum, alfalfa, mint, and the various thymes. Note that members of the mint family readily take over and should be planted with caution.

### Successful Staging

To recognize the insectary strip ecosystem, it's useful to understand the various predatory insect growth and eating habits. Some (like mantids) undergo incomplete metamorphosis with a consistent, predatory diet.

In cases of complete metamorphosis (and its more distinct stages), the adult stage is often most visible. Some adult diets consist of nectar and pollen — and sometimes the occasional insect pest. The immature larval stage of these beneficials' growth is when insect garden pests are heavily consumed as food; this can happen when adults lay eggs on pests to feed their developing offspring (parasitism) or catch prey with which to feed their young (predation), and sometimes when the larvae catch prey themselves! So, you can see the importance of flowers even when predation is the goal. Soldier beetles, syrphid flies, tachinid flies, and wasps follow these growth patterns.

With ground beetles, both the larval and adult stages feed primarily on insect pests. Insectary strip plants function not as their food sources but to create the environment they prefer to inhabit and hunt in.

### Diverse Defense

The most effective insectary strips will attract more than one insect to perform pollination and pest control services for a crop. For example, Pennsylvania leatherwings, ground beetles, robber flies, and wasps are all predators of the spotted cucumber beetle. By including plants to encourage the presence of them all, you increase the likelihood of successful biological control. A strip of alyssum, buckwheat, cornflower, cosmos, dill, and rudbeckia will be far more effective at controlling spotted cucumber beetle than one that only contains one or two plant species.

Furthermore, you should note that the previously mentioned close proximity of insectary strips to your target crops (and therefore target pests) is essential for the success of some beneficial insects. While large parasitic wasps and syrphid flies have high dispersion rates and will travel some distance to reach plants, small parasitic wasps, ladybugs, and ground beetles have low dispersion rates and seldom travel at all from right where they are. Regarding our example, you must get your leatherwings and ground beetles as close to the cucumber beetles as possible if you really want their help controlling them! 🍷

**LEAH SMITH** is a freelance writer and home and market gardener. She works on her family's farm in mid-Michigan called Nodding Thistle (certified organic 1984-2009, principally by Organic Growers of Michigan). A graduate of Michigan State University, she can be reached at [NoddingThistle@gmail.com](mailto:NoddingThistle@gmail.com).

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# UNDERSTANDING HERD BEHAVIOR

ARTICLE AND PHOTOS BY BETH GREENWOOD

**M**ANY DOMESTICATED animals are herd animals, and our management techniques should take this into account. Once you have a basic understanding of herd behavior, it becomes much easier to contain, move, and work with your animals. The animals are less stressed, and you're less likely to be injured by a frightened animal or attacked because you don't understand such issues as personal space and hierarchy.

## Benefits of the Herd

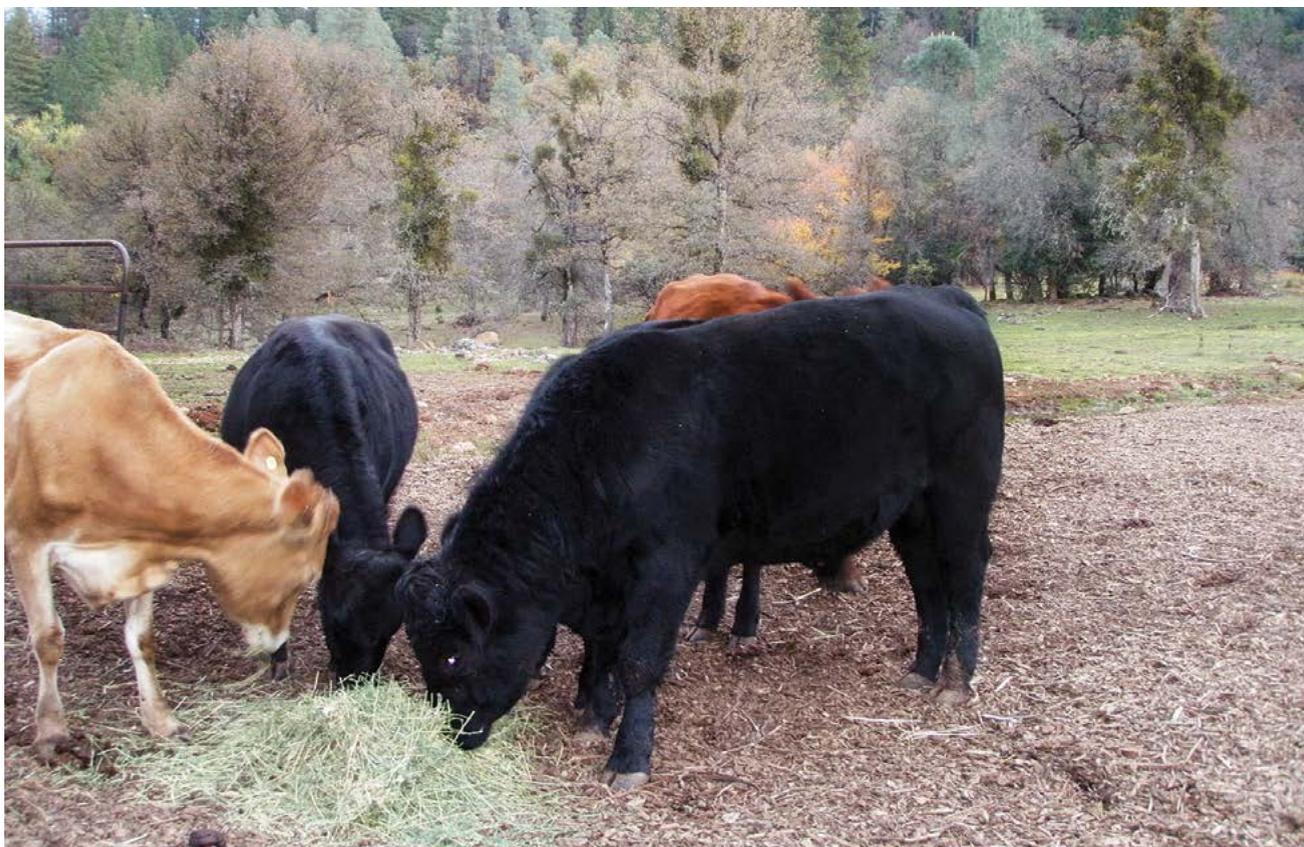
Birds and other animals live in groups primarily because it benefits the individuals in the group. Benefits include companionship and protection, along with other advantages. Herd animals need companionship so badly that if kept alone, they'll often bond with animals of a different species. In addition:

- A lone animal is generally easier for predators to run down and kill.

- If attacked, a group can fight back more effectively.
- A group can watch for danger in multiple directions, which helps to overcome individual limitations such as blind spots.
- In some situations, a group will offer more potential mates.
- Groups can keep warmer in winter by huddling together.
- For some, group living means access to "aunties." Cows will leave the youngest calves bedded down with two or three babysitters while the other mothers range farther afield to eat.

## How the Senses Affect Herd Behavior

The fear response is critical to prey animals' survival. How they respond depends on whether they see, hear, or smell danger. A frightening sight or scent usually results in the animal freezing,



throwing up its head, and gazing fixedly toward the danger source. Once an animal in the herd takes this position, others quickly become alert, as well. A sudden, loud sound typically causes a spook, short run, and either the freeze position or circling while looking for danger. Because they rely so heavily on visual cues, most herd animals will run toward open ground, even though they might be safer in heavy brush.

### Personal Space, Flight Zone, and Dominance

All humans and animals have a personal space — the distance at which they’re comfortable with a member of their own or another species. The flight zone is the amount of space a prey animal keeps between itself and a potential predator. If you breach the limit of the flight zone, the animal will typically move away or (more rarely) fight. The other factor relevant to personal space is dominance, or the animal’s position in the hierarchy of the herd. A dominant animal won’t hesitate to invade another animal’s personal space (or yours).

Dominant animals eat first and protect their feed. When feeding a group, always put out at least one more pile of feed than there are herd members, so the submissive animals have somewhere to go when they’re chased off. My experience with grazing animals is that hay piles should be placed about three body lengths apart.

### Dominance in the Herd

The most important aspect of dealing with animals on the farm or ranch is dominance. All animals that live in groups have a hierarchy or pecking order (literally a pecking order in the case of birds). Your animals *must* see you as the boss. Livestock that continue to challenge you



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are dangerous and, depending on the situation (cows and bulls are always dangerous), are better off in the freezer.

Animals settle the who's-top-dog question by threats, posturing, and fighting. For some species, male dominates female. Older dominates younger, while more aggressive dominates less aggressive. A foal or calf learns proper behavior when Mama nips, kicks, or butts. Obviously, you don't have their weapons, size, or speed. What you have is greater intelligence, which is why you're reading this article. You may need to cause a little discomfort to get an animal to respect you. This isn't cruelty, it's following the principles of animal behavior.

### Tools of the Trade

A stick, stockwhip, or shepherd's crook makes you seem larger and expands your personal space. I like stockwhips for several reasons:

- They're lighter in weight than other options, which makes a difference if you're moving animals a considerable distance.

- The reach is longer than that of a stick or crook.
- You can pop them to make a scary noise without hurting an animal.

### Moving the Herd

*Fences:* Moving the herd starts with planning your fences. It'll be much easier to move, sort, and separate the herd if the gates are in the corners. This is partly because they can see a fence line out of each eye, and the tendency is to move into the funnel. If you put a gate in the middle of a stretch of fence, they'll often walk right by the opening without realizing it's there. Always open the gates before you start to move them; close the gates as you go through them.

*Groups:* It's always easier to move domestic animals (cats excepted) as a group. In most cases, you need to get only one or two headed in the right direction and the rest should follow. Keep them loosely bunched or they may scatter and try to go back around you. If you have an animal that's halter-broken, you can often lead it and the rest should follow. Or train your herd

to come by calling them when you feed.

*Take it Easy:* Always move herd animals with a minimum of noise and disturbance. You want them quiet and calm, not frantic and trying to find an escape hole even if they have to make one. Use your position in relation to the animals strategically. If you get in front of a herd, it'll either slow and stop, or — if the pressure from animals crowding behind is too great — split and go around you. When the herd knows where it's going, you can generally just take the rear position.

In summary, herd animals have developed their patterns over millions of years, based on their environments, experiences, and sensing capabilities. We humans may have domesticated them, but domestication is no more than a thin layer. A frightened animal reverts to the wild and may run right over you. You should learn everything you can about herd behavior and how it works, for the benefit and safety of yourself and your animals. When working with herd animals, always remember to watch for signs of aggression — a lowered head, pawing, flattened ears.

If you're waiting for the animal to show overt signs of aggression, you aren't reading it well enough, and you need to get with a trainer or other experienced handler to teach you better.

Don't get yourself in a situation where you might get hurt. ©

**BETH GREENWOOD** is an RN who has also been a ranch wife for over 50 years. She raised Quarter horses for many years, and has also raised cows, sheep, pigs, and poultry. She lives with her extended family on a large ranch in far northern California. You'll usually find her in the garden, ignoring the housework!





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# FASCINATING EGG FACTS AND FOLKLORE

ARTICLE AND PHOTOS BY ERIN SNYDER



Pasture-raised eggs are healthier than factory-farm eggs.

**“WHAT CAME FIRST, the chicken or the egg?”** is a popular question among backyard flock owners and egg enthusiasts. While no one knows the answer to this question, there are even more fascinating facts about eggs, including some folklore. So, if you find the discussion about the chicken or the egg interesting, here are some more fascinating facts and folklore about eggs.

## Fun Folklore

Old wives' tales suggest that the shape of an egg can determine the sex of the chick inside. A thin, pointed egg is believed to contain a rooster, while rounded eggs should hatch a hen. However, there's no scientific proof of this.

In the 14th century, fairy eggs (tiny eggs that don't contain a yolk) were believed to have been laid by a rooster. If incubated under the right circumstances, these

eggs would hatch a dragon. Some cultures even burned the rooster reported to have laid the egg, to warn other roosters not to lay.

Seventeenth-century French brides would break an egg on their wedding day to ensure pregnancy.

In Germany, farmers used to smear eggs on their plows in spring to ensure fertility during spring planting.

Egyptians historically believed the sun to be an egg laid by a goose in the heavens.

According to folklore, if you stand a raw egg on end during the spring and fall equinoxes, it'll stay standing and not topple over.

Some cultures believe double-yolked eggs will bring good luck and new beginnings, or twins will soon be born.

## Culinary Egg Facts

Did you know that many people with egg allergies and sensitivities have a reaction to the albumen (egg white) and not the yolk?

- Egg yolks are a naturally good source of vitamin D.
- Egg whites contain 40 different proteins.
- Eggs have one of the highest quality proteins you can buy, and contain all essential amino acids.
- You absorb only half an egg's protein if you consume it raw.
- An egg's pores will absorb odors from its surroundings, affecting its flavor.
- Americans eat an average of 286 eggs every year.
- Japan leads the world in terms of the number of eggs consumed, with an average of 320 eggs eaten annually per individual.
- U.S. eggs would be illegal to sell in a British supermarket because they're washed. British eggs are illegal to sell in a U.S. supermarket because they're unwashed.

- Americans typically refrigerate their eggs. The United States Department of Agriculture (USDA) requires all American eggs to be washed and often sanitized at processing plants to avoid salmonella contamination. The egg washing removes the bloom from the eggshell and washes away the natural barrier that protects the egg from absorbing harmful bacteria such as salmonella.

- An average of one out of 20,000 eggs is contaminated with salmonella. There's a .005% chance of eating an egg contaminated with salmonella. An average consumer might eat a contaminated egg every 84 years.

The nutritional facts might surprise you when comparing eggs from pastured chickens to

those of caged chickens. Eggs from pastured chickens contain:

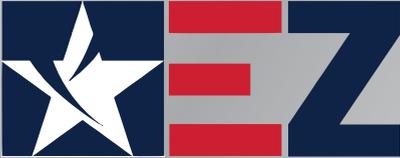
- A quarter less saturated fat.
- Twice the amount of omega-3 fatty acids.
- Three times as much vitamin E.
- Two-thirds as much vitamin A.
- A quarter less cholesterol.
- Seven times as much beta-carotene.

Even though there's a substantial nutritional difference between eggs from pastured chickens and those raised in cages, only 5% of Americans consume their own or locally raised eggs from pastured chickens.

Eggs are often called "nature's miracle" as they exist in all cultures' cuisines and have substantial health benefits.

### Fun Egg Facts

- The top 10 egg-raising states are Iowa, Ohio, Indiana, Pennsylvania, California, Texas, Nebraska, Florida, Georgia, and Minnesota.
- Chickens don't produce one egg at a time. Laying hens often have several eggs in various stages of development.
- June 3 is National Egg Day.
- A sitting hen turns each egg approximately 50 times daily to keep the yolk and chick from sticking to the shell.
- Each year in the United States, an average of 240 million laying hens produce 66 billion eggs.
- White egg layers are the most common layers kept on factory farms, as they have a higher egg-to-feed ratio than brown egg layers.
- The number one egg producer on factory farms is the White Leghorn.

  
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Of all the interesting things about eggs, baby chicks are the most fascinating and rewarding.

- The heaviest chicken egg on record weighed one pound and had a double yolk and shell.
- A Black Australorp hen and a Khaki Campbell duck hold the record for the most eggs laid in one calendar year: 364 eggs in 365 days.

These days, eggs aren't just used in the culinary world; they're also used by artists. After an eggshell has been blown out, artists paint or decorate it with quilling, creating a stunning, one-of-a-kind piece of art.

The most fascinating, thrilling, and rewarding aspect of eggs is that if a hen is exposed to a rooster, one egg contains everything needed to start the next generation of chickens!

Eggs are so amazing, and yet they couldn't exist without the chickens who lay them. When you pick up that freshly laid egg, say "thank you" to the extraordinary hens that laid you your own "Nature's Miracle." 

#### RESOURCES

- [www.freshways.co.uk/18-egg-citing-facts-about-eggs/](http://www.freshways.co.uk/18-egg-citing-facts-about-eggs/)
- [www.eggfarmers.ca/2017/04/eggs-in-mythology-folklore-and-belief/](http://www.eggfarmers.ca/2017/04/eggs-in-mythology-folklore-and-belief/)

**ERIN SNYDER** and her family have raised chickens and ducks for nearly two decades. She is passionate about all things poultry but is especially interested in poultry nutrition, predator protection, egg-laying disorders, and helping chickens live their best lives well into their golden years. You can follow her chicken adventures on her newly hatched Instagram page: [www.Instagram.com/TheHenHouseHygge/](http://www.Instagram.com/TheHenHouseHygge/)



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# Raising Baby Goats IN COLD WEATHER

BY KATE JOHNSON

**W**HEN BABY GOATS ARE first born, they can't handle extreme temperatures, so you may need to take a few steps to ensure their survival.

Livestock, in general, are well-designed to live outdoors in weather conditions we humans might not do well with. But, according to veterinarian and

fellow goat owner Dr. Joan Bowen, "Kids that aren't dried after birth and not bedded heavily out of the wind will freeze to death shortly after birth. Since they have such a large surface area, they lose body temperature quickly when outside their thermal neutral zone — 60 to 77 degrees Fahrenheit."

That means if your does kid during winter or early spring, you'll need to take steps to increase the kids' chances of survival.

Baby goats can tolerate cold temperatures once they're dry and well-fed, as long as they have suitable housing; but you must be prepared to assist with kidding during frigid spells. Here are several



Newborn goats lose temperature quickly when they're outside their thermal-neutral zone of 60 to 77 degrees F.

Babies in snow.

keys to success when it comes to raising baby goats in cold weather:

1. Know the doe's due date so you can try to be there when she goes into labor.
2. Provide a dry, well-bedded kidding stall that's out of the wind.
3. Be ready to intervene if you need

to warm up a cold kid or assist with drying off and feeding babies.

The first point — being there when the doe goes into labor — is easier if you're hand-breeding or artificially inseminating your does, as you'll have a pretty good idea of when she's due so you can watch closely around that date. Full-

sized dairy breeds have a gestation period of 150 days (plus or minus a few), while miniature breeds are more often 145 days. Knowing when she was bred means you'll know when to expect kids. This is trickier if you allow your does to run with a buck for extended periods during breeding season.



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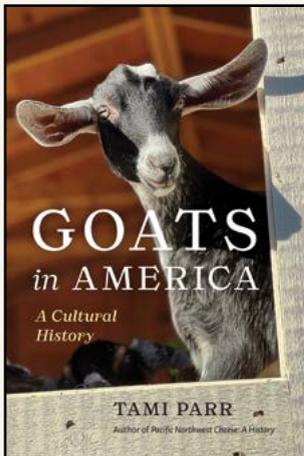
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# Goats in America

## A Cultural History



The humble goat has played a surprising and important role throughout the history of the United States. Despite this, goats are often overlooked by many Americans, even if they have strong opinions about these complex creatures. In *Goats in America* Tami Parr calls attention to these disregarded animals, uncovering the remarkable stories behind everything from goat meat and milk to goat yoga and more.

Since arriving in North America with cattle and other domesticated livestock in the sixteenth century, goats have provided people sustenance and

valuable products, including milk, meat, and mohair. But humans did not appreciate the animals, and as a result, throughout much of American history goats were persecuted as public nuisances and symbols of degenerate behavior. Nevertheless, over the centuries the tenacious goat has overcome many of these stereotypes and secured a spot in the hearts and minds of modern Americans, who love goat cheese and embrace goats as social media stars.

Examining key moments and notable developments in goat history and culture, *Goats in America* outlines the history and evolving role of goats in communities across the country, from San Francisco and New York City to rural Wisconsin and the Navajo Nation. Parr shows that the evolving reputation of goats in American society ultimately reveals more about humans than it does about goats themselves. So, the next time you are enjoying your favorite goat cheese, take a moment to consider the history and role of goats within American culture. **Item #12718, \$24.95**

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It's also beneficial if you have a security camera in your barn when you're kidding and raising baby goats in cold weather. You can watch the doe on the camera monitor, from the comfort of your home or while away, rather than making multiple trips out to the barn. And once the kids are born, you can keep an eye on them the first few days to be sure they're eating well and staying active.

The second point — having a warm stall — can be trickier. A protected indoor location with lots of dry straw or shavings is crucial, while heat lamps are a much-debated topic. Heat lamps start many barn fires every winter and can be extremely dangerous and destructive. I prefer not to use them unless I'm right there; if I'm there, I probably won't need one! But many goat owners use certain types, like the Premier1 Prima Heat lamp and Sweeter Heater infrared radiant heaters, with good results. Use cautiously, even when properly and securely installed and kept away from flammable objects and bedding.

Keep a close eye on things, intervene when needed to help dry off kids, and temporarily

If you find a cold kid, help warm it up before feeding. A newborn baby goat's body temperature needs to be between 101 and 103 degrees F for it to digest milk properly.

move kids indoors if the temperature is frigid. But if you use a heater, be sure the kids and doe can move away from it if they overheat.

The final point is to prepare in case your kids need assistance. If kidding happens on a freezing day, it's imperative to dry babies off and get them nursing (or bottle-fed colostrum) quickly. If you find a cold kid, either right after birth or within the first few days while it struggles to maintain body temperature, help warm it up before feeding. A newborn baby goat's body temperature needs to be between 101 and 103 degrees F for it to digest milk properly. Try one of these tricks to warm it up quickly:

- Use a hairdryer to dry it quickly or warm it up, but be careful not to get too close and burn the kid.
- Use a heat box — a big plastic box with a lid that has a hole cut at the top of one side to stick a hairdryer into can quickly warm the inside of the box and the baby goat within.
- Use a very warm water bath — I prefer to put the baby inside a plastic bag, keeping its head out, of course, and then dunk that wrapped body into a bucket of warm water. This way, I can quickly elevate the body temperature without getting the baby wet and leading to it getting cold again once out of the bath.

Once you restore body temperature, you can attempt to feed the baby. Keep a close eye on things, as you may need to repeat this warming process several times in the case of a weak, hypothermic kid.

With all these precautions, one may wonder why anyone would want to raise baby goats in cold temperatures. There are many good reasons, from getting a head

start on meat or show season growth to having kids that'll be mature enough to breed in the first year, or it may just be that this fits your schedule best. Of course, if you live in a place like I do here in Colorado, you could raise baby goats in cold weather even if you plan for spring kids, as we can have snow up until June! Just be prepared and ready to help if needed; your kids will survive and most likely thrive. 🐐

**KATE JOHNSON** raises dairy goats at [www.BriarGateFarm.com](http://www.BriarGateFarm.com), runs a cheesemaking school at [www.TheArtOfCheese.com](http://www.TheArtOfCheese.com) and is an active volunteer with the Boulder County 4-H program. She's also a member of the Colorado Dairy Goat Association.

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# *Plants and Forage Toxic to Grazing Pigs*

BY JODI CRONAUER, WHITE BISON FARM

**C**LIMATES, GROWING SEASON, AND topography vary across the United States. This means that grazing pigs can come into contact with a vast variety of different grasses, legumes, plants, nuts, trees, berries, and forage throughout the seasons. Knowing what's in your pastures and what's toxic when ingested will help prevent illness or even death in your pigs.

This article will touch on a few of the most commonly found toxic plants, but it's highly

recommended that each owner does their own diligence and know what's found in their pastures and what may be toxic if ingested.

**1. Pokeweed:** This can be found most often in recently cleared land and along fence rows. Pokeweed contains saponins, which are toxic to all animals. Saponins can be found in every part of the plant, making the entire plant toxic to pigs. Some signs and symptoms include diarrhea, vomiting, salivation, and abdominal pain. Mild toxicity can usually resolve itself, but excessive consumption can result in anemia, heart rate changes, and possibly death.

**2. Bracken (ferns):** These are found in wooded areas and contain a toxin that induces a vitamin B deficiency. They can be fatal if ingested in large quantities, but most pigs will suffer only mild discomfort, which can be resolved with ample fresh drinking water and other grasses/food to consume.

**3. Ragwort:** This is located across the entire United States and contains alkaloids, which can lead to liver failure. Ragwort should be removed from all pasture areas.

**4. Nightshade:** This highly toxic plant is found across the United States. Pigs that consume nightshade will most commonly present with convulsions, leading to death.

**5. Pigweed:** Found across the United States, pigweed is extremely toxic when consumed and most commonly leads to death. Some initial symptoms are trembling, weakness, knuckling, and hind leg paralysis.

**6. Hemlock:** This is common in pastureland across the United States and is highly toxic. The severity will be determined by the quantity consumed. Acute symptoms can include nervousness, trembling, muscle weakness, incoordination, salivation, or slobbering. While acute disease is the most common, if a sow ingests the hemlock for extended periods of time in small quantities during gestation, it can lead to bone deformation and skeletal defects in the piglets.

**7. Wilted Cherry Leaves:** As pigs eat the wilted and dying cherry leaves that fall off the trees in autumn, they'll consume cyanide that is present in them and this cyanide will be released into their bloodstream. Mild cyanide poisoning can be treated if caught early and if insignificant amounts were consumed, but, unfortunately, when consumed in substantial amounts, rapid death is a common outcome. Some

signs include kicking/paddling of legs while lying on the ground, increased respiration, and convulsion.

**8. Acorns:** Acorns contain tannin and can be fatal if consumed in extremely large quantities. The primary sign of tannin toxicity is diarrhea and abdominal pain, which can be resolved by eliminating acorns from the diet. The main concern is with pregnant sows/gilts. When pregnant sows/gilts consume large quantities of acorns, the tannins have been found to cause higher abortion rates.

Pasture maintenance is an important part of animal husbandry. Knowing what plants and legumes are found both in your pastures and along the fence rows is essential. Many of these weeds or plants may be present in your pastures throughout the year and pigs won't touch them during the growing season, but as autumn arrives and there's less availability of grasses and other forage, you'll often see pigs trying out plants they typically avoid. For this reason, a lot of toxic symptoms will occur in autumn. Doing periodic checks of your pastures and being aware of what's growing there is the best



Acorns.



Bracken (ferns).



# Raising Pigs on Green Pastures

## Raising Pigs on Green Pastures



Jodi Cronauer

*Raising Pigs on Green Pastures* covers the most asked-about topics such as farrowing, watering, wintering, marketing, and the importance of minerals, types of grasses, and sales. Everyone raising pigs on green pastures will benefit from this book, and it isn't specific to one breed but instead

encompasses all of the breeds that can be grown outdoors on fields. The author hopes this book guides many people interested in raising pigs outside on green pastures. **Item #11435, \$27.00**

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way to ensure the overall health of your grazing pigs.

One additional item of concern is hay. When the grasses and legumes grow freely in the pastures, the pigs will be less inclined to eat the toxic plants, but once they're dried and mixed into hay, these toxic plants may be ingested without you even being aware they're present. For this reason, it's important to either know what grasses are in your pastures prior to cutting and making hay or to consult with the farmer making your hay and learn what potential toxic plants or legumes may be present in the hay you'll be feeding your pigs.

Whether you've been raising grazing pigs for years or are just starting with them, this article should help keep you aware of your pastures, your pigs' overall health, and what to keep an eye out for when walking your pastures. Your livestock is dependent on you for all their health needs, so be aware, notice any changes in behavior or demeanor, and listen when they're telling you something! Signs and symptoms may not always be severe, but if you're attentive to your pigs, you may be able to detect an issue before it becomes serious! 🐷

**JODI CRONAUER** lives in Wisconsin with her husband and her three sons. They raise Idaho Pasture pigs, Kunekune pigs, and American bison as well as Gypsy Vanner horses. The meat from their pigs and bison is rich in essential nutrients because they eat grass as their primary diet. Jodi is the author of *Raising Pigs on Green Pastures* (Dorrance Publishing, 2021). <https://shop.iamcountryside.com/products/raising-pigs-on-green-pastures>.



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# Hearty PASTAS

ARTICLE AND PHOTOS BY RITA HEIKENFELD

**H**ERE WE ARE, SMACK dab in the middle of winter on our little patch of heaven in southwestern Ohio. There's a well-worn truism about Ohio weather. You don't like it? No worries, it may change on a dime. And that's true, especially in winter.

This is the time of year when pasta shows up often. Tomatoes canned during the height of summer make their appearance in hearty pasta sauces, such as drop meatballs in

homemade sauce that includes smashed garlic. The meatballs and sauce can be served as an appetizer or as a main course over pasta.

My friend's (Annie) lasagna rollups look fancy but are easy and worth the time to make. The rollups encase two sauces: meat and cheese.

I hope you like my family's fettuccine Alfredo. Such a simple, yet elegant buttery cream sauce. Yes, you can make this restaurant classic at home.

## DROP MEATBALLS WITH SMASHED GARLIC TOMATO SAUCE

The meatballs use dried garlic, which mixes in easily.

Feel free to sub in oyster or Ritz-type crackers.

Use a light hand when mixing and forming meatballs to keep them tender during cooking.

The sauce contains smashed fresh garlic. Smashed garlic releases less allicin, which results in a balanced, yummy sauce.

### MEATBALL INGREDIENTS

20 to 22 saltine cracker squares (I used salted, enough to make about 1 cup crushed saltines)

1 cup milk — I used whole milk

2 pounds ground beef — I used ground round (you can use 85 to 90% lean beef)

1 cup grated Parmesan cheese, plus extra to sprinkle on top

1 teaspoon granulated garlic or garlic powder

1 teaspoon dried oregano

½ to ¾ teaspoon salt

½ teaspoon pepper

### SAUCE INGREDIENTS

⅓ cup olive oil

8 to 10 garlic cloves, peeled and smashed with dull side of chef knife

¼ to ½ teaspoon red pepper flakes

2 cans, 28 ounces each, crushed tomatoes

1 teaspoon salt for sauce, plus extra if needed

¼ teaspoon pepper, plus extra if needed

Fresh slivered basil, to taste

### MEATBALL DIRECTIONS

Crush saltines very fine. I do this by putting them in a plastic bag and crushing with a rolling pin.

Put saltines in a bowl and pour milk over. Let sit until they soften enough to mash with a fork to a smooth paste. This takes about 5 minutes.

Add beef, cheese, garlic, oregano, salt, and pepper, and mix with hands until thoroughly combined. Don't overmix or meatballs tend to toughen.

Using a ¼ cup measure, make about 24 meatballs, rolling between wet hands to form balls.

If you want to brown them on one side, do that by lightly oiling a large, heavy pan, and cook until browned. They won't be cooked.

You can use the same pan for the sauce, but set meatballs aside while making sauce.

### SAUCE DIRECTIONS

Preheat oven to 375 degrees F.

Pour the olive oil into a large, heavy pan and stir in smashed garlic.

Turn heat to low, and cook until garlic is soft and just golden, about 5 minutes or so, stirring occasionally. Don't let it burn.

Add red pepper flakes and cook just until fragrant, about a minute.

Stir in tomatoes and salt and pepper.

Carefully drop meatballs into sauce. Increase heat to medium and bring to a simmer.

Cover and bake until meatballs are cooked through, 35 to 40 minutes or so.

Uncover and let cool a bit while pasta is cooking.

Stir in basil, then add more seasonings if you like.

Serve with a sprinkling of Parmesan.

*Meatballs and sauce make enough for 1½ pounds pasta.*

## Swap It Out

No fresh basil? Stir in a teaspoon or so of dried basil when adding tomatoes.

## Meatball Taste Tip

Make a small one and microwave it. That way, you can tell if more seasoning is needed.





## ANNIE'S LASAGNA ROLLUPS

Annie uses a springform pan. A deep baking pan will work.

### NOODLE INGREDIENTS

1 box lasagna noodles

### MEAT SAUCE INGREDIENTS

½ pound ground beef

½ pound pork sausage

1 tablespoon dried parsley or palmful fresh, minced

1 tablespoon dried basil or palmful fresh, minced

15-ounce can crushed tomatoes

12 ounces tomato paste

Salt and pepper, to taste

 **MUST HAVE!**

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## CHEESE SAUCE INGREDIENTS

3 cups cottage cheese  
¼ cup grated Parmesan cheese  
2 eggs  
1½ teaspoons salt  
½ teaspoon pepper

## TOPPING

Mozzarella cheese, shredded —  
as much as you like.

## NOODLES INSTRUCTIONS

Cook noodles until al dente, since they'll cook more in the oven. Drain and then fill the pot with cold water. Put noodles back in. This stops the cooking process and keeps noodles from sticking.

Cut each in half.

## MEAT SAUCE INSTRUCTIONS

Cook beef and sausage on medium heat. Drain.

Stir in remaining ingredients and cook until simmering.

Cook about 10 more minutes.

## CHEESE SAUCE INSTRUCTIONS

Mix everything together well, making sure cottage cheese is mashed smooth so it fits onto noodles.

## INSTRUCTIONS ASSEMBLY

Preheat oven to 350 F.

Spread each noodle half with a teaspoon or so of meat sauce, leaving a bit uncovered on the end, then top with ½ teaspoon or so of cheese sauce.

Roll up and place upright in pan. Continue until you can't fit any more rolls in pan.

Cover with mozzarella and place foil over.

Bake about 25 minutes.

Remove foil and bake 5 to 10 minutes.

Sprinkle more mozzarella on, let rollups sit for a few minutes, then remove outside ring and serve.



## Tip

Make meat and cheese mixtures ahead. Bring to room temperature before proceeding.

## MY FAMILY'S FETTUCCINE ALFREDO

Go easy on garlic powder. It should be a nuance, not a shout.

## INGREDIENTS

12 to 16 ounces fettuccine  
8 ounces butter  
12 ounces whipping or heavy cream, unwhipped  
1/8 teaspoon garlic powder (optional)  
1½ cups grated Parmesan cheese, plus extra for garnish  
Freshly ground black pepper

## INSTRUCTIONS

Cook fettuccine according to package directions. When almost done, start making sauce.

Cut butter into chunks and add to large skillet over low heat.

Stir in garlic powder. Turn heat to medium and add whipping cream. Bring to a boil, whisking as you go, then reduce to a simmer. Cook a few minutes to thicken a bit.

Gradually stir in cheese and whisk for a couple of minutes, until cheese melts.

Add pepper.

Start adding drained pasta to sauce, stirring to coat.

Now if you want an extra creamy sauce, add most, but not all, of the pasta. Up to you.

Serve with a shower of cheese.

## ADD THIS!

Steamed broccoli florets, salmon, lightly steamed peas, chunks of cooked or grilled chicken, steamed asparagus — all of these can be added to the sauce. 🌱

**RITA HEIKENFELD** comes from a family of wise women in tune with nature. She's a certified modern herbalist, culinary educator, author, and national media personality. Most importantly, she's a wife, mom, and grandma. Rita lives on a little patch of heaven overlooking the East Fork River in Clermont County, Ohio. She's a former adjunct professor at the University of Cincinnati, where she developed a comprehensive herbal course.

*AboutEating.com* column:  
rita@communitypress.com

# An Adaptive Species

## RURAL AND URBAN COYOTES

BY DR. ED BROTA



**A**S ONE OF NORTH AMERICA'S MOST adaptive species, rural and urban coyotes have beaten the odds at every turn.

In the old cartoons, the Road Runner always outwitted the hapless Wile E. Coyote. In reality, though, coyotes are far from hapless. In fact, despite all the efforts to eradicate them, coyotes (*Canis latrans*) have successfully infiltrated just about every corner of North America.

Prior to the 1900s, coyotes were found primarily in the prairie and desert regions of the western United States and Mexico. Native to North America, they thrived in rugged conditions, including dry grasslands, semiarid sagebrush, and even in deserts. Now, their range extends from Alaska (near the Arctic Circle), through western and southern Canada, throughout the 48 contiguous states, southward through Mexico, and into Central America, as far south as Panama. This rapid expansion is believed to have been spurred by the decline of larger predator populations (mainly wolves, cougars, and jaguars), which eliminated predation threats and food competition for coyotes; and deforestation efforts, which created suitable habitat in areas previously unoccupied by the species.

As coyotes settled into new areas, it became apparent how adaptable the animals are, and it's amazing how many different climates and habitats they now occupy. The species can be found in the tundra and boreal forests of the subarctic regions and areas of high elevations, as well as deciduous forests and grasslands, including chaparrals. They're also in desert and semiarid regions, and even in temperate rain forests. And coyotes don't just live in the wilderness; they've infiltrated farmlands, suburbs, and even urban areas as well. Many major cities have thriving coyote populations, including Los Angeles, Chicago, Atlanta, and New York City. At least one coyote has even been spotted in Central Park!

### Clever Canines

Coyotes are members of the Canidae family, which includes wolves, dogs, foxes, and jackals. They weigh between 20 and 50 pounds (about the same as a medium-sized dog), and measure about 3 feet long (not counting their tails). They're bigger than foxes, but smaller than wolves. Their coat color varies, and can be gray, white, tan, brown, or reddish. Coyotes have heightened senses of hearing, sight, and smell, and are very intelligent. Their most distinctive

feature, however, is their howl, which can be quite unnerving to those unfamiliar with the sound.

In captivity, coyotes can live 13 to 15 years, but in the wild, their average life expectancy is less than 5 years. They breed in spring, and a litter typically contains between 4 and 7 pups. Coyotes are monogamous, and both the male and female will take care of their young. Currently, 19 known coyote subspecies exist, which is a key factor in the species' ability to adapt to different environments. In addition, coyotes have also interbred with gray and red wolves, and even domesticated dogs on occasion.

Like most canines, coyotes are territorial and will mark their territory with urine. Their home territories can vary greatly in size, although rural packs typically have larger stomping grounds than urban coyotes do. Territories may be occupied by single coyotes, mated pairs, or packs. Coyotes forage for food primarily at night, especially in developed areas, but they're not fully nocturnal, and they may be spotted during the daytime.

Another factor that's contributed to the species' resilience is that they're omnivorous and can adapt their diet to the food sources available. Coyotes primarily eat meat, but will also eat many other things, including grass, fruit, and insects. Their primary prey consists of small mammals, such as

rodents. In areas where coyotes hunt in packs, they may attack larger prey, including deer and elk.

### Urban Coyotes

Rural coyote populations have gained a bad reputation (especially in the West, where they're known to prey on livestock herds), but urban coyotes receive the most attention, because it's unexpected to see larger predators in heavily populated areas. In fact, there are a number of research groups that monitor urban coyotes, including the Atlanta Coyote Project and the Urban Coyote Research Project.

In urban environments, emboldened coyotes may go through trash to find food, or chow down on pet food left outdoors. Even in urban areas, though, their primary food source is still small mammals. In many cases, coyotes are suspected to be a driving force behind rodent population control. Coyotes can also significantly slow the growth of urban geese and deer populations.

### Coyote-Human Interactions

Despite coyotes' urban invasion, the number of human-coyote encounters is actually quite low. Urban coyotes are adept at staying away from people, and they're much more nocturnal in city settings than they are in rural areas. If a coyote does

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threaten a human (which is rare), it may be sick, or may have been fed by people in the past. In fact, North America has only two fatal coyote attacks on record: one in California in 1981, and one in Nova Scotia in 2009. That being said, coyotes are predators and are always looking for food. If they see a dog, or even a small child, they may consider them prey. If you encounter an aggressive coyote, stand your ground—never run away. Running displays fear, which encourages a coyote’s predatory instincts. (Coyotes can run at speeds up to 40 mph, so there’s no chance you’d outrun one.) Instead of running, try to scare a coyote off by making a lot of noise and doing what you can to appear large and formidable. Most predators won’t waste time and energy on something big enough to put up a fight.

Even though coyotes don’t pose much of a threat to humans, they can be a nuisance and a threat to pets. If coyotes are an issue in your area, practice responsible coexistence and don’t leave open trash or pet food outside, and never feed a coyote. Don’t walk your pet without a short leash, and keep pets inside if you don’t have a fence that’s at least 8-feet tall.

**Resilient Wildlife**

Authorities have worked aggressively to eliminate problematic coyote populations throughout the country, but the efforts have largely been unsuccessful. Following eradication, remaining coyotes either increased the size of each litter, thus replenishing the existing population, or coyotes from neighboring lands migrated in. Live capture and relocation methods are also ineffective, as coyotes typically don’t

resettle, and will instead try to get back to their home territory, which often results in them being hit by cars or killed by hunters.

Given coyotes’ knack for survival, it’s no surprise that their population numbers have skyrocketed, although no one knows exactly how many of them are alive today. Wildlife Services (a program of the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service) kills approximately 80,000 coyotes a year, mostly in the western states to protect livestock. Additionally, hundreds of thousands are killed annually for their pelts or by private individuals and not reported. In fact, it’s estimated that more than 400,000 coyotes are killed by humans every year. This staggering number hasn’t slowed the species down, however, and it’s generally believed that the coyote population is at an all-time high. In fact, research indicates that properly executed coexistence might be more successful than lethal control methods for managing coyote populations.

Dr. Stanley D. Gehrt, professor and wildlife extension specialist at The Ohio State University and principle investigator of the Cook County Coyote Project, sums the situation up this way: “Coyotes are unique in that they thrive in the face of extreme persecution, to the point that they’ve set up residence in the backyards of the most dangerous animal to them: us. Not many wildlife species have this track record, if any.”

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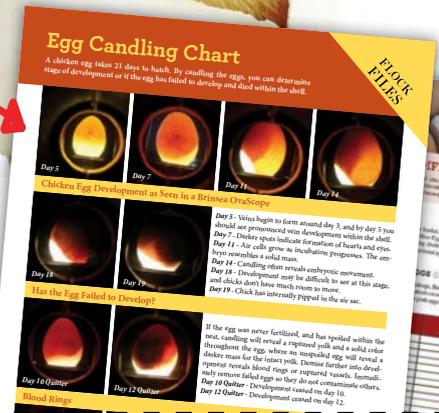
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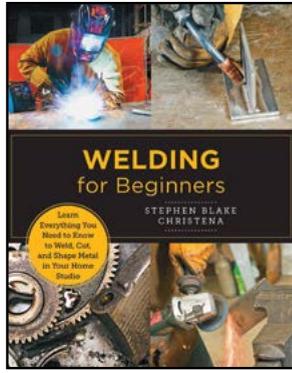
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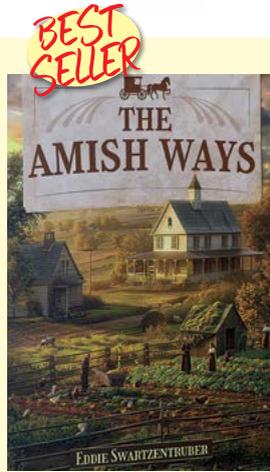
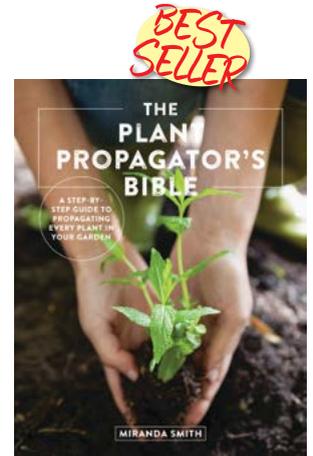
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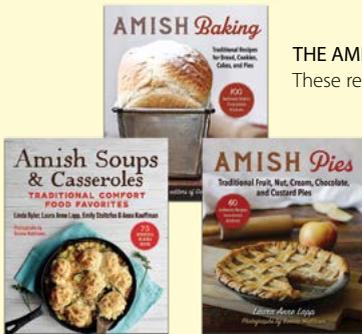


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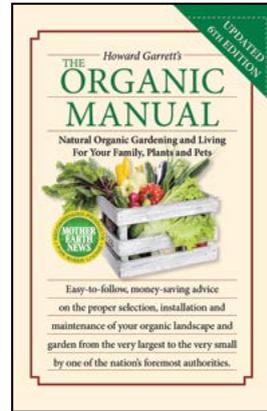
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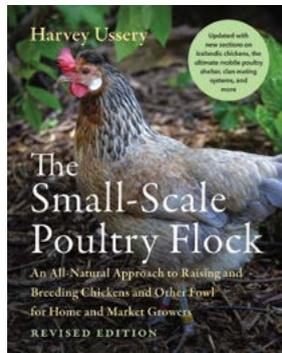


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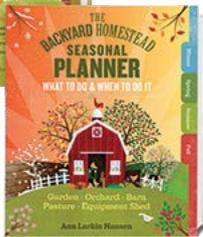


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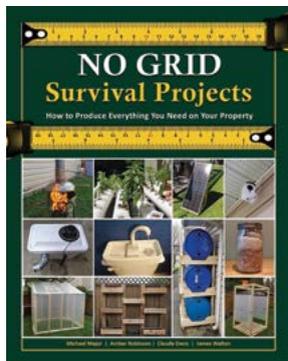
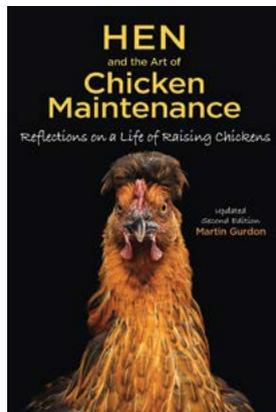
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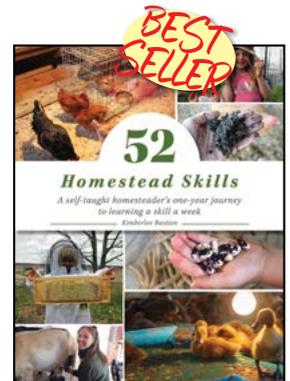
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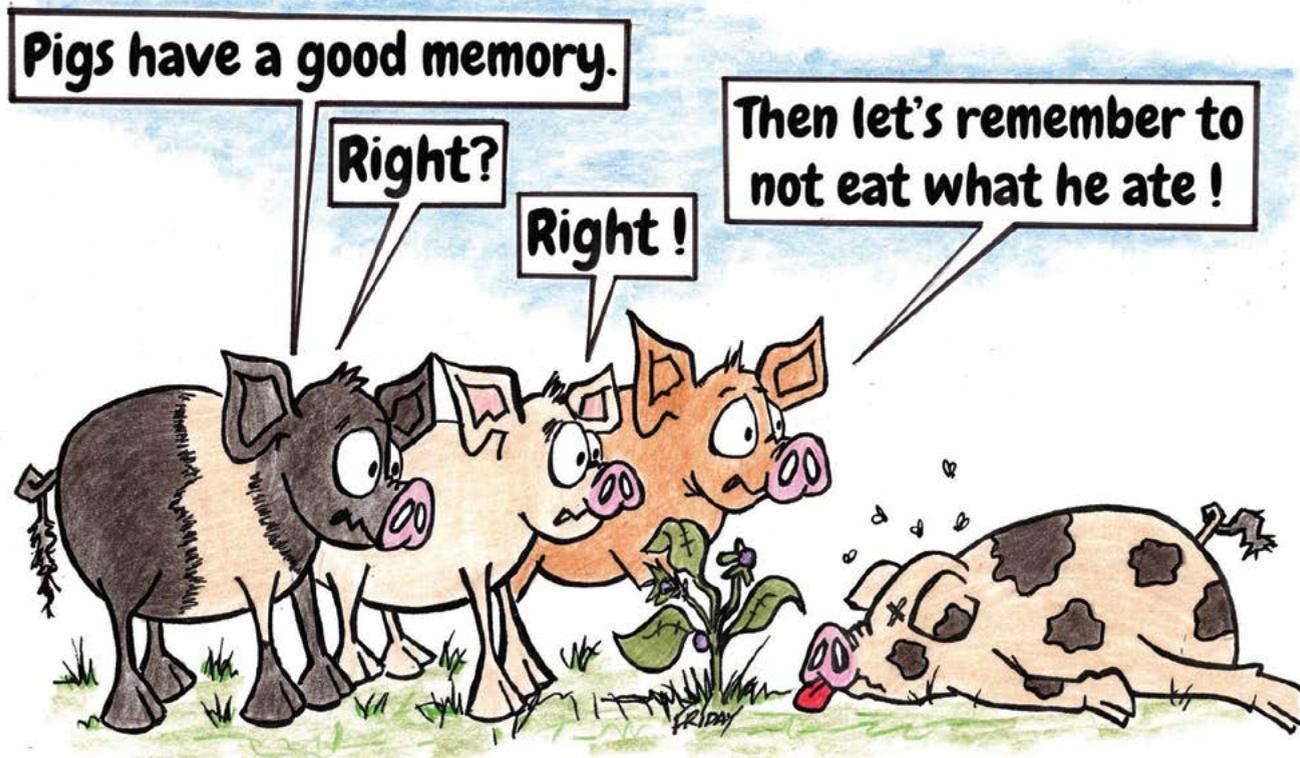
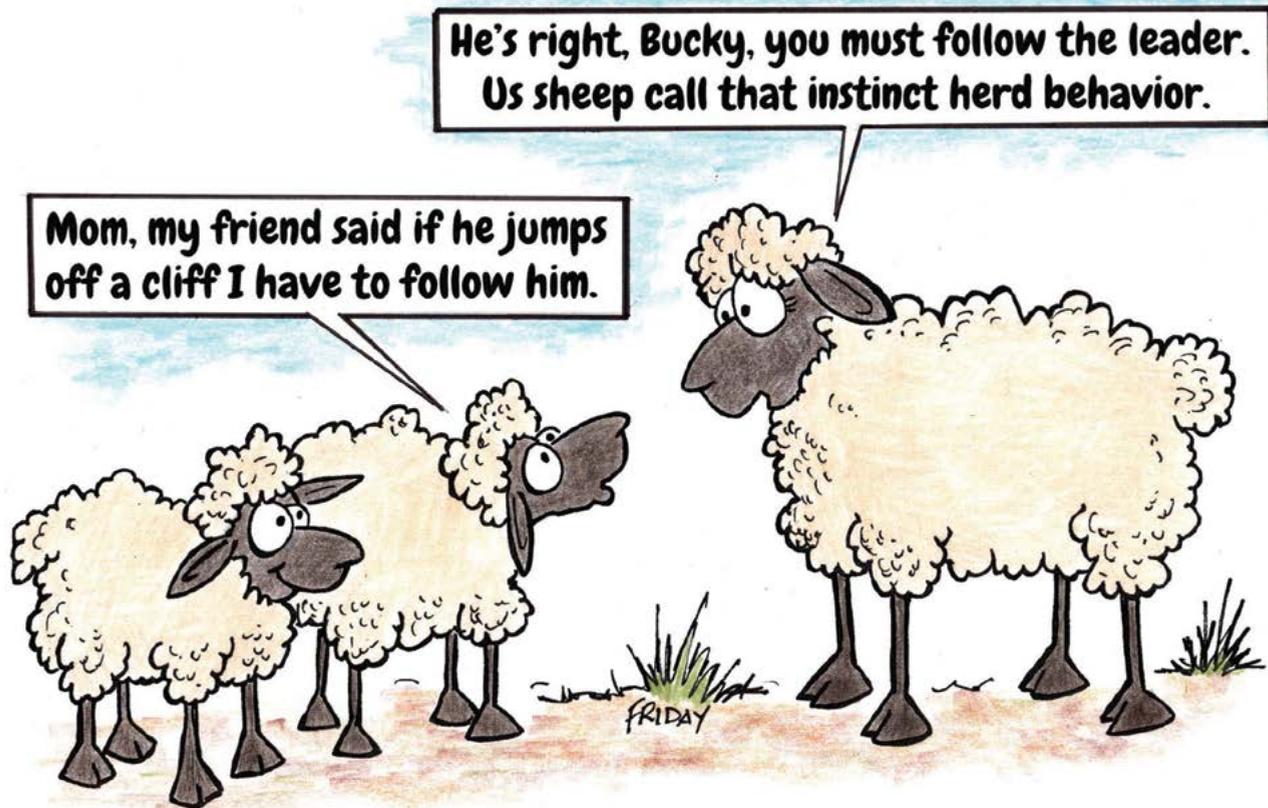
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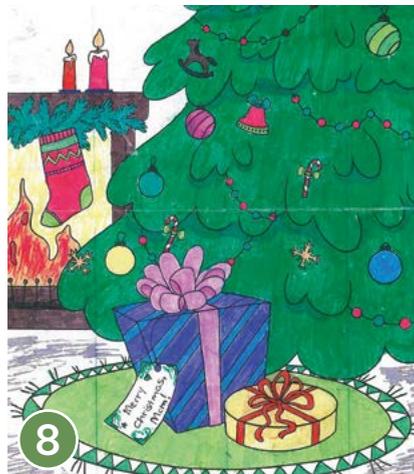
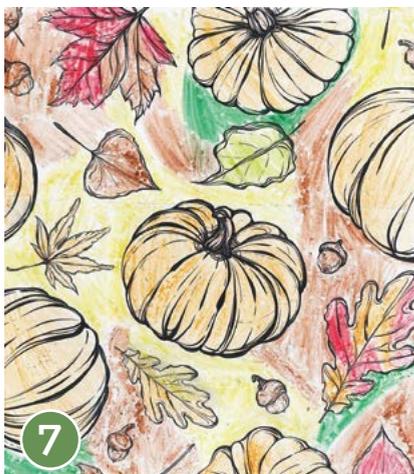
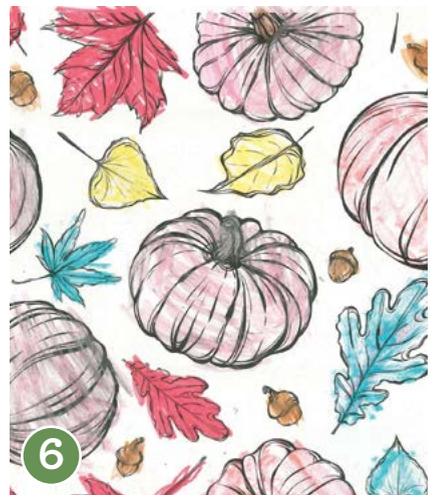
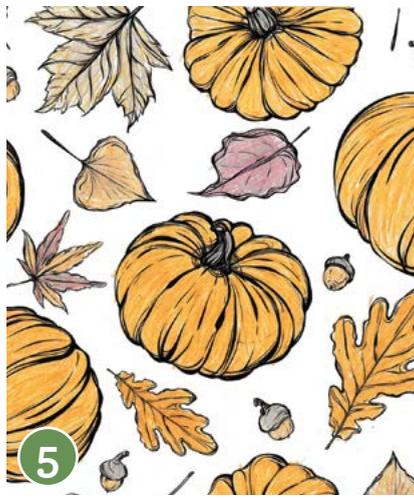
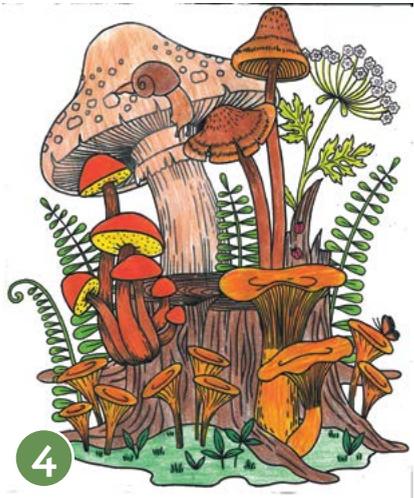
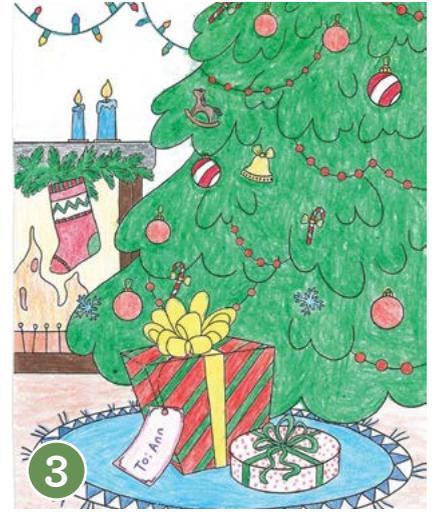
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# A colorful selection of art submitted by our readers!

Color the picture on the previous page and your picture could be published in the next issue!



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**4.** Joye Stauffer, age 14; **5.** Mackenzie Gray; **6.** Renee Martin;  
**7.** Sarah G., age 10; **8.** Sharon Lambright; **9.** Simeon Stauffer, age 5

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**1.** Mugsy, our miniature horse, is almost 30 years old. He taught each of our six kids how to ride. 📷 **Ana Skemp**

**2.** The eagle has landed. 📷 **Theresa Faude**



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# How to Use Permaculture to **Grow Abundantly** at Home

Having been there and done that, Nicky Schauder offers her insights in *Permaculture Gardening for Everyone* with the intention of making the concept user-friendly for any level of gardening skill.

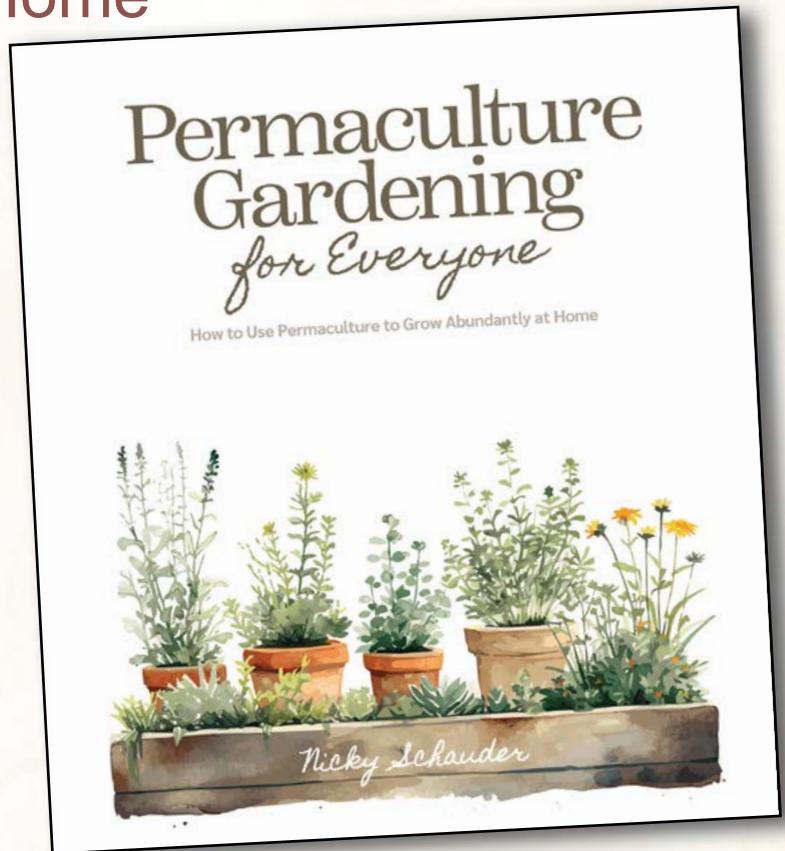
After two of their children were diagnosed with severe allergies, Nicky and her husband, Dave, started researching ways to combat the problem. They decided to grow their own food.

It took a while, but the couple were able to overcome the obstacles in their path, not only using the permaculture techniques they learned to increase the harvest from their own gardens, but to offer assistance to others wanting to walk the same path. With this book, Nicky has combined the couple's lessons in permaculture with personal insights, photos, and illustrations to help anyone facing similar roadblocks to better health.

She starts by defining permaculture, then goes on to offer advice on designing a garden, choosing your plants, starting your seeds, designing a garden plot, transplanting the seedlings, maintaining your plot, and harvesting the bounty.

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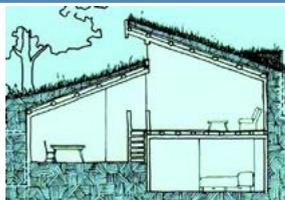
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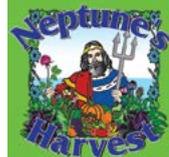
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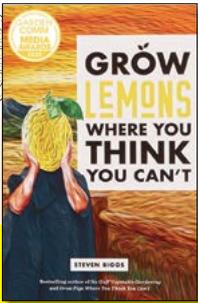
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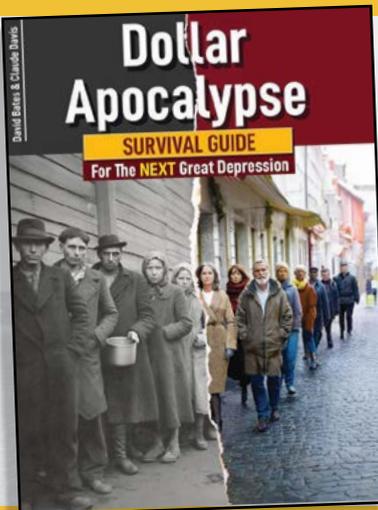


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